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What is the Role of the Community? Examining Minority Stress Processes among Gay and Bisexual Men

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Abstract

Gay and bisexual men suffer from higher rates of mental health disorders than their heterosexual counterparts. Minority stress theory provides the framework for much research that seeks to explain this discrepancy. Recently, several studies have also examined the role of connection with the gay community with mixed results. Operationalizing gay community connectedness in terms of two separate constructs—community involvement and community identification—this study sought to examine and compare the role that each of these factors plays in affecting gay and bisexual men’s mental health. We analyzed data from 371 gay and bisexual men in New York City, focusing on measures of minority stress factors, gay community connectedness, and mental health outcomes. As hypothesized, factor analysis showed that the community connectedness scale loaded onto two sub-factors corresponding to the theorized constructs of identification and involvement. Linear regression models adjusting for potential confounding factors showed that community involvement was significantly associated with better mental health outcomes. Community involvement also significantly moderated the impact of internalized homonegativity on mental health. This factor was not a significant moderator of the impact of sexual orientation discrimination on mental health, and community identification was not significantly associated with mental health outcomes. It also did not significantly moderate the effect of either minority stress factor. Future research would benefit from developing an updated and highly reliable measure of community involvement.

Keywords

mental health; minority stress; stigma; LGBT; gay community

A significant body of research has demonstrated a higher prevalence of mental health symptoms among gay and bisexual men than among heterosexuals (Cochran, 2001;

Fergusson, Horwood, Ridder, & Beauvais, 2005; Meyer, 2013; Pakula, Shoveller, Ratner, & Carpiano, 2016). Minority stress theory posits that adverse mental health outcomes among gay and bisexual men result from specific types of social stress not experienced by heterosexuals (Herek, 2007; Meyer, 1995, 2013). Some of these stressors are categorized as distal meaning that their source is external to the affected individuals. Others are considered proximal stressors, meaning that they rely on perceptions and appraisals specific to the individual and thus originate within the affected individual (Earshwan & Chaudoir, 2009; Hatzenbuehler, 2009; Meyer, 2013;). One such distal stressor is enacted stigma, which takes the form of harmful behaviors such as discrimination, harassment, and violence. By contrast, internalized stigma is inherently a proximal stressor that involves individuals incorporating societal negative regard toward sexual minorities into their own values and self-perception. While enacted and internalized stigma are not the only types of minority stressors identified in the literature, there is extensive research documenting their negative impact on mental health (Feinstein, Goldfried, & Davila, 2012; Hatzenbuehler, 2009; Huebner, Rebchook, & Kegeles, 2004; Igartua, Gill, & Montoro, 2003; Longares, Escartin, & Rodriguez-Carballeira, 2016; McLaren, 2016; Moody, Parsons, & Grov, 2017; Newcomb & Mustanski, 2010; Pachankis, Perez, 2016; Rendina, et al., 2015; Pascoe & Richman, 2009; Soo Hoong Yean, 2017). This paper will examine a minority stress model wherein measures of enacted and internalized stigma are associated with negative mental health outcomes. The latter will be operationalized as symptoms of depression and anxiety, some of the more frequently occurring mental health problems and frequently used measures in the relevant literature.

In addition to describing social stressors that impact sexual minorities, minority stress theory also identifies factors that can moderate or ameliorate the effects of these stressors. Synthesizing previous theoretical work and citing examples from empirical research, Meyer (2013) describes how identifying with a minority group can buffer against minority stress processes. Historical accounts of the establishment of gay and lesbian identities and communities demonstrate how this process helped counteract the negative effects of stigma (D'Emilio, 1998). Further, empirical evidence has shown how minority identity itself can be a stress-ameliorating factor; for example, Branscombe, Schmitt, and Harvey (1999) have demonstrated an association between minority group identification among African-Americans and the dual outcomes of increased self-esteem and decreased negative emotions. Other studies have suggested that minority identity could lead to stronger connections with the minority community which positively impacted self-esteem by both altering self-perceptions and increasing social support (Hershberger & D'Augelli, 1995; Lyons, Pitts, & Grierson, 2013; Ramirez-Valles, Fergus, Reisen, Poppen, & Zea, 2005), while some additional studies have demonstrated an association between social support and improved mental health among gay men (Bartoshuk, 2009; Perez, 2016; Sattler, Wagner, & Christiansen, 2016). Thus, identification and contact with a minority community have emerged as stress-ameliorating factors and moderators of minority stress processes in the literature.

