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HIV Risk and Prevention Outcomes in a Probability-Based Sample of Gay and Bisexual Men in the United States

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Abstract

Background:

While gay and bisexual men (GBM) represent the largest group of HIV-infected individuals in the United States (U.S.), nearly all evidence on their HIV risk and prevention outcomes derive from non-probability samples.

Setting:

A probability-based cohort of GBM (N=502) from 45 states and Washington, D.C.

Methods:

Cross-sectional survey.

Results:

Among HIV negative/unknown/untested GBM, only 6.7% reported using pre-exposure prophylaxis (PrEP) in the past 6 months. Two thirds (63.3%) of PrEP users reporting daily adherence in the last week. Over half (54.2%) of GBM reported not using a condom during anal sex with their most recent male partner; of these men, 93.8% were not on PrEP. Most GBM had been tested for HIV (80.7%) and other sexually transmitted infections (STI) (67.1%) in their lifetime, with 45.2% having tested for HIV during the past year. Among those ever tested, 14.1% reported being HIV infected, while an additional 8.9% reported testing positive for at least one other STI following their most recent test. All HIV positive GBM reported being currently on antiretroviral treatment, and 94.7% reported an undetectable viral load, but nearly one-third (30.4%) reported not taking their medication every day during the last month. A majority of HIV negative/unknown/untested GBM (64.3%) reported that they had never discussed HIV prevention with their primary healthcare provider.

Conclusion:

Our findings present a decidedly mixed picture regarding the success of the U.S. National HIV/AIDS Strategy in meeting its stated goals of addressing HIV risk among the general population of GBM.

Keywords: HIV, pre-exposure prophylaxis (PrEP), gay men, bisexual men, probability sample, United States

Introduction

Gay and bisexual men (GBM), and other men who have sex with men (MSM), are substantially impacted by the HIV epidemic in the United States (U.S.), with male-to-male sexual contact representing the vast majority of new HIV diagnoses.[1,2] Because this paper focuses on self-identified gay- and bisexual-identified men, we hereafter use the term GBM, unless citing studies that specifically refer to MSM. While GBM and other MSM represent approximately 4% of the U.S. male population, they constitute over 75% of new HIV infections among men.[3,4] It is estimated that approximately 1 in [5,6]

6 MSM will be diagnosed with HIV in their lifetime.

Previous research on HIV risk and prevention behaviors among GBM in the U.S. has almost exclusively relied on non-probability sampling strategies, often targeting a small segment of the GBM population who are relatively connected to broader lesbian, gay and bisexual (LGB) communities and who frequent gay-identified venues. While these studies provide critical data, sexuality-related stigma, access to care, and other factors may differentially affect individuals who are less connected to and engaged in local LGB communities and venues, including sub-populations of GBM that are at disproportionately high risk for HIV infection. Given these concerns about possible sampling bias, researchers have indicated that the lack of nationally representative samples has limited our ability to generalize the findings of prior studies to the general population, and to devise a comprehensive strategy for the prevention of HIV and other sexually transmitted infections (STI) in particularly vulnerable sub-groups of the population.[7,8]

Probability studies of HIV risk and preventative behaviors among GBM in the U.S. are important for tracking key biomedical and other sexual health indicators, understanding demographic trends, and informing clinical practice.[9,10] Given the public health significance of HIV, and the highly disproportionate burden among GBM since the earliest days of the epidemic, it is remarkable that relatively little research has examined HIV risk and prevention outcomes among more representative samples of these men in the U.S. Several issues likely prevent researchers from obtaining probability-based samples of GBM, including cost, availability of funding, and feasibility.[11]

