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Experiences of homophobia among gay and bisexual men: results from a cross-sectional study in seven countries

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Abstract

Experiences of homophobic discrimination are associated with an increased prevalence of psychological disorders and increased odds of reporting suicidal ideation among gay and bisexual men. We examine two domains of homophobia – external homophobic discrimination and internalised homophobia – and their associations with sexual orientation, demographic characteristics, relationships, and social support among a sample of gay and bisexual men from 7 countries. Sexually active gay and bisexual men aged over 18 and residing in Australia, Brazil, Canada, South Africa, Thailand, the United Kingdom (UK), and the United States (USA) were recruited through banner advertisements on Facebook. Two outcomes were examined: reporting experiences of homophobic discrimination and reporting feelings of internalised homophobia. No covariates were consistently significantly associated with experiencing external homophobic discrimination across countries. Across all countries, bisexually identifying respondents reported significantly greater feelings of internalised homophobia. Respondents in Brazil and the UK reporting a main partner, and respondents in Australia, Brazil, Canada, South Africa, Thailand, and the USA reporting a larger gay/bisexual social network reported significantly fewer feelings of internalised homophobia. Results suggest an ameliorative effect of social networks on experiencing homophobia. Additional research should focus on the mechanisms through which social networks reduce feelings of internalised homophobia.

Keywords

gay/bisexual men; minority stress; social support; homophobia

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Background

Experiencing homophobia may have severe physical and mental health consequences for gay and bisexual men. Gay and bisexual men experience significantly higher levels of psychiatric illness than their heterosexual counterparts, including depression, anxiety, panic, mood, and substance disorders, comorbidity with two or more psychological disorders, and suicidal plans and attempts (Gilman et al. 2001, Cochran, Mays, and Sullivan 2003, Sivasubramanian et al. 2011, Gibbie, Mijch, and Hay 2012, Stoloff et al. 2013). One framework commonly used to explain the preponderance of psychological morbidity among gay and bisexual men internationally is the minority stress model (Meyer 1995, 2003, Logie et al. 2012, McAdams-Mahmoud et al. 2014). The theory of minority stress posits that gay and bisexual men (and other men who have sex with men who may not identify as gay or bisexual) living in a heterosexist society are sexual minorities; consequently, they are prone to chronic stress resulting from stigmatisation surrounding their sexual identities (Meyer 1995, 2003). Minority stress manifests itself in three forms: internalised homophobia, defined as “the direction of societal negative attitudes toward the self” (Meyer 1995, 40); perceived stigma, which refers to expectations of discrimination, stigmatisation, and/or violence; and actual experiences of discriminatory and/or violent events (Meyer 1995, 2003).

There is a wealth of evidence illustrating the continued stigmatisation faced by gay and bisexual men worldwide (Altman et al. 2012, Anderson et al. 2015). The prevalence of victimisation against sexual minorities is widespread, ranging from physical, sexual, and verbal assault to property crimes and threats of violence (D'Augelli, Grossman, and Starks 2006, Herek 2009, Anderson et al. 2015). Although studies have demonstrated a linkage between homophobic stigmatisation and negative health and behavioural outcomes (Huebner, Rebchook, and Kegeles 2004, D'Augelli, Grossman, and Starks 2006, Ross, Berg, et al. 2013, Ross, Kajubi, et al. 2013), few studies have looked upstream and attempted to identify factors associated with external homophobic discrimination or internalised homophobia. Research investigating cross-national factors associated with internalised and external homophobic discrimination is even more scant: the authors found only one study to date examining factors associated with internalised homophobia across multiple countries (Ross, Berg, et al. 2013) and one examining factors associated with experiencing external homophobic discrimination (Fay et al. 2011).

Nonetheless, existing single-country research indicates that sexual orientation, as well as number of demographic characteristics—namely age, race/ethnicity, and education-- may be associated with gay and bisexual men's feelings of internalised homophobia (Meyer, Schwartz, and Frost 2008, Adebajo et al. 2012, Vu et al. 2012, Ross, Kajubi, et al. 2013). Additionally, intimate relationships and the presence of a social network made up of other sexual minority members may be a mediating factor for withstanding stressful experiences (Meyer 2003, Frost and Meyer 2009, 2012). Having a connection with members of one's sexual minority allows an individual to make positive comparisons to similar people, rather than reflecting the negative stigma of the heterosexist majority (Meyer 2003). Some studies have demonstrated the positive effects of community connectedness on the mental health and sexual risk taking of men who have sex with men (Kertzner et al. 2009, Van Sluytman et

al. 2015), and linked greater community connectedness to lower feelings of internalised homophobia (Ross, Berg, et al. 2013). Other studies, however, have linked lesbian, gay, bisexual and transgender community connectedness to risk behaviours such as exchanging money or drugs for sex, unprotected anal intercourse, and substance use (Amirkhanian et al. 2006, Carpiano et al. 2011).