Focusing on gay and bisexual men specifically, several recent studies have examined the role that connection with gay community plays as both an independent factor affecting mental health, and in relation to minority stress processes (Davids, Watson, Nilsson, & Marszalek, 2015; Kousari-Rad & McLaren, 2013; Lelutiu-Weinberger et al., 2013b; Moody, Starks,

Grov & Parsons, 2017; Morris, McLaren, McLachlan, & Jenkins, 2015; Pakula, Carpiano, et al., 2016; Puckett, Levitt, Horne, & Hayes-Skelton, 2015; Reed & Miller, 2016). These studies yielded conflicting results as to whether community connectedness ameliorates or exacerbates the effects of minority stress. Further, examining these studies revealed a distinction between two ways of conceptualizing and operationalizing community connectedness: either in terms of perceived role and relationship to the community or in terms of reported participation in community activities and spaces. For example, Davids et al. (2015) explicitly distinguished between these different conceptualizations, using separate scales for each. Similarly, one prominent scale used to measure community connectedness uses different items to evaluate “identification” and “involvement” with the community. Given its prominence in recent literature on gay and bisexual men, we will incorporate community connectedness into our model as a stress ameliorating factor; further, we will distinguish between the two distinct dimensions of this factor examined in previous research.

Some of this work has specifically focused on gay community identification. Kousari-Rad and McLaren (2013) employed a scale meant to measure respondents’ “level of valued involvement, acceptance and perceived fit” (p.932) in the gay community, a factor they identified as “sense of belonging.” The authors found evidence that body image dissatisfaction was associated with lower self-esteem among gay men only when sense of belonging to the gay community was high. Similarly, Pakula, Carpiano, et al. (2016) reported that gay and lesbian participants with a stronger sense of community belonging showed greater odds of reporting a mood disorder. Finally, Moody, Starks, Grov, and Parsons (2017) measured a similar construct of gay community attachment and found that this factor was associated with greater drug-related problems. Other studies examining the effect of this factor demonstrated more positive outcomes. Morris et al. (2015) used a mediation model to demonstrate that sense of belonging to the gay community was associated with a general sense of belonging which was in turn associated with fewer depressive symptoms. Lelutiu-Weinberger et al., (2013) assessed identification with the gay community using three items (selected to optimize scale reliability) from the Identification and Involvement with the Gay Community (IIGC) Scale, which inquired about the importance of having gay friends, the extent to which being gay made respondents feel like part of a community, and how important being attracted to men was to their sense of identity. The authors reported that stronger identification with the community was associated with less sexual risk for younger gay men. Thus, various studies that examined the effects of gay community identification yielded conflicting outcomes.

Other studies included measures of gay community involvement, demonstrating evidence of positive outcomes. Puckett et al. (2015) measured overall community connectedness with two scales, including the full version of the IIGC scale. Five items on this scale asked specifically about the frequency with which respondents participated in community activities and spaces such as community organizations and bars/clubs. The authors presented evidence that community connectedness mediated the relationship between internalized homonegativity and psychological stress such that internalized homonegativity was associated with lower community connectedness which in turn was associated with greater psychological distress. Reed and Miller (2016) examined differences among Black gay and bisexual men who either were or were not exposed to several syndemic factors including

sexual abuse, substance use, depression, and risky sex. The authors showed that men not exposed to these syndemic factors reported involvement with gay community spaces and organization while those exposed to syndemic factors did not. Thus, various studies examining the effect of community connectedness on gay men differed both in terms of their conceptualization of this factor and their outcome.

While research has examined the effect of both community identification and community involvement on minority stress processes and gay men's mental health, no single study both differentiated between these two factors and compared their effects using equivalent models and samples. The goal of the current study was to examine how both gay community identification and community involvement affect mental health and the extent to which they moderate the influence of minority stress processes on mental health (operationalized as symptoms of depression and anxiety). In doing so, we sought to test the following hypotheses:

1. Minority stress factors—specifically internalized and enacted stigma—will each be positively associated with symptoms of depression and anxiety, even when adjusting for potential confounding variables.
2. Community identification and community involvement will each be negatively associated with symptoms of depression and anxiety, even after adjusting for possible confounding variables as well as the minority stress variables.
3. Community connectedness constructs will moderate the effect of minority stress factors on symptoms of depression and anxiety by acting as a buffer against the negative impact of minority stress.

Method

This paper draws on data gathered at the baseline assessment of *Pillow Talk*, a longitudinal study that examined how sexual compulsivity affects outcomes related to sexual risk among highly sexually active (i.e. at least 9 sexual partners in the last 90 days) gay and bisexual men in New York City. This paper presents analyses of the dataset of 371 participants who completed the baseline assessment in full with valid data for all relevant variables.

Participants and Procedures

Participants were recruited via incentivized snowball sampling, internet-based advertisements on social and sexual networking websites, email blasts through New York City gay sex party listservs, and active recruitment in New York City venues such as gay bars/clubs and gay community events. Participation included both at home and in office assessments. All participants completed a brief, phone-based screening interview to confirm eligibility, which was defined as: (1) at least 18 years of age; (2) biologically male and self-identified as male; (3) a minimum of nine different male sexual partners in the prior 90 days; (4) self-identification as gay, bisexual, or some other non-heterosexual identity (e.g., queer); (5) able to complete assessment in English, and (6) daily access to the internet in order to complete internet-based portions of the study. Participants completed a structured phone interview to confirm eligibility, and then received a link to complete an at-home computer-

assisted self-interview (CASI) to be completed before their first in-office assessment. The research team obtained informed consent from each participant for both in office and at home assessments. All procedures were reviewed and approved by the Institutional Review Board of The City University of New York. Data for this paper were drawn from the baseline CASI.