Despite these challenges, recent innovations have facilitated the possibility of collecting data from samples of self-identified GBM in the U.S. that are reflective of the general population. These studies, few in number, have included measures of HIV risk and prevention behaviors, such as the National Survey of Sexual Health and Behavior (NSSHB),[12] the Generations Study,[13] the Behavioral Risk Factor Surveillance System (BRFSS), the National Health and Social Life Survey (NHSLS),[14] and the Urban Men's Study (UMS).[15] These studies have provided important insights into HIV risk and prevention outcomes among GBM in the U.S., but they either were conducted over two decades ago (i.e., NHSLS in 1992),[14] included a small number of sites (n=4 cities in UMS, and n=19 states in the BRFSS) or relatively few GBM (e.g., N=76 in the 2009 NSSHB),[16] or else assessed a limited number of HIV prevention

outcomes (e.g., PrEP use in the Generations Study).[13]

We present baseline data from a new large probability-based sample of 502 GBM that overcomes some of the limitations of prior probability-based studies. We examine a comprehensive range of HIV risk and prevention outcomes among HIV-negative GBM, including pre-exposure prophylaxis (PrEP) use and adherence, and post-exposure prophylaxis (PEP) use, condom use with male partners at last sexual event, and testing for HIV and other STI. We also evaluate HIV risk and prevention outcomes that are relevant for HIV positive GBM, including HIV viral load and antiretroviral treatment length and adherence.

Additionally, we focus on specific subgroups, since current HIV/AIDS data show the highest incidence rates in the South, among men of color, and among those ages 35 and younger.[1] We therefore explore whether these key demographic characteristics (region, race/ethnicity, and age) relate to HIV risk and prevention outcomes in our sample of GBM. Probability data are uniquely suited to this question, as they provide insights into diverse demographic subgroups that are representative of the general population of the U.S., in contrast to those samples most often recruited from "high risk" venues.[7] Together, these data provide a unique opportunity to evaluate whether, and to what extent, the current U.S. National HIV/AIDS Strategy[3] have been successful in meeting their stated goals of addressing HIV risk among high-risk samples, including GBM. These data can also be used for establishing population-level baseline data for tracking the success of the recently proposed End the HIV Epidemic Initiative.[2]

Methods

Study Design

Our data come from the Ipsos (formerly GfK) KnowledgePanel®, the largest online panel that is representative of the U.S. adult population. Starting in 2009, KnowledgePanel® began employing an address-based sampling (ABS) methodology, which allows probability-based sampling of addresses from the *Delivery Sequence File* of the United States Postal Service, a database with full coverage of all delivery points in the U.S. ABS provides a statistically-valid sampling method with a published sample frame of residential addresses that covers approximately 97% of U.S. households. This probability-based sampling methodology maximizes population

coverage, particularly for hard-to-reach individuals such as young adults and minority subgroups. Ipsos, which maintains KnowledgePanel®, provides a web-enabled device, such as a tablet computer, and free Internet service for adults recruited from households without Internet access. As such, samples from KnowledgePanel® cover households regardless of their connectivity status, enhancing representativeness of the sample.

Participants

KnowledgePanel consists of about 50,000 adult members (ages 18 and older), of which about 900 identify as GBM (based on a response to 1 screener item: "Do you consider yourself to be: (1) heterosexual or straight, (2) gay/lesbian, (3) bisexual, (4) other?"). We partnered with Ipsos to recruit a sample of adult GBM (age 18+, English- and/or Spanish-language speakers) from KnowledgePanel to become part of a 2-year longitudinal cohort study, the National Study of Stigma and Sexual Health (NSASH). Based on their prior experience with response and survey completion rates for panelists, Ipsos estimated a final sample size of 500 GBM men at baseline; our final sample size was 502.

Sampling Plan

Once the sampling frame is established, KnowledgePanel® members receive a notification email letting them know that there is a new survey available for them to take. This email notification contains a custom link that sends members to the survey questionnaire. After reading a brief description of the survey, participants completed a consent form, followed by the questionnaire, which asked about their sexual, physical, mental, and behavioral health, as well as psychosocial factors unique to GBM (e.g., stigma experiences). To maximize diversity among Hispanic/Latino participants, participants were given the option of completing the survey in English or Spanish. The median length for survey completion was approximately 30 minutes. Participants were paid $25 in Ipsos incentives as compensation for their time (KnowledgePanel® members receive incentives in the form of cash or points for merchandise for occasional survey completion).

