Published in final edited form as:

Anal Soc Issues Public Policy. 2015 December ; 15(1): 357–381. doi:10.1111/asap.12098.

Perceived Discrimination and Social Relationship Functioning among Sexual Minorities: Structural Stigma as a Moderating Factor

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Abstract

Work on structural stigma shows how public policy affects health outcomes for members of devalued groups, including sexual minorities. In the current research, structural stigma is proposed as a moderating variable that strengthens deleterious associations between perceived discrimination and social relationship functioning. Hypotheses were tested in two cross-sectional studies, including both online (N = 214; Study 1) and community (N = 94; Study 2) samples of sexual minority men and women residing throughout the United States. Structural stigma was coded from policy related to sexual minority rights within each state. Confirming hypotheses, support for the moderating role of structural stigma was found via multilevel models across studies. Specifically, associations between perceived discrimination and friendship strain, loneliness (Study 1) and familial strain (Study 2) were increased for those who resided in states with greater levels of structural stigma and attenuated for those who resided in states with lesser levels. In Study 1, these results were robust to state-level covariates (conservatism and religiosity), but conservatism emerged as a significant moderator in lieu of structural stigma in Study 2. Results are discussed in the context of the shifting landscape of public policy related to sexual minority rights within the United States.

A growing body of research is uncovering the deleterious health effects of structural stigma, defined as “community-prescribed actions which have an intentionally differential and negative impact on members of subordinate groups” (Feagin & Feagin, 1986, p. 30). A substantial portion of this work has focused on racial and ethnic minorities (e.g., Gee, 2002; Williams, 1999) as well as individuals with serious mental illnesses (Corrigan, Markowitz, & Watson, 2004), but researchers have also begun to explore the effects of structural stigma on sexual minorities’ health and well-being (Hatzenbuehler, 2010, 2014). An important finding that has emerged in research on structural stigma is that in addition to direct effects (e.g., Hatzenbuehler et al., 2014; Riggle, Rostosky, & Horne, 2010), structural stigma often moderates associations between stressors and various health and well-being outcomes (e.g., Goldberg & Smith, 2011; Hatzenbuehler & McLaughlin, 2014; Pachankis, Hatzenbuehler, & Starks, 2014). It has generally been found that individuals experiencing greater levels of stress tend to evidence impaired health when simultaneously exposed to greater levels of structural stigma.

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Work in this vein has focused on a number of different types of stressors, including rejection sensitivity (Pachankis et al., 2014) and internalized homophobia (Goldberg & Smith, 2011), in conjunction with a number of different types of health and outcomes, including depressive symptomatology (Goldberg & Smith, 2011) and cortisol reactivity (Hatzenbuehler & McLaughlin, 2014). Yet an important component of overall health, social relationship functioning, has been primarily neglected in this literature. Social relationship functioning is a critical determinant of both psychological and physical health (Berkman, 1995; Umberson & Montez, 2010). According to the preamble of the constitution of the World Health Organization (WHO), social well-being represents one of three fundamental facets of health (in addition to physical and mental well-being; WHO, 1946). Therefore, greater attention to the effects of stressors on social relationship functioning is critical for researchers interested in population health.

While some past research has begun to show that perceived discrimination might be inversely associated with social relationship functioning among sexual minorities (e.g., Doyle & Molix, 2014a; Frost & Meyer, 2009; Kuyper & Fokkema, 2010), researchers have tended to overlook the importance of the social context in which sexual minorities are embedded, embodied by the public policy and institutional systems that surround them. To our knowledge, no work to date has examined whether structural stigma moderates the association between perceived discrimination (a common stressor for sexual minorities) and social relationship functioning. Here, we suggest that the association between perceived discrimination and social relationship functioning might be strengthened for sexual minorities exposed to relatively greater levels of structural stigma and attenuated for those exposed to relatively lesser levels of structural stigma.

Public Policy as Structural Stigma for Sexual Minorities

Within the United States, attitudes toward sexual minorities and civil rights issues related to sexual orientation vary greatly from region to region and from state to state (Barth & Overby, 2003; McCann, 2011). For example, a recent poll regarding public acceptance of gay marriage found approval ratings of 62% for the Northeast, 54% for the West Coast, 46% for the Midwest, and 35% for the South (Pew Research Center, 2012). These attitudinal differences are often mirrored in extant public policy regarding sexual minority rights between the states (e.g., hospital visitation rights, adoption laws, and hate crime legislation). Capitalizing on variations in attitudes and policy between states, recent studies have developed measures utilizing geographic location as a proxy for exposure to structural stigma (e.g., Hatzenbuehler & McLaughlin, 2014; Lick, Tornello, Riskind, Schmidt, & Patterson, 2012; Oswald, Cuthbertson, Lazarevic, & Goldberg, 2010).

Lax and Phillips (2009) investigated responsiveness of state-level public policy regarding sexual minority rights and showed that, with some exceptions, public policy is generally responsive to, and therefore reflective of, predominant public attitudes. Researchers have also demonstrated that state-wide adoption of discriminatory public policy targeting sexual minorities is driven, at least in part, by the influence of interest organizations (Soule, 2004). Public policy targeting sexual minorities may therefore be said to represent a community-prescribed action.

In keeping with Feagin and Feagin's (1986) definition of structural stigma, public policy also has the ability to negatively and differentially affect sexual minorities and, specifically, their health and well-being. Results from studies utilizing such measures have shown that structural stigma is predictive of impaired health and well-being for sexual minorities. For example, Hatzenbuehler et al. (2009) analyzed data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) and demonstrated that living in states with fewer policies protecting sexual minorities against hate crimes and employment discrimination is associated with increased risk of generalized anxiety disorder, posttraumatic stress disorder, dysthymia, and psychiatric comorbidity among sexual minority men and women.