Measures

Demographics—Participants were assessed on a variety of demographic measures including education, employment status, HIV status, relationship status, sexual identity, and race/ethnicity.

Sexual Orientation Discrimination—To capture enacted stigma, we used a modified version of the Everyday Discrimination Scale, a 9-item Likert-type scale originally designed to assess participants' experiences of discrimination associated with racism in their day to day lives (Williams, Yan, Jackson, & Anderson, 1997). The scale has been adapted to assess discrimination associated with sexual orientation using the prompt: *In your day-to-day life how often have any of the following things happened to you because of your sexual orientation.* Each item presented a possible instance of discrimination (e.g. "You are treated with less respect than other people," "You are called names or insulted"). Respondents indicated the frequency of each item on a scale from 1 (*never*) to 6 (*almost every day*). Higher scores indicate greater experience of discrimination. The scale demonstrated good internal consistency within this sample ($\alpha = 0.95$).

Internalized Homonegativity—Another form of minority stress we included was self-directed negative feelings about one's own sexual minority identity, also known as internalized stigma. We measured this factor using the Internalized Homophobia Scale, a 9-item Likert-type scale that inquires about negative feelings surrounding being gay or bisexual (e.g. "I wish I weren't gay or bisexual," "I feel that being gay is a personal shortcoming for me"). Respondents were instructed, *"Please read the following statements about being gay or bisexual and indicate your level of agreement from strongly disagree to strongly agree."* They responded using a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Overall, higher scores indicated more internalized homonegativity and a more negative view (lower valence) of homosexual identity. The scale demonstrated good internal consistency ($\alpha = .89$).

Gay Community Connectedness—To measure gay community connectedness, we used the Identification and Involvement with the Gay Community (IIGC) scale, an 8-item Likert-type scale (Venable, McKirnan, & Stokes, 1998). The first four items were introduced with the prompt, *"For each question, select the response that is most accurate for you personally."* Responses are indicated on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*) and assess the extent to which respondents identify with the gay community (e.g. "Being attracted to men is important to my sense of who I am"), including one reverse scored item ("I feel very distant from the gay community"). The last four questions asked participants to indicate how often they participate in various activities specifically related to the gay community (e.g. "How often do you attend gay/lesbian organizational activities?")

“How often do you go to a gay bar?”). One of these items was removed due to concerns about relevance in a present day sample (“How often do you read a gay or lesbian oriented paper or magazine, such as the Advocate or other local gay/bisexual papers?”) for a final total of seven items. Participants responded on a 5-point scale from 1 (*never*) to 5 (*several times a week or daily*). Overall, higher scores indicated greater gay community involvement.

Depression and Anxiety—We operationalized mental health in terms of symptoms of depression and anxiety; to measure these factors, we used selected sub-scales of the Brief Symptoms Inventory (BSI), which is a 53-item self-report scale used to measure nine primary symptom dimensions. In the present study, participants completed the sub-scales for depression and anxiety. The BSI measures the experience of symptoms in the past seven days including the day the BSI was completed. Respondents were instructed to, “*Please indicate how much you were distressed by each of the following over the past week*” and must respond to each of the six depression-related items (e.g. “feeling blue,” “feelings of worthlessness”) and six anxiety-related items (e.g. “feeling fearful,” “feeling so restless you couldn’t sit well”) on scale from 0 (*not at all*) to 4 (*extremely*). Higher scores on each subscale indicated worse symptoms. We chose these two dimensions because they are among the most common mental health symptoms and because of their frequent use in previous literature (Feinstein, Goldfried, & Davila, 2012; Hatzenbuehler, 2009; Igartua, Gill, & Montoro, 2003; Longares, Escartin, & Rodriguez-Carballeira; McLaren, 2016; Newcomb & Mustanski, 2010). Because the scores from each of the two subscales were highly correlated, we took a common approach from previous literature and combined these scores to yield the outcome variable which showed good internal consistency ($\alpha = 0.93$) (Pachankis et al, 2015).

