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REGULAR ARTICLE

Risk From Within: Intraminority Gay Community Stress and Sexual Risk-Taking Among Sexual Minority Men

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Abstract

Background Sexual minority men remain highly impacted by the human immunodeficiency virus (HIV) with social stress being a clear predictor of their risk for infection. The past several decades of stress research regarding sexual minority men's HIV-risk behaviors has almost exclusively focused on the influence of stress emanating from outside the gay community (e.g., stigma-related stress, or minority stress, such as heterosexist discrimination). However, recent evidence suggests that sexual minority men also face stress from within their own communities.

Purpose We sought to examine whether stress from within the gay community, or intraminority gay community stress, might influence sexual minority men's risk behaviors, including HIV-risk behaviors, over-and-above more commonly examined stressors affecting this risk.

Methods We tested whether intraminority gay community stress was associated with sexual minority men's HIV-risk behaviors in a large national survey of sexual minority men (Study 1), and experimentally tested intraminority gay community stress's impact on behavioral risk-taking and attitudes toward condom use (Study 2).

Results Self-reported exposure to intraminority gay community stress was positively associated with HIV-risk behaviors when accounting for the effects of several commonly examined minority stressors and general life stress (Study 1). Participants who were rejected from an online group of other sexual minority men evidenced greater risk-taking in a subsequent task and reported fewer benefits of condom use than participants who were accepted by the online group, when accounting for state affect (Study 2).

Conclusions Sexual minority men's experiences of stress and rejection stemming from their own community may be an important and overlooked predictor of HIV infection and transmission.

Keywords: Minority stress · Stigma · HIV prevention · Intergroup relations · Rejection

Introduction

Sexual minority men (i.e., gay, bisexual, and other men who have sex with men [MSM]) in the USA remain highly impacted by the human immunodeficiency virus (HIV) [1]. Clear and consistent evidence shows that HIV risk can be partially attributed to sexual minority men's disproportionate exposure to stigma-related stress, also known as minority stress [2, 3]. Indeed, for many sexual minority men, minority stress—including actual and anticipated experiences of heterosexist discrimination—can result in feelings of rejection, identity concealment, and self-devaluation which, in turn, are associated with increased sexual risk-taking, including condomless sexual intercourse [4–6]. Minority stress has been shown to be an important predictor of sexual risk-taking among sexual minority men [5, 7].

For many sexual minority men, minority stress is often compounded by stress emanating from within the gay community itself, or *intraminority* gay community stress. Unlike heterosexual men, sexual minority men compete with, and draw from, other men as sources of both social *and sexual* reward [8]. Recent research has also documented hegemonic norms within the gay community surrounding race, masculinity, body type, age, and HIV status that might contribute to stress generated by the gay community [9–11]. One multimethod

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series of studies sought to explicitly examine the existence of gay community stress, its theoretical underpinnings, and its effects on sexual minority men's mental health [12]. During interviews regarding their perceptions of the primary stressors in their lives, sexual minority men diverse in age, race, and geography noted the primacy of stress originating from within the gay community and its harmful mental health impact. A series of survey and experimental studies then revealed that sexual minority men's social status and standing within the gay community predicted their perceptions of intraminority gay community stress and more severe impact of rejection from other sexual minority men. Notably, perceptions of gay community stress were significantly associated with sexual minority men's mental health concerns (e.g., depressed mood), even when accounting for heterosexist discrimination and other minority stressors previously linked to sexual minority men's mental health. While these studies provide compelling evidence for the existence of intraminority gay community stress and its impact on mental health, the influence of intraminority gay community stress on sexual minority men's sexual risk-taking is currently unknown but might usefully inform HIV intervention efforts within the gay community.

The aim of the current investigation was to assess whether intraminority gay community stress might contribute to risk behaviors, including sexual-risk behaviors, among sexual minority men. In Study 1, we measured individual differences in perceptions of intraminority gay community stress as well as minority stress and general life stress and compared their associations with instances of HIV-risk behaviors in a national sample of sexual minority men. In Study 2, we experimentally tested if exposure to rejection from within the gay community would predict behavioral and attitudinal factors that contribute to sexual minority men's sexual risk-taking. Prior experimental evidence from presumably heterosexual samples has demonstrated that social rejection is associated with behavioral risk-taking [13] and with choosing unhealthy, as opposed to healthy, behaviors [14]. We therefore hypothesized that perceptions of intraminority gay community stress (Study 1) and experimental exposure to such stress (Study 2) would significantly contribute to sexual minority men's sexual-risk behaviors and attitudes.

Study 1

We tested our first hypothesis, that perceptions of gay community stress would be significantly associated with sexual minority men's HIV-risk behaviors over-and-above general life stress and established minority stressors, in a national sample of sexual minority men. Participants responded to a self-report measure assessing individual differences in perceptions of stress from within the gay community as well as their number of HIV-risk sexual encounters in the previous 90 days. We tested the association between participants' HIV-risk behaviors and participants' perceived general life stress, minority stress, (i.e., heterosexist discrimination, gay-related rejection sensitivity, internalized homophobia, sexual orientation concealment), and perceived gay community stress. We expected that sexual minority men facing higher levels of stress from within the gay community would report more instances of HIV-risk behavior, and that the association between gay community stress and HIV-risk behavior would be equivalent to or greater than the association between minority stress and HIV-risk behavior.

