




Latent profiles of stigma and HIV pre-exposure prophylaxis among Black sexual minority men: an exploratory study

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Abstract

Black sexual minority men (BSMM) are a priority population for HIV prevention efforts, including pre-exposure prophylaxis (PrEP) promotion. Intersectional stigma can be associated with deterrence from PrEP utilization among BSMM; this stigma has a novel context in the COVID-19 pandemic. To examine this, we investigated latent profiles of racial, sexuality-based, and related stigmas among HIV-negative BSMM in the COVID-19 pandemic and tested their association with PrEP use. We analyzed cross-sectional data from a pilot sample of HIV-negative BSMM ($n = 151$) collected between July 2nd and September 3rd, 2020 in the United States, primarily located on the east coast. We conducted latent profile analysis using internalized racism and homophobia, anticipated racism and homophobia, HIV stigma, healthcare stigma, and PrEP stigma. We then tested associations between latent profiles and both PrEP use (binary) and PrEP acceptability (ordinal) using modified Poisson regression and cumulative log models, respectively. We identified three latent profiles, characterized as ‘Low Internalized Stigma, High Anticipated Stigma’ (reference profile), ‘High Internalized Stigma, Low Anticipated Stigma,’ and ‘High Internalized and Anticipated Stigma.’ The ‘High Internalized and Anticipated Stigma’ profile was associated with PrEP use (aPR 0.37, 95% CI 0.17, 0.82) and acceptability (aPR 0.32, 95% CI 0.18, 0.57) nearly three times as low as the comparing profile after adjustment for confounders. The ‘High Internalized Stigma, Low Anticipated Stigma’ was also associated with PrEP acceptability nearly three times as low as the reference (aPR 0.38, 95% CI 0.22, 0.68). We identified latent profiles characterized by internalized and anticipated stigmas among BSMM during the COVID-19 pandemic and found that the profile with the highest levels of both internalized and anticipated stigma was associated with the lowest PrEP use and acceptability. Internalized stigma may be a particularly relevant intervention target in efforts to promote PrEP uptake among BSMM.

Keywords Stigma · Racism · Homophobia · HIV · Latent variable · Intersectionality

Introduction

HIV remains an important public health priority among populations of Black sexual minority men (BSMM) in the United States; CDC projections suggest approximately half of BSMM will acquire HIV in their lifetime, and one third of BSMM are currently living with HIV (CDC 2020). BSMM have comparable rates of condomless anal intercourse as their white counterparts, yet they face greater risk for acquiring and transmitting HIV (Quinn 2019; Earnshaw et al. 2021; Ramos et al. 2021). Pre-exposure prophylaxis (PrEP) is among the most effective means of HIV prevention, reducing sexual acquisition of HIV by approximately 99% when taken as prescribed (CDC 2018). For this reasons, it has become a cornerstone of HIV prevention efforts. Despite this well-documented efficacy, and the urgent need for HIV prevention among BSMM, PrEP uptake among BSMM has been relatively low compared to other sexual minority men (CDC 2018; Garnett et al. 2018; Kanny et al. 2017). Given these disparities, HIV prevention strategies are of heightened importance in this population, including strategies to promote the utilization of PrEP. This is especially important given that there are still significant gaps in the literature on barriers to PrEP use among BSMM, particularly social barriers. Gaining a better understanding of social, structural, and individual deterrents to PrEP use among BSMM has far-reaching implications for HIV health disparities.

