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Awareness of and Interest in Oral Pre-Exposure Prophylaxis (PrEP) for HIV Prevention and Interest in Hypothetical Forms of PrEP among People who Inject Drugs in Rural West Virginia

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Abstract

Injection drug use-associated HIV outbreaks have occurred in rural communities throughout the United States, which often have limited HIV prevention services for people who inject drugs (PWID). Pre-exposure prophylaxis (PrEP) is one tool that may help fill gaps in HIV prevention programming in rural settings. Oral PrEP has been approved for use, and new PrEP formulations are under development. Research is needed to better understand interest in oral and forthcoming PrEP formulations among PWID. We used survey data from 407 PWID in rural West Virginia. We asked if participants had heard of, taken, and were interested in taking PrEP, and about interest in several hypothetical forms of PrEP (arm injections, abdomen injections, implants, intravenous infusions). We estimated the prevalence of interest in each formulation and assessed correlates using Chi-squared tests. A minority had heard of oral PrEP (32.6%), and few had used it (3.7%). Many were interested in using oral PrEP (58.3%). Half were interested in arm injections (55.7%). Common correlates of interest across PrEP formulations were sexual minority status, comfort talking to a doctor about sex, sex work, and sharing injection equipment. Oral and injectable PrEP have the potential to fill HIV prevention gaps for rural PWID.

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Keywords

HIV prevention; pre-exposure prophylaxis (PrEP); people who inject drugs; rural health

Introduction

The ongoing opioid crisis has spurred injection drug use-associated HIV outbreaks in rural communities throughout the United States. In 2015, Scott County, Indiana experienced an HIV outbreak linked to the injection of prescription opioids with 181 incident infections identified over one year (Conrad et al., 2015; Gonsalves and Crawford, 2018; Peters et al., 2016). This outbreak was an eye-opening event for public health practitioners and raised concerns about a resurgence of HIV among non-urban populations of people who inject drugs (PWID). Since the Scott County outbreak, comparable injection drug use-associated HIV clusters have been identified in Lawrence and Lowell, Massachusetts in 2016–2017, Hamilton County and Northern Kentucky in 2018, and Cabell County, West Virginia in 2019 (Alpren et al., 2020; Atkins et al., 2020; Cranston et al., 2019; Evans et al., 2018; Hamilton County Public Health, 2018; Northern Kentucky Health Department, 2018). Research has identified more than 200 predominantly rural counties as vulnerable to injection drug use-associated HIV outbreaks (Van Handel et al., 2016). Given the magnitude of risk vulnerability, expanded access to HIV prevention services are sorely needed in rural communities across the country.

Geographical isolation paired with limited public health infrastructure present significant challenges for preventing infectious disease outbreaks among rural PWID populations (Cloud, Ibragimov, Prood, Young, & Cooper, 2019; Des Jarlais et al., 2015). Rural communities often lack evidence-based HIV prevention services, like free and accessible HIV testing and syringe services programs that provide sterile injection equipment to reduce risks for infectious disease transmission among PWID (Des Jarlais, et al., 2015; Sutton, Anthony, Vila, McLellan-Lemal, & Weidle, 2010). One way to overcome the limited HIV prevention infrastructure for rural PWID is through the implementations of pre-exposure prophylaxis (PrEP) programs. Currently, PrEP is an oral medication that can be taken daily to lower risks of HIV acquisition (Food and Drug Administration, 2014). Both the Centers for Disease Control and Prevention (CDC) and United States Preventative Services Task Force recommend that PrEP be offered to PWID, as they are at high-risk for HIV exposure (Centers for Disease Control and Prevention, 2018; US Preventive Services Task Force, 2019). Despite these recommendations, fully scaled PrEP programs for PWID remain rare in rural communities. This lack of programming partially reflects a broadly stigmatizing belief that PWID will not be able to comply with PrEP regimens (Guise, Albers, & Strathdee, 2017). While oral PrEP is the only formulation currently approved for use in the United States, a multitude of new PrEP regimens are under development. Long-acting forms of PrEP that are being developed include injectables, implants, vaginal rings, and antibody infusions (US Department of Health & Human Services, 2019). To date, literature around interest in PrEP among PWID has primarily been limited to oral PrEP, so it is not clear which, if any, of these possible forthcoming PrEP formulations would be of interest to PWID.

