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BRIEF REPORT

Demographic Differences in PrEP-Related Stereotypes: Implications for Implementation

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Abstract Qualitative interviews about pre-exposure prophylaxis (PrEP) stereotypes were conducted with a subsample of 160 MSM who participated in a PrEP messaging study. Negative stereotypes about PrEP users were identified by 80 % of participants. Two types of stereotypes were most common: PrEP users are HIV-infected (and lying about it), and PrEP users are promiscuous and resistant to condom use. Participants' identification of these stereotype categories differed significantly by demographic factors (i.e., race/ethnicity, education). Expanding access to PrEP requires recognizing potential differences in the experience or anticipation of PrEP-related stereotypes that might impact willingness to discuss PrEP with providers, friends, or partners.

Keywords Pre-exposure prophylaxis · Stereotypes · MSM · HIV prevention

Introduction

At present, one of the most promising HIV prevention strategies is pre-exposure prophylaxis (PrEP), which refers to the use of daily oral antiretroviral medication by HIV-uninfected persons. Antiretroviral medication for PrEP was FDA approved in 2012; however, the uptake of PrEP outside of clinical trials and demonstration projects is still low overall [1, 2]. There has been concern that PrEP may be primarily taken up in clinical practice by the so-called "worried well," individuals with higher socioeconomic status and greater connection to health care, and who are already protecting themselves in other ways, rather than reaching those at highest risk [3].

One potential barrier to PrEP use among potential candidates is PrEP-related stereotypes, (i.e., real or anticipated negative evaluative judgments of a person who decides to use PrEP). Awareness of PrEP-related stereotypes from peers has been reported by participants in PrEP demonstration projects and is considered a barrier to uptake and retention in PrEP programs [4, 5]. Internationally, participants in PrEP trials have cited stereotype-related concerns as barriers to adherence [6, 7]. Despite calls for combating PrEP stereotypes in social marketing and education for high-risk men who have sex with men (MSM) in the United States, little research exists specifically documenting the types of PrEP-related stereotypes that are of greatest concern for MSM or whether different PrEP stereotypes are more relevant for specific subpopulations. The purpose of this mixed-methods study was to examine the different types of PrEP-related stereotypes identified by MSM who are candidates for PrEP education and outreach, and to examine sociodemographic and behavioral correlates of the different types of PrEP stereotypes.

Methods

Procedures and Participants

Data were drawn from a cross-sectional study examining the impact of PrEP messaging and communication

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strategies on PrEP adoption intentions. Between April 2013 and June 2014, participants in the study ($N = 500$) completed in-person interviews and received educational information about PrEP, including data on efficacy and side effects based on iPrEx study results [8]. We conducted brief qualitative interviews with a subsample of participants ($n = 160$) who were enrolled between April 2013 and May 2014. All interviews were audio-recorded. During the qualitative interview, we asked participants if they had heard about "PrEP stigma or stereotypes about PrEP use." If a participant had not heard of PrEP-related stigma or stereotypes, the interviewer explained that PrEP-related stigma or stereotypes refers to beliefs about people who would take PrEP to prevent HIV infection. Participants were then asked to describe stereotypes associated with PrEP use and PrEP users, and how PrEP-related stereotypes might impact their own or others' willingness to take PrEP or to talk to health care providers about PrEP. All procedures were reviewed and approved by the first author's Institutional Review Board.

Participants were recruited in New York City using passive recruitment methods (i.e., flyers), active recruitment methods (i.e., outreach at bars, events, community-based organizations), and participant referral. To be eligible for the project, participants: (1) were born male; (2) were at least 18 years old; (3) self-reported an HIV-negative serostatus; and (4) reported at least one act of condomless anal sex with a male partner in the last 30 days. The analytic sample included all 160 MSM who completed qualitative interviews.

Measures

To contextualize the qualitative interviews, four measures from the larger study were included in these analyses.

Demographics

Participants reported their age, sexual identity, race/ethnicity, education level, income level, and relationship status.

STI History

Participants were asked whether they had ever been diagnosed with Chlamydia, Gonorrhea, Genital Warts, or Syphilis. Participants were dichotomized by lifetime history of STI (Yes/No).