We aim to fill the gap in the literature by investigating cross-national experiences of both external and internalised homophobic discrimination among gay and bisexual men in seven countries: Australia, Brazil, Canada, South Africa, Thailand, the United Kingdom (UK) and the United States (USA), as well as endeavouring to identify factors influencing these experiences. Our research questions were two-fold. First, how do experiences of external homophobic discrimination and internalised homophobia experiences range across seven economically and culturally diverse countries? Second, what are the associations between sexual orientation, demographic characteristics, relationships, and social support, and experiencing external homophobic discrimination and internalised homophobia across countries?

Methods

Participants were recruited for a self-administered survey via Facebook. Banner ads marketing a men's health survey- but not explicitly mentioning gay or bisexual men's health- were placed on Facebook. Ads were targeted to men who indicated an interest in men on their profiles and reported residency in Australia, Brazil, Canada, South Africa, Thailand, the UK or the USA. These countries were selected because of their large population of self-identified gay and bisexual men on Facebook and their socio-economic and cultural variation. Clicking on the advertisement led potential participants to information regarding the survey. Respondents were told the survey would take approximately 30 minutes, guaranteed anonymity, and informed that participation was voluntary; respondents were not compensated for participation. After obtaining electronic informed consent, respondents were invited to complete the survey. Being born male, having at least 18 years of age, and self-reporting having had sex with a man in the previous year were requirements for eligibility for survey participation. Except for in Brazil and Thailand, where banner ads and surveys were in Portuguese and Thai, respectively, all banner ads and surveys were in English. Based on cost considerations, recruitment was terminated after 500 surveys were completed in each country.

The survey collected information on participants' sexual orientation ('What is your sexual orientation?'), demographic characteristics (i.e. age, race/ancestry, and years of formal education), and sexual relationships. Relationship status was determined by asking respondents if they were in a sexual relationship ('Are you currently in a sexual relationship?'); respondents affirming being in a sexual relationship were asked if their partner was a man or a woman ('Thinking about your current sexual relationship, is that partner a man or a woman?'). To assess the extent of social networks and access to the gay/bisexual community, respondents were asked how many gay or bisexual friends or acquaintances they had ('Approximately how many people do you know that identify themselves as a gay or bisexual man?').

The analysis examines the extent to which sexual orientation, demographics, relationships, and social support are associated with experiences of homophobic discrimination. To measure experiences of external homophobic discrimination, a battery of 11 questions regarding types of homophobic discrimination previously shown to be correlated with poor mental health outcomes among gay and bisexual men (Diaz et al. 2001) (e.g. 'Due to your sexual orientation did you experience violence as a child? Due to your sexual orientation have you experienced violence as an adult? Have you ever experience police harassment due to your sexual orientation?') was included. Affirmative responses were assigned one point, creating a scale index range of zero to 11, where a higher score represented greater experiences of homophobic discrimination. Internalised homophobia was assessed using a 20-item subset of the Gay Identity Questionnaire, as seen in Appendix 1, a validated tool which measures the degree of acceptance of homosexual behaviours, thoughts, and feelings (Brady and Busse 1994). Responses were rated on a 5 point scale of strongly disagree, disagree, neutral, agree, and strongly agree. Responses affirming internally homophobic attitudes (e.g. 'I dread having to deal with the fact that I may be homosexual') were assigned positive point values, responses affirming gay pride (e.g. 'I am very proud to be gay and make it known to everyone around me') were assigned negative point values, and neutral responses were assigned no points. The scale ranged from zero to 80, where a higher score represented a lower acceptance of respondents' homosexual behaviours, thoughts, and feelings, and decreased gay pride. The subset of the Gay Identify Scale included in the survey and the point values assigned to each response are provided in Appendix 1. These series of questions provided the two outcomes for analysis, two continuous variables measuring 1) external homophobic discrimination and 2) internalised homophobic discrimination.

Due to the dearth of research investigating cross-national associations between sexual orientation, demographics, relationships, and social support and experiences of homophobia among gay and bisexual men, the analysis adopted an exploratory approach. The choice of demographic covariates was informed by research investigating characteristics of gay/bisexual men's experiences of external and internalised homophobic discrimination (Meyer, Schwartz, and Frost 2008, Adebajo et al. 2012, Vu et al. 2012, Ross, Kajubi, et al. 2013); relationship and social support covariates were informed by Meyer's theory of Minority Stress (Meyer 1995). Three domains of potential influence on homophobic experiences were considered: individual, dyadic, and community.

Individual influences

Research suggests that internalised homophobia is significantly higher among bisexual men (Vu et al. 2012). There is some evidence that the progression of homosexual identity formation increases with age, and that internalised homophobia is greater among younger men who have sex with men (Rowen and Malcolm 2002, Ross, Berg, et al. 2013). Additional evidence shows that gay and bisexual men of minority races experience greater levels of externalised homophobic discrimination (Diaz et al. 2001, Kertzner et al. 2009). Moreover, gay/bisexual men with lower education exhibit significantly greater internalised homophobia (Vu et al. 2012). As such, individual-level covariates for analysis included: sexual orientation (self-reported as homosexual/gay or bisexual), age (categorised as 18-24,

25-34, 35-44, and 45 years), race/ancestry (categorised in each country as follows: Australia - European, Other; Canada, the UK, and the USA - White, Other; Brazil - White, Mixed, Other; South Africa - White, Black, Other; and Thailand - Thai, Other), and education (dichotomised as receiving 12 years of education or less or receiving more than 12 years of education).

