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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 4,084 MSM receiving PrEP in San Francisco, CA 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 trans or gender non-conforming (adjusted odds ratio (AOR): 1.81, 95% CI: 1.21, 2.72), having a history of injection drug use (AOR: 2.02, 95% CI: 1.18, 3.46), being unstably housed (AOR: 1.58, 95% CI: 1.11, 2.26) and having mental health concerns (AOR: 1.99, 95% CI: 1.35, 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, and 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 for HIV infection and may benefit strongly from improved PrEP uptake.

Key words: MSM; HIV; PrEP; stigma.

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 US had received a prescription for PrEP as of 2019, a small fraction of the 1.1 million people in the US estimated to have indications for PrEP.^{2,3} Among gay and bisexual men in the US, HIV prevalence remains high and PrEP use remains low, especially for MSM of color. 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 to 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 toward 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, CA.

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 ID for each individual, only the most recent visit entry was used for each person who attended the clinic during this two-year period. As this is an internal evaluation of programmatic data, this analysis was not considered human subjects research and no ethical approval was required.

Outcome variable

Participants who responded “yes” to the question: “In the last 12 months, have you experienced stigma or discrimination (e.g. 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.

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 chi-square 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-value <0.05 was considered significant for all analyses. All analyses were performed in R statistical software version 4.0.5.⁷

RESULTS

A total of 4084 MSM receiving PrEP visited SFAF between July 2018 and June 2020. Among them, 9.0% participants reported that they experienced PrEP-related stigma. There was a statistically significant difference in the proportions 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 to white race (adjusted odds

ratio, AOR: 1.67 (95%CI: 1.15, 2.41), TGNC (AOR: 1.81, 95%CI: 1.21, 2.74) compared to cisgender, having injected drugs in the last year (AOR: 2.02, 95%CI: 1.18, 3.46) compared to not, having unstable housing (AOR: 1.58, 95%CI: 1.11, 2.26) compared to having stable housing, and having mental health concerns (AOR: 1.99, 95%CI: 1.35, 2.92) compared to those who did not report mental health concerns. In unadjusted analyses, being Black/African American (crude odds ratio, COR: 1.61, 95%CI 1.00, 2.60) or Hispanic/Latinx (COR: 1.39, 95%CI: 1.05, 1.84) were also significantly associated with experiencing PrEP-related stigma compared to white race.

DISCUSSION

We found that MSM who were trans or gender non-conforming, 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 to their white counterparts, though these results were not statistically significant for Black/African American and Hispanic/Latinx participants in our adjusted analysis ($p=0.089$ and 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 stigmatized for their PrEP use provides some important insight into the ways that anticipated experiences of stigma may service as barriers to uptake for various groups.

Importantly, prior research has demonstrated that intersecting stigmas play a critical role in PrEP utilization 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 marginalized 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 generalizable to other areas of the US 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 stigmatized 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-stigmatize PrEP use, particularly for MSM who are people of color, TGNC, use substances, are unhoused, or have mental health concerns. Strategies may include social marketing campaigns or popular opinion leader-based programs,¹⁰ and co-location of mental health, housing, or substance use services with PrEP initiation, to minimize 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 for HIV infection.

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Availability of data and material

This analysis was completed using internal evaluation programmatic data that is not available publicly. However, code and a de-identified dataset can be arranged on a case-by-case basis through request via the corresponding author.

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

AOR: adjusted odds ratio, COR: crude odds ratio, CI: confidence interval

*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 was 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 above

‡Homeless = living outdoors or in a vehicle, navigation center, 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.