In addition to the absence of protective policy, research has also demonstrated that the presence of discriminatory policy negatively affects health and well-being for sexual minority men and women. In another study utilizing longitudinal data from the NESARC (Hatzenbuehler, McLaughlin, Keyes, & Hasin, 2010), sexual minorities living in states that passed constitutional amendments banning same-sex marriage evidenced significant increases in rates of mood disorders, generalized anxiety disorder, substance use disorders, and psychiatric comorbidity. In contrast, these rates did not change for sexual minorities living in states that did not pass such amendments. Such findings suggest that public policy may similarly convey devaluation to sexual minorities via presence or absence depending upon whether it is discriminatory or protective (Hatzenbuehler, 2010).

Perceived Discrimination and Sexual Minority Health and Well-Being

While public policy operates at a structural level, sexual minorities also regularly confront interpersonal forms of prejudice and discrimination (Swim, Pearson, & Johnston, 2007). Past work has demonstrated that exposure to interpersonal discrimination is also associated with impaired health and well-being for members of devalued social groups (Paradies, 2006; Pascoe & Richman, 2009; Williams & Mohammed, 2009), including sexual minorities (Hatzenbuehler, 2009; Lick, Durso, & Johnson, 2013; Meyer, 2003b). For example, data from a large probabilistic national sample involved in the Midlife in the United States Study (MIDUS) revealed associations between perceived discrimination and psychiatric morbidity, including depression and anxiety, among sexual minorities (Mays & Cochran, 2001). Discriminatory events have also been found to be associated with physical health problems, including flu, hypertension, and cancer, in a probabilistic sample of sexual minority men and women living in New York City (Frost, Lehavot, & Meyer, 2015). Explanations for such findings have often centered on the stress engendered by prejudice and discrimination (Meyer, 2003b; Miller & Kaiser, 2001).

In addition to psychological and physical health outcomes, stressors have been shown to be capable of negatively affecting social relationship outcomes (McCubbin & Patterson, 1983; Randall & Bodenmann, 2009). Drawing upon this line of thought, some scholars have posited that exposure to prejudice and discrimination may lead to impaired social relationship functioning for members of devalued groups (e.g., Doyle & Molix, 2014c; Trail, Goff, Bradbury, & Karney, 2012). Among sexual minorities, work on this topic has tended to focus on romantic relationship functioning (e.g., Doyle & Molix, 2014a; Kamen, Burns,

& Beach, 2011; Otis, Rostosky, Riggle, & Hamrin, 2006), but other forms of social relationships are certainly important as well. Of note, both social relationship strain (Brooks & Dunkel Schetter, 2011), including with family and friends, and loneliness (Hawkley & Cacioppo, 2010) have been shown to be closely associated with overall health and well-being. Confirming that exposure to prejudice and discrimination may harm social relationships for sexual minorities, Kuyper and Fokkema (2010) found that perceived discrimination was associated with greater levels of loneliness among sexual minority older adults in the Netherlands (Kuyper & Fokkema, 2010). Although more interpersonal connections were found to be protective in this study, perceived discrimination had an effect on loneliness above and beyond the objective presence of social relationships.

Structural Stigma as a Moderating Factor

An important distinction has been made in the literature between objective and subjective assessments of prejudice and discrimination (Meyer, 2003a; Williams & Mohammed, 2009). Subjective assessments, often referred to as perceived discrimination, capture experiences of which individuals are cognizant and attribute to their devalued identities (Meyer, 2003a), and are also willing to self-report (Krieger, 2012; Krieger et al., 2011). However, members of devalued groups may be motivated to deny or minimize experiences of prejudice and discrimination for a number of reasons (Feldman Barrett & Swim, 1998; Major & Sawyer, 2009). Additionally, different individual characteristics, such as group identification (e.g., Operario & Fiske, 2001) and prejudice expectations (Pinel, 1999), have been shown to influence perceptions of discrimination (Major & Sawyer, 2009). Because of these complications, assessing the stress of prejudice and discrimination via only subjective responses may uncover a limited picture (Meyer, 2003a).

Structural stigma, unlike interpersonal forms of discrimination, may be measured objectively in a number of ways, such as through public policy in the communities in which sexual minorities reside (Hatzenbuehler, 2014). As a construct that lies somewhat outside of conscious awareness (Riggle et al., 2010), one way in which structural stigma may operate is to subtly convey the extent to which an individual “belongs” in his or her community (Gorman-Murray, Waitt, & Gibson, 2008; Riggle et al., 2010). Sexual minority men and women may sense that the social environment, as embodied in public policy, is relatively supportive or unsupportive of their social identities. This sense of support, or lack thereof, could consequently help or hinder sexual minorities’ attempts to cope with prejudice and discrimination by either affirming or denying belongingness within the community. Moreover, because a sense of belonging is integrally related to social relationships (Pickett, Gardner, & Knowles, 2004), structural stigma may be especially likely to moderate effects of stress on social relationship functioning in particular.

Some past work has demonstrated that structural stigma is indeed capable of exacerbating the deleterious effects of other social stressors on health and well-being. For example, Goldberg and Smith (2011) recruited gay and lesbian couples from across the United States who were in the process of adopting a child. Participants filled out self-report information regarding minority stressors and mental health at three time points, including after the transition to parenthood. The researchers then systematically coded state legal and social

climates in order to assess structural stigma. Results revealed that internalized homophobia predicted an increasing trajectory of anxiety, but only for participants residing in states with relatively greater levels of structural stigma.

