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ORIGINAL PAPER

The Association Between Disclosure of Same Sex Behavior to Healthcare Providers and PrEP Awareness Among BMSM in Baltimore

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Abstract
The goal of this study was to explore the association between disclosure of same sex behavior to a healthcare provider and PrEP awareness in a sample of 192 Black MSM in Baltimore. After adjusting for age, education, sexual identity and employment status, we observed a trend of greater PrEP awareness among Black MSM who disclosed same sex behaviors to healthcare providers (adjusted odds ratio = 2.24, p = 0.08). This study provides new evidence of potential benefit of disclosure of same sex behavior to healthcare providers for awareness of new HIV biomedical interventions. Findings highlight the need to support patient–provider communication on sexual behaviors and PrEP with key populations at risk of HIV.

Keywords MSM · Disclosure of same sex behavior · PrEP awareness · HIV

Introduction

Black men who have sex with men (BMSM) have the highest rate of HIV infection in the US, and BMSM have up to four times the risk of infection compared to white men who have sex with men (MSM) [1]. Evidence suggests that pre-exposure prophylaxis (PrEP) could significantly reduce HIV incidence in the United States [2]. Identification of individuals at risk of HIV by healthcare providers, followed by the provision of PrEP services, is a key public health intervention that has the potential to reduce disparities in HIV transmission rates among racial and sexual minorities. Healthcare providers who are aware of their patients' same sex behavior are expected to provide comprehensive evaluations and to recommend appropriate services. Studies among MSM have found that disclosing one's same sex behavior to a healthcare provider is associated with greater access to services, such as HIV and STI testing or HPV vaccination [3, 4]. For example, in a sample of MSM recruited from the New York City National HIV Behavioral Surveillance (NHBS) project [3], those who had ever been tested for HIV were significantly more likely to have disclosed to their health care providers (adjusted odds ratio, 2.10). More studies are warranted to determine the potential benefit of same sex behavior disclosure on access to sexual health services among sexual minorities of color.

The goal of the current study was to examine whether disclosure of same sex behavior to a healthcare provider was associated with PrEP awareness among BMSM. We analyzed baseline and 6-month follow up survey data from a pilot randomized trial of a behavioral HIV intervention conducted in Baltimore, Maryland. Neither intervention or comparison conditions provided any content related to PrEP. We hypothesized that BMSM who disclosed same sex behaviors to a healthcare provider at baseline were more likely to be aware of PrEP at 6-month follow-up.

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Methods

We used baseline data of disclosing same sex behavior to a healthcare provider and 6-month follow-up data on PrEP awareness among a sample of BMSM in Baltimore. Data on PrEP awareness was collected between 2013 and 2015, right after PrEP was approved by the US Food and Drug Administration (FDA) in July 2012.

Participants were recruited using street-based outreach, advertising in area newspapers, and word-of-mouth referrals. Two types of participants were enrolled: indexes and networks. *Index participants* were individuals aged 18 years and older who self-reported being African American or Black, biological sex at birth was male, and they had sex with another man (MSM) in the past 90 days. *Network participants* were individuals aged 18 years and older who were referred by the index participant to the research center to receive HIV antibody testing. Network members were eligible for survey assessments if they had one of following sexual risks: (1) unprotected vaginal or anal sex in past 90 days: (2) diagnosed with a sexually transmitted infection in the past 90 days; or (3) had sex with 2 or more people in the past 90 days. Both index and network participants who met the inclusion criteria and provided written informed consent completed baseline, 6-month and 12-month survey assessments. Index participants who completed a baseline visit and showed up for randomization within 90 days of their baseline were eligible to be randomized into intervention or comparison conditions with a computerized program using a 2-block individual randomization scheme. The behavioral intervention provided training to index participants on how to (1) conduct peer health education, (2) promote HIV risk reduction among their social network members, (3) promote HIV voluntary counseling and testing (VCT) among their social network members and 4) recruit social network members for VCT. The comparison condition was focused on HIV education, nutrition and healthy eating. Topics related to PrEP were not included in both conditions. This study was approved by the Institute's institutional review board.