Presently, we aimed to explore the awareness of and interest in oral PrEP among a sample of PWID in rural West Virginia. We examined what hypothetical PrEP formulations would be of interest to this population, if they were made available. Finally, we explored sociodemographic correlates of interest in taking oral and hypothetical PrEP formulations.

Methods

Data came from the West Virginia COUNTS! study, which aimed to quantify the size and characteristics of the PWID population in Cabell County, West Virginia (Allen, O'Rourke, et al., 2019; Allen, White, et al., 2019; Schneider et al., 2020; White et al., 2020). Eighty-five percent of the land space in Cabell County is considered rural by the US Census Bureau (US Census Bureau, 2012). Participants were at least 18 years old and had to have previously used drugs. We recruited participants in two phases in June-July 2018, first at the Cabell-Huntington Harm Reduction Program (CHHRP), which is housed at the Cabell-Huntington Health Department, and then in community locations where PWID congregate. These locations were identified via discussions with local stakeholders who were familiar with PWID (e.g., recovery coaches, syringe services program staff) as well as geospatial analyses of secondary data sources (e.g., overdose fatality, syringe disposal) that may indicate areas where PWID congregate (Allen, O'Rourke, et al., 2019). After briefly describing the study procedures and obtaining oral consent from participants, we collected data via audio computer assisted self-interview. Participants received a \$10 grocery gift card or snack bag as an incentive for their participation. We restricted our sample to individuals who had injected drugs in the previous 6 months (n=421). We excluded individuals who were previously diagnosed with HIV (n=13) and a transgender participant to preserve their anonymity, yielding a final analytic sample of 407 participants. This study was approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board.

We described oral PrEP to participants as “a way for people who do not have HIV to prevent HIV infection by taking a pill every day.” We then asked participants if they had ever heard of using oral PrEP for HIV prevention before (yes/no) and if they had ever taken PrEP (yes/no). Finally, we asked participants how interested they would be in taking a pill every day to prevent HIV (very interested, somewhat interested, somewhat disinterested, very disinterested), and created a dichotomous variable for interest in oral PrEP (very and somewhat interested, very and somewhat disinterested). We then measured interest in hypothetical PrEP formulations by asking participants to indicate which of the following they would potentially be interested in: arm injections every 3 months, abdomen injections every 3 months, intravenous (IV) infusions every 3 months, under-skin implants (select all that apply). We selected a 3-month interval for these hypothetical options, as individuals who take oral PrEP are required to see their physician every 3 months (Centers for Disease Control and Prevention, 2018). Thirty-two participants did not respond to the hypothetical PrEP questions. We also asked female participants if they would be interested in two additional forms of PrEP: a vaginal gel and a vaginal ring. Five female participants did not respond to these questions and were excluded from analyses for these hypothetical PrEP formulations.

We also measured sociodemographic characteristics and HIV risk. Participants reported their age (18–29, 30–39, 40–49, 50+), race (categorized as non-Hispanic White/Other due to low prevalence of any other race in the sample), gender (male/female), education (less than high school, high school or equivalent, or some college or more), employment (not working, part time, full time), relationship status (single/in a relationship), sexual orientation (heterosexual/sexual minority, including lesbian, gay, bisexual, and other), whether they considered themselves homeless (yes/no), and how often they went to bed hungry (at least once a week/less than once a week). We asked participants if they were comfortable taking to a doctor about sex and drugs (very or somewhat comfortable/very or somewhat uncomfortable). We asked participants if they had sold or traded sex for money, drugs, food, or other goods in the past 6 months (yes/no, referred to as sex work henceforth). We also included a measure of injection-related HIV risk; specifically, we asked participants if they had used any injection equipment that had previously been used by another person in the past six months, including syringes, cottons, cookers, and rinse water. Participants indicated if they had shared each item, and we summarized these responses into a single binary variable reflecting any injection equipment sharing in the past six months.

