

Minority stress and physical health among sexual minority individuals

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Abstract This study examined the effects of minority stress on the physical health of lesbians, gay men, and bisexuals (LGBs). Participants ($N = 396$) completed baseline and one year follow-up interviews. Exposure to stress and health outcomes were assessed with two methods: a subjective self-appraisal method and a method whereby two independent judges externally rated event narratives using standardized criteria. The odds of experiencing a physical health problem at follow-up were significantly higher among LGBs who experienced an externally rated prejudice event during the follow-up period compared to those who did not. This association persisted after adjusting for experiences of general stressful life events that were not related to prejudice. Self-appraised minority stress exposures were not associated with poorer physical health at 1-year follow-up. Prejudice-related stressful life events have a unique deleterious impact on

health that persists above and beyond the effect of stressful life events unrelated to prejudice.

Keywords Minority stress · Prejudice · Life events · Physical health · Lesbian · Gay · Bisexual

Introduction

A substantial body of research has demonstrated that stress, in a multitude of forms, has a negative effect on people's physical health (for a review, see Thoits, 2010). Minority stress theory suggests that sexual minority individuals (i.e., lesbian, gay, and bisexual men and women, or LGBs) are at greater risk for health problems than heterosexuals, because LGBs face greater exposure to social stress related to prejudice and stigma (Conron et al., 2010; Institute of Medicine, 2011; Meyer, 2003a, b; Sandfort et al., 2006). Sexual minorities are exposed to excess stress related to a variety of stigma-related experiences that stem from their sexual minority status: prejudice-related stressful life events such as being attacked or fired; everyday discrimination including microaggressions and slights; expectations of rejection regardless of actual discriminatory circumstances; the cognitive burden associated with negotiating outness; and the self-devaluation inherent to internalized homophobia (Meyer, 2003a, b; Meyer et al., 2008). Few studies, however, have examined the impact of minority stressors on physical health outcomes among sexual minority individuals (Huebner & Davis, 2007; Lehavot et al., 2009; Pantalone et al., 2010).

Although some forms of minority stress can be experienced by any socially stigmatized minority group (i.e., prejudice-related life events, everyday discrimination, and expectations of rejection), concealment of sexual minority

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status (i.e., outness) and internalized homophobia are unique to the experience of sexual minority individuals. We use the term “minority stress” in the present investigation of the health of sexual minorities to inclusively refer to the multiple social stressors (specified above) resulting from stigmatized social status, regardless of their uniqueness to the experience of sexual minority individuals.

Existing research on the effects of minority stress on the physical health of sexual minorities is limited by cross-sectional data, and an exclusive focus on subjectively reported stressors. The latter limitation is important for both conceptual and methodological reasons (Meyer, 2003b). For example, studies relying only on subjective measures are not able to account for the effects of minority stress in instances where sexual minority individuals do not attribute prejudice or discrimination as the cause for an adverse life experience. Also, subjective measures are vulnerable to reporting bias of stressful events, even when the events are perceived, because reporting may be correlated with individual and situational characteristics (Dohrenwend, 2006). For instance, individuals may be motivated to attribute causes of negative life experiences to prejudice and discrimination in order to avoid self-blame (Frost, 2011; Major et al., 2003). Or individuals may be reluctant to attribute negative experiences to prejudice and discrimination in order to minimize the psychological, social, and interpersonal disruptions, such as distrust for others and anxiety or workplace conflicts, that can occur if they falsely attribute an event to prejudice (Feldman Barret & Swim, 1998). Research employing measures of minority stress that are based on external ratings of self-reported experiences can overcome some of these limitations and can help improve inferences about the relationship between minority stress and physical health among sexual minority individuals (Dohrenwend, 2006). The current study aimed to address these limitations.

In addition to excess stress exposure, sexual minorities may be at increased risk for health problems because of the unique impact on health of prejudice events when compared to similar events unrelated to prejudice. For example, research has suggested that hate crimes have a greater mental health impact on their victims as compared to similar crimes that are not motivated by hate (Herek et al., 1999). However, this pattern of findings has yet to be extended to physical health. Furthermore, a focus on hate crimes alone does not account for stressful life events involving prejudice that are not criminal, such as being fired from a job due to discrimination.

