Factors associated with stigma related to HIV pre-exposure prophylaxis (PrEP) use among men who have sex with men (MSM)

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ABSTRACT

Background Pre-exposure prophylaxis (PrEP) is a noteworthy scientific development that increases the opportunities for men who have sex with men (MSM) to prevent HIV infection, but stigma is a major barrier to its uptake. This study aims to determine the associations between PrEP-related stigma and individual characteristics among MSM.

Methods Self-reported cross-sectional data were collected from routine-collected electronic healthcare record data from 4084 MSM receiving PrEP in San Francisco, California, between July 2018 and June 2020. Multivariable logistic regression was performed to determine the associations between individual characteristics and PrEP-related stigma, adjusting for age, race, gender identity, injection history, housing status and mental health status.

Results PrEP-related stigma was experienced by 9.0% of the participants in our study. PrEP-related stigma was significantly associated with being transgender or gender non-conforming (adjusted OR (AOR): 1.81, 95% CI 1.21 to 2.72), having a history of injection drug use (AOR: 2.02, 95% CI 1.18 to 3.46), being unstably housed (AOR: 1.58, 95% CI 1.11 to 2.26) and having mental health concerns (AOR: 1.99, 95% CI 1.35 to 2.92), after controlling for age, race, gender, injection history, housing status and mental health status.

Conclusion Participants who reported being transgender or gender non-conforming, having a history of injection drug use, or having mental health concerns were more likely to report experiencing PrEP-related stigma. It is crucial to develop culturally appropriate interventions to reduce PrEP-related stigma among populations who are at high risk of HIV infection and may benefit strongly from improved PrEP uptake.

INTRODUCTION

Pre-exposure prophylaxis (PrEP) has been shown to have greater than 90% effectiveness in preventing HIV acquisition among those who may be exposed.[1] Yet, despite PrEP's overall promotion and demonstrated efficacy for HIV prevention, an estimated 224 000 people in the USA had received a prescription for PrEP as of 2019, a small fraction of the 1.1 million people in the USA estimated to have indications for PrEP.[2 3] Among gay and bisexual men in the USA, HIV prevalence remains high and PrEP use remains low, especially for men who have sex with men (MSM) of colour. In 2019, only 19% of Black/African American gay and bisexual men and 21% of Hispanic/Latino gay and bisexual men took PrEP in the past 12 months, compared with 31% of white gay and bisexual men.[4]

Several individual and demographic factors that may pose barriers to PrEP uptake include fear of side effects, self-perceived low efficacy for adherence, lack of knowledge or awareness of PrEP, perception of low HIV risk, unaffordability or high costs of PrEP, and concern about having to take medication frequently.[5 6] Similarly, social barriers include stigma from healthcare providers, distrust of healthcare providers or systems, lack of access to PrEP, and anticipated stigma from partners, peers and family members related to sexual orientation.[5 6] Reducing PrEP stigma to improve progress towards National HIV/AIDS Strategy goals is imperative, yet epidemiological studies on PrEP-related stigma and individual characteristics are sparse. This study aims to determine the characteristics associated with MSM experiencing stigma related to their PrEP use among clients receiving PrEP through a large sexual health clinic in San Francisco, California.

METHODS

Participants

This analysis used data from the San Francisco AIDS Foundation (SFAF), encompassing services from multiple different locations in San Francisco. Data were collected as part of related, routine data collection for sexual health services, with a self-collected electronic questionnaire completed by all clients of SFAF as part of clinical care, while waiting for their appointment. For this analysis, data were included from MSM receiving PrEP who were HIV-negative, aged 13 and above, completed the PrEP stigma question on the form, and visited any location of SFAF to receive sexual health services between July 2018 and June 2020. Since information was gathered with a unique clinical record identification number for each individual, only the most recent visit entry was used for each person who attended the clinic during this 2-year period.

Outcome variable

Participants who responded 'yes' to the question 'In the last 12 months, have you experienced stigma or discrimination (eg, avoidance, pity, blame, rejection, verbal abuse or bullying) in relation to your PrEP use?' were considered to have experienced stigma during their use of PrEP, which they attributed to their use of PrEP. This was treated as a binary variable.

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Table 1 Association between individual characteristics and PrEP stigma (N=3828)*

