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Knowledge and Attitudes about Pre-Exposure Prophylaxis (PrEP) among Sexually Active Men Who Have Sex with Men (MSM) Participating in New York City Gay Pride Events

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Abstract

We conducted a street-based intercept survey with 480 men reporting sex with men (MSM) during June 2011 Gay Pride events in New York City (NYC). Awareness and knowledge of pre-exposure prophylaxis (PrEP) were limited. Many men believed that PrEP use should be encouraged, and that some of their friends would use it; and were interested in using it themselves. Men who believed that PrEP should only be taken before sex were more likely to endorse it and report greater likelihood of use.

Keywords

HIV/AIDS; Gay; Access to Care

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INTRODUCTION

Results from recent clinical trials demonstrating that oral pre-exposure prophylaxis (PrEP) reduced HIV acquisition risk by 75% in HIV-serodiscordant heterosexual couples,¹ 62% in heterosexually-active women and men,² 49% in injecting drug users,³ and 44% in HIV-negative men who have sex with men (MSM)⁴ ushered in a new era of HIV antiretroviral drug-based prevention, even after disappointing results of several vaginal microbicide^{5,6} and vaccine⁷ trials. To understand awareness of, beliefs about, and interest in using PrEP prior to its widespread promotion, we conducted a brief survey with a convenience sample of men attending gay pride events during the period that the US Food and Drug Administration (FDA) was evaluating the combination of two antiviral drugs -- oral emtricitabine and tenofovir disoproxil fumarate (Truvada®) -- for use as PrEP for HIV prevention.

METHODS

Participants were recruited during June 2011 Gay Pride events in three NYC boroughs. Gay Men's Health Crisis and Columbia University's HIV Center for Clinical and Behavioral Studies staff/volunteers randomly approached attendees and asked them to participate in a brief anonymous survey. Attendees were eligible if they were male, at least 18 years old, and spoke English. Participants were given the option of being interviewed or completing the survey themselves. Seven hundred men participated in the survey, but this analysis is limited to the 480 men who reported having had sex with a man in the preceding six months. Information about mode of survey administration is missing for 23 men. These men were included if they had valid data on other variables. None of the cases out of the 480 were systematically excluded.

We examined factors associated with awareness of PrEP, belief that PrEP use should be encouraged, and personal interest in using PrEP using chi-squared statistics.

RESULTS

The proportion of men who had heard of PrEP was 38.8%, with significantly higher awareness among HIV-positive than HIV-negative men (81.0% vs. 34.7%), as shown in Table 1. Race/ethnicity, perceived risk (among HIV-negative men), and survey administration mode were not related to awareness of PrEP.

Overall, the majority of men (79.4%) believed that all or most of their friends would use PrEP if it became readily available, while nearly half (45.4%) believed that gay men would stop using condoms if PrEP were available (not shown). Nearly three-fifths of men (58.4%) thought PrEP use should be encouraged and a third (32.5%) had no opinion (Table 2). Race/ethnicity was associated with being in favor of encouraging PrEP use, with Latinos most likely to favor encouragement of PrEP (70.8%) and Whites least likely to do so (52.3%). About half of men (50.9%) said it was very likely that they themselves would use PrEP if it became easily available and 14.1% were unsure (Table 2). Whether men had heard about PrEP was not associated with belief about whether use should be encouraged or intention to use it. Compared with other ethnic/racial groups, White men were the least likely to say they

would use PrEP (38.1%, versus 66.7% of Black men and 72.0% of Latino men). Men who perceived themselves at high risk for HIV indicated they would be more likely to use it (81.4%) compared with men at low or no risk (46.7% and 46.5%, respectively).

Men who believed that PrEP should only be taken before sex were more likely to endorse PrEP use (76.1% vs. 12.5%) and report greater likelihood of using it themselves (68% vs. 18.7%). Men who thought that PrEP has a lot of side effects were the least likely to say they would use it (27.8% compared to 63.3% and 63.6% of the men who thought that PrEP would have a few or no side effects, respectively). Men who did not advocate encouraging PrEP use were more likely to believe that PrEP has a lot of side effects and think that gay men would stop using condoms if PrEP became available. In addition, men who believed that PrEP offered more than 50% protection if taken as medically prescribed were significantly more likely to favor encouraging use and to have the intention to use PrEP.