Method

Participants

We recruited participants from a gay-specific social media platform, Grindr. We intentionally maximized the geographic diversity of the sample by recruiting men from (i) one of the four largest U.S. cities (i.e., New York, Los Angeles, Chicago, and Houston), (ii) 20 randomly selected small urban areas (i.e., those with a population of at least 100,000, but excluding the 10 most populous cities), and (iii) 20 randomly selected rural counties across the USA. A total of 1,904 individuals completed an eligibility screen, of which 1,409 met the following inclusion criteria: current residence in the USA, assigned male sex at birth, age 18 or older, and identifying as a gay or bisexual man. Eligible participants were omitted from analyses if their responses met one or more of the following missing data criteria: did not complete all demographic data (n = 114), all gay community stress scale items (n = 139), or the majority of minority stress (n = 448) or outcome questionnaires (n = 363). Our final analytic sample consisted of 937 men (Table 1). Participants completed all measures online and were compensated with a $10 gift card for participating in the study.

Measures

Perceived general stress. To measure general life stress, participants were administered the Perceived Stress Scale [15]. This 14-item self-report scale asks participants to assesses the degree to which they have experienced general stress in the past month (e.g., "In the last month, how often have you felt difficulties were piling up so that you could not overcome them?") on a five-point scale, ranging from 0 (*never*) to 4 (*very often*); items were summed to create a total score.

Minority stress.

Table 1. Study 1 Sample Demographic Characteristics (n = 937)

	n	%
Race		
Black	100	10.7
White	636	67.9
Asian/Native Hawaiian/Pacific Islander	97	10.4
Other/Multiracial	104	11.1
Ethnicity		
Hispanic	235	25.1
Non-Hispanic	702	74.9
Sexual orientation		
Gay	688	73.4
Bisexual	222	23.7
Queer	21	2.2
Heterosexual	1	0.1
Uncertain	5	0.5
HIV status		
Positive	81	8.6
Negative	808	86.2
Unsure	48	5.1
Income		
<$30,000	473	50.5
≥$30,000	464	49.5
Relationship status		
Single	300	32.0
Partnered	637	68.0
Employment status		
Full-time	539	57.5
Part-time	125	13.3
On disability	20	2.1
Student	188	20.1
Unemployed	65	6.9
Highest educational activity		
Some high school	16	1.7
High school diploma or GED	83	8.9
Some college or associate's degree	371	39.6
Bachelor's or other 4-year degree	288	30.7
Graduate degree	179	13.3
Engaged in at least one HIV-risk event in past 90 days	156	16.6
	M	*SD*
Age	30.78	9.8

GED General Educational Development test completion.

Heterosexist discrimination. Individual differences in exposure to heterosexist discrimination were measured with the Everyday Discrimination Scale [16], adapted to assess experiences of discrimination related to one's sexual orientation. This 11-item self-report scale asks participants to endorse the frequency with which they currently experience interpersonal mistreatment due to being a sexual minority (e.g., "You are called names or are insulted") on a six-point scale, ranging from 0 (*never*) to 5 (*almost every day*); items were summed to create a total score [15].

Sexual orientation-related rejection sensitivity. We assessed sexual orientation-related rejection sensitivity, a commonly assessed minority stressor, using the Gay-Related Rejection Sensitivity Scale [17]. This self-report scale presents 14 ambiguously rejecting scenarios (e.g., "Your colleagues are celebrating a coworker's birthday at a restaurant. You are not invited.") and then asks participants to assess sexual orientation-related rejection in the scenarios across two domains. First, participants reported how concerned or anxious they would be that the rejection occurred because of their sexual orientation using a six-point scale, 1 (*very unconcerned*) to 6 (*very concerned*). Second, participants reported how likely they would believe this situation occurred because of their sexual orientation using a six-point scale, 1 (*very unlikely*) to 6 (*very likely*). A total score was created by obtaining the product of the Anxiety and Likelihood subscales for each item and dividing the sum of the 14 resulting scores by 14.

Internalized homophobia. We assessed internalized homophobia, another commonly assessed minority stressor, using the Internalized Homophobia Scale [18]. The nine-item self-report scale asks participants to assess the extent of their uneasiness with same-sex desires and behaviors, specified for the past year, across several questions (e.g., "How often have you wished you weren't gay?") on a four-point scale from 1 (*often*) to 4 (*never*); items were summed to create a total score.

Sexual orientation concealment. We assessed this minority stressor using the Sexual Orientation Concealment Scale [19]. This five-item self-report scale measures the degree of current disclosure of sexual orientation to several groups of people (e.g., heterosexual friends, coworkers, family) on a scale of 1 (*out to none*) to 4 (*out to all*); items were summed to create a total score.