Variables	COR (95% CI)	P value	AOR (95% CI)	P value
Age in years				
13–29	1.31 (0.87 to 1.96)	0.195	1.12 (0.74 to 1.70)	0.601
30–49	1.23 (0.82 to 1.83)	0.313	1.13 (0.75 to 1.69)	0.568
50 and above	Reference		Reference	
Race				
Asian	0.94 (0.67 to 1.32)	0.734	0.95 (0.67 to 1.34)	0.757
Black or African American	**1.61 (1.00 to 2.60)****	**0.050**	1.52 (0.94 to 2.47)	0.089
Hispanic or Latinx	**1.39 (1.05 to 1.84)**	**0.020**	1.32 (0.99 to 1.75)	0.059
Other†	**1.91 (1.34 to 2.74)**	**<0.001**	**1.67 (1.15 to 2.41)**	**0.007**
White	Reference		Reference	
Gender identity				
Transgender/gender non-conforming	**2.21 (1.50 to 3.25)**	**<0.001**	**1.81 (1.21 to 2.72)**	**0.004**
Cisgender/gender conforming	Reference		Reference	
Injection history, past 12 months				
Yes	**2.38 (1.41 to 4.02)**	**0.001**	**2.02 (1.18 to 3.46)**	**0.011**
No	Reference		Reference	
Housing status				
Homeless‡	2.06 (0.70 to 6.04)	0.188	1.31 (0.43 to 4.01)	0.634
Unstable housing§	**1.84 (1.31 to 2.60)**	**<0.001**	**1.58 (1.11 to 2.26)**	**0.011**
Stable housing	Reference		Reference	
Mental health concerns				
Yes¶	**2.25 (1.54 to 3.28)**	**<0.001**	**1.99 (1.35 to 2.92)**	**<0.001**
No	Reference		Reference	

*Note that this was a complete case analysis; 256 participants in the full analysis were not included in these logistic regressions due to missingness in the medical record data, which were missing completely at random to the best of our knowledge (no discernible patterns were detected in missingness related to the observed data and overall missingness was minimal).
†Other race: those who reported multiple races *or* reported Middle Eastern, North African, American Indian or Alaska Native race/ethnicity, *or* reported a race other than those listed.
‡Homeless: living outdoors or in a vehicle, navigation centre or shelter, or having no home.
§Unstable housing: couch surfing, living in treatment or transitional housing, living in hotel or staying with a friend.
¶Mental health concerns: having often felt down or depressed or hopeless, or having often felt little interest or pleasure in doing things.
**Bolded values indicate statistical significance at the level of alpha = 0.05.
AOR, adjusted OR; COR, crude OR; PrEP, pre-exposure prophylaxis.

Independent variables

Independent variables included age, race, gender identity, injection history, housing status and mental health concerns (table 1).

Analysis

We calculated the percentage of individual characteristics, then stratified PrEP-related stigma by individual characteristics. We tested statistically significant differences between PrEP-related stigma and individual characteristics using χ^2 tests, in each case using all observations with non-missing values for the categories being tested. We used bivariate logistic regression to determine unadjusted associations between PrEP-related stigma and each of the individual characteristics. Multivariable logistic regression with complete case analysis was performed to determine the associations between individual characteristics and PrEP-related stigma among MSM receiving PrEP, using all independent variables as predictors in the model.

P<0.05 was considered significant for all analyses. All analyses were performed in R statistical software version 4.0.5 statistical software.[7]

RESULTS

A total of 4084 MSM receiving PrEP visited SFAF between July 2018 and June 2020. Among them, 9.0% reported that they experienced PrEP-related stigma. There was a statistically significant difference in the proportion of people experiencing PrEP-related stigma by race, gender identity, injection history, housing status and mental health status. People who experienced PrEP-related stigma were more likely to be Black/African American (6.3% experiencing PrEP-related stigma vs 4.7% not), Hispanic/Latinx (26.7% vs 22.5%) or 'other' race/ethnicity (12.9% vs 8.0%); more likely to be transgender/gender non-conforming (TGNC) (9.8% vs 4.7%) or people who inject drugs (5.4% vs 2.4%); more likely to be homeless (1.4% vs 0.6%) or unstably housed (12.3% vs 7.5%); and more likely to have concerns about their mental health (9.8% vs 4.7%).

Table 1 shows the relationships between individual characteristics and PrEP-related stigma. After adjusting for all independent variables, PrEP-related stigma was significantly associated with the participants who reported 'other' race compared with white race (adjusted OR (AOR): 1.67, 95% CI 1.15 to 2.41), TGNC (AOR: 1.81, 95% CI 1.21 to 2.72) compared with cisgender, having injected drugs in the last year (AOR: 2.02, 95% CI 1.18 to 3.46) compared with not, having unstable housing (AOR: 1.58, 95% CI 1.11 to 2.26) compared with having stable housing, and having mental health concerns (AOR: 1.99, 95% CI 1.35 to 2.92) compared with those who did not report mental health concerns. In unadjusted analyses, being Black/African American (crude OR: 1.61, 95% CI 1.00 to 2.60) or Hispanic/Latinx (crude OR: 1.39, 95% CI 1.05 to 1.84) was also significantly associated with experiencing PrEP-related stigma compared with white race.

DISCUSSION

We found that MSM who were TGNC, had a history of injection drug use, were unstably housed or had mental health concerns were more likely to report experiencing stigma related to their PrEP use. We also found racial/ethnic differences in PrEP-related stigma among MSM, with a higher proportion of MSM who were Black/African American, Hispanic/Latinx or multiracial/other race experiencing stigma compared with their white counterparts, although these results were not statistically significant for Black/African American and Hispanic/Latinx participants in our adjusted analysis ($p=0.089$ and $p=0.059$, respectively). As our analysis was only conducted within a population of people who had already begun using PrEP, we cannot infer anything directly about the barriers these experiences of stigma may pose for PrEP uptake. However, as word of mouth is an important barrier or facilitator of uptake of HIV prevention services,[8] understanding factors associated with reports of people feeling stigmatised for their PrEP use provides some important insight into the ways that anticipated experiences of stigma may serve as barriers to uptake for various groups.