HIV Testing Behavior

Participants were asked to recall the last time they were tested for HIV. Data were dichotomized according to CDC recommendations for MSM, i.e., 1 = within the last 6 months or 0 = more than 6 months ago.

PrEP Adoption Intentions

To assess PrEP adoption intentions, participants were asked how likely they would be to take PrEP if it were available for free. Consistent with our past research [9], responses were gathered on a five-point scale but were dichotomized into "likely to take PrEP" (i.e., those who responded they would "probably" or "definitely" take PrEP) and "not likely to take PrEP" (i.e., those who responded that they "might," "probably would not" or "definitely would not" take PrEP).

Analyses

All qualitative interviews were digitally recorded and transcribed verbatim. We used framework analysis [10] as the qualitative method by which to approach our data. Framework analysis is both systematic and dynamic in its approach to qualitative data, resulting in the ability to produce accessible analyses focused on specific research questions. Consistent with the five steps outlined in framework analysis, all three authors began by familiarizing ourselves with interview content. Second, we devised and refined a thematic framework for coding by reading and re-reading the data, identifying themes that emerged, and writing analytical memos about those themes. Third, KG and AS indexed the data, identifying specific sections and coding whether different types of PrEP-related stereotypes were mentioned, which corresponded to particular themes. All analyses were double coded and reliability was assessed using Cohen's kappa ($\kappa = 0.81$). All three authors collaborated on the fourth and fifth stages, charting and mapping, which included refining the relationship between indexed data and the original thematic framework, interpreting the resulting themes, and contextualizing their meaning within and across participants.

Four themes emerged out of the interview data, and are described below. Given the limited number of participants who reported two of the themes (irresponsibility and gay-related stereotypes), we then fit bivariate binary logistic regression models to explore associations between identifying the two most prominent PrEP stereotypes (HIV-based and promiscuity-based) and demographic characteristics, STI history, and HIV testing behavior. Finally, we examined whether identification of these PrEP stereotypes was significantly associated with PrEP adoption intentions.

Results

Participants ranged in age from 18 to 61 ($M = 32.49$; $SD = 10.32$), with half of the sample between the ages of 18 and 29 ($n = 80$). Five men reported that they were

currently taking PrEP. As shown in Table 1, over half of the sample were MSM of color 57.5 ($n = 92$), including 35.0 % ($n = 56$) who identified as Black and 15.6 % ($n = 25$) who identified as Latino. Approximately 80 % of the sample self-identified as gay ($n = 131$) and 18.1 % ($n = 29$) self-identified as bisexual or other. Almost half of the sample reported having a primary romantic partner 47.5 % ($n = 76$). The sample was relatively diverse in regards to socioeconomic status, with 53.1 % ($n = 85$) reporting less than a college education and 46.9 % ($n = 75$) reporting an annual income of less than $20,000 per year. Over 70 % of the sample ($n = 117$) reported having an HIV test within the past 6 months, 60 % ($n = 96$) reported having had an STI in in their life time, and over 50 % reported that they would take PrEP if it were available ($n = 85$).

Overall, 80 % of participants ($n = 128$) identified at least one stereotype or negative judgment associated with PrEP use or PrEP users. We classified these statements into four broad thematic categories.

Table 1 Characteristics of study sample by reported prep stereotype (N = 160)