Intraminority gay community stress. Perceptions of gay community stress were measured with the Gay Community Stress Scale (GCSS) [12]. This self-report questionnaire asks gay and bisexual men the extent to which they currently experience stress across 29 potentially stressful aspects of the gay community using a five-point scale from 1 (*not at all stressed/bothered*) to 5 (*extremely stressed/bothered*). Stressful aspects were derived from qualitative interviews regarding sources of stress in sexual minority men's lives. Specifically, the Gay Community Stress Scale assesses sexual minority men's perceptions of stress emerging from the gay community's perceived focus on status (e.g., "In the mainstream gay community, there is a lot of fighting, bickering, and cattiness)," sex (e.g., "The mainstream gay community values sex over meaningful relationships"),

social competition (e.g., "The mainstream gay community is overly judgmental"), and social exclusion (e.g., "The mainstream gay community sexually objectifies men of color"). The scale's utility as a valid and reliable measure of gay community stress has been previously demonstrated through a robust, three-step test [12]. In the first step, an initial factor analysis was conducted with data from a national sample of sexual minority men (n = 937), documenting the four resulting factors listed above describing perceived stress resulting from the gay community's focus on sex (α = 0.90), focus on status (α = 0.90), social competition (α = 0.93), and exclusion of diversity (α = 0.80). In the second step, two confirmatory factor analyses with a sample of young adult gay and bisexual men (n = 96) and a Swedish sample of gay and bisexual male adults (n = 1,413) confirmed the structural stability of this four-factor structure. In the third step, to confirm the temporal stability of the GCSS, a subset of participants from the primary study were re-contacted 1 year after their initial participation to complete the GCSS measure again (n = 318). Results supported the scale's stable 1-year test-retest reliability (r = .55). The measure development process is described in further detail by Pachankis and colleagues (2020) [12].

Following previous research [12], we calculated the sum of participants' responses across all 29 items of the four subscales to create an overarching index of perceived gay community stress. The scale's reliability was strong (α = 0.96). Univariate associations between the Gay Community Stress Scale and other stress measures were relatively weak or nonexistent. Associations between the Gay Community Stress Scale and these measures were as follows: perceived general stress (r = .22, p < .001), heterosexist discrimination (r = .29, p < .001), rejection sensitivity (r = .26, p < .001), internalized homophobia (r = .15, p < .001), and sexual orientation concealment (r = .00, p = .81).

HIV-risk behavior. Participants indicated the number of times they had sexual intercourse in the past 90 days and the following conditions surrounding each act: self and partner HIV status, self and partner pre-exposure prophylaxis use (when either was HIV-negative), and self and partner undetectable viral load status (when either was HIV-positive). We calculated HIV-risk behavior as sexual intercourse, excluding oral events, that took place without condoms between serodiscordant or HIV-status-unknown partners when neither partner was protected by pre-exposure prophylaxis (for HIV-negative partners) or undetectable viral load (for HIV-positive partners). This approach recognizes current behavioral and biomedical HIV prevention and lends itself to identifying those participants who are at high risk of HIV infection or transmission. Approximately 17% of the sample (n = 156) indicated at least one such HIV-risk event; among these participants, the modal number of these HIV-risk events was 1.0 and the median number of HIV-risk events was 4.0.

Analytic plan

To statistically test our hypothesis that perceptions of gay community stress would be significantly associated with sexual minority men's HIV-risk behaviors over-and-above general life stress and established minority stressors, we conducted a negative binomial regression with instances of HIV-risk behavior as our dependent measure and gay community stress as our primary independent variable. The model also included measures of perceived general life stress and minority stressors (i.e., heterosexist discrimination, gay-related rejection sensitivity, internalized homophobia, and sexual orientation concealment). Covariates included participants' age, education, relationship status, income, sexual orientation, and race (where each racial category was assigned a dummy-coded variable to compare it against the white referent group).

Results and Discussion

Results of the negative binomial regression can be found in Table 2. Instances of HIV-risk behavior were positively associated with perceived general stress (Exp β = 1.05, p < .001) as well as measures of minority stress, including gay-related rejection sensitivity (Exp β = 1.04, p < .001) and internalized homophobia (Exp β = 1.04, p < .001), and negatively associated with sexual orientation concealment (Exp β = 0.89, p < .001). Instances of HIV-risk behavior were also positively associated with gay community stress (Exp β = 1.20, p = .011). These results indicate that a one-unit difference between participants on the Gay Community Stress Scale, on average, was associated with 20% more HIV-risk events in the past 90 days. As a sensitivity analysis, we conducted a negative binomial regression testing the association between gay community stress and HIV-risk behaviors, omitting all other variables from the model. Results indicated that the association between gay community stress and HIV-risk behavior in this unadjusted model (β = 1.25, p < .001) was similar in magnitude to the association observed in the adjusted model.