DISCUSSION

Despite more than 60% of sexually-active MSM never having heard about PrEP, half reported interest in using it at a time when PrEP was being considered for approval as an HIV prevention tool. Many men thought that PrEP use should be encouraged and believed that some of their friends would use it. We found higher PrEP awareness (38.8%) among this 2011 sample of MSM compared with 21.2% of 464 minority MSM attendees of Gay Pride events in a 2005–2006 seven-city study,⁸ but lower awareness than the 50% reported in a sample of 172 MSM at a June 2009 Seattle Gay Pride event.⁹ Our study findings highlight the need for PrEP educational campaigns among gay and other MSM, and studies of individual, social, health system, and structural barriers to PrEP uptake. Although the study was conducted one year prior to the July 2012 FDA approval,¹⁰ our data are relevant even if overall awareness might be expected to have increased since approval. It is important to note, however, that despite availability of PrEP and CDC interim guidance on use of PrEP for high-risk men who have sex with men,¹¹ uptake has been lower than anticipated.¹² Major challenges to uptake of PrEP remain, including system barriers (e.g., integrating PrEP into comprehensive HIV prevention and lack of a natural “home” for prescribing PrEP), provider barriers (e.g., identifying who is most likely to benefit from PrEP, lack of medical providers willing and trained to prescribe PrEP, concern about patient adherence), and user barriers (e.g., lack of awareness of PrEP for HIV prevention). These roadblocks must be addressed before we can expect widespread uptake of this new biomedical HIV prevention technology among high-risk HIV-negative MSM.

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Characteristics of Men Who Had Ever Heard of PrEP: Sexually Active MSM Recruited from Gay Pride Events, New York City, June 2011

TABLE 1

	Total, No. (%) ^a	Men Who Ever Heard about PrEP No. (%)	Men Who Never Heard about PrEP No. (%)	P
Total	477 (100)	185 (38.8)	292 (61.2)	
Mode of survey administration				.500
Self	302 (66.1)	120 (33.9)	181 (60.1)	
Interviewer	155 (33.9)	56 (36.6)	97 (63.4)	
Race/ethnicity				.258
African American or Black	48 (10.1)	21 (43.8)	27 (56.3)	
Latino	96 (20.2)	32 (33.7)	63 (66.3)	
White	241 (50.6)	90 (37.5)	150 (62.5)	
Other	91 (19.1)	42 (46.7)	48 (53.3)	
HIV status ^b				.000
Negative	438 (91.3)	151 (34.7)	284 (65.3)	
Positive	42 (8.8)	34 (81.0)	8 (19.0)	
Perceived risk of HIV ^c				.622
No risk	105 (24.4)	33 (31.4)	72 (68.6)	
Low risk	279 (64.7)	100 (36.1)	177 (63.9)	
High risk	47 (10.9)	18 (38.3)	29 (61.7)	

^a Of the 480 men who had sex with men in the preceding six months, information about mode of survey administration was missing for 23 men. Because of missing data, the total number is some categories is <480.

^b Men who preferred not to answer the question were excluded from these analyses.

^c Men who reported being HIV-positive were excluded from these analyses.

TABLE 2
 Correlates of Favoring Encouragement of PrEP Use and Interest in Using PrEP: Sexually Active MSM Recruited from Gay Pride Events, New York City, June 2011