Data Analysis Plan

We conducted data analyses for this study in several stages. First, we ran descriptive statistics on the demographics of the sample. Next, we used principal component factor analysis to examine the underlying factor structure of the seven items from the IIGC scale using oblique (Promax) rotation. Two distinct factors emerged corresponding to the hypothesized components of community identification and community involvement. We then created subscale scores by averaging the scores on each of the relevant items. We ran a series of bivariate Pearson’s correlations among five measures: the two minority stress variables (i.e., internalized homonegativity and sexual orientation discrimination), the two subscales of the IIGC (i.e., identification and involvement), and the combined BSI score (i.e., the combined score for the depression and anxiety subscales) as well as age, the only continuous demographic variable. We then ran four separate regressions for each of the four interactions between the two community connectedness sub-scales and the two minority stress factors (Discrimination \times Involvement, Homonegativity \times Involvement, Discrimination \times Identification, Homonegativity \times Identification). Across the regression analyses, we adjusted for the impact of sexual orientation, HIV-status, race, employment status, education, and relationship status, which were all found to be significantly associated with at least one of the predictor or outcome variables.

We plotted significant interactions using the regression equation derived from our model. Two lines were plotted, with one representing the association between the minority stress factors and BSI score for individuals with the relevant community connectedness subscale score (the moderator) one standard deviation below the mean, the other representing the association between minority stress factors and BSI score for individuals with relevant community connectedness subscale score one standard deviation above the mean. In this way, we could observe how the effect of minority stress on symptoms of depression and anxiety differed according to changes in identification or involvement with the gay community.

Results

Table 1 summarizes the demographic characteristics of the sample. A little over half the sample had a least a 4-year degree (57.4%), were employed (56.9%), were HIV-negative (55%), or identified as white (50.4%). A large majority of the sample were single (80.1%) or identified as gay (87.6%). The sample ranged in age from 18 to 73 ($M = 37.68$, $SD = 11.36$).

In order to obtain scores for all variables we first explored the factor structure of the IIGC scale to examine whether it measured two factors or one. Table 2 presents descriptive statistics and factor loadings for each of the seven IIGC items including eigenvalues, percentage of variance accounted for by each factor, item factor loadings, and the internal consistency coefficient (Cronbach's α) for each factor. The factor analysis revealed two distinct subscales and the factors corresponded to the separate constructs of gay community identification and gay community involvement evinced in the literature. The first three items loaded onto one factor corresponding to the construct of community identification, which accounted for 42% of the variance, while the last four loaded onto a second corresponding to community involvement and accounted for an additional 15% of the variance; both factors had eigenvalues greater than 1. The first three items making up the identification factor showed good internal consistency ($\alpha = 0.81$) while the last four items comprising the Involvement factor showed only moderate internal consistency ($\alpha = 0.58$). Although the latter statistic for internal consistency was not optimal, an examination of the item-total correlations and impact on alpha if deleted revealed that removing any item would further worsen the internal consistency and, thus, no single item was determined to contribute to the moderate internal consistency and all were retained for further analyses.

Table 1 also shows means and standard deviations for scores on each of the minority stress factor scales, community identification, community involvement and the BSI for each demographic group. ANOVAs with post-hoc analysis revealed significant differences in these scores across several demographic categories. Participants who were less educated, bisexual, or and non-White reported greater internalized homonegativity, while those who were not employed and those who were single reported greater experiences of sexual orientation discrimination. Additionally, participants in all of these categories as well as those who were HIV-positive scored lower on at least one of the community connectedness factors.

Table 3 presents the results of the bivariate Pearson correlations. Minority stress factors showed a positive association with depression and anxiety: both internalized homonegativity and sexual orientation discrimination were significantly correlated with more symptoms of depression and anxiety while gay community involvement scores were negatively correlated with these symptoms. Age was negatively correlated with symptoms of depression and anxiety. The community connectedness subscales (identification and involvement) were positively correlated with each other and gay community involvement scores were also negatively correlated with symptoms of depression and anxiety.

Model 1 of Table 4 reports the regression that included sexual orientation discrimination, gay community involvement, and their interaction. Sexual orientation discrimination was a significant predictor of symptoms of depression and anxiety ($\beta = 0.25, p < .01$) and gay community involvement was a significant predictor of symptoms of depression and anxiety ($\beta = -0.14, p < .01$). In both cases, the regression showed a positive association between these factors, however their interaction was not a significant predictor of symptoms of depression and anxiety. Model 2 of the same table reports findings from a regression that included internalized homonegativity, community involvement, and their interaction. There was a significant main effect of internalized homonegativity, which showed a positive association with symptoms of depression and anxiety and a significant interaction between internalized homonegativity and gay community involvement as predictors of symptoms of depression and anxiety ($\beta = 0.12, p = 0.01$). Community involvement was not a significant predictor in this model.

The significant interaction between internalized homonegativity and gay community involvement as predictors of symptoms of depression and anxiety is presented graphically in Figure 1. Among people with above average of gay community involvement, the model predicted a BSI score of 0.52 for those with below average internalized homonegativity scores, whereas the model predicted a BSI score of 1.31 for those with above average internalized homonegativity scores. Among people with below average community involvement the model predicted a BSI score of 0.82 for those with below average internalized homonegativity scores and a BSI score of 1.23 for those with above average internalized homonegativity scores. While both lines showed a positive slope, the line that corresponded to high levels of gay community involvement had a greater slope than that corresponding to low levels of gay community involvement. Thus, when internalized homonegativity was low, the model decreased symptoms of depression and anxiety for those with more gay community involvement however this effect became weaker as internalized homonegativity increased such that there was no predicted difference in symptoms of depression and anxiety for men with high levels of internalized homonegativity.

