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Characteristics of the provider-patient encounter associated with awareness of and willingness to take PrEP among young minority urban males in Baltimore City

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Abstract

We aimed to identify provider encounter characteristics associated with awareness of and willingness to take PrEP among young urban minority males at higher risk for HIV acquisition. The 74 individuals included in this analysis from a cross sectional survey of males aged 15-24 being seen at a Baltimore City clinic were those who identified as a man who had sex with men (MSM), reported injection drug use, were in a serodiscordant relationship, had a sexually transmitted infection (STI) in the past 6 months, or reported condomless sex with a partner with unknown HIV status. Topics of provider-initiated conversations associated with willingness to take PrEP included one's sexual behavior (OR 7.35, 95% CI: 2.23 – 24.26), whether one had been hurt by a partner (OR 4.71, 95% CI: 1.40 – 15.87), and risk reduction (OR 6.91, 95% CI: 2.10 – 22.81). This study may yield new targets for provider-level interventions for increasing PrEP uptake.

Keywords

Pre-exposure Prophylaxis (PrEP); HIV; Prevention; Priority population

Introduction

Pre-exposure prophylaxis (PrEP) was approved by the US Food and Drug Administration in 2012 as an effective antiretroviral intervention to prevent HIV transmission among high-risk populations that are disproportionately affected by HIV, including young adults, racial/ethnic minorities, and men who have sex with men (MSM). (Baeten et al., 2012; Grant et al., 2010; Murnane et al., 2013) Despite a wide range of targeted efforts that have shown increases in the uptake of PrEP since its approval, the proportion of PrEP users remains a small fraction

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of the at-risk population across the United States.(Mera Giler et al., 2017) Between January 2012 through September 2016, just under 99,000 individuals were estimated to have started PrEP, while in that time period an estimated 35,000 – 40,000 new HIV infections were diagnosed annually with 15,000 – 17,000 of those being among MSM.(Centers for Disease Control and Prevention, 2017; Mera Giler et al., 2017)

Several studies have explored individual-level characteristics and behaviors that affect awareness of PrEP as well as willingness to take a preventive medication daily particularly among priority populations.(Fallon, Park, Ogbue, Flynn, & German, 2017; Garnett et al., 2018; Holloway et al., 2017) PrEP awareness has been shown to be significantly associated with recent HIV/STI testing, perceived HIV risk, higher number of sex partners, and intermittent/lack of condom use; willingness to take PrEP has been associated with concerns about side effects, PrEP-associated stigma, and medical mistrust.(Arrington-Sanders et al., 2016; Eaton, Kalichman, et al., 2017; Eaton, Matthews, et al., 2017; Garcia & Harris, 2017; Kwakwa et al., 2016; Philbin et al., 2016; Underhill et al., 2015) Some studies have also highlighted the potential impact of clinic-based approaches to change provider and staff behavior, such as implementing cultural competency training to reduce medical mistrust and perceived racism in clinic settings, and encouraging providers to reduce “missed opportunities” for talking to high-risk patients about PrEP when patients disclose information to their providers about sexual behaviors or risk.(Arrington-Sanders et al., 2016; Cahill et al., 2017; Kwakwa et al., 2016)

There has been less work, however, explicitly exploring specific aspects of the provider-patient encounter that are associated with awareness of and willingness to take PrEP. Prior studies have shown that measures of patient satisfaction, service quality and quality of physician-patient communication are important for delivery of sexual and reproductive healthcare, and are associated with improvement in a range of health outcomes including emotional health, symptom resolution, and pain control.(Manary, Boulding, Staelin, & Glickman, 2013; Pilgrim et al., 2018; Stewart, 1995) Whether these provider characteristics are related to awareness of and willingness to take PrEP that may inform strategies to improve PrEP uptake remains unexplored. Furthermore, the population specifically indicated by CDC criteria for PrEP is one in which the provider-patient interaction may be even more critical to engage these individuals in discussions regarding PrEP as a prevention option.

