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The Investigation of Factors Associated With Substance use and Sexual Behavior Among Gay, Bisexual and Other Men Who Have Sex With Men (GBMSM) in Los Angeles

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Abstract

Stigma and discrimination faced by gay and bisexual men (GBMSM) can lead to minority stress, which often results in coping behaviors such as substance use, including crystal methamphetamine or party drugs, and sex with multiple partners. This study examines the relationship between internalized homonegativity and external sexual minority stigma with substance use and sexual behavior among GBMSM in Los Angeles. Analysis of data from 54 participants recruited through the Gay Social Networking Analysis Program in 2018 revealed that homonegativity correlated with increased crystal methamphetamine and party drug use. White and Hispanic/Latino GBMSM showed lower rates of crystal methamphetamine use compared to Black/African American GBMSM. External stigma was linked to higher likelihood of group sex participation. The findings indicate that GBMSM experiencing greater stigma may adopt behaviors affecting their health as coping mechanisms to reduce minority stress and seek connection. The study suggests psychological interventions and peer support as potential solutions.

Keywords

stigma, sexual behavior, substance use, minority stress, crystal methamphetamine, GBMSM

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Introduction

In 2019, more than 60 million people used illicit drugs in the United States (US). This includes 2.5 million people who used crystal methamphetamine, 2.6 million who used 3,4-methylenedioxymethamphetamine (MDMA), and over 5 million who used cocaine including an FCP form (crack cocaine) (Substance Abuse and Mental Health Services Administration, 2020). The US has seen a rise in substance misuse and overdose, as opioid overdose deaths have quadrupled since the 1990s (Centers for Disease Control and Prevention, 2020). According to the U.S. NSDUH 2018, GBMSM reported higher rates of substance use than heterosexual individuals (McCabe et al., 2009; Schuler et al., 2020). While White -identified GBMSM appear to be more likely to use drugs such as sedatives, tranquilizers, opioids, amphetamines, and inhalants, Black- and Hispanic/Latino -identified GBMSM were more likely to use crack/cocaine and heroin (Schuler et al., 2020).

Elevated rates of substance use among racially minoritized men are of increasing concern, alongside the worsening stigma associated with sexual identity and behavior (Puckett et al., 2017). Several studies have identified higher rates of substance use among Black sexual minority men (BSMM) in comparison with White GBMSM (Buttram et al., 2013; Kalinowski et al., 2022). For BSMM and other racially minoritized groups, substance use and related negative health outcomes are exacerbated by racial stigma (Gibbons et al., 2004). Racially minoritized GBMSM are also at significant risk for various detrimental health outcomes such as depression, anxiety disorder, HIV, and other sexually transmitted infections (STIs) (Chan et al., 2020; Pollitt et al., 2018; Prestage et al., 2018). These multiple, intersecting health issues have been characterized as a syndemic among this population (Holloway et al., 2021).

Racial/Ethnic Minoritized GBMSM and Minority Stress Theory

Minority Stress Theory (MST) posits that the negative experiences associated with minority status can result in adverse health outcomes among GBMSM (Frost et al., 2015; Meyer & Frost, 2013). Discrimination and potential violence faced by lesbian, gay, bisexual, transgender, queer, and intersex (LGBTQI) individuals—such as fear of rejection, loneliness, displacement from family, and lack of societal support—can lead to chronically elevated stress levels. These heightened stress levels contribute to negative health consequences, including an increased likelihood of acquiring HIV, difficulties in emotion regulation, mental health challenges, and substance use disorders (Flentje et al., 2020; Hakim, 2019). MST distinguishes between two types of stressors: proximal and distal (Meyer, 1995; Meyer & Frost, 2013). Proximal stressors, such as internalized homophobia and non-disclosure of sexual orientation, arise from within the individual in response to societal stigma and oppression. In contrast, distal stressors are external events or conditions, including rejection, discrimination and structural inequalities. This framework emphasizes how internalized stigma reflects the psychological consequences of external societal oppression (Meyer, 1995; Meyer & Dean, 1998). Racially minoritized GBMSM face unique layers of stigma and discrimination that compound their experience of minority stress. To manage this stress, individuals adopt a range of coping strategies, some of which can have complex social and health consequences (Mowlabocus, 2021; Pollitt et al., 2018; Schuler et al., 2020).