Intersectionality theory is often used to explain the unique social, structural, and individual experiences among individuals with multiple identities and social classifications, particularly related to stigma and discrimination (Crenshaw 1989). This theory posits that these individuals experience unique stigmas and discrimination based on the combinations of their identities, not simply their individual ones, such as BSMM experiencing both racism, homophobia, and a unique intersection of the two that is not experienced by Black heterosexual men or gay men of other racial groups. Additionally, minority stress theory is a useful theoretical framework for understanding how minority-specific stressors, such as racism and homophobia, impacts health behaviors, including uptake of HIV prevention services (Meyer 1995). Experiences of racism and homophobia may be internalized, resulting in greater distrust of medical services and development of more stigmatizing views towards HIV prevention utilization, including both HIV stigma and more specifically, PrEP stigma (Brooks et al. 2020; Mustanski et al. 2018; Cahill et al. 2017; Arscott et al. 2020). For instance, extant literature demonstrates strong associations between internalized homophobia and several adverse HIV-related outcomes, including greater difficulty engaging with HIV-related healthcare services (Arscott et al. 2020; Turpin et al. 2020, 2021a, b; Jeffries 4th et al. 2021). Moreover, these forms of stigma may be heightened in the context of the COVID-19 pandemic, particularly given the greater social isolation, increased burden on mental health, and new challenges in navigating healthcare (Ramos et al. 2021; Garcia et al. 2021; Kamal et al. 2021; Gato et al. 2021). In conjunction, intersectionality theory and minority stress theory illustrate that intersectional stigma can be associated with several adverse health behaviors,

including deterrence from PrEP utilization, among BSMM (Earnshaw et al. 2021; Arscott et al. 2020; Hussen et al. 2018; Scott 2021; Eloppe et al. 2021). As such, intersectional stigma may be a driver of HIV disparities impacting BSMM, in part through deterring PrEP utilization. As a persistent deterrent to PrEP use, intersectional stigma may have significant implications for PrEP sustainability efforts. This is especially salient given the long-standing challenges in promoting PrEP access in this population, particularly related to long-term PrEP promotion (CDC 2018). Sustainability of PrEP uptake and adherence is a critical component of larger HIV prevention efforts, and one where intersectional stigma is likely to be especially relevant.

Based on our theoretical frameworks, the purpose of our study is the test for profiles of racial, sexuality-based, and related stigmas among BSMM during the COVID-19 pandemic and their association with PrEP use. Given that we will be examining many stigmas, we are utilizing latent profile analysis (LPA) as a person-centered approach to synthesizing several stigma measures into manageable and interpretable profiles. This will include anticipated and internalized dimensions of racial and sexuality-based stigma, as well as stigmas related to HIV, PrEP use, and healthcare. We hypothesize that profiles characterized by the most stigmas overall will be associated with the lowest PrEP use and acceptability.

Methods

Participants and procedures

We analyzed cross-sectional data from a pilot sample of HIV-negative BSMM ($n=151$) in the United States. Participants were recruited through BSMM-specific social media (e.g., Jack'd, Grindr) and BSMM community-serving organizations. Eligibility criteria included being at least 18 years of age, identifying as Black, African American, African, Afro-Caribbean (including multiracial Black identities), identifying as male, having had a male sexual partner in the last 6 months, and being HIV negative. All participants were also assigned male at birth. Data was collected between July 2nd and September 3rd in 2020 using online surveys. The University of Maryland, College Park, Institutional Review Board granted approval for the study (IRB # 1486118), and all participants provided written informed consent. We followed the STROBE guidelines for cross-sectional studies in developing this study (Supplement 1).

Exposures

Exposures included 7 multi-item measures of stigma. PrEP stigma was measured using the 10-item PrEP Stigma and Positive Attitudes scale (Mustanski et al. 2018). Healthcare Stigma was measured using a 10-item subscale from the Medical Mistrust Index (Boulware et al. 2003). Internalized Racism was measured using a 7-item subscale from The Appropriated Racial Oppression Scale (Campon and

Carter 2015). Anticipated Racism was measured using an 8-item subscale from the Everyday Discrimination Scale (Krieger et al. 2005). Internalized Homophobia was measured using Herek and Glunt's internalized homophobia scale (Herek and Glunt 1995). Anticipated Homophobia was measured using the 8-item anticipated subscale of the Homosexuality-related stigma scale (Liu et al. 2009). HIV Stigma was measured using 8 items from the brief HIV stigma scale (Nyblade et al. 2013). All of these multi-item measures demonstrated acceptable internal consistency (Cronbach's $\alpha > 0.70$).

Outcomes

Our two PrEP-related outcomes were current PrEP Use (yes/no), and a 3-level ordinal PrEP acceptability measure (Never considered using PrEP, considering using PrEP but not currently using it, currently using PrEP).