Measures

We present baseline data on five key HIV risk and preventive behaviors among GBM

in the NSASH sample: (1) (pre- and post-exposure prophylaxis use (PrEP and PEP, respectively); (2) condom use during anal sex with the last male partner; (3) HIV/STI testing; (4) discussions with primary healthcare providers.antiretroviral medication adherence; and (5) HIV plasma RNA level (also known as "viral load"[17]) among HIV-positive respondents. Items measuring these behaviors come from the following sources: HIV/STI testing (NHBS);[18] condom use at last event;[19] PrEP and PEP use;[20,21] and antiretroviral medication adherence and viral load (NHBS).[18] These five indicators of HIV risk and prevention behaviors were selected based on their relevance to the goals outlined in the National HIV/AIDS Strategy.[3]

Statistical Analysis

We first present prevalence rates for the five study outcomes in the full sample of GBM, and for HIV positive men separately. Given high HIV incidence rates in the South, among men of color, and among those ages 35 and younger,[1] we also stratified our analyses by these three key demographic characteristics (race, age, and geographic region). We applied the survey weights provided by Ipsos to adjust for selection probabilities and nonresponse, and to generate nationally representative estimates. Due to the very small number of participants who reported currently being 1) HIV negative/unknown/untested and on PrEP and 2) HIV positive with a detectable viral load, we used nonparametric tests with unweighted data for these two analyses.

Results

Demographic Characteristics

Between June and July 2018, 502 GBM (*M* age=45.3, SE=0.99) from the general population of the United States, ages 18–91, responded to our survey. Table 1 presents the demographic characteristics of the sample. Nearly three-fourths of the men (74.7%) identified as gay. The majority of men were currently employed (68.5%), single (53.6%), white (62.0%), non-Hispanic (81.3%), and residing in a metro area (92.2%). Over a third (35.3%) had a bachelor's degree or higher, and nearly half (47.0%) reported an annual household income of $75,000+.

Risk Categorization

In terms of risk categorization in the current era of biomedical prevention, rates of condomless anal sex must be considered in the context of one's HIV status, PrEP use, and (among HIV positive individuals) viral suppression and ART use. Accordingly, we created risk categories, based on classifications used in recent research.[22] Categories classified as indicators of potential HIV risk transmission include condomless anal sex among: 1) HIV negative/unknown/untested respondents not currently using PrEP; and 2) HIV positive participants who report being not virally suppressed or not currently adherent to ART.

Prevalence of HIV Risk and Preventative Behaviors

Among the full sample of HIV negative/unknown/untested GBM, only 30 (6.7%) reported using PrEP in the past 6 months (Table 2). Of these men, 19 (63.3%) reported that they took PrEP every day in the past 7 days. The majority of GBM (80.7%) had been tested for HIV and other STI (67.1%) at some point in their lives. Nearly half (45.2%) of GBM who had been tested for HIV were tested in the past year. Among those who reported STI testing, 8.9% tested positive for at least one STI other than HIV during their most recent test. Very few HIV negative/unknown/untested GBM (1.6%) reported that they had used post-exposure prophylaxis (PEP) in the past 6 months.

Over half of GBM (54.2%) reported not using a condom during anal sex with their most recent male partner; among these men, 93.8% were not on PrEP. Among participants who were HIV negative/unknown/untested, those on PrEP reported a higher proportion of condomless anal sex, as compared to those not on PrEP (81.8% vs 43.7%, p=0.0005 per unweighted chi-square test). However, these findings must be considered in light of the fact that among those who had engaged in recent condomless anal sex, only a very small proportion used PrEP.