While previous studies have linked minority stress to sexual minority men's HIV risk [20, 21], this is the first study to our knowledge to show that stress from within the gay community, or intraminority gay community stress, may also be associated with sexual minority men's HIV-risk behavior. That the observed association between gay community stress and HIV-risk behavior held over-and-above measures of perceived general stress and minority stress lends further evidence to support gay community stress as a unique predictor of sexual risk-taking. While Study 1 suggests that individual differences in gay community stress exposure may drive sexual risk-taking, the cross-sectional design of this study, and the inclusion of other stress measures that differed in the time periods covered, limits any causal conclusion

Table 2. Associations of General Stress, Minority Stress, and Intraminority Gay Community Stress With Frequency of HIV-Risk Behaviors (n = 937)

	B	Exp β	95% CI
Demographics			
Age	−0.01	0.99	[0.98, 1.01]
Race[a]			
Native American	0.44	1.55	[0.80, 3.03]
Asian	−1.74	0.18***	[0.07, 0.41]
Black	−0.33	0.72	[0.50, 1.02]
Multiracial/Other	0.07	1.07	[0.83, 1.40]
Income ≥ $30,000/year[b]	−0.12	0.89	[0.70, 1.12]
Education ≥ 4-year college degree[c]	0.55	1.73***	[1.38, 2.16]
Gay identity[d]	−0.91	0.40***	[0.31, 0.52]
HIV-positive status[e]	2.95	19.17***	[14.31, 25.68]
Single[f]	0.24	1.27*	[1.01, 1.58]
General life stress			
Perceived general stress	0.04	1.05***	[1.03, 1.06]
Minority stress			
Heterosexist discrimination	0.01	1.01	[0.99, 1.04]
Rejection sensitivity	0.03	1.04***	[1.02, 1.05]
Internalized homophobia	0.04	1.04***	[1.02, 1.06]
Sexual orientation concealment	−0.11	0.89***	[0.87, 0.92]
Intraminority gay community stress			
Gay community stress	0.19	1.20*	[1.04, 1.39]

[a]Reference group is white participants.

[b]Reference group is participants earning less than $30,000/year.

[c]Reference group is participants without a 4-year college degree.

[d]Reference group is participants who identify as bisexual.

[e]Reference group is participants reporting an HIV-positive status.

[f]Reference group are participants who are partnered.

*p < .05; ***p < .001.

regarding gay community stress's impact on sexual risk including any impact that might result from situational, rather than dispositional, factors.

Study 2

Our goal in Study 2 was to test whether acute exposure to gay community stress could causally amplify sexual minority men's sexual-risk behavior. Specifically, we sought to experimentally manipulate participants' exposure to gay community stress while socially interacting with other sexual minority men. Our experiment used a social rejection paradigm to emulate acute exposure to gay community stress by leading participants to believe that they were interacting with other sexual minority men in an online social network. In one condition of the experiment, participants created an online profile containing personally salient information and received socially accepting feedback about their profile from a group of sexual minority male users (acceptance condition). In the other condition, participants also created a profile but received rejecting feedback about their profile from the group (rejection condition). Unbeknownst to the participant, the group of users they interacted with were confederate "chatbots" preprogrammed to respond to elements of the participant's profile. As Study 1 found that greater perceptions of gay community stress were associated with greater risk-taking, we hypothesized that participants' acute exposure to gay community stress, in this case social rejection from other sexual minority men, would elicit greater behavioral risk-taking as well as riskier attitudes toward condom use as compared to those who were exposed to social acceptance.

Method

Participants

Participants were recruited via an online survey panel. The panel was created prior to study initiation via an

independent panel creation company (Qualtrics) by asking potential participants a variety of demographic and background questions, including sexual orientation, that were then entered into a database for use in future studies seeking to recruit specific populations. We elected to use an online panel service for Study 2 recruitment to minimize sexual minority-related demand characteristics. A total of 99 participants completed the study (Table 3).

Procedure

Participants who provided informed consent were directed to complete a brief series of additional demographic measures as well as a baseline measure of negative affect prior to being randomized into one of two experimental conditions. In both conditions, participants were redirected to the "Gay Men's Social Networking Study" website, an artificial social networking website designed by our research team to appear similar to other popular social networking sites. The initial pages of the website provided a cover story to participants—namely that they were assigned the role of a "contributor" to the group and would be asked to create a profile that would then be commented upon by an existing chat group of other sexual minority men. Participants were then prompted to create their profile by providing a variety of personally salient information such as demographic factors (e.g., age, geographic region), physical appearance (e.g., height and weight), occupation and hobbies, as well as personally meaningful information (e.g., favorite musician and favorite memory). Once the participant completed his profile, he was redirected to a chat page where he observed seven "group members" interacting with each other. For the first 30 seconds on the chat page, the participant only observed the group members chatting with each other prior to the participant's own profile being posted for the group's review. For the following 60 seconds, the participant viewed group members discussing the participant's posted profile. Group members were, unbeknownst to the participant, chatbot confederates that were computer-programmed to chat using specific text, including some text drawn from the participant's profile to make the chatbot's responses more believable and personally salient. The type of response that participants received differed by experimental condition. In the acceptance condition (n = 49), participants received comments ranging from neutral to affirmative from the group members (e.g., "hope we get to actually talk to this person"). Participants in the rejection condition (n = 50) received comments ranging from neutral to negative from the group members (e.g., "hope we don't actually have to talk to this person"). After receiving feedback from group members, participants were redirected to a different website where they completed a test of their behavioral risk-taking, another measure of negative state affect, and other measures prior to being debriefed on the study's deceptive elements.