Dyadic influences

Studies have shown that internalised homophobia is significantly higher among men who are unpartnered (Meyer and Dean 1997, Gaines et al. 2005). To examine these influences, the sole dyadic-level covariate is relationship status, a dichotomous variable defined as being in a relationship with a man versus no relationship (respondents reporting marriage or a sexual relationship with a woman were classified as not being in a relationship).

Community influences

Exposure to and involvement in a lesbian, gay, bisexual, and transgender community may provide positive role models and social support for gay/bisexual men, and are linked to greater social and psychological well being (Kertzner et al. 2009). To examine the role of social support on gay/bisexual men's experiences of homophobia, the number of gay and bisexual friends in respondents' social network represented the sole community-level covariate, and was categorised as zero friends, 1-10 friends, 11-20 friends, and 21+ friends.

A total of 11,850 people in the seven sample countries clicked on the banner advertisement and were subsequently exposed to the eligibility screener. Of these, 6,874 (58%) began the survey. Of those beginning the eligibility screener, 1,551 (22%) did not meet at least one of the eligibility criteria and were disqualified. Of eligible men, 2,021 (38%) began but did not finish the survey, and 3,302 (72%) completed the survey. Of the men who completed the survey, 2,763 (84%) provided data for all covariates of interest and were included in the final analysis, resulting in an overall response rate of 23%.

Data were cleaned and analysed using STATA 12 (StataCorp 2011). Only men identifying with a male gender and who provided data for all covariates of interest were included in analysis. Although identifying as homosexual/gay or bisexual was not a requirement for inclusion in analysis, across all countries, men reporting other sexual orientations (i.e. heterosexual/straight, unsure, or other) did not provide data for all covariates of interest and were subsequently dropped from analysis. As such, the analysis focuses on correlates of external homophobic discrimination and internalised homophobia among gay and bisexual men.

Data were tested for correlation and collinearity. The outcomes were assessed for normality using the swilk command; scores on the experiences of external homophobic discrimination index were not normally distributed in Canada or Thailand, and scores on the internalised homophobia index were not normally distributed in any country except for Thailand. As such, the external homophobic discrimination and internalised homophobia variables were normalised using the natural log. Rather than including country of residence as an exposure variable, separate linear regression models were fitted for each of the two outcomes in each of the seven countries in order to facilitate cross-country comparisons of how men

experience homophobia. Due to the exploratory nature of the research, all covariates in the adjusted models were considered exposure variables, and effects of multiple comparisons were not taken into consideration. Although all covariates were assessed for collinearity prior to modelling, possible interactions between covariates were not assessed. All associations were tested for significance at the 0.05 level. The study was approved by the Emory University Institutional Review Board.

Results

Demographic characteristics of the respondents and median index scores for experiences of external homophobic discrimination and internalised homophobia are summarised by country in table 1. The vast majority of respondents identified as homosexual/gay. The modality of respondents were between 18 and 24 years of age (except in South Africa, Thailand, and the USA.), with >12 years of education, and of White/European/Thai race/ancestry. Reporting being in a sexual relationship ranged from 46.7% (Brazil) to 57.3% (Canada). Most respondents reported having 21 gay friends in their social networks (except in Thailand).

There were some cross-country variations in reporting experiences of external homophobic discrimination and internalised homophobia. The median number of episodes of external homophobic discrimination ranged from 4.0 (IQR: 3.0) in Thailand to 6.0 (IQR: 3.0) in South Africa and Brazil. The median internalised homophobia scale index score ranged from 10.0 (IQR: 13) in the U.S. to 29.0 (IQR: 18.0) in Thailand.

Few covariates were significantly associated with external homophobic discrimination across countries, as shown in table 2. Age was the only covariate significantly associated with experiencing external homophobic discrimination in multiple countries, however, the association was mixed. While increasing age in Brazil and the UK was associated with significant increases in the log of external homophobic discrimination experiences, in South Africa, the oldest age group was associated with a significant decrease in the log of external homophobic discrimination experiences. Social network size was significantly associated with experiencing external homophobic discrimination only in Brazil, where a significant positive linear association between reported number of gay or bisexual friends and the log of external homophobic discrimination experiences was observed.

More covariates were significantly associated with reporting internalised homophobia, as shown in table 3. While demographic covariates were significant in only one country each, sexual orientation, relationship, and social network characteristics were significantly associated with the log of internalised homophobia across multiple countries. Self-reported bisexual identity was significantly associated with an increasing log of internalised homophobia scale index scores across all countries. Being in a relationship with a man was protective against internalised homophobia, where partnered men in Brazil and the UK exhibited significantly lower log internalised homophobia scale index scores. The number of gay or bisexual friends in respondents' social networks was significantly associated with internalised homophobia across all countries. In each country except the UK, there was an inverse relationship between the number of gay friends in a respondent's social network and

his feelings of internalised homophobia: respondents' log internalised homophobia scale index scores increased as they reported more gay or bisexual friends and acquaintances in their social networks. The UK was the only country in which men reporting having more gay friends in their social network exhibited significantly higher log internalised homophobia scale index scores than men reporting having no gay friends in their social network.