Hatzenbuehler and McLaughlin (2014) similarly found that structural stigma moderated the effect of social stress, manipulated via a public speaking task (i.e., the Trier Social Stress Test), on cortisol reactivity. Specifically, sexual minority participants were asked in which states they had been raised and structural stigma was coded from the density of same-sex partner households, proportion of gay straight alliances, public policy related to sexual orientation, and measures of public opinions of sexual minorities within each state. All participants then engaged in the public speaking task. In this study, consistent with other work on stress and adversity (e.g., Carpenter et al., 2007), blunted cortisol reactivity was conceptualized as indicative of dysregulation of the hypothalamic–pituitary–adrenal axis. Confirming hypotheses, results showed that participants who had been raised in states with greater structural stigma displayed just such a blunted cortisol response following the social stressor. Conversely, a normative cortisol response following the social stressor was observed among sexual minority individuals who had been raised in states with lesser structural stigma. Together, these studies elucidate the importance of considering the social context in which sexual minorities are embedded when examining the effects of various stressors on health and well-being outcomes.

The Current Research

The aim of the current research was to examine the effects of both perceived discrimination and structural stigma on social relationship functioning. Based upon previous research on stressors for sexual minorities (e.g., Goldberg & Smith, 2011; Hatzenbuehler, Keyes, & Hasin, 2009; Pachankis et al., 2014), it was hypothesized that the deleterious effects of perceived discrimination on relationship outcomes would be exacerbated for sexual minorities exposed to greater structural stigma and attenuated for those exposed to lesser structural stigma. We investigated this hypothesis in two complementary studies. Study 1 included an online sample of sexual minority men and women, while Study 2 included a sample recruited in-person at gay and lesbian community events. Furthermore, in order to assess a number of different forms of relationship functioning, Study 1 focused on friendship strain and loneliness as the key outcomes and Study 2 focused on familial strain.

Study 1

Method

Participants and procedure—For Study 1, a total of 214 sexual minority participants were recruited online. Approximately half of the sample identified as male (50.9%) and half identified as female (48.1%), while a few opted to leave this item unmarked (0.9%). The mean age of the sample was 27.86 ($SD = 7.24$). The majority of participants identified as Caucasian/White (79.0%), but the sample also included individuals who identified as Asian/Asian Indian (6.5%), African American/Black (5.1%), Hispanic/Latino (4.7%), multiracial (3.7%), and Native American (0.9%). The median household income of the sample was

\$35,000 per year and, on average, participants had completed some years of college education.

All participants were sampled from Amazon's Mechanical Turk (MTurk), a crowdsourcing platform gaining popular use in the social and behavioral sciences (Buhrmester, Kwang, & Gosling, 2011; Goodman, Cryder, & Cheema, 2013; Shapiro, Chandler, & Mueller, 2013). Crowdsourcing is a term that refers to the practice of obtaining work or data from large groups of people, generally via online communities. A number of different Web sites have been developed to capture the power of crowdsourcing and MTurk is among the most popular for researchers involved in the social and behavioral sciences (Goodman et al., 2013). Researchers are able to post tasks (referred to as human intelligence tasks; HITs) for a pool of over 200,000 eligible workers. Past research has successfully employed MTurk in order to recruit sexual minority participants (e.g., Zou et al., 2013). In order to be eligible to join MTurk, individuals must be over 18 years of age and possess a valid social security or individual tax identification number. All workers residing in the United States were eligible to participate in the current study regardless of other demographic characteristics, such as age, gender, or race.

For the current study, a HIT was posted including a link to a separate survey hosted on Qualtrics, an online survey-hosting Web site. Participants were compensated \$0.50 for their time and effort, which is on par with payments for tasks of comparable length (approximately 10 minutes) and has been shown to be sufficient to motivate participation in a timely manner (Buhrmester et al., 2011). The survey instrument included demographic items and measures of social stigma and social relationship functioning. While both sexual minority and heterosexual individuals were able to participate in data collection, only responses from sexual minority participants are included in the current study. Participants indicated their sexual orientation on a single-item measure with points labeled 1 (heterosexual), 2 (mostly heterosexual), 3 (bisexual), 4 (mostly gay/lesbian), and 5 (gay/lesbian). Consistent with recent research on varieties of sexual minority identities (Savin-Williams & Vrangalova, 2013), for the current study we included data from all participants who selected any label other than heterosexual.

Measures

Perceived discrimination—Items for this measure were adapted from the Everyday Discrimination Scale (Williams, Yu, Jackson, & Anderson, 1997), designed to gauge perceived discrimination among ethnic minorities. Two items likely to reflect the experiences of sexual minorities were chosen and reworded so that they specifically referred to sexual orientation. The two items that were chosen were, “You are called names or insulted because of your sexual orientation,” and, “You are threatened or harassed because of your sexual orientation.” Participants indicated how often they experienced each of these events on a scale ranging from 1 (*never*) to 6 (*almost everyday*). These two items were highly correlated, $r(214) = .83, p < .001$, and were thus combined by taking the mean score.

Structural stigma—Structural stigma was gauged by asking participants in which state they currently reside. States were then coded according to how discriminatory extant public

policy was toward sexual minorities (e.g., Hatzenbuehler & McLaughlin, 2014; Lick et al., 2012; Oswald et al., 2010). Specifically, a variety of public policies within each state that were relevant to sexual minority rights were coded, including hospital visitation rights, housing nondiscrimination, second parent adoption rights, joint adoption rights, employment nondiscrimination, marital equality, marital prohibition, hate crime laws, school antibullying policy, and school nondiscrimination. Lists of relevant public policy were downloaded from the Human Rights Campaign (HRC) Web site (<http://www.hrc.org/resources/entry/maps-of-state-laws-policies>). Per policy domain, states were coded from 0 (*most protective*) to 4 (*most discriminatory*). These codes correspond to hierarchical ordering of policy per domain provided by the HRC Web site (e.g., for hate crimes, policies are divided into those lacking protection for sexual minorities, those offering protection based upon sexual orientation only, and those offering protection based upon sexual orientation and gender identity). Sums across policy domains were tallied by state, such that higher numbers indicated greater levels of overall structural stigma.