Aims and hypotheses

In the current study we examined the effect of minority stressors on sexual minorities’ physical health. We

hypothesized that experiences of minority stressors—especially when measured using methods that rely on external ratings that are not commonly used in prejudice and health studies—would have an adverse effect on health outcomes above and beyond the effects of general stressful life events not related to prejudice.

Method

Data for the current study were collected as part of Project Stride, a study of identity, stress, and health among sexual minority individuals (Meyer et al., 2008). Baseline interviews were conducted with 396 lesbian, gay, and bisexual men and women living in New York City. Participants were recruited from venues in New York City chosen to represent a wide diversity of cultural, political, ethnic, and sexual communities. Sampling venues included business establishments (e.g., bookstores, cafes), social groups, and outdoor areas (e.g., parks), as well as snowball referrals. Participants were screened for eligibility, and if eligible, they were invited to participate in a face-to-face interview. Participants were eligible if they were 18–59 years-old, New York City residents for two years or more who could communicate in English and self-identified as: (a) lesbian, gay, or bisexual; (b) male or female; and (c) White, Black or Latino (participants may have used other identity terms in referring to these social groups). We used quota sampling to ensure approximately equivalent numbers of participants across sex, race/ethnicity, and age group (18–30 and 31–59). The response rate was 60 % (AAPOR, 2005).

Participants resided in 128 different New York City zip codes; no more than 4 % of the sample resided in any one zip code area. Interviews lasted a mean of 3.82 h (SD = 55 min) and participants were paid \$80 upon completing the interview. Ninety-four percent of the baseline sample was retained for participation in a follow-up interview 1 year after their initial participation. Sample demographics are presented in Table 1. Additional detail on Project Stride’s methodology is available online at: <http://www.columbia.edu/~im15/>.

Measures

Participants completed the following measures of stress and health at baseline and 1-year follow-up in-person interviews.

Self-appraised experiences of minority stress

Experiences of *everyday discrimination* were assessed via a measure (Williams et al., 1997; 8 items, Cronbach’s alpha = 0.84) gauging the frequency of the following eight

Table 1 Sample demographics

| Characteristics | Baseline (N = 396) | 1 year follow-up (N = 370) |
|---|-----------------------|-------------------------------|
| Age in years, mean (SD) | 32.43 (9.24) | 32.52 (9.28) |
| Unemployed (non-student), <i>f</i> (%) | 64 (16.2) | 59 (15.9) |
| High school diploma or less, <i>f</i> (%) | 86 (21.7) | 77 (20.8) |
| Female, <i>f</i> (%) | 198 (50) | 185 (50) |
| Race/ethnicity, <i>f</i> (%) | | |
| White | 134 (33.8) | 127 (34.3) |
| Black/African American | 131 (33.1) | 125 (33.8) |
| Latino | 131 (33.1) | 118 (31.9) |

types of day-to-day experiences: being treated with less courtesy, less respect, receiving poorer services, being treated as not smart, people acting like they are afraid of you, people acting like you are dishonest, people acting like they are better than you, and being called names or insulted. One item from the original measure, “being threatened or harassed,” was not included in the current study as these experiences were assessed as part of the stressful life event measure (see following discussion of externally rated minority stress). Frequency of occurrence was reported on a 4-point scale (1 “often” through 4 “never”). Scores were recoded such that higher scores reflected greater everyday discrimination. Recognizing that intersections of identity work in sometimes indivisible ways, we attempted to capture the experiences of the person in his or her entirety. Therefore, this measure was not focused on experiences of discrimination directed at participants only because of their sexual minority status.

Expectations of rejection (Link, 1987; 6 items, Cronbach’s $\alpha = 0.88$) were assessed with a measure based on a scale developed to assess stigma of mental illness. We adapted the scale so that the stigmatized condition was not mental illness and so that it could be applied to multiple social categories at once. Interviewers first read the following instructions: “These next statements refer to ‘a person like you’; by this I mean persons who have the same gender, race, sexual orientation, nationality, ethnicity, and/or socioeconomic class as you. I would like you to respond on the basis of how you feel people regard you in terms of such groups.” Respondents rated statements such as: “Most people would willingly accept someone like me as a close friend” on a 4-point scale ranging from 1 “agree strongly” to 4 “disagree strongly.” Scores were recoded such that higher scores reflected greater expectations of rejection. For the same rationale described above, this measure was not solely focused on expectations of rejection related to participants’ sexual minority status.