Covariates

Covariates included age (18–24, 25–34, 35 or older), highest education level (High school or less, Some college, College—Undergraduate degree, College—Graduate degree), Region (Northeast, West, Midwest, South), Sexual Identity (Bisexual, Gay, Heterosexual, Blaqueer/Same gender/loving/Queer/Other), Region (Relationship Status (single, Dating, Partnered—Monogamous, Partnered—Non-monogamous), Current Health Insurance, number of condomless insertive anal intercourse number of partners in the past 3 months, number of condomless receptive anal intercourse partners in the past 3 months, and depression measured using the 9 item Patient Health Questionnaire (Kroenke et al. 2001). Covariates were selected based on previous associations with both HIV-related outcomes and stigma in the literature. We also included a 5 item measure of social desirability bias for sensitivity analyses (Hays et al. 1989).

Missing data

Missingness for all items was low (less than 10%), with most items having less than 2% missingness. We used intrascale stochastic imputation to impute missing items from other items within each scale. The overall low missingness and strong internal consistency of each scale supported this approach. We retained all observations post-imputation ($n = 151$).

Latent profile analysis

LPA was used to generate profiles from the seven stigma scales. This method allows for data-driven synthesis of these numerous psychosocial factors into interpretable person-centered groups. We did not use our PrEP outcomes when generating latent profiles. We selected the number of profiles for subsequent analyses based on the log-likelihood, significant differences between models with adjacent numbers of profiles using the

Vu-Lo-Mendel-Rubin likelihood ratio test, and information criteria, such as the Bayesian Information Criterion (BIC). We also assessed entropy as a measure of certainty of class assignment and used minimum class size to identify “outlier profiles” consisting of less than 10 participants. Analyses incorporated terms for correlated residuals to reduce violations of local interdependence. We conducted LPA using Mplus 8.2 (Muthén and Muthén 2017).

Bivariate analyses

We tested for associations between latent profiles and both of our PrEP outcomes, as well as all covariates. Kruskal–Wallis tests were used for ordinal and continuous covariates. We use ordinal tests for continuous covariates here due to the non-normality of our continuous measures. Fisher Exact tests were used for categorical covariates, as some covariates had small frequencies necessitating this method.

Regression analyses

We assessed between latent profiles and our binary PrEP use measure using modified Poisson regression with robust standard errors. This method is useful for generating prevalence ratios for binary outcomes and allows for more inclusion of confounders than log-binomial modeling. We assessed associations between latent profiles and our ordinal PrEP acceptability outcome using a cumulative log model, generating cumulative prevalence ratios. We generated unadjusted models and models adjusted for age, highest education level, sexual identity, relationship status, current health insurance, condomless insertive anal intercourse number of partners, condomless receptive anal intercourse number of partners, and depression. Region was not included due to excessive covariance with other sociodemographic covariates. For all models we generated ratio estimates and 95% confidence intervals. We also conducted sensitivity analyses, comparing regression estimates before and after including our measure of social desirability bias.

Quality assurance

We assessed the presence of influential outliers using a combination of Cook’s distances and leverages; we did not identify any overly influential outliers. There was no evidence of intercollinearity, as variance inflation factors for all models were less than 5. All bivariate and regression analyses were conducted in SAS 9.4 (SAS Institute Inc. 2014).

Table 1 Comparison of latent profile class models for stigma among Black sexual minority men ($n = 151$)

	2	3	4	5
Number of profiles ^a	2	3	4	5
Bayesian Information Criterion	23,070.698	24,077.586	22,457.888	22,559.924
Log-likelihood ^b	11,158.059	11,524.08	10,596.797	10,520.386
Entropy	0.996	0.992	0.992	0.994
Presence of outlier ($n < 20$) profiles	None	None	None	None

^aModels with greater than 5 classes did not result in any significant improvement in fit

^bBolding indicates significant ($p < 0.05$) improvement in fit using the Vu-Lo-Mendel-Rubin adjusted likelihood ratio test comparing the bolded model with k profiles to the model with $k-1$ profiles (e.g., the 3-profile model compared to the 2-profile model)