Discussion

We found few associations between sexual orientation, demographic, relationship, or social support characteristics and externalised homophobic discrimination. However, our results point to the significant role of gay and bisexual men's orientation, relationships, and social support in shaping internalised homophobia across seven culturally and economically diverse settings.

Age was significantly associated with internalised homophobia only in South Africa, where respondents aged 35-44 reported significantly lower log internalised homophobia scale index scores. Although this corroborates previous research demonstrating an association between younger age and higher internalised homophobia (Rowen and Malcolm 2002, Ross, Berg, et al. 2013), similar associations were not found among the other countries in the sample. The lack of significant associations between age and internalised homophobia among respondents in the other six countries may be explained by evidence suggesting that the time since recognising a sexual attraction in men is a more significant correlate of internalised homophobia among gay/bisexual men than physical age. A recent study among gay and bisexual men in the USA found that internalised homophobia is significantly higher among men with more recent realisations of same sex attractions (Herrick et al. 2013). Future analyses could investigate cross-country associations between the time since men identify and tell others about a sexual attraction to other men and their evolution of internalised homophobic feelings.

Outside of Canada, where non-white respondents reported significantly more feelings of internalised homophobia, we found no evidence supporting the hypothesis of additive minority stress, which posits that gay/bisexual men of minority races face a double burden of stress from being both a racial/ethnic minority and a sexual minority (Diaz et al. 2001, Meyer, Schwartz, and Frost 2008, Kertzner et al. 2009). Our results corroborate research by Kertzner et al. (2009), who also reported no evidence of additive minority stress between black and white respondents among their sample of black, white, and Latino lesbian, gay, bisexual, and transgender respondents in the USA. Yet, our results stand in contrast to research by Diaz et al. (2001), who found evidence of additive minority stress among a sample of Latino men who have sex with men in the USA, and Meyer et al. (2008), who found that both black and Latino men who have sex with men experienced an added burden of stress and prejudicial events compared to white heterosexuals and white men who have sex with men. Existing research investigating additive minority stress has been confined to black, white, and Latino men who have sex with men in the USA. While the current study expands the exploration of additive minority stress to six additional countries, it was nonetheless limited by a lack of racial diversity and presence of minority races within the

sample. Thus, despite our lack of evidence substantiating the additive minority stress hypothesis, further investigation of this hypothesis outside of the USA and among samples of greater racial diversity would be a valuable contribution to current research.

Across all countries, respondents identifying as bisexual had significantly higher log internalised homophobia scale index scores than respondents identifying as gay. Similar results have been reported in other international settings (Adebajo et al. 2012, Vu et al. 2012). These results may be explained by one, or a combination of two, processes. First, it is possible that bisexual men may have less formed sexual identities. In more conservative countries that place greater emphasis on traditional gender roles, reported bisexuality could be a reflection of having female partners due to societal pressures, rather than actual sexual desires. Second, our findings may also be influenced by the scale used to measure internalised homophobia; the statements included in this index are strongly geared towards gay/homosexual rather than bisexual identities (e.g. “I have homosexual feelings, but I doubt that I am homosexual.” Or “I don't act like most homosexuals do, so I doubt that I am homosexual.”) A bisexual man may report ‘strongly disagree’ to these statements because he has homosexual feelings/behaviours (i.e. an attraction to men) but does not identify as strictly homosexual because of his attraction to women. Thus, such responses would result in a higher internalised homophobia score as a result of the internalised homophobia scale inaccurately representing the range of feelings felt by bisexual men. Future research should focus on validating measures of homophobia among bisexuals and other men who have sex with men.

Our finding that being in a sexual relationship is significantly associated with reporting feelings of internalised homophobia corroborates previous research demonstrating the association between involvement in intimate relationships and lower internalised homophobia (Gaines et al. 2005). In our multivariate analysis, we found that log internalised homophobia scale index scores were significantly higher among single respondents in Canada and the UK compared to their partnered counterparts. Frost and Meyer (2009) suggest that internalised homophobia as a minority stressor can lead to intimacy problems among gay men because of the unsubstantiated perception that gay men are incapable of maintaining committed, substantial, and healthy relationships. Hence, internalised homophobia may be higher among single respondents either because these feelings act as a barrier to relationship formation, or because not being in a relationship currently acts to heighten negative feelings towards their sexual orientation. In contrast, relationships may provide both social and emotional support for the chronic stress experienced by sexual minorities, as other studies have shown relationships to be protective against harmful behaviours such as drug use (Stall et al. 2001), and frequent/heavy alcohol use (Folch et al. 2010).