Baltimore City is heavily affected by the HIV epidemic, and the most significant burden of new diagnoses are among young, minority males. Of the 278 new HIV diagnoses in 2016, 77.0% occurred among males and 78.1% among non-Hispanic blacks. Forty percent were among individuals 20-29 years of age with an additional 5.4% among 13-19 people years of age.(Center for HIV Surveillance Epidemiology and Evaluation, 2017)

The objective of this analysis was to identify patient-reported characteristics related to provider behavior during the provider-patient encounter that are associated with awareness of and willingness to take PrEP among young urban males 15-24 years of age for HIV prevention and control, a population which aligns with those recommended by the CDC to receive PrEP.(Centers for Disease Control and Prevention & US Public Health Service, 2018)

Materials and Methods

Study Design

This study was embedded in a larger parent study of 168 surveyed individuals, the details of which have been reported elsewhere.(Marcell et al., 2018) Specific to this study, cross-sectional data were collected during two rounds of data collection from July 2016 and October 2017 among a convenience sample of males aged 15-24 years accessing care in one of five urban clinic settings at the end of their clinic visits. The following clinics, at which high volumes of our priority population are seen in Baltimore City, were involved in this study: Chase Brexton Health Care, East Baltimore Medical Center, Harriet Lane Clinic (Johns Hopkins Children’s Center), and the following clinics operated by the Baltimore City Health Department: Eastern Family Planning Clinic, Healthy Teens and Young Adults Clinic, and two STD Clinics.

Participants were asked three (yes/no) questions related to PrEP: 1) “Have you ever heard of PrEP?”, 2) “Would you be willing to take PrEP pills every day to prevent from getting HIV?”, and 3) “Are you currently using PrEP?”. In addition to basic demographics, participants were asked the following questions about sex behaviors: 1) “In the past 3 months, how many people did you have sex with?”, 2) “In the last 6 months, including today, has a healthcare provider told you that you had an STD?”, 3) “Have you ever had sex with someone who is HIV-positive?”, 4) “Have you ever had sex with an anonymous person?”, 5) “Have you ever paid money for sex?”, 6) “Have you ever sold sex for drugs or money?”, and 7) “Over the past 3 months when you had sex, how often did you use a condom?”. Regarding the clinic visit, participants were asked: 1) “Did you tell your healthcare provider today whether you are gay, straight, or bisexual?” and 2) “What brought you to this clinic today?” Questions related to the provider-patient encounter included: 1) “Did the doctor or other healthcare provider ask you today about... ‘Type of sexual behavior you have had?’; ‘Number of sexual partners you have had’; ‘If you were straight, gay, or bisexual?’; and ‘If you ever had a partner hurt you physically?’” as well as 2) “Did your doctor or healthcare provider talk to you or counsel you about... ‘Reducing your HIV/STD risk?’; ‘How to use a condom correctly?’; and ‘PrEP?’”. In addition, they were asked “Did the doctor or healthcare provider practice how to use a condom correctly with an actual condom and model penis?”

Data Analysis

The population included in this cross-sectional analysis, given our focus on a priority population at higher risk for HIV, was 74 individuals who identified as MSM, or reported injection drug use, being in a serodiscordant relationship, having had a sexually transmitted infection (STI) in the past 6 months, or condomless sex with a partner with unknown HIV status. Our study population is consistent with those for whom PrEP is recommended as one prevention option to reduce the risk of HIV infection by the Centers for Disease Control and Prevention in the 2017 update of the Clinical Practice Guideline for PrEP.(Centers for Disease Control and Prevention & US Public Health Service, 2018)

Descriptive statistics were calculated to describe the study population. Multivariable logistic regression was used to identify characteristics related to provider-patient encounter questions associated with awareness of and willingness to use PrEP while controlling for age, sexual orientation, and the clinic in which the patient was seen. Data analysis was conducted using Stata Version 15 (College Station, TX). Associations with a p value <0.05 were considered statistically significant. This study protocol and procedures were approved by the Institutional Review Boards of the Johns Hopkins School of Medicine (approval number: NA_00090514) and all affiliated clinic institutions.

Results

Of the 168 individuals who were surveyed, 74 met inclusion criteria for this analysis (Table 1). 73 (98.6%) identified as male, and the median age was 22 years (inter-quartile range (IQR): 18 to 24 years). 59 (79.7%) were non-Hispanic black and 8 (10.8%) were non-Hispanic white. 25 (33.8%) identified as heterosexual, 29 (39.2%) as homosexual/gay, and 17 (23.0%) as bisexual. 27 (36.5%) had not completed high school.