Fifty-seven GBM (14.1%) reported testing positive for HIV. Among these HIV positive respondents (Table 3), all reported currently being on antiretroviral treatment, and the vast majority (96.5%) had been on treatment for more than a year. Fifty-four (94.7%) reported an undetectable level of viral load. Among the 3.5% of HIV positive GBM who reported being on treatment less than a year, all reported that their most recent HIV test was less than a year ago, suggesting they may have been recently diagnosed. Despite the high rates of reported antiretroviral treatment, however, nearly one third (30.4%) of HIV positive GBM reported not taking their antiretroviral

medication every day during the last month. Overall, 5.26% of HIV positive GBM reported a detectable viral load. Among these men, three percent (3.19%) reported condom use during anal sex with their most recent male partner, as compared to 7.95% who reported not using a condom. The difference, however, did not reach the level of statistical significance, possibly due to the small number of HIV positive men with detectable viral loads in the study sample. The finding, therefore, must be interpreted with caution.

Demographic Associations with HIV Risk and Preventative Behaviors

In analyses stratified by three key demographic characteristics associated with the highest incidence of the HIV/AIDS epidemic in the U.S. (i.e., being non-White, younger, and/or living in the South) (Table 4), we observed few significant differences in HIV risk and preventive behaviors. Instead, our data show similar rates of condom use during anal sex with last male partner, HIV/STI testing, testing positive for STI, and PEP use across race, age and region. Only three statistically significant differences emerged. GBM ages 35 and older were more likely to have ever been tested for HIV compared to GBM under 35 (86.9% vs 67.5%; $p<0.01$). Although we found no differences in past 6 month PrEP use across age and region, non-white GBM were significantly more likely to have used PrEP than white GBM (12.1% vs. 3.6%, $p<0.05$). However, white GBM reported a significantly higher proportion of taking PrEP everyday as compared to non-white GBM (100.0% vs. 50%, $p<0.01$).

HIV Risk and Prevention Discussions with Primary Healthcare Provider

In terms of interactions with primary healthcare providers, many GBM in our sample did not feel comfortable discussing HIV-related risk with their healthcare providers. Specifically, over a third of our overall sample of GBM (38.4%) reported that they did not feel comfortable discussing that they had anal sex with men with their primary healthcare providers. Additionally, the majority of HIV-negative/unknown/untested GBM (64.3%) reported that they had never discussed ways to protect themselves from HIV with their primary healthcare provider.

Discussion

The National HIV/AIDS Strategy, recently updated through the year 2020, highlights

several goals, including reducing new infections; increasing access to care and improving health outcomes among individuals living with HIV; reducing HIV-related health disparities; and achieving a more coordinated national response to HIV.[3] The current study assessed the prevalence of HIV risk and prevention behaviors in a current probability-based sample of gay and bisexual men in the U.S., with the primary aim of evaluating the success of the U.S. National HIV/AIDS Strategy[3] in meeting these goals. Data can also serve as a starting point for tracking the success of the End the HIV Epidemic Initiative.[2]

Overall, our findings present a decidedly mixed picture. We were encouraged that over three quarters of the sample (80.7%) had been tested for HIV in their lifetime. That all HIV positive participants reported using and, for the most part, adhering to ART suggests that messages surrounding treatment as prevention for HIV positive men are reaching the general population. Further, over two thirds (67.1%) had been tested for STI other than HIV, and of these men, over 80% reported testing negative. It is also encouraging that all HIV positive participants not only reported currently being on antiretroviral therapy but nearly all (94.7%) reported being virally undetectable and had been on treatment for more than one year. Given the current emphasis on treatment-as-prevention,[3] these findings are particularly noteworthy and promising, suggesting that the number of individuals who could potentially transmit HIV is diminishing.

At the same time, there is clear cause for concern. In recent years, significant resources have been invested in promoting PrEP use among GBM as a primary prevention strategy, including in a recent U.S. Preventive Services Task Force recommendation report.[23] Our data indicate that such efforts have not reached the vast majority of GBM in the general population, with only 6.7% of HIV negative/unknown/untested men in our sample using PrEP in the last 6 months. This remarkably low rate of PrEP use is similar to that found by Hammack and colleagues (4.1%) across three age cohorts in another recent probability-based study of GBM in the U.S.[13] Further, there were strikingly low rates of condom use among men not currently taking PrEP. Specifically, over half of GBM reported not using a condom during anal sex with their most recent male partner, and of these, 93.8% were not on PrEP. If we found lower rates of condom use alongside higher rates of PrEP use, suggesting that this biomedical prevention strategy was replacing condom use, there might be less cause for concern regarding potential for HIV transmission. That PrEP use in the general population of gay and bisexual men is not nearly prevalent enough

to warrant such high rates of condomless anal sex highlights the need to further focus on this critical pillar of the recent End the HIV Epidemic Initiative.[2]