State-level covariates—Two constructs that might confound associations with structural stigma were included—conservatism and religiosity. Both of these constructs were similarly assessed at the state level via data downloaded from the Gallup “State of the States” poll (<http://www.gallup.com/poll/125066/State-States.aspx?ref=interactive>). Results from this poll come from telephone interviews conducted between January 2 and December 29, 2013 with a random sample of 178,527 adults residing in all the 50 states and are weighted to match demographics of the United States population based on the Current Population Survey. Conservatism represents the percentage of state residents who describe their political views as conservative, while religiosity represents the percentage of state residents who say religion is important in their lives and that they attend religious services weekly or nearly weekly.

Friendship strain—A measure of relationship quality with friends (Walen & Lachman, 2000) was included to assess social relationship functioning. This scale consisted of four statements related to social relationship strain with friends. Participants rated their level of agreement with each statement on a scale ranging from 1 (*not at all*) to 4 (*a lot*). Example statements include, “How often do they criticize you?” and, “How often do they let you down when you are counting on them?” Mean scores across all four items were calculated to assess friendship strain. In past research (Walen & Lachman, 2000), internal consistency has been shown to be adequate, $\alpha = .79$, and was also adequate in the current research, $\alpha = .75$.

Loneliness—A measure of loneliness was included in order to assess participants’ general feelings of social integration. The three-item loneliness scale (Hughes, Waite, Hawkley, & Cacioppo, 2004) is an abbreviated version of the Revised UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980). Participants were asked to respond to items such as, “How often do you feel that you lack companionship?” on a scale from 1 (*hardly ever*) to 3 (*often*), and mean scores across the three items were computed. The three-item version has been shown to have adequate internal consistency, $\alpha = .72$, and correlates highly with the longer Revised UCLA Loneliness Scale, $r = .82$ (Hughes et al., 2004). This scale evidenced good internal consistency in the current study, $\alpha = .83$.

Analyses

To address study hypotheses, potential interactive effects of perceived discrimination and structural stigma on social relationship functioning among sexual minorities were tested via multilevel models using the Hierarchical Linear Modeling (HLM) software (Version 6.0; Raudenbush, Bryk, & Congdon, 2004). Because in this study participants were nested within states, Level 1 equations referred to individual characteristics (perceived discrimination, grand mean-centered) while Level 2 referred to state characteristics (structural stigma, grand mean-centered). Utilizing multilevel models, we were able to account for shared variance due to participants residing with in the same state. The criterion variables in these analyses were the measures of social relationship functioning. Main effects were estimated prior to including the cross-level interaction term in the model.

$$\text{Social Relationship Functioning}_{ij} = \beta_{0j} + \beta_{1j} * (\text{Perceived Discrimination}_{ij}) + e_{ij} \quad \text{Level 1}$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * (\text{Structural Stigma}_j) + u_{0j} \quad \beta_{1j} = \gamma_{10} + \gamma_{11} * (\text{Structural Stigma}_j) + u_{1j} \quad \text{Level 2}$$

After running the primary models, we conducted a second set of analyses controlling for state-level covariates (conservatism and religiosity) at Level 2. The goal of these adjusted models was to test the extent to which effects were unique to structural stigma or could potentially be driven by other state-level factors that might affect public policy, and thereby the social context, for sexual minorities.

$$\text{Social Relationship Functioning}_{ij} = \beta_{0j} + \beta_{1j} * (\text{Perceived Discrimination}_{ij}) + e_{ij} \quad \text{Level 1}$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * (\text{Structural Stigma}_j) + \gamma_{02} * (\text{Conservatism}_j) + \gamma_{03} * (\text{Religiosity}_j) + u_{0j} \quad \text{Level 2}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11} * (\text{Structural Stigma}_j) + \gamma_{12} * (\text{Conservatism}_j) + \gamma_{13} * (\text{Religiosity}_j) + u_{1j}$$

Results

To begin, we examined the distribution of the coded structural stigma variable. Levels of structural stigma ranged from 0 to 30, with a mean of 13.95 ($SD = 10.19$). Examination of a histogram plotting structural stigma revealed a bimodal distribution. This distribution reflects the fact that, across policy domains, states tended to have either many policies that protected sexual minorities or many policies that discriminated against them. Fewer states fell in between, with heterogeneous public policy regarding sexual minority rights. The distributions of each of the other main study variables were explored as well. Perceived discrimination was positively skewed, with greater numbers of participants reporting these experiences happening relatively infrequently ($M = 1.60$, $SD = 0.91$), which is consistent with other research utilizing the Everyday Discrimination Scale (e.g., Friedman, Williams, Singer, & Ryff, 2009; Lewis, Yang, Jacobs, & Fitchett, 2012). Both of the measures of social relationship functioning (i.e., friendship strain and loneliness) were normally distributed. Descriptive statistics as well as intercorrelations for each of these variables are provided in Table 1.

Next, we evaluated main effects of perceived discrimination and structural stigma on social relationship functioning. Results from multilevel models showed that perceived discrimination was directly predictive of increased friendship strain, $\gamma_{10} = .106$, $SE = .039$, $t(41) = 2.71$, $p = .01$, but the main effect of perceived discrimination on loneliness was not statistically significant, $\gamma_{10} = .053$, $SE = .046$, $t(41) = 1.17$, $p = .25$. Additionally, there were not significant main effects of structural stigma on friendship strain, $\gamma_{01} = .005$, $SE = .003$, $t(40) = 1.46$, $p = .15$, or loneliness, $\gamma_{01} = -.007$, $SE = .004$, $t(40) = -1.51$, $p = .14$.