Individuals reported a median of one sexual partner (IQR: 0 to 6) in the past 3 months. Thirty-six (48.7%) reported a history of an STI diagnosis in the past 6 months. Only 8 (10.8%) reported currently being on PrEP, 50 (67.6%) reported being aware of PrEP, and 41 (55.4%) would be willing to take PrEP daily to prevent HIV acquisition.

In multivariable analyses controlling for age, sexual orientation and the clinic in which the patient was seen (Table 2), individual-level characteristics associated with PrEP awareness were identifying as homosexual compared to heterosexual (OR 10.62, 95% CI: 2.43 – 46.35), having had sex with an HIV-positive person (OR 11.67, 95% CI: 1.35 – 100.84), and having disclosed one's sexual orientation to one's provider (OR: 3.67, 95% CI: 1.13 – 11.92). Willingness to take PrEP was associated with an increase in number of sex partners (OR 2.41, 95% CI: 1.39 – 4.19), having had sex with an HIV-positive person (OR 3.52, 95% CI: 1.03 – 12.08), having had anonymous sex (OR 3.38, 95% CI: 1.11 – 10.23), and having come to the clinic to get condoms (OR 15.69, 95% CI: 1.73 – 142.79) as well as for STI testing (OR 3.42, 95% CI: 1.01 – 11.55). There were no significant associations between awareness of or willingness to take PrEP among individuals seen at an STD clinic vs a primary care clinic.

The only provider-patient encounter characteristic associated with PrEP awareness was being satisfied with the provider's services they received at the clinic (OR 5.13, 95% CI: 1.76 – 14.92); notably, a provider having talked about PrEP was not associated with PrEP awareness. Provider-patient encounter characteristics associated with willingness to take PrEP included the provider having asked about the patient's sexual behavior (OR 7.35, 95% CI: 2.23 – 24.26), number of partners (OR 17.66, 95% CI: 3.85 – 81.08), sexual orientation (OR 6.87, 95% CI: 1.98 – 23.84), and whether one had been hurt by a partner (OR 4.71, 95% CI: 1.40 – 15.87). In addition, the provider talking about STI/HIV risk reduction (OR 6.91, 95% CI: 2.10 – 22.81), condom use (OR 6.16, 95% CI: 2.01 – 18.82) and PrEP (OR 16.33, 95% CI: 3.92 – 68.06) were also associated with willingness to take PrEP.

Discussion

This study showed that certain provider-initiated behaviors and conversations during the provider-patient encounter are significantly associated with awareness of and/or willingness to take PrEP among young urban minority males identified as priority populations at high risk for HIV acquisition in a clinic environment. Our findings suggest that training providers and staff to be comfortable initiating conversations related to sexual experiences, sexual behaviors and STI/HIV risk-reduction options (including specifically PrEP) as well as structuring appointments such that they have time to have these discussions may be important to ultimately augment PrEP uptake among members of this priority population.

The proportions of patients who expressed awareness of and willingness to take PrEP in our population were similar to those noted in other studies.(Arrington-Sanders et al., 2016; Eaton, Matthews, et al., 2017; Philbin et al., 2016) Being asked by a provider about sexual-related behaviors and one's sexual orientation and having been hurt by a partner increased the odds of willingness to take PrEP, as did having provider-initiated discussions about HIV/STI risk reduction and condom use. Prior studies have indicated that counseling and screening related to sexual behaviors and HIV/STI risk occur well below recommended levels during adolescent visits to healthcare providers.(Ellen, Lane, & McCright, 2000; Klein & Wilson, 2002; St Lawrence et al., 2002) Our findings suggest that utilizing these missed opportunities to initiate discussions related to sexual health and behaviors could be an important component of efforts to engage priority populations in considering PrEP as a prevention strategy. Perhaps counterintuitively, provider-initiated conversations about PrEP was not associated with increased awareness of PrEP in our study but was associated with increased willingness to take PrEP. It is not clear why this would be the case; this could be due prior discussions patients had with the same provider that were not assessed in this study or to the relatively small sample size of our study population.