Outness (Meyer et al., 2002; 4 items, Cronbach’s $\alpha = 0.75$) was assessed via the degree of disclosure of

sexual orientation to (a) family, (b) straight friends, (c) LGB friends, and (d) co-workers. Participants described the extent to which they were “out of the closet” to each of these groups on a scale of 1 “out to none” to 4 “out to all.” The measure has good face validity, using simple language and referring to behaviors that are commonly discussed among LGB individuals.

Internalized homophobia (Meyer & Dean, 1998; 8-items, Cronbach’s $\alpha = 0.86$) was measured with a scale developed to assess the extent to which LGB individuals reject their sexual orientation, are uneasy about their same-sex desires, and seek to avoid same-sex attractions and sexual feelings. The current study included a modified version (presented in Frost & Meyer, 2009) that assessed how often participants have “wished you weren’t gay,” “felt alienated from yourself because of being gay,” and “felt that being gay is a personal shortcoming.” Participants rated the frequency with which they experienced such thoughts and feelings in the year prior to the interview on a 4-point scale ranging from 1 “often” to 4 “never.” Scores were recoded such that higher scores reflected more internalized homophobia.

Externally rated forms of minority stress

An externally rated indicator of minority stress was assessed in the form of *Prejudice Events* using the narrative life event interview and rating method (Dohrenwend, 2006). This method involved a trained interviewer asking participants whether or not they experienced any of 47 classes of life events including natural disasters, being fired from a job, assault, and homelessness. If participants reported experiencing an event, they then provided a detailed verbal narrative on their experience of the event. These narratives were recorded by the interviewers and later rated by two external independent raters (not including the interviewer) on several dimensions including whether or not prejudice was involved in the experience of the event. An event was coded as involving prejudice if the narrative of the event contained evidence of prejudice related to the participant’s sexual orientation, gender, gender non-conformity, race, ethnicity, age, religion, disability, physical appearance, and/or socio-economic status. Those events that did involve prejudice were coded as prejudice events. Discrepancies were minimal (2 % of ratings) and were resolved in weekly meetings where independent referees helped arrive at consensus (Meyer et al., 2008). A binary predictor variable was created comparing participants who experienced one or more prejudice events (1) to those who experienced none (0). This procedure was conducted at baseline regarding participants’ lifetime exposure to prejudice events and at the

follow-up interview with regard to experiences of events that occurred in the year after the baseline interview. We focus on the follow-up measure of prejudice events in the present analysis as this measure reflects whether or not an increase in exposure to minority stress in the form of prejudice events occurred in the 1-year period between baseline and follow-up. Given the frequency of prejudice events was somewhat rare over one year (i.e., 7%), our measure combined prejudice events into a single binary variable reflecting whether or not participants had experienced any prejudice event.

Self-appraised physical health

Self-rated physical health was measured using the single-item *General Health Rating* from the SF-12 (Ware et al., 1996): “In general, would you say your health is...” Participants responded on a 5-point scale ranging from “excellent” to “poor”, with greater numbers indicating worse self-rated health. This approach to measuring self-appraised physical health has demonstrated validity with regard to morbidity and mortality outcomes (Idler & Benyamini, 1997).

Externally rated physical health problems

An externally rated indicator of physical health problems was obtained from the narrative life event interview and rating method (Dohrenwend, 2006). Specifically, experiencing a *Physical Health Problem* was assessed via participants’ responses to event prompts regarding physical health problems. These event prompts at the follow-up interview assessed experiences of a physical health problem that had newly occurred only during the year between baseline and follow-up. These prompts read as follows: “Have you had a life-threatening or disabling illness in the past year?” and “Did anything else significant happen related to your health (other than what was discussed)?” Interviewers explicitly instructed participants at the 1-year follow-up that they were being asked about new physical health problems that had occurred only in the past year (i.e., since their last interview). Two independent raters judged participants’ responses regarding whether or not they met criteria for physical health problems. As a result of the external rating procedure, only onset of significant physical health problems were included in analyses. In other words, some participants noted health problems that were determined in the rating process not to meet criteria for a physical health problem and were therefore not included in analysis. A binary outcome variable compared participants who experienced one or more physical health problems (1) to those who experienced none (0). Examples

of physical health problems experienced by participants during this period included but were not limited to flu, hypertension, HIV and sexually transmitted infections, tendonitis, and cancer. Lifetime experiences of physical health problems were also assessed at baseline.