Additional causes for concern were evident in low rates of other HIV prevention practices, including STI testing and discussions of HIV prevention with primary healthcare providers. Nearly one third of GBM had not been tested for an STI other than HIV, despite the high prevalence (approximately 8.9%) of STI in our sample at most recent testing among those who had been tested. Early diagnosis and treatment of STI reduces transmission and risk of HIV acquisition, and these infections are also useful measures of behavioral risk for providers and patients because of the shared mode of transmission.[24] While many of the participants (61.6%) reported that they may feel comfortable discussing same-sex behavior with their primary healthcare provider, the majority of HIV unknown/negative/untested GBM (64.3%) had never actually discussed HIV prevention with their provider.

As with all research, this study has strengths and shortcomings. Our most notable strength is the rare use of a probability sample to identify GBM study participants, thus allowing findings to be generalized to GBM living in the United States at the time of the study. Our survey was also accessible in both English and Spanish, which was particularly important given that nearly one-fifth of the sample identified as Latino. However, by design, the present study was limited to those at least 18 years old who were not living in institutions or without an address. Sexual minority individuals are over-represented in homeless[25] and incarcerated populations;[26] to the extent that HIV risk factors are higher in these populations, their absence from our sample means that we likely underestimated these outcomes among GBM in the U.S.

In addition, while the use of probability-based samples offers certain advantages, these designs typically result in relatively small sample sizes of subgroups of sexual minority respondents (e.g., racial/ethnic and gender minorities), as was the case in the current study. These smaller sample sizes likely precluded our ability to observe statistically significant subgroup differences by key demographic characteristics that are important to understanding the HIV/AIDS epidemic in the U.S. (i.e., race, age, and U.S. region). Moreover, these smaller sample sizes can create estimates among population subgroups that may not be generalizable, despite the use of a population-based design. For instance, recent evidence suggests that among HIV-positive patients in care, the rate of virological suppression is 77%.[27] The higher rate of reported virological suppression in our study (95%) may suggest that those who

agree to answer surveys are more adherent than those in the general clinical population, or could reflect a reporting bias. However, with 38,000 new infections occurring per year, a substantial number of HIV positive people coming in and out of care, and 14% of those with chronic HIV unaware of their infection, the true prevalence of people who are not virologically suppressed is not known.

Finally, we recruited our sample based on a measure of sexual identity because Ipsos currently uses this question—rather than a question on sexual behavior—to ascertain the sexual minority sample. This sampling approach was appropriate for the main aims of the parent study, which are focused on assessing relationships between identity-based stressors and health outcomes, including HIV risk. This approach is limited in that our focus is on GBM, and we do not capture heterosexually-identified MSM. However, population-based data from the NSSHB indicate that only approximately 1% of heterosexually-identified men report having sex with men in the last 12 months[7], a sample size that would be too small to create reliable estimates in our study.

Our findings suggest that clinical practice, programmatic, and policy-related changes are needed to achieve the goals set forth in the U.S. National HIV/AIDS Strategy, as well as in the recent End the HIV Epidemic Initiative, as they relate to GBM.[2,3] For example, in clinical settings across the nation, the assessment of sexual orientation and behavior at intake is critically important to understand potential risk for HIV infection.[28] Our findings have implications for training providers to proactively address their GBM patients' orientation and behavior openly and, as relevant, communicate about risk and prevention. This is particularly true in terms of reaching sexual minority individuals who may not have access to, or who may not feel comfortable receiving care in specialized lesbian, gay, bisexual and transgender (LGBT) community centers or clinics (which tend to be located in large, relatively progressive urban areas of the U.S.).