Results

Latent profile analyses

We proceeded with a 3-profile model for all subsequent analyses (Table 1). This was based on a significant improvement in log-likelihood between 2 and 3 profiles, relatively low information loss measured using the BIC, very high entropy (> 0.95). No outlier profiles were identified. Profile 1 was characterized as ‘Low Internalized Stigma, High Anticipated Stigma’; this was used as the reference profile as it demonstrated the lowest stigma overall (Fig. 1). Additionally, no profile was characterized by low levels of both internalized and anticipated stigma. Profile 3 was characterized as ‘High Internalized Stigma, Low Anticipated Stigma’. Profile 2 was identified as ‘High Internalized and Anticipated Stigma’, as this profile had the highest levels of all stigmas measured. All stigmas were significantly associated with latent profile assignment ($p < 0.05$).

Sample characteristics

Approximately half of the sample was between the ages of 25 and 34 (Table 2). Over half (61.6%) had completed an undergraduate or graduate college degree. Over half (57.0%) identified as gay, with a fifth identifying as bisexual (19.9%). Just under half were single (44.4%) and reported sexual partner concurrence (43.1%). Participants reported a median 2 condomless anal intercourse partners in the past 3 months. The median PHW-9 score was 15, consistent with moderately severe depression. The median PrEP acceptability was “Considering using PrEP but not currently using it,” with 28.5% of participants reporting currently using PrEP.

Bivariate analyses

Factors associated with the ‘High Internalized and Anticipated Stigma’ profile included younger age (18–24 years), education of high school or less, a lack of current health insurance, high depression, low PrEP use, and the lowest PrEP acceptability. Additionally, heterosexual identity was associated with the “High Internalized

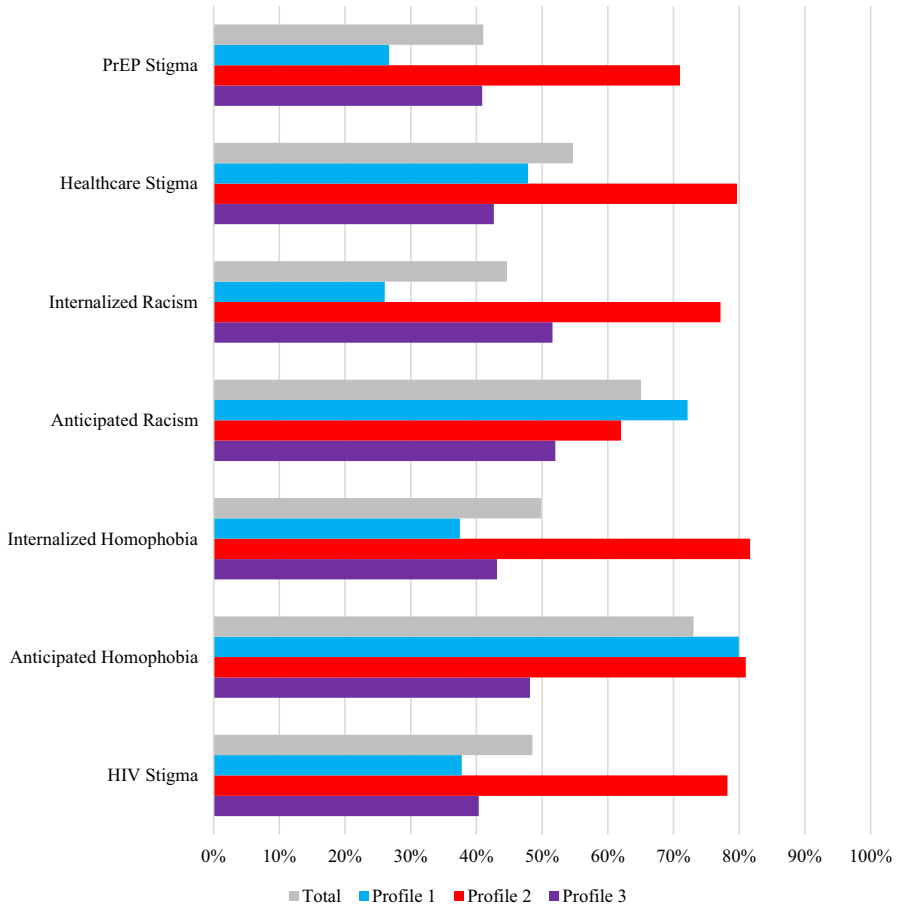


Fig. 1 Standardized item response probabilities for stigma, self-efficacy, and resilience across latent profiles ($n = 151$). All items were associated ($p < 0.05$) with latent profile assignment

Stigma, Low Anticipated Stigma” profile. Greater condomless insertive anal intercourse was marginally associated ($0.05 < p < 0.10$) with profiles characterized by high internalized stigma. Additionally, none of the measures used were significantly associated with our measure of social desirability bias.