	In Favor of Encouraging PrEP Use Total, No. (%) ^a	Not in Favor of Encouraging PrEP Use Total, No. (%) ^a	Don't Know Whether They are in Favor of Encouraging PrEP Use Total, No. (%) ^a	<i>P</i>	Likely to Use PrEP Total, No. (%) ^{ab}	Not Likely to Use PrEP Total, No. (%) ^{ab}	Don't Know Whether They are Likely to Use PrEP Total, No. (%) ^{ab}	<i>P</i>
Total	277 (58.4%)	43 (9.1%)	154 (32.5%)		205 (50.9%)	141 (35.0%)	57 (14.1%)	
Mode of survey administration				.001				.000
Self	157 (52.5)	28 (9.4)	114 (38.1)		119 (45.6)	93 (35.6)	49 (18.8)	
Interviewer	107 (69.9)	13 (8.5)	33 (21.6)		78 (60.5)	45 (34.9)	6 (4.7)	
Race/ethnicity				.029				.000
African American/Black	28 (58.3)	4 (8.3)	16 (33.3)		26 (66.7)	11 (28.2)	1 (5.1)	
Latino	68 (70.8)	8 (8.3)	20 (20.8)		54 (72.0)	11 (14.7)	10 (13.3)	
White	125 (52.3)	20 (8.4)	94 (39.3)		80 (38.1)	96 (45.7)	34 (16.2)	
Other	53 (60.9)	11 (12.6)	23 (26.4)		43 (57.3)	23 (30.7)	9 (12.0)	
HIV status				.023				.000
Negative	245 (56.6)	40 (9.2)	148 (34.2)		205 (50.9)	141 (35.0)	57 (14.1)	
Positive	32 (78.0)	3 (7.3)	6 (14.6)		n.a.	n.a.	n.a.	
Perceived risk of HIV ^b				.103				.000
No risk	64 (62.7)	9 (8.8)	29 (28.4)		47 (46.5)	42 (41.6)	12 (11.9)	
Low risk	144 (52.0)	27 (9.7)	106 (38.3)		119 (46.7)	95 (37.3)	41 (16.1)	
High risk	33 (70.2)	3 (6.4)	11 (23.4)		35 (81.4)	4 (9.3)	4 (9.3)	
Ever heard of PrEP				.206				.651
Yes	115 (63.2)	16 (8.8)	51 (28.0)		75 (53.2)	49 (34.8)	17 (12.1)	
No	160 (55.4)	26 (9.0)	103 (35.6)		128 (49.4)	92 (35.5)	39 (15.1)	
PrEP only taken before sex				.000				.000
True	67 (76.1)	11 (12.5)	10 (11.4)		51 (68.0)	14 (18.7)	10 (13.3)	
False	124 (70.1)	17 (9.6)	36 (20.3)		80 (51.6)	59 (38.1)	16 (10.3)	

	In Favor of Encouraging PrEP Use Total, No. (%) ^a	Not in Favor of Encouraging PrEP Use Total, No. (%) ^a	Don't Know Whether They are in Favor of Encouraging PrEP Use Total, No. (%) ^a	P	Likely to Use PrEP Total, No. (%) ^{ab}	Not Likely to Use PrEP Total, No. (%) ^{ab}	Don't Know Whether They are Likely to Use PrEP Total, No. (%) ^{ab}	P
Don't know	66 (40.2)	15 (9.1)	83 (50.6)	.000	63 (39.9)	65 (41.1)	13 (19.0)	.000
Side effects of PrEP								
Has a lot of side effects	24 (40.0)	15 (25.0)	21 (35.0)	.000	15 (27.8)	35 (64.8)	4 (7.4)	.000
Has a few side effects	136 (71.2)	17 (8.9)	38 (19.9)		105 (63.3)	46 (27.7)	15 (9.0)	
Has no side effects	11 (91.7)	1 (8.3)	0 (0.0)		7 (63.6)	3 (27.3)	1 (9.1)	
Don't know	95 (52.5)	10 (5.5)	76 (42.0)		77 (45.0)	57 (33.3)	37 (21.6)	
Protection offered by PrEP against HIV infection								
75%–100% protection	118 (79.7)	16 (10.8)	14 (9.5)	.000	85 (68.5)	33 (26.6)	6 (4.8)	.000
At least 50%–protection	50 (66.7)	7 (9.3)	18 (24.0)		39 (57.4)	20 (29.4)	9 (13.2)	
Less than 50% protection	22 (42.3)	13 (25.0)	17 (32.7)		19 (38.8)	25 (51.0)	5 (10.2)	
Don't know	76 (45.8)	6 (3.6)	84 (50.6)		60 (38.0)	62 (39.2)	36 (22.8)	
How many of your friends would use PrEP if made available								
All or most	120 (76.4)	10 (6.4)	27 (17.2)	.000	114 (78.1)	23 (15.8)	9 (6.2)	.000
Some or a few	110 (56.1)	24 (12.2)	62 (31.6)		68 (38.9)	83 (47.4)	24 (13.7)	
None	13 (44.8)	5 (17.2)	11 (37.9)		8 (32.0)	11 (44.0)	6 (24.0)	
Don't know	26 (40.6)	3 (4.7)	35 (54.7)		14 (25.0)	24 (42.9)	18 (32.1)	
Would gay men stop using condoms if PrEP becomes available								
Gay men would continue using condoms	89 (66.9)	9 (6.8)	35 (26.3)	.017	71 (58.2)	32 (26.2)	19 (15.6)	.041
Gay men would stop using condoms	113 (56.5)	28 (14.0)	59 (29.5)		88 (48.9)	74 (41.1)	18 (10.0)	
Don't know	67 (59.3)	5 (4.4)	41 (36.3)		46 (46.9)	34 (34.7)	18 (18.4)	

^aDue to missing data, the total number is some categories is <480.

^bMen who reported being HIV-positive were excluded from these analyses.