When analyzing the data, we first estimated the prevalence of awareness of, usage of, and interest in oral PrEP. We also estimated the prevalence of interest in each hypothetical PrEP formulation. We then used chi-square tests to assess if sociodemographic and HIV risk characteristics were associated with interest in each form of PrEP. Finally, we estimated multivariable logistic regression models for each PrEP formulation including all variables with a $p < 0.1$ from the bivariate analysis. All analyses were conducted using Stata 14 (StataCorp, 2015).

Results

The sample was mostly male (60.9%), non-Hispanic white (84.6%), and unemployed (79.6%) (Table 1). The participants were generally young (25.1% 18–29, 45.3% 30–39). Most had a high school education or less (62.6%), were homeless (55.8%), and went to bed hungry at least once a week (64.9%). Few identified as a sexual minority (15.8%).

Most participants (67.4%) had not heard of PrEP before taking the survey and few had ever used PrEP (3.7%) (Table 2). About one third (33.5%) said they would be “very interested” in taking oral PrEP and an additional quarter (24.8%) said they would be “somewhat interested.” Of the hypothetical PrEP formulations, arm injections every 3 months were of greatest interest (55.7% interested). Abdomen injections (18.9% interest), IV infusions (13.3%), and under-skin implants (22.7%) were the least popular. Among female participants, only about one-quarter were interested in vaginal gels (26.6%) or vaginal rings (28.6%).

Correlates of interest in PrEP were mostly consistent across different formulations (Table 3). Identifying as a sexual minority, being comfortable talking to a doctor about sex, engaging in sex work, and injection-related HIV risk were associated with interest in most PrEP formulations. The only forms of PrEP with substantially different correlates were oral PrEP and a vaginal ring. Interest in oral PrEP was only associated with sharing injection

equipment ($\chi^2=6.2$, $p=0.01$) and sex work ($\chi^2=4.2$, $p=0.04$). Interest in a vaginal ring was associated with homelessness ($\chi^2=10.8$, $p<0.01$), identifying as a sexual minority ($\chi^2=7.9$, $p<0.01$), and injection-related HIV risk ($\chi^2=7.5$, $p<0.01$).

The logistic regression analyses highlighted injection-related HIV risk as the most consistent predictor of interest in PrEP, as it remained associated with increased interest in all forms of PrEP except vaginal gels (Table 4). Sexual minority status only remained significantly associated with interest in skin implant and vaginal ring PrEP formulations, when adjusting for other covariates. Sex work did not remain significantly associated with interest in any forms of PrEP in the adjusted models. Comfort talking with a doctor about sex remained associated with interest in arm injections and IV infusions but not abdomen injections or vaginal gels.

Discussion

Overall, we found that awareness of oral PrEP was low among PWID in Cabell County, West Virginia. Few had previously taken PrEP. This low awareness of PrEP is consistent with previous studies among urban PWID in the United States, which documented 7–24% of PWID were aware of PrEP (Kuo et al., 2016; Sherman et al., 2019; Shrestha et al., 2017; Stein, Thurmond, & Bailey, 2014; Walters et al., 2017). The majority of participants (58.3%) were interested in potentially taking oral PrEP after it was explained to them, which is also consistent with urban PWID studies that found between half and two-thirds of PWID would be interested in taking PrEP (Eisingerich et al., 2012; Escudero et al., 2015; Kuo, et al., 2016; Sherman, et al., 2019; Shrestha, et al., 2017). Arm injections were the most acceptable hypothetical form of PrEP among rural PWID in this study, while all other formulations were largely not of interest. One qualitative study conducted in the northeastern United States similarly found that injectable PrEP was of interest to most PWID and that they perceived that a long-acting injectable would remove some of the barriers to daily oral PrEP, like safe medication storage (Biello et al., 2019). While our findings are an initial exploration of interest in PrEP forms, they can be used to help prioritize the development of new PrEP formulations and inform implementation strategies for rural PWID. PrEP has significant potential to change the HIV landscape in rural settings where other risk reduction services (e.g., syringe service programs) may not be readily available.