We then examined the interaction between perceived discrimination and structural stigma by testing the slope of structural stigma at Level 2 predicting the slope of perceived discrimination at Level 1 (γ_{11}). Results from these analyses are displayed in Tables 2 and 3. As posited, results from unadjusted models confirmed significant interactions when predicting both friendship strain, $\gamma_{11} = .009$, $SE = .004$, $t(40) = 2.68$, $p = .01$, and loneliness, $\gamma_{11} = .010$, $SE = .004$, $t(40) = 2.67$, $p = .01$. Consistent with hypotheses, across both friendship strain and loneliness, the deleterious association between perceived discrimination and social relationship functioning was increased for sexual minorities living in states with relatively greater levels of structural stigma and attenuated for those living in states with relatively lesser levels of structural stigma.

Subsequently, adjusted models were computed including conservatism and religiosity as state-level predictors. As shown in Tables 2 and 3, results from these models replicated the previously estimated unadjusted models. Importantly, only the cross-level interaction between perceived discrimination and structural stigma was statistically significant when predicting both friendship strain and loneliness. Main effects and interactions terms for the two state-level covariates were not significant and did not account for the previously observed effects.

Discussion

Study 1 provided confirmation of our primary hypotheses in a relatively large online sample of sexual minority men and women residing in 42 different states. Support was found for structural stigma as a moderating factor in the association between perceived discrimination and social relationship functioning. Specifically, it was found that perceived discrimination evidenced significant associations with friendship strain and loneliness for sexual minorities residing in states marked by greater levels of structural stigma, but not for those residing in states marked by lesser levels of structural stigma. Furthermore, these effects were robust to potential confounders at the state level (i.e., conservatism and religiosity) in fully adjusted models.

Interestingly, evidence for main effects of perceived discrimination on social relationship functioning was mixed: perceived discrimination was directly associated with friendship strain but only showed a possible trend toward an association with loneliness. This may have been due to the limited number of items utilized to measure perceived discrimination in the current study as well as the relatively low mean on this measure. However, it is also possible that research neglecting to examine the nuanced effects of the social context in which participants are embedded (e.g., differential levels of structural stigma) may generally

uncover less clear evidence for the importance of perceived discrimination as a correlate of social relationship functioning.

To further scrutinize these results, we conducted a second study focusing on the same hypothesis. The primary aim of Study 2 was to conceptually replicate the results observed in the online sample recruited for Study 1, but this time in a community-based sample of sexual minority men and women. To extend the results of Study 1, we also focused on familial strain as the outcome in Study 2.

Study 2

Method

Participants and procedure—Participants for Study 2 were recruited from gay and lesbian community events in the New Orleans area (Southern Decadence and Tulane University Pride Week). Only self-identified gay men and lesbian women were recruited for Study 2. Participants were asked to self-identify as members of one of these groups prior to participation. In total, 99 sexual minority participants were recruited for this study. Of these participants, 74 identified as gay men (74.7%) and 21 identified as lesbian women (21.2%). The mean age of the sample was 34.60 ($SD = 13.01$). The majority of participants identified as White (79.8%), but the sample also included individuals identified as multiracial (6.1%), African American (4.0%), Asian (3.0%), and Hispanic (2%). The median household income of the sample was \$60,000 per year and, on average, participants had completed a college degree.

At each of these events, the researchers were positioned near the main route but slightly away from the bulk of the crowd in order to maximize opportunities to approach potential participants. Research assistants, who were supervised by at least one member of the research team who identified as gay or lesbian, approached all individuals attending these events, including those who were solo as well as those in groups. All potential participants were approached by trained research assistants and offered \$10.00 compensation for their time and effort. No specific criteria were used when determining which potential participants to approach, but prior to participating interested individuals needed to be over 18 years of age and self-identify as gay or lesbian. After completing the consent form, participants completed the survey instrument, containing the measures described in the following section.

Measures

Perceived discrimination—Perceived discrimination was assessed via the same measure used in Study 1. Once again, these two items assessing perceived discrimination were highly correlated, $r(97) = .72, p < .001$.

Structural stigma—Structural stigma was once again gauged by asking participants in which state they currently reside. The same coding system from Study 1 was then used to score each state in terms of supportive versus discriminatory public policy.

State-level covariates—Data for the two potential state-level confounders (conservatism and religiosity) were computed in an identical method to Study 1.

Familial strain—A parallel scale to the friendship strain scale from Study 1 was utilized in Study 2 in order to gauge relationship functioning with members of one's family. For this scale, participants were asked to consider their family members while rating their level of agreement to the same four statements used in Study 1 on a scale ranging from 1 (*not at all*) to 4 (*a lot*). Mean scores were then computed across these four statements. As with friendship strain, internal consistency was shown to be adequate for items addressing familial strain in past work, $\alpha = .80$ (Walen & Lachman, 2000), although it was somewhat weaker in the current study, $\alpha = .61$.

Analyses

Data were analyzed via multilevel modeling using HLM software (Version 6.0; Raudenbush et al., 2004) as in Study 1. The models in Study 2 paralleled those in Study 1, with familial strain substituted as the dependent variable. We once again examined main effects prior to including the cross-level interaction. Finally, state-level covariates (conservatism and religiosity) were included in adjusted models.

Results

Once more, the distribution of each of the study variables was examined first. Participants for Study 2 reported residing in 21 different states. As in Study 1, structural stigma evidenced a bimodal distribution. Although perceived discrimination was not significantly skewed, the general pattern was consistent with Study 1 in that participants reported a relatively low frequency of discriminatory events on average ($M = 1.89$, $SD = .86$). Familial relationship strain evidenced a normal distribution. Descriptive statistics as well as intercorrelations for each of these variables are provided in Table 4.