Coming to see a provider to get condoms or for STI testing were both associated with willingness to take PrEP, whereas coming to the provider for a routine or non-STD related sick visit were not associated with either awareness of or willingness to take PrEP. These findings extend prior studies that have found that individuals reporting higher-risk sexual behaviors are more willing to take PrEP, and identify visit type opportunities that providers should not miss to discuss and offer prep, as indicated.(Arrington-Sanders et al., 2016; Jones et al., 2014; Perez-Figueroa, Kapadia, Barton, Eddy, & Halkitis, 2015) Further study is needed in how to promote providers to take advantage of such opportunities to augment PrEP uptake among those patients who are ready. In addition, exploring methods for how to best train providers in having conversations about caring for sexual and gender minority individuals is critical. These priority populations may benefit from providers having an improved understanding of the barriers that prevent patients from reporting this information to their providers and that prevent providers from initiating these conversations during healthcare visits.

This study has several limitations. First, it was a convenience sample of young predominantly minority urban males willing to speak to our team following an appointment at a clinic. This may not be representative of this priority population in Baltimore City or in

other settings. Additionally, it is possible that the behavior of the clinicians in terms of talking about PrEP or other sexual health issues changed knowing that our data collectors were present conducting this study. Of note, providers and clinic staff were not aware of the specific contents of the survey questions. Thirdly, this was a cross-sectional analysis and therefore we are unable to make any inferences about causality between our observed associations.

Despite having been approved for more than 5 years, PrEP awareness and uptake remain low among young minority urban males prioritized for receiving PrEP. We identify potential changes focused on provider-initiated discussion topics that could result in augmenting the quality of care that these young men receive in both primary care as well as sexual health clinic settings. Identifying characteristics of the provider-patient encounter that could enhance the awareness of and willingness to take PrEP among this priority population may yield new targets for interventions aimed to increase PrEP uptake, especially among individuals in greatest need.

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Table 1:

Characteristics of a priority population of young predominantly minority male study participants among six urban clinics in Baltimore City, Maryland, 2016-2017

	Overall Survey Participants (N=168)		Population Indicated for PrEP (N=74)	
<i>Individual Characteristics</i>				
Age, median (IQR)	21 yrs	(15-24 yrs)	22 yrs	(18-24 yrs)
Race/Ethnicity				
Black (non-Hispanic)	143	(85.1 %)	59	(79.7%)
White (non-Hispanic)	8	(4.8 %)	8	(10.8%)
Hispanic	2	(1.2 %)	2	(2.7%)
Other	15	(8.9 %)	5	(6.8%)
Gender Identity				
Male	167	(99.4%)	73	(98.6%)
Transgender	1	(0.6%)	1	(1.4%)
Education < High School/GED (current or completed)	77	(45.8%)	27	(36.5%)
Sexual Orientation (n=73)				
Heterosexual/straight	114	(67.9%)	25	(33.8%)
Homosexual/gay	29	(17.3%)	29	(39.2%)
Bisexual	17	(10.1%)	17	(23.0%)
Other	8	(4.8%)	3	(4.0%)
Number of partners in past 3 months	1	(0 to 6)	1	(0 to 6)
History of STI in last 6 months	36	(21.4%)	36	(48.7%)
Sex with HIV positive person	23	(13.7%)	23	(31.1%)
Anonymous sex	45	(26.8%)	30	(40.5%)
Sold sex for drugs/money	13	(7.7%)	12	(16.2%)
Condomless sex, past 3 months	47	(27.9%)	24	(32.4%)
Disclosed sexual orientation to provider	84	(50.0%)	48	(64.9%)
<u>Clinic type</u>				
Primary care/Family planning	123	(73.2%)	52	(70.3%)
STI clinic	45	(26.8%)	22	(29.7%)
<u>Reason for visit</u>				
Routine/well visit	94	(56.0%)	33	(44.6%)
Concern for STI	15	(8.9%)	9	(12.2%)
To get condoms	25	(14.9%)	14	(18.9%)
Testing for HIV or STI	44	(26.2%)	21	(28.4%)
Currently taking PrEP	8	(4.8%)	8	(10.8%)
Awareness of PrEP	77	(45.8%)	41	(55.4%)
Willingness to take PrEP	60	(35.7%)	50	(67.6%)
<i>Provider-Patient Encounter Characteristics</i>				
<u>Provider asked</u>				
Sexual behavior	106	(63.1%)	48	(64.9%)
Number of partners	108	(64.3%)	51	(68.9%)