Regression analyses

In our models (Table 3), the ‘High Internalized and Anticipated Stigma’ profile was associated with PrEP use nearly three times as low as the reference profile after adjustment for confounders (aPR 0.37, 95% CI 0.17, 0.82). Similarly, PrEP acceptability was three times as low among this profile compared to the reference (aPR 0.32, 95% CI 0.18, 0.57). The ‘High Internalized Stigma, Low Anticipated Stigma’ was associated with PrEP acceptability nearly three times as low as the reference

Table 2 Sample characteristics and associations between latent stigma profiles, covariates, and PrEP use and acceptability (*n* = 151)

	Total	Latent stigma profiles		
		'Low internalized stigma, high anticipated stigma' (<i>n</i> = 79)	'High internalized stigma, low anticipated stigma' (<i>n</i> = 34)	'High internalized and anticipated stigma' (<i>n</i> = 38)
Age group (%)^a				
18–24	19.9	12.7	14.7	39.5
25–34	43.1	48.1	44.1	31.6
35 or older	37.1	39.2	41.2	29.0
Highest education level (%)^a				
High school or less	13.9	8.9	14.7	23.7
Some college	24.5	22.8	32.4	21.1
College (undergraduate degree)	35.8	32.9	38.2	39.5
College (graduate degree)	25.8	35.4	14.7	15.8
Region (%)^b				
Northeast	57.0	59.5	44.7	64.7
West	8.0	5.1	7.9	2.9
Midwest	10.0	3.8	5.3	14.7
South	47.0	31.7	42.1	17.7
Sexual identity (%)^b				
Bisexual	19.9	20.3	17.7	21.1
Gay	57.0	63.3	38.2	60.5
Heterosexual	11.3	3.8	32.4	7.9
Blaqueer/SGL/Queer/other	11.9	12.7	11.8	10.5
Relationship status (%)^b				
Single	44.4	44.3	32.4	55.3

Table 2 (continued)

	Total	Latent stigma profiles		
		'Low internalized stigma, high anticipated stigma' (n=79)	'High internalized stigma, low anticipated stigma' (n=34)	'High internalized and anticipated stigma' (n=38)
Dating	17.2	17.7	20.6	13.2
Partnered—monogamous	29.1	31.7	32.4	21.1
Partnered—non-monogamous	9.3	6.3	14.7	10.5
Current health insurance (%) ^b	80.8	84.8	85.3	68.4
Any sexual partner concurrence (%) ^b	43.1	40.5	50.0	42.1
Condomless insertive anal intercourse number of partners (median) ^a	2	1	3	3
Condomless receptive anal intercourse number of partners (median) ^a	2	1	1.5	2.5
Depression scale (median) ^a	15	13	10	27
Any PrEP use (%) ^b	28.5	38.0	20.6	15.8
PrEP acceptability (median) ^{a,c}	1	1	1	0

^aTested using Kruskal–Wallis test

^bTested using multicategorical Fisher exact tests

^c0 = “Never considered using PrEP”, 1 = “Considering using PrEP but not currently using it”

Estimates where $p < 0.05$ are bolded. Estimates where $0.05p < 0.10$ are italicized

Table 3 Prevalence ratios and cumulative prevalence ratios for latent stigma profiles and covariates associated with PrEP use and PrEP Acceptability, respectively, among Black sexual minority men (*n*=151)