The current analyses included all study participants (both index and network participants) who reported male sex at birth, African American race/ethnicity, and sex with another male in the prior 90 days, were HIV negative at baseline, and returned to complete the 6-month follow up survey.

Measures

Disclosure of MSM behaviors to a healthcare provider at baseline was assessed by one question: "Now I want to ask you a few more questions about the doctor or healthcare provider who you usually go to for routine care…. Did you tell your healthcare provider that you have sex with men?" Those who disclosed same sex behaviors to healthcare providers were asked "Did your healthcare provider ask you for this information?" PrEP awareness at 6-month follow up was assessed by one question: "Have you heard about Pre-Exposure Prophylaxis also known as PrEP?" Baseline characteristics included age, education level, sexual identity (homosexual vs. others), employment status, health insurance, history of STI diagnosis and HIV-related sexual risk behaviors, including multiple sex partners, unprotected sex, and transactional sex. Data on intervention assignment for index participants and network participants' indexes who recruited them to the study was also included in the model.

Data analysis

Bivariate associations were examined using t-test and Chi square statistics. To evaluate independent associations between disclosure of same sex behavior to healthcare providers at baseline and PrEP awareness at follow up, all variables that were marginally statistically significant ($p < 0.10$) in bivariate analyses were entered into a multivariate logistic regression model. All analyses were performed using Stata Version 14.0.

Results

Data from a total of 192 individuals were included in the current analyses, of which 151 were index participants and 41 were network participants. After the baseline assessment, 101 out of 151 index participants and 37 out of 41 network's index were randomized to either intervention or comparison conditions.

About one-fifth of the participants (21%, n = 41) disclosed same sex behavior to healthcare providers at baseline. Among those 41 BMSM who disclosed their MSM behavior to healthcare providers in the current study, 73% (n = 30) reported that their healthcare providers asked them for this information. Less than one-fifth (16%) of all participants were aware of PrEP at 6-month follow up. Baseline characteristics and factors associated with PrEP awareness are presented in Table 1. Among individuals who disclosed same sex behavior to healthcare providers, 32% were aware of PrEP at 6-month follow up. Among those who did not disclose same sex behavior at baseline, 12% were aware of PrEP at 6-month follow up. After adjusting for age, education, sexual identity and employment status, disclosing same sex behavior to a healthcare provider at baseline was marginally significantly associated with PrEP awareness at

Table 1 Baseline characteristics and factors associated with PrEP awareness at 6-month follow up among 192 HIV negative BMSM

Characteristic	Total (n = 192)		Aware of PrEP (n = 31)		Unaware of PrEP (n = 161)		factors associated with PrEP awareness	
	n	%	n	%	n	%	OR (95% CI)	AOR (95% CI)
Disclosure of same sex behavior to health care provider								
No	151	79	18	12	133	88	Ref	Ref
Yes	41	21	13	32	28	68	3.43 (1.51, 7.80)*	2.24 (0.89, 5.62)$^{+}$
Age								
18–24	36	19	12	33	24	67	Ref	Ref
25–40	70	36	13	19	57	81	0.46 (0.18, 1.14)$^{+}$	0.65 (0.24, 1.75)
> 40	86	45	6	7	80	93	0.15 (0.05, 0.44)**	0.31 (0.09, 1.08)$^{+}$
Education level								
Less than high school	56	29	5	9	51	91	Ref	Ref
High school or GED or higher	126	71	26	19	110	81	2.41 (0.88, 6.64)$^{+}$	1.51 (0.51, 4.51)$^{+}$
Sexual identity								
Others	126	66	13	10	113	90	Ref	Ref
Homosexual	66	34	18	27	48	73	3.26 (1.48, 7.18)**	1.47 (0.57, 3.78)
Employment								
Unemployed	133	69	14	11	119	89	Ref	Ref
Employed full or part time	59	31	17	29	42	71	3.44 (1.56, 7.58)**	2.19 (0.92, 5.20)$^{+}$
Health insurance								
No	47	24	6	13	41	87	Ref	–
Yes	145	76	25	17	120	83	1.42 (0.55, 3.71)	
Ever diagnosed with an STI[a]								
No	185	96	30	16	155	84	Ref	–
Yes	7	4	1	14	6	86	0.86 (0.10, 7.41)	
2+ sex partners in the past 90 days								
No	48	25	8	17	40	83	Ref	–
Yes	144	75	23	16	121	84	0.95 (0.39, 2.29)	
Unprotected sex in the past 90 days								
No	13	7	2	15	11	85	Ref	–
Yes	179	93	29	16	150	84	1.06 (0.22, 5.05)	
Transactional sex in the past 90 days								
No	112	58	22	20	90	80	Ref	–
Yes	80	42	9	11	71	89	0.52 (0.22, 1.20)	
Intervention assignment								
No randomization	54	28	12	22	42	78	Ref	–
Intervention	72	38	9	12	63	88	0.50 (0.19, 1.29)	
Comparison	66	34	10	15	56	85	0.62 (0.25, 1.58)	