Table 3. Study 2 Sample Demographic Characteristics (n = 99)

	n	%
Race		
Black	19	19.2
White	74	74.7
Asian/Native Hawaiian/Pacific Islander	5	5.1
Other/Multiracial	1	1.0
Ethnicity		
Hispanic	15	15.2
Non-Hispanic	84	84.8
Sexual orientation		
Gay	94	94.9
Bisexual	5	5
HIV status		
Positive	10	10.1
Negative	81	81.8
Missing	8	8.1
Income		
<$30,000	19	19.2
≥$30,000	80	80.8
Employment status		
Full-time	72	72.7
Part-time	6	6.1
On disability	5	5.0
Student	2	2.0
Unemployed	14	14.1
Highest educational activity		
High school diploma or GED	10	10.1
Some college or associate's degree	25	25.3
Bachelor's or other 4-year degree	54	54.6
Graduate degree	10	10.1
	M	*SD*
Age (range: 19–72; median = 38)	40.2	13.31

GED General Educational Development test completion.

Measures

Behavioral risk-taking. Participants' behavioral risk-taking was measured through the Columbia Card Task, hot version [22], a computerized game in which participants aim to maximize their number of points earned by flipping over cards across 24 trials. Specifically, participants are presented with 32 face-down cards in each trial, where some cards are "gain" cards (i.e., the participant gains points by flipping them over) and some are "loss" cards (i.e., the participant loses points by flipping them over). Gain cards are much smaller in absolute point value (10 or 30 points) than loss cards (−250 or −750

points), but only one or three loss cards are present in each trial. Each trial can be voluntarily ended by the participant at any time or is involuntarily ended whenever the participant flips over a loss card. The point values of the gain and loss cards, as well as the number of loss cards, were randomized across the 24 trials. Each participant's behavioral risk-taking was calculated by summing the total number of cards flipped across all trials. The number of observed total card flips (M = 238.6, SD = 118.9) ranged from 0 to 413. Previous research shows the Columbia Card Task to be associated with diminished executive functioning [23].

Perceived benefits and costs of condom use. Participants' perceptions of condom use were assessed via a decisional balance approach [24, 25]. Participants indicated their perceptions of the benefits and costs of condom use during sex by rating their agreement with 11 statements on a 5-point Likert scale, ranging from 1 (*not at all*) to 5 (*extremely*). Perceived benefits of condom use included items regarding protecting the health of partners, feeling responsible, and reducing STI-transmission risk (α = 0.91). Perceived costs of condom use included eight items regarding interrupting feelings of spontaneity, reducing intimacy, and experiencing negative feelings and sensations associated with condoms (α = 0.81). Item responses were averaged to create a mean endorsement score for both perceived benefits and perceived costs.

State affect. State affect was measured using the negative affect subscale of the Positive and Negative Affect Scale [26]. Items in this scale asked participants to rate how much they experienced 10 negative emotions (e.g., "distressed," "hostile") on a scale ranging 1 (*very slightly or not at all*) to 5 (*extremely*). Responses were summed to create a negative affect score for the baseline (α = 0.93) and post-manipulation (α = 0.90) time points.

Data analysis

As a manipulation check, we conducted a 2 × 2 repeated measures ANOVA on state negative affect, where time (before vs. after manipulation) was included as a within-subject factor and experimental condition (acceptance vs. rejection) was included as a between-subjects factor. Simple effects were tested using paired t-tests to compare changes in negative affect within each condition. Three separate linear regressions examined unconditional differences between conditions on the outcome variables. Our final analyses consisted of three separate ANCOVAs for each outcome of interest (i.e., behavioral risk-taking, perceived benefits of condom use, and perceived costs of condom use), controlling for participants' change in negative affect before and after experimental manipulation, as individual differences in state-level affect have been previously linked to behavioral risk-taking [27].

Results and Discussion

The manipulation check revealed significant main effects of time, $F(1, 97) = 5.86$, $p = .02$, and experimental condition, $F(1, 97) = 9.51$, $p = .003$, which were qualified by a time-by-experimental condition interaction, $F(1, 97) = 9.63$, $p = .003$. Tests of simple effects confirmed that our manipulation operated as intended, where participants in the acceptance condition evidenced no change in negative affect, $t = 0.67$, $p = .51$, from before (M = 1.35, SD = 0.65) to after (M = 1.30, SD = 0.44) the manipulation, whereas those in the rejection condition evidenced a significant increase in negative affect, $t = -3.2$, $p = .002$, from before (M = 1.48, SD = 0.10) to after (M = 1.87, SD = 0.82) the manipulation.

Unadjusted group differences were observed for behavioral risk-taking (β = −0.27, $p = .006$). There was a marginal group difference for perceived benefits of condom use (β = −0.17, $p = .087$), and there was no group difference for perceived costs of condom use (β = 0.03, $p = .76$).

The ANCOVA, accounting for change in negative affect, indicated that participants in the rejection condition flipped over significantly more cards (M = 270.58, SD = 96.95) than participants in the acceptance condition (M = 205.92, SD = 130.89; $F(1, 96) = 7.74$, $p = .007$, $\eta^2 = 0.08$). Participants in the rejection condition reported significantly fewer perceived benefits of condom use (M = 2.65, SD = 0.89) than those in the acceptance condition (M = 2.98, SD = 0.99; $F(1, 96) = 4.46$, $p = .037$, $\eta^2 = 0.04$). Perceived costs continued to not significantly differ between the rejection (M = 3.49, SD = 0.83) and acceptance (M = 3.44, SD = 0.82; $F(1, 96) = 0.01$, $p = .92$, $\eta^2 = 0.00$) conditions.