Discussion

The purpose of this study was to examine how community identification and community involvement interact with minority stress processes to affect mental health among gay and bisexual men, including how these different dimensions of community connectedness may differ in their effects. Using data from a sample of highly sexually active gay and bisexual men in New York City, we found evidence to support the conceptualization of gay

community connectedness in terms of two sub-factors, identification and involvement. We also found evidence that at least one of these sub-factors, community involvement, affected mental health outcomes both independently and through an interaction with the minority stress factor of internalized homonegativity. In looking at the directionality of those effects, a complex picture emerged. Correlations suggested that community involvement had a beneficial impact on mental health outcomes, predicting fewer symptoms of depression and anxiety. While linear regression models that included an interaction term suggested internalized homonegativity affected highly sexually active gay and bisexual men with higher community involvement more strongly, plotting this interaction revealed more specifically why this is the case. Men with low internalized homonegativity and high community involvement had the best mental health outcomes while the positive effect of community involvement decreased and eventually became negligible for men with high internalized homonegativity. Thus, those with high internalized homonegativity had similar levels of depression and anxiety regardless of their levels of community involvement. Overall, evidence suggested that community involvement affected mental health in a complex, though ultimately positive, way.

The findings from the factor analysis and the significant results of some regression models but not of others suggest that conceptualizing community connectedness as an undifferentiated construct may be limiting. While at least one study has explicitly differentiated between these two constructs in analyzing their psychological impact on gay and bisexual men (Davids et al, 2015), others have either examined them together (Puckett et al, 2015) or focused on respondents' "sense of belonging" or identification with the community without inquiring about actual frequency of participation in community events and spaces (Kousari-Rad & McLaren, 2013; Lelutiu-Weinberger et al, 2013; Morris et al, 2015; Pakula et al, 2016). Including and differentiating between both related yet distinct constructs in future research may help address unresolved questions about the impact of community connectedness on gay and bisexual men's mental health and help to clarify the mixed results obtained to date. Moreover, these results more specifically point to the need for an improved measure of community involvement, a construct that may have evolved since the creation of the IIGC scale as ways of being involved with the community have shifted over time.

The results of this study suggest an overall positive impact of community connectedness among highly sexually active gay and bisexual men: community involvement significantly predicted better mental health outcomes while community identification was also associated with better mental health outcomes, though this association was not significant. This finding is corroborated by Puckett, Levitt, Horne, and Hayes-Skelton (2015) and Reed and Miller (2016), both of whom demonstrate associations between reported community involvement and improved mental health outcomes. Moreover, the fact that community involvement specifically is a significant predictor of mental health outcomes in this model suggest that it may be important to include a measure of this specific construct in future research on community connectedness and mental health outcomes among gay and bisexual men. Community involvement is a construct that relates to lived experiences while community identification has to do with mental representations of the community in relation to the self. Therefore the impact of community identification may depend on context and a complex

interplay of internal psychological factors such that its effect on measurable individual outcomes like mental health is less predictable and consistent. In this way, the nature of the construct may account for the lack of a significant effect of community involvement in this model and suggest that community identification is a more useful construct for observing associations between community connectedness and mental health outcomes. Another explanation for this finding is that men with greater community involvement may receive greater social support. There is evidence that social support mitigates the effects of minority stress and is linked to improved mental health outcomes among LGBT youth (Hershberger & D'Augelli, 1995; McConnell, Birkett, & Mustanski, 2016) and gay men (Bartoshuk, 2009; Lyons et al., 2013; Perez, 2016; Sattler et al., 2016; Yoshikawa, Wilson, Chae, & Cheng, 2004) and is associated with improved health behaviors and reduced depressive symptoms among HIV-positive adults (Groves, Golub, Parsons, Brennan, & Karpiak, 2010; Mizuno, Purcell, Dawson-Rose, & Parsons, 2003).

The results of the present study highlight the importance of addressing the roles of both community involvement and internalized homonegativity in mental health interventions and general mental health treatment of gay and bisexual men. Based on our results, the beneficial effects of community involvement on mental health only apply to men with lower levels of internalized homonegativity; among those with high internalized homonegativity, there were no measurable beneficial effects on mental health. Recent studies demonstrate the efficacy of therapy that specifically targets minority stress factors among this population (Pachankis, Hatzenbuehler, Rendina, Safren, & Parsons, 2015; Parsons et al., 2016). It has been noted that, while seeking social support can be an important strategy in combating the psychological impact of minority stress among gay and bisexual men, some men struggle to find this support in the gay community (Pachankis, 2014). For clinicians working with men facing this struggle, addressing internalized homonegativity may prove to be a productive direction, especially if internalized homonegativity counteracts potential positive effects of community involvement on mental health. Once internalized homonegativity is successfully reduced, working to improve community involvement may be more effective and could further improve mental health.