	PrEP use		PrEP acceptability	
	Unadjusted	Adjusted	Unadjusted	Adjusted
Latent stigma profile				
‘High Internalized and Anticipated Stigma’	0.42 (0.19, 0.91)	0.37 (0.17, 0.82)	0.36 (0.22, 0.59)	0.32 (0.18, 0.57)
‘High Internalized Stigma, Low Anticipated Stigma’	0.54 (0.36, 0.98)	0.55 (0.37, 0.98)	0.44 (0.27, 0.73)	0.38 (0.22, 0.68)
‘Low Internalized Stigma, High Anticipated Stigma’	Reference	Reference	Reference	Reference
Age group				
18–24		0.55 (0.26, 1.12)		0.75 (0.42, 1.35)
25–34		0.84 (0.41, 1.72)		0.91 (0.47, 1.74)
35 or older		Reference		Reference
Highest education level				
Some college		1.20 (0.56, 2.57)		0.98 (0.48, 2.00)
College (undergraduate degree)		0.93 (0.43, 2.03)		0.69 (0.36, 1.33)
College (graduate degree)		1.21 (0.54, 2.72)		0.84 (0.41, 1.70)
High school or less		Reference		Reference
Sexual identity				
Bisexual		0.78 (0.35, 1.73)		0.96 (0.58, 1.60)
Heterosexual		0.97 (0.34, 2.76)		0.77 (0.38, 1.56)
Queer/Blaqueer/SGL/other		1.45 (0.75, 2.80)		1.25 (0.52, 2.99)
Gay		Reference		Reference
Relationship status				
Dating		0.98 (0.50, 1.96)		1.19 (0.70, 2.05)
Partnered—monogamous		0.29 (0.11, 0.73)		0.60 (0.34, 1.05)
Partnered—non-monogamous		1.06 (0.50, 2.27)		2.00 (1.04, 3.84)

Table 3 (continued)

	PrEP use		PrEP acceptability	
	Unadjusted	Adjusted	Unadjusted	Adjusted
Single		Reference		Reference
Current health insurance		1.62 (1.04, 2.31)		1.88 (1.07, 3.28)
Any sexual partner concurrence		1.27 (1.02, 1.57)		1.08 (0.88, 1.34)
Condomless insertive anal intercourse number of partners (per 1 unit increase)		0.91 (0.81, 1.02)		0.98 (0.88, 1.08)
Condomless receptive anal intercourse number of partners (per 1 unit increase)		1.06 (1.01, 1.12)		1.08 (1.02, 1.18)
Depression scale (per 1 unit increase)		1.00 (0.96, 1.04)		1.00 (0.97, 1.03)

Estimates where $p < 0.05$ are bolded. Estimates where $0.05p < 0.10$ are italicized

(aPR 0.38, 95% CI 0.22, 0.68). Though there was no statistically significant association between this profile and PrEP use, estimates indicated approximately half the PrEP use among this profile compared to the reference, both before and after adjustment (aPR 0.55, 95% CI 0.27, 1.11). Among covariates, non-monogamous relationship status and statistically current health insurance were both associated with greater PrEP acceptability after adjustment, while sexual partner concurrence was associated with greater PrEP use. Monogamous relationship status was associated with lower PrEP use, and marginally associated with lower PrEP acceptability. Additionally, inclusion of our social desirability bias measure in a sensitivity analysis did not substantially alter results (<5% change in estimates).

Discussion

We found that the profile characterized by the highest levels of both internalized and anticipated stigma was associated with the lowest PrEP use and acceptability. This is largely consistent with previous work demonstrating that stigma is associated with lower healthcare utilization, and more adverse HIV-related outcomes (Earnshaw et al. 2019, 2021; Cahill et al. 2017; Jeffries 4th et al. 2021; Quinn et al. 2019). Internalized and experienced homophobia, as well as experienced racism, has been demonstrated as a barrier to HIV-related services in prior literature (Turpin et al. 2021b; Jeffries 4th et al. 2021; Arnold et al. 2014; Santos et al. 2013). While this was a small pilot study, the associations between stigmatized profiles and both PrEP use and acceptability were notably strong, with PrEP use three times as high among the reference profile compared to the most stigmatized profile. Racism and homophobia are both salient factors to how BSMM navigate life, including their experiences with healthcare delivery and utilization. The latent profile classification also identified consistency between internalized identity-related stigma (i.e., racism and homophobia) and stigma related to HIV, PrEP, and healthcare. This underscores how internalization of broader identity-related stigma is often directly linked to more specific healthcare stigmas, which has implications for their relevance to healthcare engagement overall. Healthcare stigma is likely to be especially salient during the COVID-19 pandemic, given the larger challenges in navigating healthcare.