Having a larger social network of gay/bisexual friends and acquaintances was significantly associated with fewer feelings of internalised homophobia in all countries but the UK. This result is corroborated by research from the 38-country European MSM Internet Study, which reported an association between respondents' internalised homophobia and the proportion of gay friends in their social network (Ross, Berg, et al. 2013). Although our measures of social network are slightly different- a count of gay/bisexual friends versus the proportion of

friends who are gay/bisexual- both results suggest that gay and bisexual men's community connectedness surpasses other cross-country cultural differences contributing to feelings of internalised homophobia. Social networks, no matter where, provide a support system of other gay and bisexual men experiencing similar stigmatisations and prejudices. This creates an outlet for gay/bisexual men to voice their feelings, questions, and concerns with others who are more equipped to empathise with their experiences, in an environment safe from stigma and discrimination. Additionally, having a social network links gay/bisexual men to positive role models, and allows them to make positive comparisons to similar men facing similar experiences (Meyer 2003). Our finding is concurrent with previous literature suggesting that the social support provided by social networks helps to ameliorate the negative mental health effects of minority stressors (Meyer 2003, Frost and Meyer 2009, Kertzner et al. 2009, Frost and Meyer 2012). In particular, Frost and Meyer (2009, 2012) found that internalised homophobia was significantly lower among lesbians, gays, bisexuals, and transgenders with greater community connectedness. However, we also found a linear association between social network size and internalised homophobia in the UK, where having 1-10 gay/bisexual friends was associated with more feelings of internalised homophobia. This result may be an artefact of the small reference category for this covariate; among all countries, respondents in the UK reporting having zero gay/bisexual friends were fewest. However, some literature has pointed to negative effects of social networks on gay and bisexual men's behaviours. For example, several studies have suggested that drug and alcohol use are higher among gay/bisexual men with greater social involvement in the gay community (Stall et al. 2001, Rosario, Schrimshaw, and Hunter 2004), and that gay men whose social networks contain individuals with perceived or actual greater sexual risk-taking are themselves more likely to partake in high-risk behaviours (Smith et al. 2004, Peterson et al. 2009). It is plausible that among some men, a larger social network of gay and bisexual men may confer greater internalised homophobia, particularly if their network engages in risky behaviours. While the current body of research examined the association between social network size and feelings of internalised homophobia, the exact mechanisms through which social networks reduce feelings of internalised homophobia remain unclear and warrant further research. Future studies should investigate how various degrees of relationships within, inclusion in, and connectedness to gay/bisexual men's social networks impact their experience of internalised homophobia.

There are several important limitations to the present study, many of which result from its internet-based sampling design. In all countries, the survey was advertised only to men who were registered users of Facebook and had a profile indicating an interest in men. This introduces several possible selection biases: respondents were more likely to be included if they were open about their sexuality and had access to high-speed Internet connections (likely correlated with socioeconomic status). Further, uptake of Facebook membership may also be associated with other factors, such as socio-economic status or urban residency. Over-representing gay/bisexual men who were more open about their sexuality could lead to an over-reporting of experiencing external homophobic discrimination and underreporting of internalised homophobia, our two study outcomes.

Furthermore, a large proportion of those who clicked on the banner ads did not complete or were not eligible to complete the survey; we do not have data on their characteristics to

establish the nature of this selectivity bias. Additionally, a large percentage of those who began the survey did not complete the survey or did not provide information for all covariates of interest. This low response rate may have impacted the results, particularly if the respondents who completed the survey did so because of their connectedness to or involvement with the lesbian, gay, bisexual, and transgender community or greater gay pride.

Other limitations include the validity of covariates and outcomes. Social network size was measured as the respondents' reported number of friends and acquaintances identifying as gay or bisexual. Although similar measures of social support have been used in other studies (Ross, Berg, et al. 2013), one's gay and bisexual social network size is not necessarily a proxy for bisexual/gay community connectedness. Respondents may report a large number of gay/bisexual friends or acquaintances if he lives in a more tolerant society, where gay/bisexual men are more likely to be "out"; on the other hand, respondents may live in a less tolerant society or in a smaller settlement where there are fewer gay and bisexual men to connect with. Another consideration is that given the venue for recruitment and survey administration (Facebook), it is possible that respondents interpreted this question as Facebook friends rather than friends or acquaintances in their community.

Furthermore, the cultural validity of the scales used to measure external homophobic discrimination and internalised homophobia is unclear. Given that the survey was administered in seven countries, our measures could mean different things across these culturally diverse settings, and variability in responses across countries could be due to differences in interpreting the questions. Although the index used to measure internalised homophobia has been externally validated, the index used to measure experiences of external homophobic discrimination is not, and it is unclear what constitutes meaningful scores on this scale (Diaz et al. 2001). Additionally, this measure is insensitive to frequency and intensity of homophobic discrimination; experiencing a range of mild discrimination on single occasions results in a higher score than experiencing extreme and frequent discrimination of one or two types.