The efficacy of this approach could be tested through a stepped intervention design: participants would be assessed on measures of internalized homonegativity, community connectedness, and mental health at baseline and after each of two stages of the intervention that would address internalized homophobia and community connectedness respectively. Since our results showed that community involvement but not community identification was associated with better mental health, the second stage of the intervention would focus on this factor. Similarly, measures of community connectedness would operationalize the construct of community involvement or measure both constructs separately to further investigate how the two constructs relate and how they differ in the associations with mental health outcomes.

Strengths, Limitations and Future Directions

While several elements of the study design were important in allowing us to arrive at these results, there were also limitations. Recruiting participants in a large urban area yielded a

diverse sample in terms of race, ethnicity, and income, though it also may have limited the generalizability of these findings to gay and bisexual men in smaller cities and rural areas. There was also some sampling bias as these were exclusively highly sexually active GBM. In relation to the variables that were significant in the models we tested, these criteria may have biased the sample toward men with lower internalized homophobia and higher community involvement since highly sexually active men are likely to be more socially active and have more overall interaction with other gay and bisexual men. Future research could examine potential differences between subgroups of GBM who may experience community connectedness in different ways. The extent to which biases of the sample affected the relationship between these variables is less clear. As the sample may be less representative of men with higher levels of internalized homonegativity, it may also not capture the associations between this variable, community involvement, and mental health among these men as accurately.

In addition to the limitations related to the sample, using cross-sectional data did not allow us to consider the temporal relationship between factors in establishing causality. The use of self-report measures facilitated large-scale data collection and these measures were highly valid for assessing constructs that directly relate to respondents' experiences, such as sexual orientation discrimination or gay community involvement. However, in evaluating internal, subjective factors these measures can be limited. To measure internalized homonegativity, for example, future studies may benefit from employing other techniques such as the implicit measures used by Millar et al. (2016). Additionally, future studies could use web-based recruitment and survey techniques along with stratified sampling to recruit a national sample, which would address some of these limitations of generalizability while maintaining demographic diversity. A web-based study could also allow for longitudinal data collection and potentially employ implicit measures, thus addressing the limitations on inferring temporal causality and construct validity of cross-sectional self-report data.

Finally, adapting an existing measure by splitting it into two sub-scales allowed us to compare constructs that previously literature failed to differentiate. Because the scale was not originally designed this way, however, one of the sub-scales revealed low internal consistency. The significant results this scale yielded point to a need to develop improved measures for the construct of community involvement. Specifically, the measure could be improved by accounting for different forms of involvement with the gay community which have evolved in the years since it was first developed. One qualitative study demonstrated significant variation in how respondents conceived of the gay community, both in terms of who comprised the community and what the spaces and activities it centered on (LeBeau & Jellison, 2006). While the current measure focused on bars and LGBT organizations, many other community spaces and activities have become available to gay and bisexual men. Further, the original measure contained an item inquiring about use of LGBT-oriented printed publications that we removed due to concerns about relevancy. An improved measure could account for changing forms of community involvement, for example, by including items that assess membership in online social groups, gay-owned businesses and organized social activities unrelated to the bar/club scene, or frequency of reading LGBT blogs and online magazines. Another approach would be to inquire about community involvement in a more general way that could be applied to the different forms involvement

takes, for example, with items that focus on the frequency of social engagement and/or different types of social relationships with LGBT people (e.g. close friendships, activity partners). In this way, the scale could measure community involvement that is not limited to more traditional gay activities and spaces.

Conclusion

While the effects of minority stress processes on mental health have been well documented among gay and bisexual men, the effect of community connectedness and its interaction with minority stress on mental health is less clear. Drawing on data from a sample of gay and bisexual men in New York City, this study showed that community involvement impacts mental health in complex ways: while it was beneficial as an independent factor, this beneficial effect decreased as levels of internalized homonegativity increased. More research is needed to understand the effect of community connectedness on mental health by differentiating between the sub-factors of identification and involvement and employing valid and highly reliable measures for each construct.