The results of Study 2 suggest that the acute experience of rejection from other sexual minority men influenced two psychological mechanisms related to sexual-risk behaviors. Specifically, participants who were rejected from the online social group of other sexual minority men were more likely to engage in greater behavioral risk-taking and less strongly endorsed benefits of using condoms than participants who were accepted by the group. Controlling for affective factors linked to risk-taking [27] lends further evidence that the manipulated social context, rather than shifts in state affect, was responsible for the observed differences between conditions. Overall, this finding is consistent with previous survey data linking sexual minority men's stigma-related stress to greater likelihood of engaging in sexual-risk behaviors and experimentally extends this prior research to behavioral risk-taking following rejection from other sexual minority men.

Discussion

Converging lines of evidence from the sociological, psychological, and public health literatures have indicated

that sexual minority men face stress from within their own communities and that this stress may function as a determinant of sexual minority men's health [8, 12]. In fact, previous research finds that while minority stress accounts for some of the mental and physical health disparities disproportionately facing sexual minority men [28–30], it does not fully explain these disparities and therefore calls for investigations into other sources of stress affecting sexual minority men's health. Our investigation highlights the possibility that stress originating from within the gay community might contribute to the types of sexual risk-taking that increase sexual minority men's risk of HIV infection. Study 1's examination of individual differences in perceptions of gay community stress indicated that gay community stress is associated with HIV-risk behavior. Moreover, this association was observed when adjusting for general perceived stress as well as several indicators of minority stress, positioning gay community stress as a unique and incrementally useful indicator of sexual minority men's HIV-risk behavior [5, 31].

Results from Study 2 indicate that acute exposure to gay community stress, in the form of rejection from other sexual minority men, can have an immediate impact on sexual minority men's risk-taking behavior and attitudes. This study is, to our knowledge, the first to use an experimental rejection paradigm to examine the impact of rejection on risk-taking behaviors and attitudes among sexual minority men—and indeed, we showed that a mere 60 seconds of exposure to the simulated rejecting comments from an online group of in-group members whom the participant was not expecting to meet in person was sufficient to induce increases in negative affect, elevate risk-taking propensity, and weaken endorsements of the benefits of condom use. While our methodology does not allow us to compare the strength of the influence of rejection stemming from inside the gay community (i.e., other gay and bisexual men) to the influence of rejection stemming from outside gay community (e.g., from heterosexual men), we were primarily interested in the effect of rejection from gay community members for two reasons. First, rejection that happens in a sexual domain is more likely to influence sexualized status-reclaiming behavior, such as condom use nonassertion, than rejection that happens in a nonsexual domain, such as from heterosexist discrimination [32]. Second, rejection from other sexual minority men is most likely to occur temporally closer to sexual decision-making than rejection from other nonpotential sex partners. For example, users of mobile sex-seeking applications are more likely to face multiple rejections from potential partners prior to eventually contacting and meeting a partner for sex—and these preceding experiences of rejection may influence subsequent behavior. In fact, given the prominent role of mobile sex-seeking applications (and the rejection that takes place on them) in sexual minority men's lives [33], the experience of (online) rejection before sex has important public health implications.

Our investigation highlights the importance of a novel and relatively unexplored factor, intraminority gay community stress, as a potent psychosocial predictor of health behaviors among sexual minority men, with possible future implications for curbing the epidemic of HIV among this population. Researchers should further explore the antecedents and consequences of gay community stress in the actual online venues where sexual minority men meet each other (e.g., Grindr), as these contexts are increasingly the locus of sexual decision-making, negotiation, and rejection for this population [34, 35]. Identifying specific individual, interpersonal, and structural factors contributing to gay community stress in these venues can help inform interventions to mitigate the impact of gay community stress on sexual decision-making. Psychological interventions seeking to improve the stress-coping resources of sexual minority men may also be particularly relevant for helping buffer the effects of gay community stress on sexual risk. Indeed, one intervention that seeks to improve coping behaviors in the face of stigma-related stress shows initial efficacy for reducing sexual risk among sexual minority men [36]. Such approaches can be easily adapted to help sexual minority men also cope with the stress originating from within their own communities. HIV pre-exposure prophylaxis also represents a promising approach to protecting against any HIV-risk outcomes of gay community stress as it is relatively impervious to situationally-dependent rejection or fluctuating psychological reactions to such stress compared to condom use.

Our results provide evidence that intraminority gay community stress may deleteriously influence the sexual health of sexual minority men even over-and-above general life stress and several forms of minority stress. However, we did not investigate the moderating roles of race/ethnicity, socioeconomic resources, and other potential markers of social status that may predispose certain individuals within the gay community to gay community stress or, conversely, buffer them against such stress [37]. However, previous research shows that sexual minority men who are Hispanic, single, and younger, and those who have lower income and less educational attainment perceive more gay community stress [12]. The current analyses were limited insofar as both study samples were fairly demographically homogenous, with participants who were generally young, White, and well-educated, which might have limited sample generalizability. Furthermore, all participants in Study 1 were recruited through Grindr, a geosocial networking app often utilized to find sexual partners. Future research with more demographically diverse population-based samples should explore the influence of intersectional identities on sexual minority men's sexual risk as a function of gay community stress. While our study benefits from inclusion of both cross-sectional survey and experimental approaches, future studies that include longitudinal and network-based analyses can

provide greater insight into the origins and spread of gay community stress among community members.