Present Study: Sexual Minority Stigma and Substance Use among Racially Minoritized GBMSM

Minority stress and stigma have a profound impact on the health behaviors and access to care of GBMSM, particularly among racially minoritized populations. While existing research highlights

the association between discrimination and sexual and substance use behaviors, the interaction of these factors with structural barriers remains underexplored. Furthermore, most existing studies have not simultaneously examined both self-stigma and external sexual minority stigma or their impact on specific substance use behaviors among GBMSM in urban contexts such as Los Angeles. This study adds to the literature by addressing these gaps and exploring how types of stigma intersect with structural barriers to influence sexual and substance use practices. We believe that examining sexual behavior as an outcome in our context is necessary because minority stress may influence sexual decision-making through reduced self-efficacy and increased psychological distress, potentially leading GBMSM to engage in higher risk sexual behaviors as a way of coping with stigma and seeking connection (Gertzen et al., 2024; Maxwell et al., 2019; Wang et al., 2023). Furthermore, the well-documented co-occurrence of substance use and sexual risk behaviors among GBMSM suggests potential syndemic effects of stigma on both behavioral outcomes, making it essential to examine these relationships simultaneously (Eustaquio et al., 2024; Maxwell et al., 2019).

Although this study includes a racially and ethnically diverse sample of GBMSM, its primary focus is on the relationship between stigma, substance use and sexual behavior.The findings are intended to provide nuanced insights that will inform culturally relevant interventions and public health strategies for racially diverse GBMSM communities.

First, the study assesses the role of self-stigma or internalized homonegativity, which is defined as negative attitudes and feelings that GBMSM may hold toward homosexuality in general as well as toward their sexual orientation. Previous studies have demonstrated that internal or self-stigma has a substantial impact on the mental and social well-being of different key populations, including GBMSM (Pantelic et al., 2019).

Second, the study examines the effect of external sexual minority stigma, defined as society's shared belief system through which homosexuality (GBMSM) is stigmatized and oppressed, and its effects on substance use and sexual behavior (Mayfield, 2001). Specifically, this study aims to understand which substances used by GBMSM are associated with both internal and external sexual minority stigma among a sample of predominantly racially minoritized GBMSM in Los Angeles, California.

Methods

Design and Participants

The analysis draws on a sample of 54 GBMSM who participated in Phase II of the Gay Social Networking Analysis Program study (GSNAP), which focused on a diverse sample of "marginalized populations" substance-using GBMSM. Data collection took place between September and December 2018. The detailed methodology can be found elsewhere (Ovalle et al., 2021).

In brief, participants were recruited from community-based agencies and other venues typically frequented by GBMSM based on the following criteria: being male, aged 18 years or older, having had any form of sex with a man and having reported use of an illicit substance in the past three months. The informed consent process involved a detailed verbal description of the study. This was followed by an item-by-item reading of the consent form, with the participant reading along and being given the opportunity to ask questions. After guiding the participant through the consent form, we obtained verbal consent from the participant. The consent form addressed the likelihood of social, psychological or physical harm associated with participation in the study. During Phase I, we conducted a qualitative interview with participants and in phase II participants filled out the survey that included various questions. The study included several visits and follow-ups with participants during the study period. However, this article is focusing exclusively on the Phase II

and the data that we collected during the baseline visit. All participants received $30.00 after completing the baseline survey.

The human subjects protection protocol for this study was reviewed and approved by the [masked for peer review]. GSNASP was funded by the National Institutes of Health (NIH) [grant number: R03 DA039752-01].