The main effect of perceived discrimination on familial strain was not statistically significant, $\gamma_{10} = .024$, $SE = .144$, $t(20) = .17$, $p = .87$; nor was the main effect of structural stigma, $\gamma_{01} = .003$, $SE = .005$, $t(19) = .53$, $p = .60$. The interaction between perceived discrimination and structural stigma was again tested by evaluating the slope of structural stigma at Level 2 predicting the slope of perceived discrimination at Level 1 (γ_{11}). Consistent with hypotheses, results from the unadjusted multilevel model confirmed a significant interaction, $\gamma_{11} = .040$, $SE = .013$, $t(19) = 2.95$, $p < .01$, presented in Table 5. As in the previous study, the association between perceived discrimination and familial strain was increased for sexual minorities living in states with relatively greater levels of structural stigma and attenuated for those living in states with relatively lesser levels of structural stigma.

However, contrary to results of Study 1, in Study 2 the interaction between perceived discrimination and structural stigma was no longer significant after accounting for the state-level covariates. In these analyses, the interaction between perceived discrimination and conservatism emerged as statistically significant instead, $\gamma_{12} = .112$, $SE = .042$, $t(19) = 2.69$, $p = .02$ (see Table 5). The pattern of effects was identical for this interaction, in that the

association between perceived discrimination and familial strain was increased for sexual minorities living in relatively more conservative states and attenuated for those living in relatively less conservative states.

Discussion

The unadjusted model in Study 2 replicated the primary results of Study 1, with all study procedures conducted in person rather than online. Specifically, gay and lesbian participants residing in 21 different states were recruited from community events and completed self-report measures of perceived discrimination and familial strain. For participants residing in states marked by relatively greater levels of structural stigma, but not for those residing in states marked by relatively lesser levels of structural stigma, perceived discrimination was associated with greater familial strain. However, unlike in Study 1, in the adjusted model, state-level conservatism emerged as a significant moderator in lieu of structural stigma in Study 2. It is possible that aggregate levels of conservatism may also represent a structural factor that is capable of conveying stigma toward sexual minorities. Perhaps unsurprisingly, strong interrelationships between structural stigma, conservatism, and religiosity (see Tables 1 and 4) indicate that these constructs share a large proportion of variance. In fact, other researchers have included area-level conservatism and religiosity with public policy in multidimensional assessments of social climate for sexual minorities (e.g., Hatzenbuehler, 2011; Lick et al., 2012; Oswald et al., 2010).

Yet some differences in the samples between Studies 1 and 2 are worth noting. Those recruited for Study 1 were generally younger and of lower socioeconomic status compared to those recruited for Study 2, which may explain discrepancies in adjusted models between studies. Participants in Study 2 also represented half as many states as participants in Study 1 (21 vs. 42). These differences in the states represented may have influenced which state-level characteristics explained the greatest variance in the outcome. Further research is necessary to tease apart the extent to which structural stigma (operationalized here as state-level public policy), conservatism and religiosity may account for moderating effects such as those observed in the current work.

General Discussion

Across two studies, including online and community samples of sexual minority men and women, we found that structural stigma moderated the association between perceived discrimination and social relationship functioning (friendship strain and loneliness in Study 1 and familial strain in Study 2). For sexual minorities living in states with relatively greater levels of structural stigma, perceived discrimination had deleterious associations with social relationship functioning across three different measures. However, these associations were attenuated for sexual minorities living in states with relatively lesser levels of structural stigma.

In addition to conceptualizing structural stigma as a risk factor for sexual minority health outcomes, it may be useful for researchers to consider how public policy may also act as a protective factor. Generally, researchers have tended to focus on negative health and well-being effects for those exposed to greater levels of structural stigma (e.g., Riggle et al.,

2010). However, as a protective factor, public policy ensuring sexual minority rights may actually improve health and well-being outcomes (e.g., Hatzenbuehler et al., 2012) as well as attenuate the negative effects of other individual-level stressors, as observed in the current study.

Interestingly, the main effect of perceived discrimination on social relationship functioning was only significant for one of the three measures, friendship strain. Although main effects for the other measures (loneliness, familial strain) trended toward deleterious associations, they were not statistically significant. These findings indicate that potential effects of perceived discrimination on social relationship functioning might be shrouded by a failure to consider the social context in which sexual minorities are embedded (although it is also possible that these results are unique to the limited measure of perceived discrimination utilized in the current study). For example, some past work with sexual minority samples has reported nonsignificant direct associations between perceived discrimination and romantic relationship functioning (e.g., Kamen et al., 2011; Otis et al., 2006). It may be that some of the participants in these studies were protected from negative effects of perceived discrimination due to residence in a supportive social context that conveyed a sense of belonging to these individuals. A greater effort should be made to take into account such contextual factors in work on this topic.

Limitations and Future Directions

While the current research has a number of strengths, there is ample room for future investigation to expand upon our findings. For example, our measure of structural stigma only included a public policy dimension. It is possible that a multidimensional measure of structural stigma, gauging constructs such as predominant attitudes toward sexual minorities or number of hate crimes in a given area (Hatzenbuehler, 2014), might uncover additional effects to those observed in the current studies. There is also opportunity for future research to examine the extent to which various operationalizations of structural stigma map onto other related constructs, such as conservatism and religiosity, which may also influence social climate (and, thereby, belongingness) for sexual minorities. Relatedly, our data allowed us to group individual participants according to their states of residence, a relatively broad community-level indicator. However, future work with a narrower focus (e.g., utilizing county or neighborhood as a unit of measurement) might be able to examine greater nuance related to structural stigma within one's more immediate social context.