Finally, because the modelling was meant to be exploratory, and because of the cross-sectional survey design, we cannot make causal inferences between our covariates and outcomes. Future research may take into consideration interaction between covariates and the impact of multiple comparisons. Despite these limitations, however, this study demonstrated the usefulness of an internet-based survey tool in reaching traditionally hard-to-reach populations, and for collecting comparable data across economically and culturally diverse settings.

Conclusion

The results from this study suggest that experiences of homophobic discrimination and feelings of internalised homophobia are not significantly associated with demographic characteristics of gay and bisexual men. Rather, among our sample of, the social environment in which gay and bisexual men exist is significantly associated with experiencing internalised homophobia. Given that the current study was conducted across

seven economically and culturally different countries, our finding that gay and bisexual men with larger numbers of gay and bisexual friends report significantly less internalised homophobia suggests that social networks may be a universal mediator of internalised homophobia as a minority stressor. If the relationship between homophobic stigmatisation, marginalisation, and low access to societal benefits, such as healthcare, is indeed causal (Altman et al. 2012), then expanding social networks for gay/bisexual men and creating environments in which these networks may thrive, might be an effective pathway to reducing the global marginalisation of sexual minorities.

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Appendix 1. Subset of Gay Identity Questionnaire, possible responses and feelings of internalised homophobia index scale weight assignments

Statement	Response				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. I doubt that I am homosexual but still am confused about who I am sexually	-2	-1	0	+1	+2
2. I don't act like most homosexuals do, so I doubt that I am homosexual	-2	-1	0	+1	+2
3. I have homosexual feelings, but I doubt that I am homosexual	-2	-1	0	+1	+2
4. I cannot imagine sharing my homosexual feelings with anyone	-2	-1	0	+1	+2
5. I don't want people to know that I may be homosexual although I'm not sure if I am homosexual or not	-2	-1	0	+1	+2
6. I may be homosexual but I am upset about the thought of it	-2	-1	0	+1	+2
7. I dread having to deal with the fact that I may be homosexual	-2	-1	0	+1	+2
8. I'm probably homosexual even though I maintain a heterosexual image in both my personal and public life	-2	-1	0	+1	+2
9. I don't mind if homosexuals know I have homosexual thoughts and feelings, but I don't want others to know	-2	-1	0	+1	+2
10. I tolerate rather than accept my homosexual thoughts and feelings	-2	-1	0	+1	+2
11. My homosexuality is a valid private identity that I do not want to be made public	-2	-1	0	+1	+2
12. I am definitely homosexual but I do not share that knowledge with most people	-2	-1	0	+1	+2
13. I accept but would not say that I am proud of the fact that I am definitely homosexual	-2	-1	0	+1	+2
14. I am very proud to be gay and make it known to everyone around me	+2	+1	0	-1	-2

Statement	Response				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
15. I frequently confront people about their irrational homophobic feelings	+2	+1	0	-1	-2
16. I am not about to stay hidden as gay for anyone	+2	+1	0	-1	-2
17. I am openly gay with everyone, but it doesn't make me feel all that different from heterosexuals	+2	+1	0	-1	-2
18. My heterosexual friends, family and associates think of me as a person who happens to be gay, rather than as a gay person	+2	+1	0	-1	-2
19. I generally feel comfortable being the only gay person in a group of heterosexuals	+2	+1	0	-1	-2
20. I am openly gay around gays and heterosexuals	+2	+1	0	-1	-2

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Table 1
Respondent characteristics and median scale index scores of 2,763 internet-recruited gay and bisexual men in seven countries