Our findings highlight unique distinctions between internalized and anticipated stigma; while no profile was characterized by low levels of both types of stigmas, the profile with the greatest PrEP use was characterized by low internalized stigma. Notably, much of the literature on homophobia and HIV-related outcomes highlights these differences, often finding the strongest relationships between internalized homophobia and these outcomes (Arscott et al. 2020; Santos et al. 2013). Internalized stigma may be more of a deterrent to PrEP utilization and acceptability than anticipated stigma. This is consistent with both minority stress theory and intersectionality theory. The internalization of stigma reflects much of its impact as a stressor, and the relevance of both homophobic and racial stigmas is uniquely intersectional to racial and sexual minorities. This distinction has important implications for interventions as well; internalized stigma is likely to be a more appropriately modifiable factor than anticipated stigma, as anticipated

stigma is reflective of real stigmatizing experiences beyond one's control. For those reporting low anticipated stigma but high internalized stigma, the low anticipated stigma may reflect denial of stigma as a means of maladaptive coping. Notably, we did not identify a profile characterized by low levels of both internalized and anticipated stigma. Future larger research into distinctions between how internalized and anticipated stigma affect HIV prevention service utilization, particularly focused on racism and homophobia, can help elucidate this finding.

In the context of research and policy approaches to reduce HIV incidence among BSMM, PrEP use is one of the most effective prevention strategies. Given the strong associations between highly stigmatized profiles of BSMM and PrEP use, internalized stigma may be an important intervention target for increasing PrEP uptake. Policies and programs to promote PrEP uptake of BSMM are often designed to promote the general wellness of members of this populations; reduction of internalized stigma should be incorporated as a component of said programs. This would not only be a means of improving PrEP uptake, but also promoting general mental and emotional wellness. Our findings that the most stigmatized profile also had the greatest depression scores, with a median consistent with severe depression, underscores this. Our findings also highlight the importance of considering several dimensions of stigma in tandem in the development of stigma reduction interventions.

Limitations

Our study has important limitations to acknowledge. Foremost, this was a small pilot study designed to explore intersectional stigmas among HIV-negative BSMM. Given the small sample size ($n=151$), generalizability and statistical power are somewhat limited, though we were able to identify significant associations between stigmatized profiles and PrEP use. Given that the study is focused on HIV-negative BSMM, we cannot generalize beyond this population, though this is a population where both intersectional stigmas and PrEP use are highly relevant. As participants were largely recruited through BSMM-serving organizations, this may introduce selection bias resulting in greater PrEP use and acceptability than would be observed in the general population of BSMM. Although LPA has many advantages, it may conceal the degree of individual stigma on the outcome, as it examines combinations of stigmas characterized by profiles. Despite this limitation, it is an excellent method for analysis within an intersectional framework, as this allows for identifying combinations of unique stigmas in a data-driven way. Our finding that profiles characterized by combinations of stigmas had the lowest PrEP use is fully consistent with intersectionality theory. Finally, though none of our measures were significantly associated with our measure of social desirability bias, it should be noted that many of the measures are generally highly sensitive (e.g., depression, number of condomless anal intercourse partners, stigmas) and may be underreported.

Conclusion

We identified latent profiles characterized by internalized and anticipated stigma among BSMM and found that the profile with the highest levels of both internalized and anticipated stigma was associated with the lowest PrEP use and acceptability. Stigma is a critically important factor in the relationship BSMM have with health-care services, including utilization of PrEP. Internalized stigma may be a particularly relevant intervention target in efforts to promote PrEP uptake among BSMM. Future research utilizing larger samples of HIV-negative BSMM should further explore how internalized and anticipated stigma affect HIV prevention utilization. Research into how stigma affects HIV treatment engagement among HIV-positive BSMM is also recommended.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s43545-022-00490-w>.

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