	Total		Mentioned HIV stigma ($n = 66$)		Mentioned promiscuity ($n = 65$)	
	N	%	OR	95 % CI	OR	95 % CI
Race						
Black	56	35.0	2.88*	1.24, 6.71	0.19***	0.08, 0.49
Latino	25	15.6	3.46*	1.24, 9.66	0.26*	0.08, 0.83
Other	11	6.9	2.96	0.74, 11.86	0.77	0.21, 2.87
White (ref.)	68	42.5	–	–	–	–
Age						
18–29	80	50.0	1.37	0.65, 2.91	1.01	0.49, 2.10
30–49 (ref.)	66	41.3	–	–	–	–
50 and older	14	8.8	3.40*	1.03, 11.24	1.07	0.30, 3.84
Sexual identity						
Gay	131	81.9	0.40*	0.17, 0.92	2.04	0.72, 5.72
Bisexual/Other (ref.)	29	18.1	–	–	–	–
Education						
B.A. degree (ref.)	75	46.9	–	–	–	–
<B.A.	85	53.1	3.88***	1.79, 8.40	0.16***	0.07, 0.36
Annual income						
$20,000 or more (ref.)	85	53.1	–	–	–	–
<$20,000	75	46.9	1.27	0.64, 2.53	0.48*	0.24, 0.99
Relationship status						
Partnered (ref.)	76	47.5	–	–	–	–
Single	84	52.5	1.19	0.59, 2.37	1.12	0.56, 2.25
Partners HIV status						
HIV-positive (ref.)	17	10.6	–	–	–	–
HIV-negative/unknown	59	36.9	1.55	0.39, 6.16	0.65	0.19, 2.12
Last HIV test						
Over 6 months ago (ref.)	43	26.9	–	–	–	–
Within the last 6 months	117	73.1	0.48	0.23, 1.01	1.35	0.60, 3.05
STI history						
No (ref.)	64	40.0	–	–		
Yes	96	60.0	0.88	0.44, 1.77	1.41	0.69, 2.92
PrEP adoption intentions						
Yes (ref.)	85	53.1	–	–	–	–
No	75	46.9	1.27	0.64, 2.53	1.35	0.67, 2.70

STI History = Lifetime diagnosis of Chlamydia, Gonorrhea, Genital Warts, or Syphilis. B.A. = Bachelor's degree

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

People will Assume You are HIV-Positive

Over 40 % of participants (41.3 %; $n = 66$) expressed concern that PrEP-users would be assumed to be HIV-positive.

> "If someone knows what they are taking or it's found out, they will assume you are HIV-positive."
> "Obviously people would assume that they're positive."
> "Oh, you HIV. You have the monster. No one's going to want to be around you."

As indicated in the last quotation above, many participants believed that the same negative associations with HIV-status in their communities ("you are sick," "your days are marked," people will "not talk to you," "you got AIDS, that's nasty") would extend to those taking PrEP. Participants suggested that not only would PrEP-users face HIV-related stereotypes, they would also be assumed to be HIV-positive individuals trying to lie about or hide their status.

> "People will assume that you're positive, even if you, you'll swear up and down no, no, no I'm doing this as preventative they'll assume. You ever see that Seinfeld episode where somebody goes into the medicine cabinet and there's a fungus medicine? Seriously, if somebody goes into your medicine cabinet and they see HIV medication they're going to think you were lying up and down."
> "They are going to think: Oh, you are HIV-positive, you just don't want to tell me."

People will Assume You are Promiscuous

Over 40 % of participants (40.6 %; $n = 65$) expressed concern that people taking PrEP would be seen as promiscuous.

> "I had sex with someone and then saw a pill bottle and he was like, I am on PrEP. And immediately had negative thoughts about it. I just assumed he was promiscuous."
> "Someone sees you taking that medication they think you're a slut."

In addition to a focus on the number of sexual partners, this type of stereotype also related directly to assumptions about condom use and engaging in "high-risk" sex.

> "That you engage in high risk behaviors, you know. That you often don't use a condom."
> "You take PrEP, you have dangerous sex. You don't use condoms. You're a risky person."
> "Someone who loves unprotected sex and engages in a lot of unprotected sex and has just been lucky."

One participant made the explicit connection between these two stereotypes, demonstrating the connection within his community.

> "I think there's a huge stigma in the gay community that if you're taking PrEP that means that you're fine with unprotected sex, and if you're fine with unprotected sex that you're a slut or something."

In fact, two of the men in our study who reported currently taking PrEP described feeling the need to conceal taking PrEP from others because of this stereotype.

> "I don't tell people because I don't want people to think I am big cum dumpster. I don't want people to think they can do whatever they want or that I am more promiscuous so I don't go around telling people that."
> "Like 'Truvada Whore'. I have seen that term around. I don't tell people that I am on it. I don't tell work. I am not paranoid but I don't want to deal with the issues of what is going on with my coworkers."