Measures

Social demographics and economic status. Study participants were asked about general socio-demographic information (education level, employment status, annual income, housing situation in the past month), sex assigned at birth, current gender identity, sexual orientation, HIV serostatus, and membership to a racial or ethnic minority group. Their regarding the place they live, was assessed via a single question (e.g., *"During the past month, where have you stayed most often?"*). Response options were "Own place", "At friends' home", "At parents' house", "Vacant lots", "Abandoned buildings" etc.

For further analysis, racial/ethnical identity was merged into four categories, which included: "Black or African American", "Hispanic/Latino/Spanish", "White", and "Another race/ethnicity not listed". Self-employment, and part- or full-time work were coded as "Employed". At the same time, the category "Unemployed" included participants who did not have work or could not perform any work due to disabilities or other health-related conditions. Information on participants' incomes was recoded into a binary variable, summarized as "<$20,000" and "≥$20,000" annually per person in 2018, which corresponds to the cutoff for extremely low income as defined by the U.S. Department of Housing and Urban Development (HUD) for Los Angeles County (U.S. Department of Housing and Urban Development (HUD), 2019). Housing status was also analyzed as a binary variable, capturing whether the person lived inside or outside of home, whereby the latter category included only participants who indicated sleeping in a parking lot, on a street, and in other informal and unsafe settings.

Internalized Homophobia and Homonegativity. Internalized homophobia was measured using the nine-item Internalized Homophobia Scale (e.g., *"I have tried to stop being attracted to men in general"* or *"I wish I weren't gay/bisexual/attracted to men"*) to assess the extent to which GBMSM reject their sexual orientation, experienced anxiety about their sexual desires, and avoided individual and social involvement (Meyer & Dean, 1998). The scale was previously used in national and international settings and among a wide variety of respondents, including diverse racial/ethnic minorities with diverse socioeconomic backgrounds, and demonstrated high validity and acceptable internal consistency (Meyer & Dean, 1998; Xu et al., 2017). Cronbach's α for the current version of the scale used in the present study was 0.91, which indicated the high reliability of the scale. Response options followed a 5-point Likert scale ranging from "strongly disagree" to "strongly agree". The total possible aggregated scores of the scale can range from 9 to 45, with higher scores indicating higher levels of internalized homophobia. No cut-off was used for the internalized homophobia scale and the predictor was included as a continuous variable.

External Stigma and Discrimination. Stigma and discrimination due to sexual orientation were measured with the same 13 items (e.g., *"Have you ever felt excluded from family activities because you have sex with men?"* or *"Have you ever been blackmailed by someone because you have sex with men?"*) previously used in the American Men's Internet Survey 2015 (AMIS-2015) (Stahlman et al., 2016). The measure captured perceived, anticipated, and experienced stigma (Berger et al., 2001; Crowell et al., 2017). Perceived stigma thereby refers to an individual's awareness of potential reactions from society that may lead to fear or shame. Experienced stigma

refers to an individual's actual experience of being stigmatized, oppressed, physically attacked, or rejected from healthcare services due to their sexual orientation. Anticipated stigma refers to the fear or expectation of discrimination (Crowell et al., 2017; Quinn & Earnshaw, 2013). Response options were "yes," "no," and "refuse to answer". The scale was previously validated in the AMIS-2015 study (Stahlman et al., 2016). Cronbach's α for the scale in the current study was 0.92. The range for the constructed scale is from zero to 13, where higher scores indicate greater sexual orientation stigma and discrimination. Similar to internalized homophobia, the measure was used as a continuous variable and no cut off was used.

Recent Substance Use and Sexual Behavior. Substance use was assessed via self-report about the 6 months prior to survey completion (e.g., *"In the last 6 months, how often did you use crystal methamphetamine?"*). The questions focused on the following substances: crystal methamphetamine, ecstasy, cocaine, GHB/GBL, special K, acid, and mushrooms. For the analysis, cocaine and crack cocaine were collapsed into one variable "cocaine" and GHB/GBL, special K and mushrooms were merged into "party drugs". Recent substance use was classified as frequent or not frequent. Frequent substance use was defined as daily, weekly or monthly use of a given substances. The responses "less often than a month" "single use for the 6 months", and no use at all were collapsed into the category "not frequent".