Importantly, prior research has demonstrated that intersecting stigmas play a critical role in PrEP utilisation rates. People who are also experiencing stigma related to their race/ethnicity, gender presentation, substance use history and/or housing status may experience a multiplicative effect, with substantially reduced quality of life.[9] Intersecting stigma may make it more likely that people with multiple marginalised identities report experiences of stigma, as we found in this study, and also may make it more difficult for a person to report with certainty that the stigma they are experiencing is related to their PrEP use.

Our analysis is subject to a number of limitations. First, our findings were based on a cross-sectional analysis of people already using PrEP; without a comparison group we are unable to establish causality between PrEP stigma and individual characteristics. Second, PrEP-related stigma was measured with a single dichotomous question in this study, which likely has less reliability than a multi-item-based scale. In a prospective research study, it would be more appropriate to use a validated scale or set of measures for PrEP-related stigma. However, this single item-based survey strategy had already been implemented with clinical data collection. Third, these data come from a single service provider in San Francisco. Our study findings may not be generalisable to other areas of the USA that have diverse distribution of racial groups across community areas, greater or lesser concentration of MSM individuals, and higher or lower levels of exposure to PrEP information. Fourth, experiences of stigma and mental health status were self-reported and not verified with other supporting data and therefore might be affected by social desirability bias, or may in fact not have been PrEP-related. Fifth, our study did not capture the duration of PrEP use. PrEP-related stigma was measured among individuals who had used PrEP at any point of time during the period of study; length and patterns of PrEP use could affect people's experiences with PrEP-related stigma. A future longitudinal study is required to determine changes in PrEP-related stigma over time and explore reasons for these changes. Despite these limitations, these analyses deliver vital information about PrEP-related stigma among MSM, who experience a disproportionately high burden of HIV.

People who anticipate being stigmatised for their PrEP use are more likely to avoid the steps necessary to initiate and adhere to a PrEP regimen, even if they believe PrEP would be personally helpful as an HIV prevention strategy. Efforts are necessary to de-stigmatise PrEP use, particularly for MSM who are people of colour, TGNC, use substances, are unhoused or have mental health concerns. Strategies may include social marketing campaigns or popular opinion leader-based programmes,[10] and co-location of mental health, housing or substance use services with PrEP initiation, to minimise the need for people to separately seek out PrEP services. Without these interventions, PrEP-related stigma may continue to be a barrier to uptake among populations who are at high risk of HIV infection.

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REFERENCES

1 Grant RM, Lama JR, Anderson PL, *et al*. Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *N Engl J Med* 2010;363:2587–99.
2 Sullivan PS, Giler RM, Mouhanna F, *et al*. Trends in the use of oral emtricitabine/tenofovir disoproxil fumarate for pre-exposure prophylaxis against HIV infection, United States, 2012-2017. *Ann Epidemiol* 2018;28:833–40.
3 Smith DK, Van Handel M, Grey J. Estimates of adults with indications for HIV pre-exposure prophylaxis by jurisdiction, transmission risk group, and race/ethnicity, United States, 2015. *Ann Epidemiol* 2018;28:850–7.
4 Centers for Disease Control and Prevention. Hiv infection risk, prevention, and testing behaviors among men who have sex with Men—National HIV behavioral surveillance. In: *Hiv surveillance special report 15*. Vol 20. Atlanta, 2014.
5 Mayer KH, Agwu A, Malebranche D. Barriers to the wider use of pre-exposure prophylaxis in the United States: a narrative review. *Adv Ther* 2020;37:1778–811.
6 Peng P, Su S, Fairley CK, *et al*. A global estimate of the acceptability of pre-exposure prophylaxis for HIV among men who have sex with men: a systematic review and meta-analysis. *AIDS Behav* 2018;22:1063–74.
7 R Core Team. R: a language and environment for statistical computing. Vienna, Austria, 2018. Available: https://www.R-project.org/
8 Beach LB, Greene GJ, Lindeman P, *et al*. Barriers and facilitators to seeking HIV services in Chicago among young men who have sex with men: perspectives of HIV service providers. *AIDS Patient Care STDS* 2018;32:468–76.
9 Quinn K, Bowleg L, Dickson-Gomez J. "The fear of being Black plus the fear of being gay": The effects of intersectional stigma on PrEP use among young Black gay, bisexual, and other men who have sex with men. *Soc Sci Med* 2019;232:86–93.
10 White JJ, Yang C, Tobin KE, *et al*. Individual and social network factors associated with high self-efficacy of communicating about men's health issues with peers among black MSM in an urban setting. *J Urban Health* 2020;97:668–78.