Covariates

All analyses were adjusted for self-reported sex, race/ethnicity, age, employment, education, and lifetime diagnoses of physical health problems assessed at baseline. Results were also adjusted for the experience of general stressful life events over one year operationalized as any event captured by the narrative life event interview and rating method that was not related to physical health and did not involve prejudice.

Analysis plan

Initial bivariate analyses were conducted to examine associations between all study variables. Bivariate analyses consisted of Pearson correlations (for interval and ratio variables) and point biserial correlations (for binary variables). Next, multivariate regression models were computed to test the study’s primary hypotheses. Multivariate analyses focused on participants’ experiences of minority stressors and physical health outcomes during the 1-year period that occurred between the baseline and follow-up interviews. A three-step hierarchical approach was utilized in all multivariate regression analyses. In the first step, all covariates were entered into the model. Externally rated non-prejudice events (i.e., stressful life events not involving prejudice) were entered in the second step. All minority stress variables were entered in the final step. Logistic regression was used to test models predicting the onset of an externally rated physical health problem. Linear regression was used to test models predicting self-appraised physical health.

Results

Bivariate and descriptive analyses

Descriptive statistics and correlations between measures of physical health and minority stress are presented in Table 2. In bivariate analyses, experiencing a health problem in the year between baseline and follow-up was associated with experiencing a prejudice event, higher expectations of rejection, and more frequent experiences of everyday discrimination. Worse self-rated physical health at follow-up was associated with higher expectations of

Table 2 Descriptive statistics and correlations between minority stress and health outcome variables

| Variables | Bivariate correlations | | | | | | | | | |
|--|------------------------|---------|---------|---------|--------|---------|---------|---------|----------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1. Lifetime physical health diagnoses (BL) | 1 | | | | | | | | | |
| 2. ER physical health problem (FU) | 0.27*** | 1 | | | | | | | | |
| 3. SA Physical Health (BL) | 0.37*** | 0.18*** | 1 | | | | | | | |
| 4. SA physical health (FU) | 0.36*** | 0.24*** | 0.68*** | 1 | | | | | | |
| 5. ER non-prejudice event (FU) | 0.10* | 0.15** | 0.11* | 0.09 | 1 | | | | | |
| 6. ER prejudice event (FU) | 0.10 | 0.20*** | 0 | -0.01 | 0.06 | 1 | | | | |
| 7. SA expectations of rejection (FU) | 0.08 | 0.13* | 0.18** | 0.19*** | 0.07 | 0.12* | 1 | | | |
| 8. SA everyday discrimination (FU) | 0.15** | 0.14** | 0.26*** | 0.16** | 0.06 | 0.21*** | 0.48*** | 1 | | |
| 9. SA internalized homophobia (FU) | 0.02 | 0.03 | 0.19*** | 0.16** | 0.10 | -0.02 | 0.17** | 0.23*** | 1 | |
| 10. SA outness (FU) | 0.14** | 0.07 | -0.01 | 0.04 | -0.02 | 0.09 | -0.02 | -0.11* | -0.49*** | 1 |
| <i>M</i> (%) | 2.57 | (21 %) | 2.26 | 2.34 | (71 %) | (7 %) | 1.86 | 1.99 | 1.37 | 3.36 |
| <i>SD</i> | 2.31 | NA | 0.93 | 1.03 | NA | NA | 0.72 | 0.60 | 0.46 | 0.70 |

ER Externally Rated, SA Self-Appraised, BL Baseline, FU Follow-up

*** $p < .001$, ** $p < .01$, * $p < .05$

rejection, more frequent experiences of everyday discrimination, and higher levels of internalized homophobia.