Taking PrEP Means You are Irresponsible

While the vast majority of participants (68.7 %; $n = 110$) raised one of the two stereotypes above, there were two other related PrEP-stereotypes that were raised by a smaller number of participants. Almost 10 % of participants (9.4 %, $n = 15$), expressed concern that PrEP-users would be seen as irresponsible. Irresponsibility took on different forms. Some participants defined irresponsibility as recklessness: "*They're doing it to lead a reckless life. That they're taking the medication so they can lead a reckless life*." Relatedly, some reported that PrEP users would be assumed to be careless about their own lives: "*they just don't care about their sexual health."* In contrast, other participants linked this irresponsibility to disregard of other people's sexual health:

> "You're killing everybody. Well if you take it and have unprotected sex you feel invincible, like you can't get it, you're not worrying about other people's health, you're you know a demon to society you know, so you're still labeled as a bad guy in a sense. It's still a bad act. And you shouldn't need PrEP because you should be using condoms."

PrEP Use will Intensify Gay-Related Stigma

A small percentage of participants (6.3 %, $n = 10$) were concerned that PrEP use would be associated with negative

beliefs about gay men's sexuality and would intensify negative beliefs about the gay community.

> "It could create more bad stigma for the gay community in itself. You know, what our lifestyle is and the consequences that could happen because of the lifestyle we lead being like well, 'now they're making medication so you don't have those consequences so you can lead whatever slutty lifestyle you want.'"
> "It's not really homophobia. But what are people afraid of when they think of gay men? Well, its sex….Oh, you are not just satisfied with having a boyfriend then you must be doing something that's really nasty and we can't even imagine having our children near you."

In addition to experiencing gay-related stigma from outside the gay community, two of the men in the study described how this negative stereotype around PrEP use would exist within the gay community. As one participant stated: "*you know there's a lot of negativity out there, especially in New York there's a bunch of judge-y little queens*."

Reporting No Stereotypes

Thirty-two participants (20 %) did not express any negative stereotypes associated with PrEP use. Six of these participants (3.8 % of the total sample) reported positive associations with PrEP use ("*I think it would be a responsible and honest person*," "*I think it's like a plus and they're looked at as a role model*"). The rest reported not being able to think of any stereotypes or that they didn't think there would be stereotypes associated with PrEP use.

> "I don't think there should be a difference between seeing a person taking PrEP and a person buying condoms because it's essentially the same. It's just protection against HIV."

Demographic and Behavioral Predictors of PrEP Stereotype Endorsements

After conducting the thematic analyses above, we were interested in the degree of overlap and/or distinction the two most commonly reported forms of stereotypes—HIV-based- and promiscuity. Thirteen percent of the sample ($n = 21$) raised both stereotypes, 28.1 % ($n = 45$) mentioned only HIV-based stereotypes, 27.5 % ($n = 44$) mentioned only promiscuity. We used binary logistic regression to examine the odds of reporting each type of stereotype, based on demographic and behavioral predictors (see Table 1). Compared to White participants, Black and Latino participants were significantly more likely to mention HIV-based stereotypes and significantly less likely to mention promiscuity. The odds of mentioning HIV-based stereotypes were also higher among those over 50 and those without a Bachelor's degree. In contrast, the odds of mentioning promiscuity were higher among those with a Bachelor's degree or higher and those making more than $20,000 per year. Neither type of stereotype was associated with behavioral factors, including relationship status, partner's HIV status, recency of last HIV test, lifetime history of STI infection, or PrEP adoption intentions. There were no demographic or behavioral factors differences between individuals who mentioned one or more PrEP-related negative stereotype and those who mentioned no negative stereotypes. Further, there were no differences in the type of PrEP information participants received as part of the larger messaging study and PrEP stereotype responses.