In summary, results from the current study suggest that stress emanating from within the gay community is a largely overlooked component of social stress, and in-turn behavioral risk, affecting sexual minority men. It is important to note that our findings do not contradict the ultimate contribution of structural disadvantage to the HIV epidemic, especially today's HIV epidemic in the USA, which disproportionately affects sexual minority men of color primarily for reasons of structural disadvantage [38]. Individual decision-making and behavior occur against a structural backdrop and are shaped by that backdrop in ways not tested here, but established elsewhere [7, 39]. Future research might wish to consider the intersection of structural determinants (e.g., structural stigma) and individual factors, such as perceptions of gay community stress, as predictors of sexual minority men's sexual-risk behavior. Our findings also do not imply that gay community membership is inherently deleterious for sexual minority men's health. Indeed, research also indicates that sexual minorities receive crucial support from other sexual minorities that is vital to their well-being and that might protect against sources of stress encountered by virtue of being a marginalized member of society [40, 41]. By further researching the factors that contribute to stress *and* support resulting from interactions among sexual minority men, future interventions will be better positioned to bolster the sexual, physical, and mental health of this resilient community.

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Compliance with Ethical Standards

Authors' Statement of Conflict of Interest and Adherence to Ethical Standards Authors Burton, Clark, and Pachankis declare that they have no conflict of interest. All procedures, including the informed consent process, were conducted in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000.

References

1. Centers for Disease Control and Prevention. Diagnoses of HIV infection in the United States and dependant areas. *HIV Surveill Rep.* 2017;28.
2. Preston DB, D'Augelli AR, Kassab CD, Starks MT. The relationship of stigma to the sexual risk behavior of rural men who have sex with men. *AIDS Educ Prev.* 2007;19:218–230.
3. Rendina HJ, Gamarel KE, Pachankis JE, et al. Extending the minority stress model to incorporate HIV-positive gay and bisexual men's experiences: a longitudinal examination of mental health and sexual risk behavior. *Ann Behav Med.* 2016;51:147–158.
4. Radcliffe J, Doty N, Hawkins LA, Gaskins CS, Beidas R, Rudy BJ. Stigma and sexual health risk in HIV-positive African American young men who have sex with men. *AIDS Patient Care STDS.* 2010;24:493–499.
5. Hatzenbuehler ML, Nolen-Hoeksema S, Erickson SJ. Minority stress predictors of HIV risk behavior, substance use, and depressive symptoms: results from a prospective study of bereaved gay men. *Health Psychol.* 2008;27:455–462.
6. Pachankis JE. A transdiagnostic minority stress treatment approach for gay and bisexual men's syndemic health conditions. *Arch Sex Behav.* 2015;44:1843–1860.
7. Pachankis JE, Hatzenbuehler ML, Hickson F, et al. Hidden from health: structural stigma, sexual orientation concealment, and HIV across 38 countries in the European MSM Internet Survey. *Aids.* 2015;29:1239–1246.
8. Green AI. Health and sexual status in an urban gay enclave: an application of the stress process model. *J Health Soc Behav.* 2008;49:436–451.
9. Phillips G, 2nd, Birkett M, Hammond S, Mustanski B. Partner preference among men who have sex with men: potential contribution to spread of HIV within minority populations. *LGBT Health.* 2016;3:225–232.
10. Robinson BA. The quantifiable-body discourse: "height-weight proportionality" and gay men's bodies in cyberspace. *Soc Curr.* 2016;3:172–185.
11. Conner CT. The gay gayze: expressions of inequality on Grindr. *Sociol Q.* 2018:60:397–419.
12. Pachankis JE, Clark KA, Burton CL, et al. Sex, status, competition, and exclusion: intra-minority stress from within the gay community and gay and bisexual men's mental health. *J Pers Soc Psychol.* In press.
13. Peake SJ, Dishion TJ, Stormshak EA, Moore WE, Pfeifer JH. Risk-taking and social exclusion in adolescence: neural mechanisms underlying peer influences on decision-making. *Neuroimage.* 2013;82:23–34.
14. Twenge JM, Baumeister RF, Tice DM, Stucke TS. If you can't join them, beat them: effects of social exclusion on aggressive behavior. *J Pers Soc Psychol.* 2001;81:1058–1069.
15. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav.* 1983;24:385–396.
16. Williams DR, Yan Yu, Jackson JS, Anderson NB. Racial differences in physical and mental health: socio-economic status, stress and discrimination. *J Health Psychol.* 1997;2:335–351.
17. Pachankis JE, Goldfried MR, Ramrattan ME. Extension of the rejection sensitivity construct to the interpersonal functioning of gay men. *J Consult Clin Psychol.* 2008;76:306–317.
18. Frost DM, Meyer IH. Internalized homophobia and relationship quality among lesbians, gay men, and bisexuals. *J Couns Psychol.* 2009;56:97–109.
19. Meyer IH, Rossano L, Ellis JM, Bradford J. A brief telephone interview to identify lesbian and bisexual women in random digit dialing sampling. *J Sex Res.* 2002;39:139–144.
20. Ayala G, Bingham T, Kim J, Wheeler DP, Millett GA. Modeling the impact of social discrimination and financial hardship on the sexual risk of HIV among Latino and Black men who have sex with men. *Am J Public Health.* 2012;102(suppl 2):S242–S249.
21. Mizuno Y, Borkowf C, Millett GA, Bingham T, Ayala G, Stueve A. Homophobia and racism experienced by Latino men who have sex with men in the United States: correlates of exposure and associations with HIV risk behaviors. *AIDS Behav.* 2012;16:724–735.