Condom use was measured by asking participants about specific sexual activities over the past three months and whether they had used a condom during sex with either male or female sex partners. Participants were also asked about possible engagement in group and transactional sex (sex in turn for food, money or place to sleep) and their responses were coded as "yes" and "no" for the analysis.

Statistical analysis

The data were analyzed using RStudio version 4.1.3 (RStudio Team, 2021). Cronbach's α was used to assess the internal consistency of the included scales. Multivariate logistic regression models were used. In the multivariate regressions, we estimated separate models to examine the independent association between outcome and explanatory variables (homonegativity and external stigma). Since participants' income level was strongly correlated with their employment and educational status, we only included participants' income in the multivariate regression analysis, which appeared adequate due to the small sample size and multicollinearity concerns. Thus, the effects of the explanatory variables were adjusted for the effect of race, HIV status and income level. (Risher et al., 2013; Stahlman et al., 2015).

Results

Socio-Demographic Characteristics

The sample of the current study was racially/ethnically diverse. Of the 54 participants, 35.2% were Black or African American (non-Hispanic), 29.6% were Hispanic or Latino, 25.9% were White, and 9.3% reported another race, such as Asian, Native American, or American Indian (Table 1).

Most participants were single (94.4%) and self-identified as cisgender gay men (65.0%). Around 15% had earned a college degree (bachelor's or higher). Almost half (46.3%) had graduated from high school, and 38.7% had finished vocational training. More than half of the respondents were unemployed (59.3%), and approximately two-thirds of the respondents (64.8%) earned below the extremely low-income level for Los Angeles County in 2018, less than $20.000/

Table 1. Socio-demographic Characteristics of Study Participants, GSNAP Study.

Characteristic	*n*	%
Race		
Black or African American	19	35.2
Hispanic/Latino/Spanish	16	29.6
Another race/ethnicity not listed[2]	5	9.3
White	14	25.9
Education level		
College degree	8	14.8
High school	25	46.3
Vocational training	21	38.9
Employment status		
Employed	22	40.7
Unemployed	32	59.3
Income		
<$20,000	35	64.8
≥$20,000	19	35.2
Housing		
Own place	27	50.0
At friends' home	9	16.7
At parents' house	6	11.1
With a family member	3	5.5
With a partner/lover	2	3.7
Homeless	7	13.0
Total	**54**	**100.0**

year (U.S. Department of Housing and Urban Development (HUD), 2019). Only 5% of the sample meet HUD's criteria ($69.300/year) for median family income per person.

Only half of the participants (50.0%) had their own place to live such as in a house or an apartment, while 13.0% lived on a street(s) including in vacant lots, abandoned buildings, or parks. The rest of the sample lived with friends (16.7%), their parents (11.1%), partner/lover (3.7%) or another family member (5.5%).

Substance Use and Sexual Behavior Characteristics. Table 2 presents information on the sample's self-reported substance use behavior. More than half of the study population (64.8%) reported frequent crystal methamphetamine use. Frequent use of party drugs (including GHB, ketamine and mushrooms) was reported by 35.2% of the study sample. Additionally, 11.1% and 5.56% reported the frequent use of cocaine and ecstasy (MDMA) respectively.

Most of the participants practiced both condomless receptive (79.6%) and insertive (81.5%) anal sex and more than half (63%) reported having participated in group sex during the last 3 months. Furthermore, during the baseline assessment, 25 (48%) participants reported that they were living with HIV. However, during the confirmatory test, one of the self-reported HIV-negative participants tested positive for HIV. This participant was never previously diagnosed with HIV and received information about his status during participation in the study. After he was diagnosed with HIV, he received treatment and was added to the HIV-positive participants for the purposes of the data analysis

Table 2. Percentage of Study Participants Reporting Substance use and Sexual Behavior, GSNAP Study.