The primary correlates of interest in PrEP identified in this study were HIV risk (both injection-related and sex work), identifying as a sexual minority, and being comfortable talking to a doctor about sex. It is plausible that PWID had some level of awareness about their risks for HIV, through either sharing injection equipment or selling sex, and were more likely to be interested in the majority of PrEP forms to lower risks for HIV acquisition. The logistic regression results further indicated that injection-related HIV risk was the most consistent correlate of interest in different PrEP forms, supporting the interpretation that awareness of one's own risk for HIV may be an important driver of PrEP interest. This is broadly consistent with findings from other samples of PWID (Escudero, et al., 2015; Sherman, et al., 2019). Interestingly, sex work did not remain associated with interest in PrEP forms in the adjusted models, suggesting that injection-related risk may be more salient than sexual risk when determining PrEP interest in this population. Sexual minority

individuals were also more likely to be interested in PrEP, possibly because they receive more targeted messaging about it. Such messaging may increase their familiarity and comfort with taking PrEP as a biomedical approach to HIV prevention. Interestingly, being comfortable talking to a doctor about sex, but not drugs, was associated with PrEP interest. It is plausible that PWID perceive discussing sex-related risks with healthcare providers as less stigmatized than injection-related risks. Future work is needed to better understand drivers of PrEP awareness and acceptability among PWID in rural communities.

It is important to note that interest in oral and hypothetical forms of PrEP does not necessarily result in uptake of PrEP among PWID. Low PrEP awareness and limited access to PrEP programs are two barriers that may limit uptake among PWID. Across settings, research has consistently found that PrEP awareness is low among PWID (Kuo, et al., 2016; Sherman, et al., 2019; Shrestha, et al., 2017; Stein, et al., 2014; Walters, et al., 2017), indicating that awareness campaigns and education are needed to inform PWID that PrEP is a possible HIV prevention tool available. Without being aware of PrEP as an HIV prevention strategy, PWID cannot seek out such services. Further, PWID may face a range of barriers to accessing PrEP once they are aware, including a lack of insurance coverage, limited financial resources, lack of transportation, and drug use stigma (Harris and Rhodes, 2013; Lang et al., 2013; Lo et al., 2018; Paquette, Syvertsen, & Pollini, 2018). In order to increase PrEP uptake for this population, education must be paired with concerted efforts to address these barriers and ensure easy and affordable access to PrEP for PWID. Co-locating free or low-cost PrEP services at other programs PWID regularly access, like syringe services programs and HIV testing sites, is one approach that can begin to address barriers to PrEP uptake among those who are interested.

This study has the following limitations that should be addressed in future work. First, our measure of sexual risk for HIV is limited only to sex work as the original study did not have measures of consistent condom use or sexual risk behaviors outside of transactional sex. Further, the questions in this study were based on forms of PrEP that are not currently available. We do not know what complications may exist or any other factors that may arise to affect utilization if these formulations were made available. Finally, the low awareness of oral PrEP may have contributed to hesitancy toward hypothetical forms. While this does not affect interpretations within the study context, generalizing these findings to more PrEP-aware populations should be done with care. Future research should extend the literature by exploring the barriers, facilitators, and benefits of PrEP utilization among rural PWID.

In conclusion, we found that while PrEP was largely not known or used by PWID in Cabell County, West Virginia, many PWID would be interested in taking either the existing oral form of PrEP or receiving an arm injection of PrEP. Participants were largely not interested in other forms of PrEP. Individuals who had high behavioral risks for HIV were more likely to be interested in PrEP, demonstrating participants' interest in protecting their health regardless of drug use. PrEP is an HIV prevention tool that may be of high value to rural communities that have been heavily affected by the opioid crisis.