As have we, researchers should take care to ensure that future work on this topic continues to consider issues of nested data and employs appropriate statistical techniques to handle resultant interdependence (Diez-Roux, 2000; Leyland & Groenewegen, 2003). By constructing models incorporating cross-level interactions, it is possible to evaluate the interplay between the unique characteristics of the stigmatized individual and the surrounding community (Leyland & Groenewegen, 2003). Ideally, future work will continue to examine risk and protective factors both at the individual (e.g., perceived discrimination) as well as social contextual levels (e.g., structural stigma). Research on the efficacy of interventions targeting social stigma suggests that such cross-level work will be

key to improving outcomes for members of devalued groups (Cook, Purdie-Vaughns, Meyer, & Busch, 2014).

The relatively large and diverse sexual minority sample recruited via MTurk in Study 1 also bolstered the current research. Often researchers recruit participants solely from gay and lesbian community events and organizations (as in Study 2), which leads to particular selection issues wherein individuals who are highly identified or active in the gay and lesbian community are more likely to be sampled. Because MTurk is not specifically targeted at any social group (and the current study was not advertised to any particular social group), it is more likely to draw a diverse group of sexual minority participants. However, MTurk is not without its limitations, many of which have been described in past work (see Paolacci & Chandler, 2014). As one example, MTurk participants have been found to be somewhat less extraverted and emotionally stable compared to community participants (Goodman et al., 2013). MTurk participants also tend to be somewhat younger and of lower socioeconomic status than the general population (Berinsky, Huber, & Lenz, 2012), which is consistent with differences observed between samples in the current work. It is unclear to what extent these potential differences in the samples between our two studies may have affected the results of the current research, but future work on this topic should continue to replicate the moderating effect of structural stigma observed here.

Further research on this topic should also focus on issues of causation, which were not addressed in the current studies. Some past work does suggest that prejudice and discrimination may have deleterious causal effects on relationship functioning for some individuals (Doyle & Molix, 2014b). However, this past work did not include an examination of potential causal effects of structural stigma. Moving forward, researchers should consider how to experimentally manipulate structural stigma or employ quasi-experimental methods by which causation could be inferred (e.g., Hatzenbuehler et al., 2012; Rostosky, Riggle, Horne, & Miller, 2009).

Implications for Public Policy

The social context across the United States has been changing relatively rapidly for sexual minority men and women in the past 25 years or so (Keleher & Smith, 2012). Greater acceptance of issues such as same-sex marriage and adoption as well as tolerance toward gay and lesbian individuals has improved the social and political landscape for sexual minorities to a large extent. However, there is still much progress to be made on this front. The United States has a long history of denying sexual minorities civil rights and unjustly burdening them with stigmatizing public policy (D'Emilio, 1998). For example, until quite recently discrimination against sexual minority relationships was enshrined in federal policy via the Defense of Marriage Act (DOMA).

Some advocates of sexual minority rights proposed civil unions and domestic partnerships as legitimate alternatives to marriage in order to grant sexual minority couples the material resources and privileges afforded to heterosexual married couples (e.g., inheritance rights and tax exemptions). While it is certainly true that these material resources denied to sexual minorities by DOMA are of great consequence, focusing only on these outcomes risks

neglecting the important psychological sequelae of structural stigma. Recently, in the opinion of the Supreme Court of the United States (2013), delivered in the case of *United States v. Windsor*, Justice Kennedy stated, “The avowed purpose and practical effect of the law here in question are to impose a disadvantage, a separate status, and so a stigma upon all who enter into same-sex marriages” (p. 21). The wording of this decision is important in that it not only recognizes the differential and negative material impact of DOMA for sexual minorities, but also acknowledges that DOMA constitutes a stigmatizing public policy (implying concomitant psychological effects). There is a pressing need to remedy structural inequalities affecting sexual minorities, which will require the concerted and coordinated efforts of researchers, policy makers, community leaders, and the public at large, whose attitudes toward sexual minorities influence the tenor of public policy (Lax & Phillips, 2009). Awareness of the deleterious effects of structural stigma for sexual minority health and well-being will be an important step in gaining the support of members of these various groups.

The current research, along with past work (e.g., Goldberg & Smith, 2011; Hatzenbuehler & McLaughlin, 2014; Pachankis et al., 2014), also continues to demonstrate that structural stigma may exacerbate the deleterious consequences of social stress on the health and well-being of sexual minority men and women—in this case, their social relationship functioning. In this way, public policy represents a facet of American society that stands to potentially marginalize sexual minority individuals by undermining social connections and supportive relationships, including with family and friends. While the ultimate goal of eliminating social stressors for sexual minorities might be a laudable one, it is also much more difficult to achieve relative to remediating structural stigma. Therefore, while we continue to address interpersonal forms of prejudice and discrimination, it is imperative that we systematically undo discriminatory laws and policy while simultaneously implementing protective alternatives.

Definitive action at the federal level will be critical in achieving these aims as differences in policy and law at the state level leave room for variation in structural stigma. This is evidenced by the diversity in extant state-level policy regarding same-sex marriage following the repeal of critical aspects of DOMA but the lack of further policy at the federal level guaranteeing this fundamental right to sexual minorities. Furthermore, these institutional changes should not be limited to sexual minorities (the focus of the current research), but address members of other stigmatized and devalued social groups as well. It will be wise to build coalitions among members of diverse groups in order to effectively lobby for policy change that can benefit the entire society.