22. Figner B, Mackinlay RJ, Wilkening F, Weber EU. Affective and deliberative processes in risky choice: age differences in risk taking in the Columbia Card Task. *J Exp Psychol Learn Mem Cogn.* 2009;35:709–730.
23. Buelow MT. Predicting performance on the Columbia card task: effects of personality characteristics, mood, and executive functions. *Assessment.* 2015;22:178–187.
24. Parsons JT, Halkitis PN, Bimbi D, Borkowski T. Perceptions of the benefits and costs associated with condom use and unprotected sex among late adolescent college students. *J Adolesc.* 2000;23:377–391.
25. Prochaska JO, Velicer WF, Rossi JS, et al. Stages of change and decisional balance for 12 problem behaviors. *Health Psychol.* 1994;13:39–46.
26. Watson D, Clark LA, Tellegen A. Development and validation of brief measures of positive and negative affect: the PANAS scales. *J Pers Soc Psychol.* 1988;54:1063–1070.
27. Mustanski B. The influence of state and trait affect on HIV risk behaviors: a daily diary study of MSM. *Health Psychol.* 2007;26:618–626.
28. Cochran SD, Mays VM. Burden of psychiatric morbidity among lesbian, gay, and bisexual individuals in the California Quality of Life Survey. *J Abnorm Psychol.* 2009;118:647–658.
29. Meyer IH, Schwartz S, Frost DM. Social patterning of stress and coping: does disadvantaged social statuses confer more stress and fewer coping resources? *Soc Sci Med.* 2008;67:368–379.
30. Newcomb ME, Mustanski B. Internalized homophobia and internalizing mental health problems: a meta-analytic review. *Clin Psychol Rev.* 2010;30:1019–1029.
31. Wang K, Pachankis JE. Gay-related rejection sensitivity as a risk factor for condomless sex. *AIDS Behav.* 2016;20:763–767.
32. Blake KR, Bastian B, Denson TF. Heightened male aggression toward sexualized women following romantic rejection: the mediating role of sex goal activation. *Aggress Behav.* 2018;44:40–49.
33. White Hughto JM, Pachankis JE, Eldahan AI, Keene DE. "You can't just walk down the street and meet someone": the intersection of social-sexual networking technology, stigma, and health among gay and bisexual men in the small city. *Am J Mens Health.* 2017;11:726–736.
34. Landovitz RJ, Tseng CH, Weissman M, et al. Epidemiology, sexual risk behavior, and HIV prevention practices of men who have sex with men using Grindr in Los Angeles, California. *J Urban Health.* 2013;90:729–739.
35. Winetrobe H, Rice E, Bauermeister J, Petering R, Holloway IW. Associations of unprotected anal intercourse with Grindr-met partners among Grindr-using young men who have sex with men in Los Angeles. *AIDS Care.* 2014;26:1303–1308.
36. Pachankis JE, Hatzenbuehler ML, Rendina HJ, Safren SA, Parsons JT. LGB-affirmative cognitive-behavioral therapy for young adult gay and bisexual men: a randomized controlled trial of a transdiagnostic minority stress approach. *J Consult Clin Psychol.* 2015;83:875–889.
37. Chae DH, Yoshikawa H. Perceived group devaluation, depression, and HIV-risk behavior among Asian gay men. *Health Psychol.* 2008;27:140–148.
38. Millett GA, Peterson JL, Flores SA, et al. Comparisons of disparities and risks of HIV infection in black and other men who have sex with men in Canada, UK, and USA: a meta-analysis. *Lancet.* 2012;380:341–348.
39. Oldenburg CE, Perez-Brumer AG, Hatzenbuehler ML, et al. State-level structural sexual stigma and HIV prevention in a national online sample of HIV-uninfected MSM in the United States. *Aids.* 2015;29:837–845.
40. Doty ND, Willoughby BL, Lindahl KM, Malik NM. Sexuality related social support among lesbian, gay, and bisexual youth. *J Youth Adolesc.* 2010;39:1134–1147.
41. Herrick AL, Stall R, Goldhammer H, Egan JE, Mayer KH. Resilience as a research framework and as a cornerstone of prevention research for gay and bisexual men: theory and evidence. *AIDS Behav.* 2014;18:1–9.