Substance and sexual behavior (outcome)	*n*	%[a]
Crystal methamphetamine use	35	64.8
Party drugs use (GHB, special K, mushrooms, LSD/Acid)	19	35.2
Cocaine use	6	11.1
Ecstasy use	3	5.56
Condomless receptive anal sex	43	79.6
Condomless insertive anal sex	44	81.5
Group sex	34	63.0
Transactional sex[b]	26	48.1
HIV infection	26	48.1

[a]Percentage calculated based on all study participants (N= 54).
[b]Sex for drugs, food or place to live/sleep.

Factors Associated with Substance Use Behavior. Table 3 presents the results of the multivariate logistic regression analyses of predictors of frequent substance use. After controlling for confounding variables, men who exhibited higher levels of homonegativity were significantly more likely to report frequent crystal methamphetamine use (aOR 1.13; 95% CI: 1.02 – 1.29) compared to men who reported lower levels of homonegativity. At the same time, homonegativity was associated with frequent party drug use (aOR 1.12; 95% CI: 1.02 – 1.26). There were no significant associations between MDMA and cocaine frequent use and internalized homophobia. Similarly, there were no significant associations between external stigma and discrimination and drug use. With regards to the included confounding variables, we found that White participants (aOR 0.034; 95% CI: 0.001 – 0.41) and Hispanic/Latino participants (aOR 0.13; 95% CI: 0.02 – 0.78) had significantly decreased odds of frequent drug use of crystal methamphetamine. At the same time, being HIV-positive (aOR 0.06; 95% CI: 0.005 – 0.41) was also associated lower odds of frequent crystal methamphetamine use.

Factors Associated with Sexual Behavior. As shown in Table 4, men who had higher internalized homophobia had 0.85 (aOR 0.85; 95% CI: 0.75 – 0.94) lower odds of practicing group sex, compared to men with lower homonegativity. In contrast, external stigma was positively associated with group sex, that is GBMSM with higher stigma scale scores were more likely to report engaging in group sex than men with lower stigma scale scores (aOR 1.35; 95% CI: 1.07 – 1.86). Men with higher internalized homophobia were less likely (aOR 0.89; 95% CI: 0.81 – 0.97) to practice transactional sex, such as sex for food, drugs or a place to live. Both condomless receptive anal sex and condomless insertive anal sex were not associated with either homonegativity, external stigma and discrimination and neither with any socio-demographic confounders investigated.

Discussion

In this study we investigated different factors associated with substance use and sexual behavior among men who have sex with men in Los Angeles, We found that homonegativity (internalized homophobia) is associated with both frequent crystal methamphetamine and party drug use.

Crystal methamphetamine is a drug that triggers a very fast release of different neurotransmitters such as dopamine and serotonin (Kish, 2008). Both of these substances could cause different positive emotions such as euphoria, happiness, and benevolence to others. Interestingly,

Table 3. Factors Associated With Frequent Drug use[a] in the Multivariable Logistic Regression, GSNAP Study.

	Crystal methamphetamine	Party drugs	Cocaine	Ecstasy
	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)
Homonegativity	**1.13 (1.02–1.29)**	**1.12 (1.02–1.26)**	1.11 (1.39–9.53)	1.27 (0.95–2.36)
External stigma and discrimination	1.04 (0.86–1.25)	0.86 (0.71–1.01)	0.73 (0.48–0.95)	0.84 (0.55–1.12)
Race				
Black or African American	Ref.	Ref.	Ref.	Ref.
Hispanic/Latino/Spanish	**0.13 (0.02–0.78)**	1.12 (1.02–1.26)	1.67 (0.91–15.44)	3.07 (0.17–5.41)
Another race/ethnicity not listed[1]	0.99 (0.09–10.61)	2.14 (0.19–55.9)	2.71 (0.43–7.81)	6.75 (0.55–8.31)
White	**0.034 (0.001–0.41)**	0.81 (0.13–4.96)	4.91 (0.29–16.1)	9.34 (0.72–11.31)
HIV status				
HIV-negative	Ref	Ref.	Ref.	Ref.
HIV-positive	**0.06 (0.005–0.41)**	0.55 (0.13–2.24)	0.48 (0.023–6.85)	4.21 (4.59–7.35)
Income level				
<$20,000	Ref.	Ref	Ref.	Ref
≥$20,000	0.49 (0.08–2.66)	0.63 (0.16–2.48)	9.45 (5.72–68.51)	1.15 (1.99–11.3)