Multivariate analyses

Logistic regression analyses (Table 3, Column 1) showed that the odds of experiencing an externally rated physical health problem during the 1-year follow-up period were approximately three times higher among sexual minorities who experienced an externally rated prejudice event compared to those who did not experience a prejudice event during the same period. This finding remained robust and statistically significant even after adjusting for externally rated non-prejudice life events, which were also independently related to experiencing a physical health problem.

In contrast, in all multivariate analyses, the four *self-appraised* minority stressors (expectations of rejection, everyday discrimination, internalized homophobia, and outness) were not associated with externally rated experiences of physical health problems (Table 3, Column 1) or self-appraised health ratings (Table 3, Column 2) over the 1-year follow-up. Also, neither externally rated prejudice events nor non-prejudice related life events were associated with self-appraised health at follow-up when all forms of minority stress were included in the regression model.

Discussion

When measured with the externally rated methods recommended by Dohrenwend (2006), minority stress—operationalized as prejudice events—was associated with onset of a physical health problem over a 1-year period among

LGB people. Physical health problems included a variety of health problems and conditions, such as cancer, flu, and hypertension. Although some statistically significant bivariate associations were observed, the associations between self-appraised minority stressors and the onset of a physical health problem did not persist in multivariate models. This pattern of results was also found regarding the effects of subjective minority stressors when physical health was measured using a self-appraised, subjective method.

Although these findings provide evidence for the general negative impact of minority stressors on physical health, the effect of minority stress was not consistent: it depended on the measure, type of stressor, and physical health outcome under consideration. Externally rated measures of minority stress (i.e., prejudice events) predicted onset of externally rated physical health problems, but self-appraised experiences of minority stress did not. And self-appraised experiences of minority stress (e.g., self-reported everyday discrimination) were not predictive of physical health, regardless of its method of assessment. In other words, we found support for our hypothesis of a relationship between minority stress and health outcomes but only for minority stress measured as stressful life events and externally rated by independent judges for prejudice. The hypothesis was not supported for other measures of self-appraised stress, nor for the global self-appraised health outcome.

Because the externally rated measure does not rely entirely on subjective self-appraisals, we tend to give greater credence to findings stemming from this measure than to findings stemming from the self-appraised minority stressors. This is because of the potential for confounding

Table 3 Associations between externally rated and self-appraised minority stress and physical health outcomes at 1-year follow-up among lesbians, gay men, and bisexuals ($N = 370$)

| | ER physical health problem ^a | | | | SA physical health ^b | | | |
|--------------------------------|---|------|--------------|--------------|---------------------------------|-------|---------------|--------------|
| | B | OR | 95 % CI | ΔR^2 | B | Beta | 95 % CI | ΔR^2 |
| Step 1: Control variables | | | | 0.16 | | | | 0.46 |
| Black | 0.60 | 1.83 | 0.88 to 3.79 | | 0.07 | 0.03 | -0.13 to 0.27 | |
| Latino | 1.12** | 3.06 | 1.50 to 6.22 | | 0.16 | 0.07 | -0.05 to 0.36 | |
| Female | -0.35 | 0.70 | 0.41 to 1.21 | | 0.01 | 0.00 | -0.15 to 0.17 | |
| ≥Bachelors degree | -0.24 | 0.78 | 0.44 to 1.39 | | -0.01 | -0.01 | -0.18 to 0.16 | |
| Age | 0.03* | 1.03 | 1.00 to 1.06 | | 0.00 | -0.01 | -0.01 to 0.01 | |
| Unemployed | 0.01 | 1.01 | 0.49 to 2.09 | | -0.04 | -0.01 | -0.27 to 0.18 | |
| Physical health diagnoses (BL) | 0.22*** | 1.25 | 1.11 to 1.40 | | | | | |
| SA Physical health (BL) | | | | | 0.75*** | 0.67 | 0.66 to 0.84 | |
| Step 2: General stress | | | | 0.03 | | | | 0.00 |
| ER non-prejudice event | 0.86* | 2.36 | 1.17 to 4.77 | | 0.05 | 0.02 | -0.13 to 0.22 | |
| Step 3: Minority stress | | | | 0.05 | | | | 0.01 |
| ER prejudice event | 1.24** | 3.47 | 1.31 to 9.16 | | -0.09 | -0.02 | -0.42 to 0.24 | |
| SA expectations of rejection | 0.21 | 1.23 | 0.77 to 1.97 | | 0.12 | 0.09 | -0.01 to 0.26 | |
| SA everyday discrimination | 0.28 | 1.32 | 0.76 to 2.29 | | -0.10 | -0.06 | -0.26 to 0.06 | |
| SA internalized homophobia | 0.19 | 1.20 | 0.59 to 2.45 | | 0.15 | 0.07 | -0.06 to 0.36 | |
| SA outness | 0.30 | 1.34 | 0.83 to 2.18 | | 0.11 | 0.07 | -0.03 to 0.24 | |