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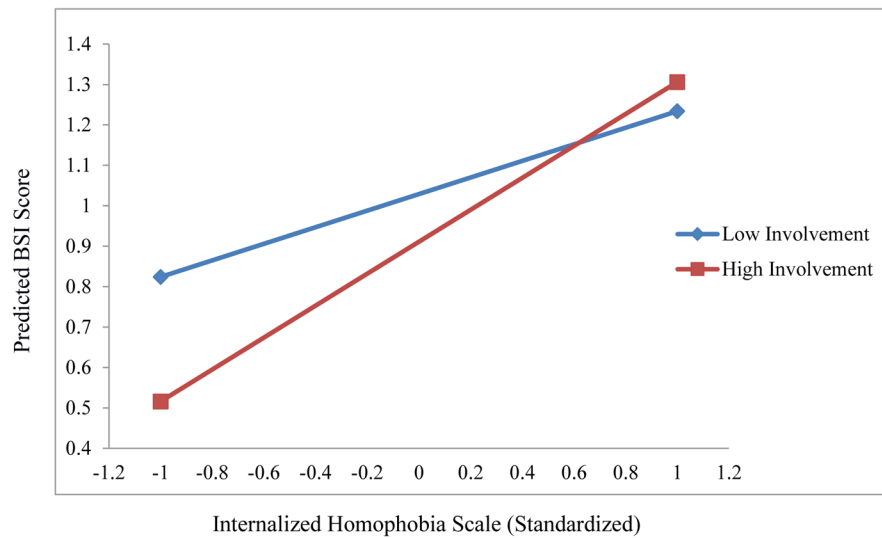


Figure 1.

The chart above shows the predicted scores on the Brief Symptoms Inventory, a compound measure of symptoms of depression and anxiety, as determined by scores on the Internalized Homophobia Scale. The 2 lines represent 2 different level of the moderating variable, Gay Community Involvement, corresponding to 1 standard deviation above and below the mean for the sample.

Table 1
Mean and Standard Deviation of Scores on Relevant Measures by Demographic Categories (N = 371)

	N	%	Internalized Homo-negativity		Sexual Orientation Discrimination		Community Identification		Community Involvement		Depression & Anxiety	
			M	SD	M	SD	M	SD	M	SD	M	SD
Education			F(3, 369) = 7.76**		F(3, 369) = 1.65		F(3, 369) = 10.55**		F(3, 369) = 5.97**		F(3, 369) = 1.18	
Some high school	44	11.9	2.11 ^a	1.06	21.52	12.59	3.33 ^a	1.01	3.02 ^a	0.72	1.15	1.00
Some college	114	30.7	1.74 ^b	0.80	18.76	8.53	3.70 ^a	0.98	3.00 ^b	0.87	0.94	0.86
4-year college degree	124	33.4	1.52 ^c	0.69	17.96	7.31	3.94 ^b	0.79	3.29 ^c	0.75	0.94	0.82
Graduate School	89	24.0	1.50 ^c	0.66	18.97	9.54	4.17 ^b	0.78	3.40 ^c	0.68	0.87	0.75
Employment Status			F(1, 369) = 2.71		F(1, 369) = 9.74**		F(1, 369) = 4.27*		F(1, 369) = 2.87		F(1, 369) = 3.66	
Employed	211	56.9	1.55	0.73	17.65	8.10	3.93	0.93	3.26	0.76	0.82	0.75
Not employed	160	43.1	1.84	0.92	20.48	9.89	3.74	0.88	3.12	0.81	1.11	0.93
HIV Status			F(1, 369) = 0.63		F(1, 369) = 0.91		F(1, 369) = 4.20*		F(1, 369) = 7.40**		F(1, 369) = 0.94	
Negative	204	55.0	1.63	0.81	18.58	8.67	3.93	0.91	3.30	0.78	0.91	0.81
Positive	167	45.0	1.69	0.78	19.46	9.40	3.74	0.91	3.07	0.77	0.99	0.88
Relationship Status			F(1, 369) < .01		F(1, 369) = 4.24*		F(1, 369) = 0.54		F(1, 369) = 0.04		F(1, 369) = 0.11	
Single	297	80.1	1.65	0.80	19.34	9.29	3.84	0.92	3.20	0.79	0.95	0.84
Partnered	74	19.9	1.66	0.78	17.00	7.57	3.87	0.87	3.18	0.77	0.93	0.84
Sexual Identity			F(1, 369) = 38.54**		F(1, 369) = 2.53		F(1, 369) = 21.81**		F(1, 369) = 8.70**		F(1, 369) = 2.38	
Gay, Queer or Homosexual	325	87.6	1.56	0.72	19.14	8.93	3.93	0.88	3.24	0.78	0.97	0.85
Bisexual	46	12.4	2.30	0.99	16.96	9.46	3.48	0.95	2.88	0.73	0.77	0.77
Race/Ethnicity			F(3, 367) = 5.41**		F(3, 367) = 0.65		F(3, 367) = 5.21**		F(3, 367) = 1.64		F(3, 367) = 2.31	
Black	75	20.2	1.88 ^a	0.92	19.63	10.46	3.68 ^a	1.03	3.21	0.83	0.91	0.88
Latino	51	13.7	1.74 ^a	0.80	18.16	7.46	3.49 ^a	1.03	2.97	0.69	1.14	0.90
White	187	50.4	1.50 ^b	0.70	18.60	8.56	3.99 ^b	0.85	3.23	0.81	0.86	0.78
Other	58	15.6	1.80 ^a	0.79	19.41	9.62	3.91 ^{ab}	0.71	3.27	0.67	1.10	0.90

Note: For factors with more than 2 groups means with differing superscripts within columns differed significantly ($p < 0.05$). LSD-adjusted post hoc analyses were used.