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Table 1.

Sample Characteristics

	Overall (n=407)	Males (n=248)	Females (n=159)
Age			
18–29	25.1%	22.7%	28.9%
30–39	45.3%	43.7%	47.8%
40–49	21.4%	25.1%	15.7%
50+	8.1%	8.5%	7.6%
Race			
Non-Hispanic, white	84.6%	83.4%	86.4%
Other	15.4%	16.6%	13.6%
Education			
Less than high school	27.3%	27.1%	27.7%
High school equivalent	35.2%	37.7%	31.5%
Some college or more	37.4%	35.2%	40.9%
Employment			
Not working	79.6%	76.0%	85.3%
Part time	10.1%	12.2%	6.7%
Full time	10.3%	11.8%	8.0%
Single	53.6%	58.9%	45.3%
Sexual Minority	15.8%	8.9%	26.6%
Hungry at least 1x per week	64.9%	64.1%	66.0%
Homeless	55.8%	55.2%	56.6%
Comfortable talking to a doctor about sex	71.2%	68.4%	75.5%
Comfortable talking to a doctor about drugs	69.1%	70.3%	67.1%
Injection related HIV risk	60.9%	62.5%	58.5%
Sex work	18.2%	10.5%	30.2%

Table 2.

Awareness of and Interest in Oral PrEP and Interest in Hypothetical PrEP Forms

Heard of Oral PrEP	132 (32.6%)
Ever Taken Oral PrEP	15 (3.7%)
Interest in Oral PrEP	
Very interested	135 (33.5%)
Somewhat interested	100 (24.8%)
Not very interested	82 (20.4%)
Not interested at all	86 (21.3%)
Interested in Hypothetical Forms of PrEP	
Arm injection every 3 months	209 (55.7%)
Abdomen injection every 3 months	71 (18.9%)
IV infusion every 3 months	50 (13.3%)
Under-skin implant	85 (22.7%)
Vagina gel (females only)	41 (26.6%)
Vaginal ring (females only)	44 (28.6%)

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Table 3. Correlates of Interest in Oral and Hypothetical Forms of Pre-Exposure Prophylaxis (PrEP) for HIV Prevention

	Oral PrEP (n=403)		Arm Injections (n=375)		Abdomen Injections (n=375)		IV Infusions (n=375)		Under Skin Implant (n=375)		Vaginal Gel (n=154)		Vaginal Ring (n=154)	
	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p
Age														
18-29	57 (55.9%)		53 (55.2%)		14 (14.6%)		14 (14.6%)		20 (20.8%)		10 (23.3%)		21 (48.8%)	
30-39	105 (57.7%)	2.3, 0.51	96 (55.8%)	0.9, 0.83	40 (23.3%)	3.9, 0.27	25 (14.5%)	42 (24.4%)	1.3, 0.72	24 (31.6%)	3.6, 0.30	23 (30.3%)	<i>a</i>	
40-49	55 (57.7%)		45 (58.4%)		12 (15.6%)		7 (9.1%)	15 (19.5%)		3 (13.0%)		0 (0.0%)		
50+	17 (51.5%)		14 (48.3%)		5 (17.2%)		4 (13.8%)	8 (27.6%)		4 (33.3%)		0 (0.0%)		
Race														
Non-Hispanic, white	195 (58.6%)	0.0, 0.97	176 (57.0%)	0.4, 0.53	60 (19.4%)	0.2, 0.66	44 (14.2%)	71 (23.0%)	0.0, 0.90	32 (24.6%)	2.1, 0.15	39 (30.0%)	0.9, 0.36	
Other	35 (58.3%)		31 (52.5%)		10 (17.0%)		6 (10.1%)	14 (23.7%)		8 (40.0%)		4 (20.0%)		
Gender														
Male	137 (55.9%)	1.5, 0.23	120 (52.9%)	1.9, 0.17	39 (17.2%)	1.2, 0.28	28 (12.3%)	46 (20.3%)	1.9, 0.17	--	--	--	--	
Female	98 (62.0%)		89 (60.1%)		32 (21.6%)		22 (14.9%)	39 (26.4%)		--	--	--	--	
Education														
Less than high school	66 (60.0%)	1.3, 0.52	56 (54.9%)	0.3, 0.87	16 (15.7%)	1.0, 0.61	10 (9.8%)	21 (20.6%)	0.7, 0.72	11 (25.0%)	0.8, 0.68	12 (27.3%)	4.6, 0.10	
High school equivalent	87 (60.8%)		76 (57.6%)		27 (20.5%)		15 (11.4%)	29 (22.0%)		15 (31.3%)		19 (39.6%)		
Some college or more	82 (54.7%)		77 (54.6%)		28 (19.9%)		25 (17.7%)	35 (24.8%)		15 (24.2%)		13 (21.0%)		
Employment														
Not working	177 (57.7%)	0.1, 0.97	156 (54.9%)	0.3, 0.87	53 (18.7%)	1.7, 0.44	36 (12.7%)	61 (21.5%)	2.5, 0.29	33 (26.6%)	0.9, 0.65	36 (29.0%)	1.3, 0.52	
Part time	23 (59.0%)		22 (59.5%)		10 (27.0%)		7 (18.9%)	11 (29.7%)		4 (40.0%)		2 (20.0%)		
Full time	22 (59.5%)		20 (55.6%)		6 (16.7%)		6 (16.7%)	11 (30.6%)		3 (25.0%)		5 (41.7%)		