ER Externally Rated, SA Self-Appraised, BL Baseline

*** $p < .001$, ** $p < .01$, * $p < .05$

^a Results obtained from binary logistic regression analyses

^b Results obtained from multiple linear regression analyses

between independent and dependent variables when using subjective measures (Dohrenwend, 2006). The risk of confounding is that a person's adverse health (especially mental health) might lead him or her to subjectively view events as stressful. This risk is much reduced with use of an externally rated measure of stress through the minimization of perception biases. However, it is important to note that the externally rated measure of life events still depends on participants' ability to recall and report the experience of specific stressful life events (Meyer, 2003b). Still, our findings that the subjective measures did not yield similar results to the externally rated measure are intriguing. We view our findings as preliminary. Further investigation would be required to carefully assess the associations between externally rated and subjective measures.

The differential association between types of minority stressors and types of physical health outcomes—and their corresponding measurement—raises important questions for future research (Meyer, 2003b). Perhaps, as the current findings indicate, event-based minority stressors have a greater impact on health problems than everyday or chronic forms of minority stress. This may be due to the fact that event-based forms of minority stress are often more severe than everyday slights or microaggressions, and therefore may be more impactful on health. However, this interpre-

tation must be examined in future research because the present study is limited by confounding of measure and stress type: our externally rated measure is a measure of discrete major life events, whereas the more subjective, self-appraisal measures are measures of less discrete, more minor (everyday), and internalized stressors. This confounding limits our ability to distinguish between measure and type of stress.

Issues pertaining to the type and measurement of minority stressors need to be examined in future research on health disparities between sexual minorities and heterosexuals. This is particularly important in light of emerging evidence that compared with heterosexuals, White LGB individuals experience higher levels of minority stressors when assessed using externally rated methods but not when assessed using self-appraisal. Also, compared to White LGBs, Black and Latino LGB individuals experience higher levels of minority stressors regardless of the type of measure used (Meyer et al., 2008). In line with an intersectional approach (Bowleg, 2008; Stewart & McDermott, 2004)—which posits that the lived experience sexual identity is not separable from other identities (e.g., race/ethnicity, gender)—the measures of some forms of minority stress used in the current study were not particular to sexual minority status. Researchers

interested examining the differential impact of minority stressors stemming from different stigmatized social statuses (e.g., sexual minority vs. racial/ethnic minority status) should incorporate measures that allow for such distinctions.

Additionally, recent studies show increased prevalence of specific physical health outcomes, such as asthma, among sexual minorities (Conron et al., 2010). This suggests that it is important to assess variation in minority stress–illness relationships in the study of health disparities related to sexual orientation. Our analysis did not allow for distinctions among types of physical health problems, but such research may provide further insight into stress’s impact on health (Schwartz & Meyer, 2010). Moreover, our study did not assess any pathophysiological mechanisms that would explain these associations, something that is needed to gain full understanding of the minority stress–illness relationship.

Despite these limitations, our findings provide partial evidence for the hypothesized negative effects of minority stress on the physical health of sexual minorities (Meyer, 2003a). Results indicate that prejudice events can be more damaging to physical health than general stressful life events that do not involve prejudice. This parallels previous research that shows bias motivated crimes, such as assault, have a greater mental health impact than similar crimes not motivated by bias (Herek et al., 1999). Thus, the deleterious effect of prejudice events on physical health is robust, and can persist above and beyond the impact of general life stress. However, the negative effects of minority stressors on physical health are not uniform. Future research and interventions focused on understanding and addressing the influence of minority stress on health must account for the full spectrum of minority stressors and explicate the potentially differential mechanisms linking minority stressors to a variety of physical health problems in the lives of sexual minorities.

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