Discussion

In this sample of 160 MSM, negative stereotypes about PrEP were identified by 80 % of participants. Framework analysis identified two broad types of PrEP-related stereotypes that were each identified by over 40 % of the sample: (1) the assumption that PrEP users are actually HIV positive (and lying about it); and (2) the assumption that PrEP users are promiscuous and resistant to condom use. These two types of PrEP-related stereotypes have been present anecdotally in articles, blog-postings, and clinical practice; however, to our knowledge, this is the first published study to fully document the existence of these stereotypes among a large group of MSM.

Participants' identification of these two stereotype categories differed significantly by demographic factors. PrEP stereotypes associated with HIV status were more likely to be raised by men of color, those over 50 years old, and those who reported having less than a Bachelor's degree. In contrast, PrEP stereotypes associated with promiscuity were raised more commonly by white participants, those who had a Bachelor's degree or more education, and those who made more than $20,000 per year. As race/ethnicity and socioeconomic status are highly conflated in New York City and individuals are often socially segregated by these factors, these findings suggest different PrEP-related stereotype concerns may be present within different communities. To date, the majority of popular press about PrEP stereotypes has focused on the term "Truvada Whore," which is widely attributed to a Huffington Post article insulting individuals who chose PrEP [11]. This term was subsequently embraced by many as a source of pride, and is now printed on T-shirts and is one of the most commonly used PrEP hashtags in social media. Our data suggest that this focus may be over-emphasizing the experience of

individuals in upper-class white communities, and may be ignoring how, in other contexts, PrEP stereotypes are more relevant for their association with and activation of underlying HIV-based stereotypes. As we work toward expanding access to PrEP among populations that may be most vulnerable to HIV infection, it is imperative to recognize potential differences in the experience or anticipation of PrEP-related stereotypes that might impact willingness to discuss PrEP with providers, friends, or sexual partners.

However, it is important to note that the identification of these stereotypes—or of PrEP-related stereotypes at all—was not significantly associated with PrEP adoption intentions in our sample. In other words, MSM who raised either (or any) PrEP stereotype were not less likely to report being willing to take PrEP, compared to those who did not. Further, many of the men in this study did not report endorsing or believing these stereotypes themselves, rather, they were reporting on stereotypes that were present in the larger social climate. Social desirability biases [12] may have prevented participants from reporting on their true feelings related to PrEP stereotypes, and it is important to note that past literature suggests a significant impact of HIV-stigma on avoidance of prevention behavior among HIV-uninfected individuals [13, 14]. Future research which includes implicit measures of these stereotypes may be a better way of more fully understanding the impact of such stereotypes on behavior. Implicit stereotypes may include affective associations with PrEP users that occur outside of conscious awareness. Past research suggests that explicit stereotypes are predictive of more deliberative behaviors, while implicit stereotypes are more strongly associated with nonverbal behavior or bias toward a stereotyped group [15]. Applied to PrEP, implicit stereotypes may be associated with negative behavior toward individuals who are taking PrEP, impacting PrEP-related disclosure or even adherence among users who perceive these stereotypes in others.

These data are subject to several limitations. Our sample was recruited in New York City, which has been one of the leaders in PrEP adoption and implementation, potentially limiting the generalizability of our findings. Our data were collected from April 2013 to May 2014; PrEP attitudes and perceptions are changing rapidly as press coverage and availability increases. Our study assessed adoption intentions, and not actual behavior, which may be more likely to be influenced by PrEP stereotypes. Finally, our sample was recruited specifically for a study on PrEP, which may indicate that they considered PrEP less stigmatizing or were more positively disposed toward it.

Despite these limitations, our data suggest the importance of considering PrEP-related stereotypes in implementation efforts, and tailoring stereotype-reducing messages to the specific concerns of different populations. Although identification of specific stereotypes was not associated with adoption intentions, these stereotypes may have significant impacts on the experience of individuals taking PrEP and may influence both disclosure and adherence behavior. Perhaps more importantly, they underscore the importance of directly addressing HIV-related stigma in the development and implementation of HIV prevention efforts. Anti-HIV stigma campaigns may have the added benefit of reducing PrEP-related stereotypes and increasing acceptability of and access to PrEP as part of comprehensive HIV prevention for populations at highest risk of infection.

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