Variable	Australia (n=379)	Brazil (n=466)	Canada (n=370)	South Africa (n=470)	Thailand (n=282)	United Kingdom (n=419)	United States (n=377)
Sexual orientation							
Gay	365 (96.3%)	449 (96.4%)	355 (96.0%)	457 (97.2%)	262 (92.9%)	410 (97.9%)	368 (97.6%)
Bisexual	14 (3.4%)	17 (3.7%)	15 (4.1%)	13 (2.8%)	20 (7.1%)	9 (2.1%)	9 (2.4%)
Age							
18-24 years	199 (52.5%)	300 (64.4%)	141 (38.1%)	121 (25.7%)	88 (31.2%)	208 (49.6%)	210 (55.7%)
25-34 years	84 (22.2%)	119 (25.5%)	96 (26.0%)	165 (35.1%)	128 (45.4%)	99 (23.6%)	62 (72.2%)
35-44 years	53 (14.0%)	29 (6.2%)	54 (14.6%)	104 (22.1%)	53 (18.8%)	55 (13.1%)	34 (9.0%)
45 years	43 (11.4%)	18 (3.9%)	79 (21.4%)	80 (17.0%)	13 (4.6%)	57 (13.6%)	71 (18.8%)
Education							
12 years	145 (38.3%)	168 (36.1%)	92 (24.9%)	151 (32.1%)	55 (19.5%)	92 (22.0%)	123 (32.6%)
> 12 years	234 (61.7%)	298 (64.0%)	278 (75.1%)	319 (67.9%)	227 (80.5%)	327 (78.0%)	254 (67.4%)
Race/Ethnicity¹							
European/White/Thai	235 (62.0%)	275 (59.0%)	321 (86.8%)	392 (83.4%)	271 (96.1%)	397 (94.8%)	303 (80.4%)
Mixed/Black	--	128 (27.5%)	--	41 (8.7%)	--	--	--
Other	144 (38.0%)	63 (12.5%)	49 (13.2%)	37 (7.9%)	11 (3.9%)	22 (5.3%)	74 (19.6%)
Relationship Status							
Single	191 (50.4%)	249 (53.4%)	158 (42.7%)	205 (43.6%)	132 (46.8%)	202 (48.2%)	189 (50.1%)
In a relationship	188 (49.6%)	217 (46.7%)	212 (57.3%)	265 (56.4%)	150 (53.2%)	217 (51.8%)	188 (49.9%)
Number of Gay Friends in Social Network							
0 friends	6 (1.6%)	5 (1.1%)	6 (1.6%)	12 (2.6%)	33 (11.7%)	4 (1.0%)	13 (3.5%)
1-10 friends	122 (32.2%)	95 (20.4%)	100 (27.0%)	80 (17.0%)	127 (45.0%)	127 (30.3%)	106 (28.1%)
11-20 friends	85 (22.4%)	84 (18.0%)	70 (18.9%)	103 (21.9%)	56 (19.9%)	103 (24.6%)	81 (21.5%)
21 friends	166 (43.8%)	282 (60.5%)	194 (52.4%)	275 (58.5%)	66 (23.4%)	185 (44.2%)	177 (47.0%)
Scale Indices Scores (median/interquartile range)							
Experiences of External Homophobic Discrimination	5 (3)	6 (3)	5 (4)	6 (3)	4 (3)	5 (3)	5 (4)
Internalised Homophobia	14 (15)	15 (16)	11 (15)	11 (14)	29 (18)	10 (12)	10 (13)

¹ Race/ethnicity was categorised as follows: Australia - European, Other; Brazil - White, Mixed, Other; Canada - European, Other; South Africa - White, Black, Other; Thailand - Thai, Other; UK - White, Other; USA - White, Other

Table 2
Linear regression models of associations between sexual orientation, demographics, relationships, and social support and lifetime experiences of external homophobic discrimination among internet-recruited men gay and bisexual men in seven countries

Variable	Australia	Brazil	Canada	South Africa	Thailand	United Kingdom	United States
Sexual orientation (ref: Gay)							
Bisexual	-0.07 (-0.20, 0.06)	-0.09 (-0.18, 0.00)	-0.03 (-0.16, 0.09)	0.01 (-0.10, 0.12)	-0.08 (-0.21, 0.05)	0.01 (-0.15, 0.17)	-0.13 (-0.28, 0.03)
Age (ref: 18-24 years)							
25-34 years	-0.01 (-0.13, 0.12)	0.08 (0.00, 0.16)	0.03 (-0.10, 0.16)	-0.01 (-0.10, 0.08)	0.02 (-0.13, 0.17)	0.08 (-0.04, 0.19)	-0.03 (-0.16, 0.11)
35-44 years	0.07 (-0.08, 0.22)	0.19 (0.05, 0.33)	0.11 (-0.05, 0.27)	-0.03 (-0.14, 0.07)	0.16 (-0.03, 0.35)	0.17 (0.02, 0.32)	0.07 (-0.10, 0.24)
45 years	0.06 (-0.10, 0.21)	0.08 (-0.09, 0.26)	0.09 (-0.05, 0.23)	-0.13 (-0.25, -0.02)	-0.27 (-0.59, 0.06)	0.18 (0.03, 0.32)	-0.03 (-0.16, 0.10)
Education (ref: 12 years)							
> 12 years	0.01 (-0.09, 0.11)	0.00 (-0.07, 0.07)	-0.09 (-0.21, 0.02)	-0.02 (-0.09, 0.05)	0.04 (-0.12, 0.21)	-0.01 (-0.13, 0.10)	0.05 (-0.05, 0.15)
Race /ethnicity (ref: European/White/Thai)							
Mixed/Black	--	-0.01 (-0.09, 0.07)	--	0.03 (-0.10, 0.15)	--	--	--
Other	-0.01 (-0.11, 0.09)	0.03 (-0.07, 0.13)	0.07 (-0.08, 0.21)	0.10 (-0.03, 0.23)	-0.21 (-0.54, 0.12)	0.02 (-0.20, 0.23)	0.04 (-0.08, 0.15)
Relationship Status (ref: Single)							
In a relationship	-0.05 (-0.15, 0.05)	-0.03 (-0.09, 0.04)	-0.01 (-0.11, 0.09)	-0.02 (-0.09, 0.05)	-0.06 (-0.18, 0.07)	0.06 (-0.03, 0.15)	0.08 (-0.02, 0.17)
Number of Gay friends in Social Network (ref: 0 gay friends)							
1-10 friends	0.18 (-0.22, 0.57)	0.36 (0.03, 0.69)	0.19 (-0.21, 0.58)	-0.06 (-0.29, 0.17)	-0.01 (-0.21, 0.20)	0.01 (-0.46, 0.48)	0.10 (-0.17, 0.37)
11-20 friends	0.24 (-0.16, 0.64)	0.39 (0.06, 0.72)	0.32 (-0.08, 0.73)	0.00 (-0.23, 0.23)	0.02 (-0.21, 0.25)	0.04 (-0.43, 0.51)	0.18 (-0.1, 0.45)
21 friends	0.27 (-0.13, 0.67)	0.43 (0.10, 0.75)	0.34 (-0.06, 0.74)	0.03 (-0.19, 0.25)	-0.12 (-0.35, 0.11)	0.04 (-0.43, 0.51)	0.23 (-0.04, 0.49)