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	Oral PrEP (n=403)		Arm Injections (n=375)		Abdomen Injections (n=375)		IV Infusions (n=375)		Under Skin Implant (n=375)		Vaginal Gel (n=154)		Vaginal Ring (n=154)	
	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p
Single														
Yes	131 (60.7%)	1.0, 0.31	109 (54.0%)	0.6, 0.46	34 (16.8%)	1.3, 0.26	27 (13.4%)	0.0, 0.98	39 (19.3%)	2.8, 0.09	19 (27.5%)	0.1, 0.82	19 (27.5%)	0.1, 0.80
No	104 (55.6%)		100 (57.8%)		37 (21.4%)		23 (13.3%)		46 (26.6%)		22 (25.9%)		25 (29.4%)	
Sexual minority														
Yes	39 (61.9%)	0.4, 0.55	37 (66.1%)	2.9, 0.09	16 (28.6%)	4.0, 0.05	12 (13.3%)	3.7, 0.05	21 (37.5%)	8.3, <0.01	10 (23.8%)	0.2, 0.63	19 (45.2%)	7.9, <0.01
No	196 (57.8%)		172 (53.9%)		55 (17.2%)		38 (11.9%)		64 (20.1%)		31 (27.7%)		25 (22.3%)	
Hungry at least 1x per week														
Yes	151 (57.6%)	0.1, 0.71	137 (56.2%)	0.1, 0.83	49 (20.1%)	0.6, 0.44	33 (13.5%)	0.0, 0.88	59 (24.2%)	0.9, 0.34	26 (25.5%)	0.2, 0.66	33 (32.4%)	2.1, 0.15
No	84 (59.6%)		72 (55.0%)		22 (16.8%)		17 (13.0%)		26 (19.9%)		15 (28.9%)		11 (21.2%)	
Homeless														
Yes	139 (61.2%)	1.8, 0.18	119 (56.7%)	0.2, 0.68	43 (20.5%)	0.7, 0.39	29 (13.8%)	0.1, 0.76	46 (21.9%)	0.2, 0.69	26 (29.9%)	1.1, 0.30	34 (39.1%)	10.8, <0.01
No	96 (54.6%)		90 (43.6%)		28 (17.0%)		21 (12.7%)		39 (23.6%)		15 (22.4%)		10 (14.9%)	
Comfortable talking to a doctor about sex														
Yes	171 (59.6%)	0.7, 0.42	162 (60.0%)	7.1, <0.01	57 (21.1%)	3.0, 0.08	42 (15.6%)	4.1, 0.04	61 (22.6%)	0.0, 0.96	36 (30.8%)	4.3, 0.04	35 (29.9%)	0.4, 0.51
No	64 (55.3%)		47 (44.8%)		14 (13.3%)		8 (7.6%)		24 (22.9%)		5 (13.5%)		9 (24.3%)	
Comfortable talking to a doctor about drugs														
Yes	166 (59.9%)	0.9, 0.34	153 (58.2%)	1.9, 0.17	51 (19.4%)	0.1, 0.76	35 (13.3%)	0.0, 0.96	60 (22.8%)	0.0, 0.95	27 (26.2%)	0.1, 0.82	32 (31.1%)	0.8, 0.37
No	68 (54.8%)		56 (50.5%)		20 (18.0%)		15 (13.5%)		25 (22.5%)		14 (28.0%)		12 (24.0%)	
Injection related HIV risk														