[a]*Frequent use defined as:* daily, weekly or monthly.
Bold indicates statistical significance, $p < .05$.

Table 4. Factors Associated With Sexual Behavior in the Multivariable Logistic Regression, GSNAP Study.

	Group sex	Insertive condomless anal sex	Receptive condomless anal sex	Transactional sex
Homonegativity	**0.85 (0.75–0.94)**	0.96 (0.87–1.07)	0.94 (0.86–1.02)	**0.89 (0.81–0.97)**
Stigma and discrimination	**1.35 (1.07–1.86)**	1.24 (0.94–1.75)	1.08 (0.89–1.37)	1.03 (0.88–1.21)
Race				
Black or African American	Ref.	Ref.	Ref.	Ref.
Hispanic/Latino/Spanish	1.87 (0.29–13.4)	12.3 (1.27–314.41)	2.58 (0.89–42.71)	0.55 (0.11–2.51)
Another race/ethnicity not listed[1]	0.38 (0.02–4.12)	3.71 (0.31–104.51)	2.21 (1.95–53.73)	0.64 (0.06–5.85)
White	1.27 (0.18–8.51)	6.16 (0.88–66.82)	4.27 (0.67–37.63)	0.44 (0.07–2.27)
HIV status				
HIV-negative	Ref	Ref.	Ref.	Ref.
HIV-positive	1.16 (0.26–5.37)	0.24 (0.03–1.27)	2.41 (0.57–11.61)	0.96 (0.26–3.52)
Income level				
<$20,000	Ref.	Ref.	Ref.	Ref.
≥$20,000	2.41 (0.51–13.7)	0.41 (0.06–2.42)	4.75 (0.86–45.61)	1.41 (0.39–5.12)

crystal methamphetamine releases a much higher amount of dopamine than other drugs and likely affects an individual's perception of reality (Kish, 2008). The combination of crystal methamphetamine with a state of sexual arousal and a selective inhibition of feelings that a person might have about themself or the sex they want can create extremely strong disinhibition. It opens access to hidden emotions, feelings, fantasies and desires.

Illustrating this, a qualitative study conducted in 2017 in London aimed to investigate self-perception and the so-called "benefits" of crystal methamphetamine use showing that GBMSM experienced instant feelings of emotional connection with their sexual partners when they used crystal methamphetamines (Weatherburn et al., 2017). Participants of the same study reported that they had never experienced such intimacy with other men, arguing that crystal methamphetamine allowed them to move to "another level" (Weatherburn et al., 2017).

Another study revealed that most participants believed drugs, specifically crystal methamphetamine and GHB/GBL, to not only enhance their sexual experiences beyond their psychological barriers but also to increase their sexual confidence and inhibit possible doubts (Tan et al., 2018; Weatherburn et al., 2017). Thus, one participant from a study conducted in Singapore justified and rationalized his use of drugs as a form of coping with rejection from religion, his family, and his community due to his sexual identity (Tan et al., 2018).