[a]Including chlamydia, gonorrhea, or syphilis

$^{+}p < 0.10$, *$p < 0.05$, **$p < 0.001$

6-month follow up (Adjusted Odds Ratio: 2.24, 95% Confidence Interval: 0.89, 5.62, p = 0.08).

Discussion

This study documented a trend of positive association between disclosing same sex behaviors to healthcare providers and PrEP awareness among BMSM. Another study using 2014 Baltimore MSM National HIV Behavioral Surveillance data found that PrEP awareness was not associated with visiting a healthcare provider in the past 12 months, but was associated with disclosing same sex behavior to a healthcare provider [5]. Healthcare providers were often identified as preferred sources for PrEP among MSM, but potential uptake was limited by barriers to establishing nonjudgmental relationships with these providers [6]. In the current study, only about one

fifth of the participants disclosed MSM behaviors to their healthcare providers. Research suggested BMSM are often less likely to disclose their same sex behavior than white MSM due to stigma and mistrust of the healthcare system among racial minority communities [3, 7]. Guidelines and trainings are needed for healthcare providers to conduct culturally-sensitive and nonjudgmental risk assessments as part of routine care for their patients, including assessments of sexual risk behaviors, sexual orientation, and gender identity. Recent studies suggest that skills-based training for providers [8] or more innovative approaches, such as tablet-based risk assessment tools for clinical use [9] could potentially improve providers' effectiveness in identifying those at highest risk for HIV acquisition.

Among 41 BMSM who disclosed their MSM behavior to healthcare providers in the current study, a majority (73%) reported their healthcare providers asked them for this information but only 13 of 41 (32%) were aware of PrEP. Another study of BMSM found that being unaware of HIV-positive status was positively associated with sexuality disclosure to a health care provider (adjusted odds ratio: 2.98) [10]. These findings suggest missed opportunities to discuss preventive and diagnostic services with BMSM who were already engaged in care and had disclosed their same sex behaviors to their health care provider. To promote the diffusion or PrEP, routine discussion and provision of PrEP should be integrated as a standard component of preventive health care for all patients in high-prevalence areas, which would stimulate more frequent discussions about PrEP, more effective use of PrEP, and more equitable access to PrEP [11].

The findings are limited by the sampling methods, small sample size, and self-report data. We also did not assess the sources of PrEP-related information, and participants could have learned about PrEP from other sources other than their healthcare providers. However, to the best of our knowledge, there were few promotional activities around PrEP in Baltimore during the data collection time. We also did not differentiate different types of healthcare providers. Research has suggested a lack of knowledge about PrEP among healthcare providers following FDA approval, especially among generalist primary care providers [7].

This study provides new evidence of potential benefit of disclosure of same sex behavior to healthcare providers for access to HIV biomedical interventions. However, studies with larger sample sizes are needed to further explore this association. Findings highlight the need to support patient–provider communication on sexual behaviors, sexual identity, and PrEP with key populations at risk of HIV. These findings provide important insight into PrEP awareness among BMSM in Baltimore following FDA approval. Therefore the data can be used to inform the city's effort to scale up PrEP implementation.

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Compliance with Ethical Standards

Conflict of interest All authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. All applicable international, national, and/or institutional guidelines for the care and use of animals were followed.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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