Conclusion

The goal of the current work is to contribute to scientific knowledge regarding the effects of prejudice and discrimination on the health and well-being of members of devalued groups; but it is also our hope that new knowledge will affect the structure of society by raising awareness and informing policy change. At the institutional level, advocates and policy makers might use the results of the current research to help argue for protective policy (e.g., the Employment Non-Discrimination Act) and against discriminatory policy (e.g., joint

adoption prohibitions) targeting sexual minorities (Hatzenbuehler, 2010; Herek, 2010; Matthews & Adams, 2009; Rostosky & Riggall, 2011). Recent successes, such as the repeal of critical aspects of DOMA as well as the passage of same-sex marriage legislation across many states, may have positive effects on the social relationships of sexual minority men and women. Ultimately, this type of structural change will be necessary to guarantee equitable health and well-being for all social groups in the United States.

Acknowledgments

David Matthew Doyle is now a post-doctoral fellow in the Department of Epidemiology, Columbia University, supported by training grant T32MH13043 from the National Institute of Mental Health. This research constituted a portion of David Matthew Doyle's dissertation under the direction of Lisa Molix. We are grateful to Janet Ruscher, Laurie O'Brien, and Gary Dohanich for their valuable feedback on this work.

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Biographies

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Table 1

Zero-Order Correlations and Descriptive Statistics for Variables in Study 1

Measure	Mean	SD	1	2	3
Level 1 (Individual)					
1. Perceived discrimination	1.60	.91	–		
2. Friendship strain	1.85	.86	.18**	–	
3. Loneliness	1.82	.62	.07	.21**	–
Level 2 (State)					
1. Structural stigma	13.95	10.19	–		
2. Conservatism	36.61	5.62	.78***	–	
3. Religiosity	39.90	9.59	.76***	.85***	–

Note: N = 214, K = 42.

**
p < .01;

p < .001.

Table 2

Multilevel Models (Unadjusted and Adjusted) Predicting Friendship Strain in Study 1

	b	SE	t	p
Unadjusted model				
Level 1				
<i>Intercept</i>	1.848	.038	49.11	<.001
<i>Perceived discrimination</i>	.112	.035	3.24	<.01
Level 2				
<i>Structural stigma</i>	.004	.004	1.15	.26
<i>Structural stigma*Perceived discrimination</i>	.009	.004	2.68	.01
Adjusted Model				
Level 1				
<i>Intercept</i>	1.842	.042	43.69	<.001
<i>Perceived discrimination</i>	.095	.033	2.91	<.01
Level 2				
<i>Structural stigma</i>	.007	.008	.89	.38
<i>Conservatism</i>	-.002	.016	-.15	.89
<i>Religiosity</i>	-.004	.007	-.55	.59
<i>Structural stigma*Perceived discrimination</i>	.017	.006	2.76	<.01
<i>Conservatism*Perceived discrimination</i>	-.011	.017	-.66	.52
<i>Religiosity*Perceived discrimination</i>	-.006	.008	-.80	.43

Note. Level 1: $N = 214$; Level 2: $K = 42$. All predictors were grand mean-centered. The adjusted model includes state-level covariates.

Table 3

Multilevel Models (Unadjusted and Adjusted) Predicting Loneliness in Study 1

	b	SE	t	p
Unadjusted model				
Level 1				
<i>Intercept</i>	1.814	.045	40.47	<.001
<i>Perceived discrimination</i>	.054	.037	1.46	.15
Level 2				
<i>Structural stigma</i>	-.006	.005	-1.23	.23
<i>Structural stigma*Perceived discrimination</i>	.010	.004	2.67	.01
Adjusted model				
Level 1				
<i>Intercept</i>	1.811	.048	37.98	<.001
<i>Perceived discrimination</i>	.048	.042	1.14	.26
Level 2				
<i>Structural stigma</i>	-.006	.007	-.83	.41
<i>Conservatism</i>	-.013	.017	-.75	.46
<i>Religiosity</i>	.007	.009	.82	.42
<i>Structural stigma*Perceived discrimination</i>	.015	.006	2.47	.02
<i>Conservatism*Perceived discrimination</i>	.003	.018	.17	.87
<i>Religiosity*Perceived discrimination</i>	-.012	.010	-1.26	.22

Note. Level 1: $N = 214$; Level 2: $K = 42$. All predictors were grand mean-centered. The adjusted model includes state-level covariates.

Table 4

Zero-Order Correlations and Descriptive Statistics for Variables in Study 2

Measure	Mean	SD	1	2	3
Level 1 (Individual)					
1. Perceived discrimination	1.89	.86	–		
2. Familial strain	2.22	.67	.13	–	
Level 2 (State)					
1. Structural stigma	14.00	10.69	–		
2. Conservatism	36.79	6.67	.87***	–	
3. Religiosity	41.53	9.66	.69***	.81***	–

Note: $N = 94$, $K = 21$.

 $p < .001$.

Table 5

Multilevel Models (Unadjusted and Adjusted) Predicting Familial Strain in Study 2

	b	SE	t	p
Unadjusted model				
Level 1				
<i>Intercept</i>	2.203	.051	42.83	<.001
<i>Perceived discrimination</i>	-.111	.135	-.82	.27
Level 2				
<i>Structural stigma</i>	.005	.005	1.13	.27
<i>Structural stigma*Perceived discrimination</i>	.041	.014	2.95	<.01
Adjusted model				
Level 1				
<i>Intercept</i>	2.118	.043	49.08	<.001
<i>Perceived discrimination</i>	-.191	.122	-1.56	.14
Level 2				
<i>Structural stigma</i>	-.017	.009	-1.95	.07
<i>Conservatism</i>	.013	.020	.67	.51
<i>Religiosity</i>	.015	.012	1.30	.21
<i>Structural stigma*Perceived discrimination</i>	.006	.017	.33	.74
<i>Conservatism*Perceived discrimination</i>	.112	.042	2.69	.02
<i>Religiosity*Perceived discrimination</i>	-.031	.020	-1.59	.13

Note. Level 1 $N = 94$, Level 2 $K = 21$. All predictors were grand mean-centered. The adjusted model includes state-level covariates.