/ Race/ethnicity was categorised as follows: Australia - European, Other; Brazil - White, Mixed, Other; Canada - European, Other; South Africa - White, Black, Other; Thailand - Thai, Other; UK - White, Other; USA - White, Other

Significant differences across strata at $\alpha=0.05$ for each country are indicated by **bold italics**

-- denotes a non-applicable stratum

Table 3
Linear regression models of associations between sexual orientation, demographics, relationships, and social support and reporting feelings of internalised homophobia among internet-recruited men gay and bisexual men in seven countries

Variable	Australia	Brazil	Canada	South Africa	Thailand	United Kingdom	United States
Sexual orientation (ref: Gay)							
Bisexual	0.46 (0.25, 0.67)	0.30 (0.11, 0.5)	0.60 (0.38, 0.81)	0.28 (0.03, 0.52)	0.23 (0.10, 0.36)	0.38 (0.11, 0.65)	0.35 (0.07, 0.62)
Age (ref: 18-24 years)							
25-34 years	-0.01 (-0.21, 0.19)	0.00 (-0.17, 0.17)	-0.02 (-0.24, 0.20)	-0.11 (-0.31, 0.10)	-0.01 (-0.16, 0.14)	-0.14 (-0.33, 0.04)	-0.03 (-0.28, 0.21)
35-44 years	-0.15 (-0.39, 0.09)	-0.26 (-0.58, 0.05)	-0.10 (-0.37, 0.16)	-0.30 (-0.53, -0.06)	0.04 (-0.16, 0.23)	-0.09 (-0.33, 0.15)	0.13 (-0.17, 0.44)
45 years	0.04 (-0.21, 0.29)	-0.17 (-0.56, 0.21)	-0.07 (-0.31, 0.17)	-0.18 (-0.44, 0.07)	0.23 (-0.09, 0.56)	-0.08 (-0.31, 0.16)	0.18 (-0.05, 0.41)
Education (ref: 12 years)							
> 12 years	-0.05 (-0.21, 0.11)	-0.03 (-0.19, 0.12)	0.09 (-0.10, 0.29)	0.15 (-0.02, 0.32)	-0.05 (-0.22, 0.11)	0.26 (0.07, 0.45)	0.16 (-0.02, 0.34)
Race (ref: European/White/Thai)							
Mixed/Black	--	0.06 (-0.11, 0.23)	--	0.02 (-0.27, 0.31)	--	--	--
Other	0.02 (-0.14, 0.18)	0.08 (-0.14, 0.3)	0.35 (0.10, 0.60)	0.02 (-0.27, 0.32)	-0.04 (-0.38, 0.29)	0.16 (-0.18, 0.51)	0.15 (-0.06, 0.36)
Relationship Status (ref: Single)							
In a relationship	-0.10 (-0.26, 0.06)	-0.17 (-0.31, -0.02)	-0.11 (-0.28, 0.06)	-0.12 (-0.28, 0.04)	0.03 (-0.10, 0.16)	-0.20 (-0.35, -0.04)	-0.15 (-0.32, 0.02)
Number of Gay friends in Social Network (ref: 0 gay friends)							
1-10 friends	-0.29 (-0.92, 0.35)	-1.02 (-1.74, -0.30)	-0.38 (-1.06, 0.30)	-0.22 (-0.75, 0.32)	-0.19 (-0.40, 0.03)	0.8 (0.04, 1.57)	-0.5 (-0.98, -0.02)
11-20 friends	-0.50 (-1.15, 0.14)	-1.05 (-1.78, -0.33)	-0.43 (-1.12, 0.26)	-0.40 (-0.93, 0.13)	-0.41 (-0.64, -0.17)	0.51 (-0.26, 1.29)	-0.52 (-1.01, -0.02)
21 friends	-0.73 (-1.36, -0.09)	-1.18 (-1.89, -0.47)	-0.72 (-1.40, -0.04)	-0.66 (-1.18, -0.15)	-0.55 (-0.79, -0.32)	0.23 (-0.53, 1.00)	-0.67 (-1.15, -0.20)

Race/ethnicity was categorised as follows: Australia - European, Other; Brazil - White, Mixed, Other; Canada - European, Other; South Africa - White, Black, Other; Thailand - Thai, Other; UK - White, Other; USA - White, Other

Significant differences across strata at $\alpha=0.05$ for each country are indicated by **bold italics**

-- denotes a non-applicable stratum