Although it could be argued that the experiences of GBMSM in California and Singapore may be very different, our study found that Black GBMSM had higher odds of engaging in crystal methamphetamine use compared to White or Hispanic/Latino men. Thus, for BSMM, the intersection of multiple types of stigma, including racial minority, sexual, and gender stigma, may increase the risk for substance use behavior through a more pronounced urge to experience feelings of belonging and personal connectedness (Quinn et al., 2015). In Quinn 2015)'s paper that aimed to investigate pathways through which internal stigma may impact Black GBMSM revealed several potential social, psychological and cultural factors (Quinn et al., 2015). It appeared that the Black Church remained a source of initial attitudes towards homosexuality and in most cases shaped these attitudes as negative and discriminatory, thus fueling individuals' internal homophobia (Balaji et al., 2012). Research has also shown that the religious community is an essential source of support and resilience for Black GBMSM, but, at the same time makes them less likely to "come out" to co-believers, which may lead to further social alienation (Bowleg et al., 2003; Moradi et al., 2010).

Another factor that was identified in scientific literature is the role of masculinity in racial/ethnic minority groups. The cultural perception of gender roles creates a portrait or "template" of cis-gender men. Once an individual does not fit with these prescribed criteria, they are at greater risk of being excluded from their community due to gender or sexual expression. Evidence from a previous study suggests that gay community support is a crucial mediating factor in the relationships between sexual behavior, sexual identity, and psychosocial health, including substance use disorder (Quinn et al., 2022). However, for Black GBMSM this mechanism might be disrupted as some Black GBMSM have reported experiencing so-called "sexual racism", which is the intentional selection and exclusion of sexual partners based on race (Bedi, 2015). This practice leads to exclusion of Black GBMSM from their racial/ethnic community due to their sexual identity and exclusion from the LGBTQ community due to their racial/ethnic background. Together with economic vulnerability, such total exclusion significantly limits available options for Black MSM to use positive coping strategies and creates a situation ìn which substance use may be considered as the only option to cope with extreme minority stress.

Our findings have important implications for clinical practice, public health interventions and policy development. In clinical settings, health care providers working with GBMSM should include screening for both internal and external stigma when assessing substance use risk. The strong association between homonegativity and crystal methamphetamine use suggests the need

to integrate mental health interventions that address internalized stigma into substance use treatment programmes. Such integration could include affirmative therapeutic approaches that help GBMSM to process and cope with minority stress through healthy mechanisms rather than substance use. Our findings also highlight important policy implications. There is a clear need for increased funding for GBMSM-specific mental health and substance use treatment programmes, with particular attention to communities of colour. Policymakers need to consider how structural factors - including access to health care and anti-discrimination protections - shape both internal and external experiences of stigma. Furthermore, our findings suggest the importance of an integrated approach: substance use interventions for GBMSM should be combined with HIV prevention and sexual health services to effectively address these interrelated health concerns.

The study has several limitations. First, the data are cross-sectional; thus, causal relationships cannot be inferred. Second, considering that we have targeted a marginalized population, the realized sample size was small; therefore, some of the insignificant associations may actually be a result of limited statistical power rather than the "true" absence of certain links. Third, the study was conducted in Los Angeles, where general attitudes towards homosexuality and other types of diversity are more positive than in other settings and countries. The transferability of our findings to more restricted and intolerant settings is thus unknown, and the level of internal and external stigma could be higher in other parts of the United States, or countries where structural stigma is more prevalent due to the homophobic attitudes of policymakers.

Conclusion

Despite the associated risks, the gay community has a long historic record of different substances multiplying and enriching affective bonds between its members. All this supports the minority stress theory that posits that several stress processes occur due to a minority status, such as sexual orientation, and that these can lead to multiple adverse health outcomes among GBMSM (Flentje et al., 2020). This study showed that GBMSM with a higher level of internal and external stigma use substances more frequently, possibly with the intention of reducing minority stress and increasing experiences of empathy and benevolence towards others.

The findings of this study motivate the development of policies and actions that could be used to improve the physical and mental health and social well-being of gay and bisexual men in Los Angeles and globally. Among possible efforts are stigma-reducing and anti-bullying campaigns at commercial venues and on apps, or support groups to mitigate the stigma around homosexuality in schools, organizations, and community areas. Apart from this, psychological interventions to address minority stress and sexual identity issues and other related mental health problems should be considered to prevent GBMSM from using substances as a negative coping strategy.

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