	Overall Survey Participants (N=168)		Population Indicated for PrEP (N=74)	
Sexual orientation	81	(48.2%)	45	(60.8%)
Partner had physically hurt you	45	(26.8%)	24	(32.4%)
<u>Provider talked about</u>				
Reducing STI/HIV risk	96	(57.1%)	48	(64.9%)
Condom use (describe)	66	(39.3%)	66	(39.3%)
Condom use (show)	50	(29.8%)	25	(33.8%)
PrEP	47	(27.9%)	30	(40.5%)
Satisfied with services received at the clinic	50	(29.8%)	32	(43.2%)

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Table 2:

Selected characteristics of the individual and the provider-patient encounter and the association with awareness of and willingness to take PrEP among a priority population of young minority men indicated for PrEP in Baltimore City, Maryland, 2016-2017

	Odds of Awareness of PrEP (Adjusted OR* (95% CI))		Odds of Willingness to take PrEP (Adjusted OR* (95% CI))	
<i>Individual Characteristics</i>				
Age	1.21	(0.93-1.58)	1.09	(0.87 – 1.37)
Race/Ethnicity				
Black (non-Hispanic)	Ref	---	Ref	---
White (non-Hispanic)	2.15	(0.32 – 14.47)	0.22	(0.37 – 1.26)
Hispanic	---	---	---	---
Education (current or completed)				
< High School/GED	Ref		Ref	
High School/GED	1.43	(0.44 – 4.58)	1.49	(0.52 – 4.28)
Sexual Orientation				
Heterosexual/straight	Ref	---	Ref	---
Homosexual/gay	10.62	(2.43 – 46.35)	1.01	(0.34 – 2.98)
Bisexual	2.12	(0.58 – 7.82)	2.30	(0.62 – 8.63)
Number of partners in past 3 months	1.33	(0.91 – 1.96)	2.41	(1.39 – 4.19)
History of STI in last 6 months	0.46	(0.51 – 4.09)	0.54	(0.13 – 2.25)
Sex with HIV positive person	11.67	(1.35 – 100.84)	3.52	(1.03 – 12.08)
Anonymous sex	1.57	(0.46 – 5.37)	3.38	(1.11 – 10.23)
Sold sex for drugs/money	2.01	(0.31 – 12.93)	0.58	(0.15 – 2.27)
Condomless sex, past 3 months	1.00	(0.28 – 3.52)	0.59	(0.19 – 1.80)
Disclosed sexual orientation to provider	3.67	(1.13 – 11.92)	2.63	(0.84 – 8.26)
<u>Clinic type</u> **				
Primary care/Family planning	Ref	---	Ref	---
STI clinic	0.63	(0.18 – 2.17)	1.38	(0.42 – 4.53)
<u>Reason for visit</u>				
Routine/well visit	0.59	(0.17 – 1.97)	1.62	(0.58 – 4.52)
Concern for STI	0.41	(0.08 – 2.07)	0.97	(0.22 – 4.17)
To get condoms	1.45	(0.32 – 6.66)	15.69	(1.73 – 142.79)
Testing for HIV or STI	0.81	(0.24 – 2.71)	3.42	(1.01 – 11.55)
<i>Provider-Patient Encounter Characteristics</i>				
<u>Provider asked</u>				
Sexual behavior	1.33	(0.42 – 4.20)	7.35	(2.23 – 24.26)
Number of partners	2.39	(0.73 – 7.82)	17.66	(3.85 – 81.08)
Sexual orientation	1.98	(0.61 – 6.37)	6.87	(1.98 – 23.84)
Partner had physically hurt you	0.47	(0.13 – 1.67)	4.71	(1.40 – 15.87)
<u>Provider talked about</u>				
Reducing STI/HIV risk	0.45	(0.13 – 1.52)	6.91	(2.10 – 22.81)

	Odds of Awareness of PrEP (Adjusted OR* (95% CI))		Odds of Willingness to take PrEP (Adjusted OR* (95% CI))	
Condom use (describe)	0.71	(0.23 – 2.12)	6.16	(2.01 – 18.82)
Condom use (show)	1.43	(0.49 – 3.15)	1.77	(0.42 – 7.51)
PrEP	0.95	(0.28 – 3.22)	16.33	(3.92 – 68.06)
Satisfied with services received at the clinic	5.13	(1.76 – 14.92)	1.66	(0.75 – 3.66)

* adjusted for age, sexual orientation, and clinic at which the patient was seen;

** Analysis of Clinic Type was not adjusted for the clinic at which the person was seen; Bold denotes statistically significant, with p-value <0.05

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