	Oral PrEP (n=403)		Arm Injections (n=375)		Abdomen Injections (n=375)		IV Infusions (n=375)		Under Skin Implant (n=375)		Vaginal Gel (n=154)		Vaginal Ring (n=154)	
	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p	N (%)	χ^2, p
Yes	156 (63.2%)	6.2, 0.01	139 (60.4%)	5.3, 0.02	57 (24.8%)	13.3, <0.01	41 (17.8%)	10.4, <0.01	63 (27.4%)	7.6, <0.01	29 (32.6%)	3.8, 0.05	33 (37.1%)	7.5, <0.01
No	79 (50.6%)		70 (48.3%)		14 (9.7%)		9 (6.2%)		22 (15.2%)		12 (18.5%)		11 (16.9%)	
Sex work														
Yes	52 (68.9%)	4.2, 0.04	46 (67.7%)	4.8, 0.03	20 (29.4%)	5.9, 0.02	13 (19.1%)	2.41, 0.12	22 (32.4%)	4.5, 0.04	17 (36.2%)	3.2, 0.08	16 (34.0%)	1.0, 0.32
No	184 (55.9%)		163 (53.1%)		51 (16.6%)		37 (12.1%)		63 (20.5%)		24 (22.4%)		28 (26.2%)	

Note. Bold indicates tests where $p < 0.1$.

^aTesting not reported due to 0 cells.

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Table 4.

Logistic Regression Results for Correlates of Interest in Oral and Hypothetical Forms of Pre-Exposure Prophylaxis (PrEP) for HIV Prevention

	Oral PrEP		Arm Injections		Abdomen Injections		IV Infusions		Under Skin Implant		Vaginal Gel (n=154)		Vaginal Ring (n=154)	
	aOR	95% CI	aOR	95% CI	aOR	95% CI	aOR	95% CI	aOR	95% CI	aOR	95% CI	aOR	95% CI
Single	--	--	--	--	--	--	--	--	0.60	0.36, 1.00	--	--	--	--
Sexual minority	--	--	1.46	0.79, 2.70	1.61	0.81, 3.19	1.82	0.87, 3.83	2.12	1.13, 3.99	--	--	2.77	1.25, 6.17
Homeless	--	--	--	--	--	--	--	--	--	--	--	--	3.27	1.42, 7.50
Comfortable talking to a doctor about sex	--	--	1.85	1.16, 2.93	1.75	0.91, 3.34	2.29	1.03, 5.12	--	--	2.64	0.94, 7.44	--	--
Injection-related HIV risk	1.57	1.04, 2.38	1.58	1.02, 2.43	2.91	1.53, 5.51	3.30	1.54, 7.05	1.94	1.11, 3.37	1.91	0.86, 4.25	2.44	1.08, 5.53
Sex work	1.58	0.92, 2.74	1.52	0.85, 2.72	1.53	0.81, 2.90	--	--	1.60	0.85, 3.00	1.52	0.69, 3.34	--	--