* $p < .05$

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Table 2

Factor Analysis for Selected Items of the Identification and Involvement with the Gay Community Scale

Item no.	Item	2-factor solution	
		Identification	Involvement
1	It is very important that some of my friends are bisexual/gay.	0.84	-0.02
2	Being gay/bisexual makes me feel like part of a community.	0.80	0.15
3	Being attracted to men is important to my sense of who I am.	0.88	-0.10
4	I feel very distant from the gay community (reverse scaled).	0.09	0.58
6	How often do you attend gay/lesbian organizational activities?	0.04	0.74
7	How often do you go to a gay bar?	0.10	0.70
8	How many gay men would you call personal friends?	0.07	0.63
	Eigenvalue	2.89	1.07
	% of variance	41.29	15.27
	Cronbach's α	0.81	0.58

Bivariate Correlations of minority stress factors, community connectedness sub-factors, mental health, and age

Table 3

	1	2	3	4	5	6
1. Internalized Homonegativity	–					
2. Sexual Orientation Discrimination	0.19**	–				
3. Gay Com Involvement	-0.25**	0.05	–			
4. Gay Com Identification	-0.25**	0.12*	0.46**	–		
5. Depression/Anxiety	0.32**	0.28**	-0.11*	-0.02	–	
6. Age	0.10	-0.08	-0.03	0.12*	-0.18**	–
<i>M</i>	1.65	18.87	3.2	3.85	0.95	36.81
<i>SD</i>	0.79	9.01	0.78	0.91	0.84	11.27
<i>α</i>	0.89	0.94	0.58	0.81	0.93	–

* $P < .05$

** $P < .01$

Table 4

Linear Regression Analysis of Minority Stress, Gay Community Involvement, and their Interaction as Predictors of Anxiety and Depression

Model 1: Discrimination and Comm. Involvement			
	b	SE	β
Age	-0.01	0.00	-0.17**
Sexual Orientation	-0.18	0.13	-0.07
HIV-Status	-0.03	0.10	-0.02
Race/Ethnicity	-0.10	0.09	-0.06
Employment Status	0.21	0.09	0.12*
Educational Attainment	0.11	0.10	0.06
Relationship Status	0.04	0.10	0.02
Sexual Orientation Discrimination	0.02	0.01	0.25**
Gay Community Involvement	-0.15	0.06	-0.14**
Interaction (Discrimination \times Involvement)	0.01	0.01	0.07
Model 2: Internalized Homonegativity and Comm. Involvement			
	b	SE	β
Age	-0.01	0.00	-0.16**
Sexual Orientation	-0.45	0.13	-0.18**
HIV-Status	0.02	0.10	-0.01
Race/Ethnicity	-0.02	0.09	-0.01
Employment Status	0.23	0.09	0.14**
Educational Attainment	0.14	0.09	0.08
Relationship Status	-0.03	0.10	-0.02
Internalized Homonegativity	0.38	0.06	0.36**
Gay Community Involvement	-0.08	0.05	-0.07
Interaction (Homonegativity \times Involvement)	0.15	0.06	0.12*

*
 $p < .05$,

**
 $p < .01$

Table 5

Linear Regression Analysis of Minority Stress, Gay Community Identification, and their Interaction as Predictors of Anxiety and Depression

Model 3: Discrimination and Comm. Identification			
	b	SE	β
Age	-0.01	0.00	-0.16**
Sexual Orientation	-0.13	0.13	-0.05
HIV-Status	0.05	0.10	0.03
Race/Ethnicity	-0.09	0.09	-0.05
Employment Status	0.22	0.09	0.13*
Educational Attainment	0.08	0.10	0.05
Relationship Status	0.05	0.10	0.02
Sexual Orientation Discrimination	0.02	0.01	0.24**
Gay Community Identification	-0.04	0.05	-0.04
Interaction (Discrimination \times Identification)	0.00	0.01	0.00
Model 4: Internalized Homonegativity and Comm. Identification			
	b	SE	β
Age	-0.01	0.00	-0.16**
Sexual Orientation	-0.40	0.14	-0.15**
HIV-Status	-0.06	0.10	-0.04
Race/Ethnicity	-0.01	0.10	-0.01
Employment Status	0.22	0.09	0.13*
Educational Attainment	0.10	0.09	0.06
Relationship Status	-0.02	0.10	-0.01
Internalized Homonegativity	0.38	0.06	0.36**
Gay Community Identification	-0.05	0.05	-0.05
Interaction (Homonegativity \times Identification)	0.06	0.06	0.05

*
 $p < .05$,

**
 $p < .01$