Additionally, our findings suggest that public health and HIV care providers clearly have much work to do to address the lack of widespread dissemination of PrEP in the GBM population, as well as routine testing for HIV and other STI.[29,30] Thus, our findings further highlight the importance of promoting and disseminating HIV prevention strategies, including condom use and PrEP, beyond high risk samples. Finally, our results underscore the importance of the inclusion of more comprehensive assessments of HIV prevention outcomes among general population

samples of GBM in order to more accurately evaluate the effectiveness of the national strategy for reducing HIV infections among GBM and other MSM in the U.S.

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Figures and Tables

Table 1.

Demographic Characteristics of Gay and Bisexual Male Respondents in the National Study of Stigma and Sexual Health (N=502).

Demographic Characteristics		**N (%)**		
Age		**Full Sample**	**HIV+**	**HIV−/ Unknown**
	18-25	27 (5.4%)	0 (0%)	11 (3.2%)
	26-35	138 (27.5%)	8 (14.0%)	92 (26.4%)
	36-45	88 (17.5%)	2 (3.5%)	68 (19.5%)
	46-55	113 (22.5%)	20 (35.1%)	82 (23.6%)
	56-65	91 (18.1%)	23 (40.4%)	59 (17.0%)
	65+	45 (9.0%)	4 (7.0%)	36 (10.3%)
Race				
	Non-white	191 (38.0%)	25 (43.9%)	137 (39.5%)
	White	311 (62.0%)	32 (56.1%)	210 (60.5%)
Hispanic Ethnicity				
	Hispanic	94 (18.7%)	12 (20.7%)	66 (19.0%)
	Non-Hispanic	408 (81.3%)	46 (79.3%)	282 (81.0%)
Education				
	Less than high school or high school	144 (28.7%)	15 (26.3%)	81 (23.3%)

Notes. MSA=Metropolitan Statistical Area.

In items where the N does not add up to the Total N (502), this represents instances where all participants did not answer the question due to survey routing and/or skip patterns.

Table 2.

Prevalence of HIV Risk and Prevention Behaviors in the National Study of Stigma and Sexual Health (N=502).

HIV Risk/Prevention Behavior	N (%)	95% CI of Prevalence
PrEP Use in Past 6 Months[1]		
No	415 (93.3%)	
Yes	30 (6.7%)	(2.6%, 10.9%)
PrEP Adherence in Past 7 Days[1]		
Every day	19 (63.3%)	(30.0%, 98.1%)
Not every day	11 (36.7%)	
PEP Use in Past 6 Months[1]		
No/unknown	438 (98.4%)	
Yes	7 (1.6%)	(0.1%, 2.9%)
Tested for HIV in past year		
No	221 (54.8%)	
Yes	182 (45.2%)	(38.0%, 52.3%)
Ever STI Tested		
No	127 (25.3%)	(19.5%, 31.1%)
Unsure	38 (7.6%)	(4.1%, 11.2%)
Yes	337 (67.1%)	(60.8%, 73.3%)
Most Recent STI Test Result		
Negative	301 (89.3%)	(84.9%, 93.9%)
Positive	30 (8.9%)	(4.6%, 13.1%)
Don’t know/waiting for result	6 (1.8%)	(0.2%, 3.3%)
Feels Comfortable Discussing Sex with Men with a Provider		

No	170 (38.4%)	
Yes	272 (61.6%)	(54.9%, 68.3%)

Notes: STI = Sexually transmitted infections (other than HIV); PrEP = pre-exposure prophylaxis; PEP = post-exposure prophylaxis. In items where the N does not add up to the Total N (502), this represents instances where all participants did not answer the question due to survey routing and/or skip patterns.
[1]These analyses were conducted among HIV negative/unknown/untested participants.

Table 3.

Prevalence of HIV Risk and Prevention Behaviors among HIV-Positive Gay and Bisexual Men in the National Study of Stigma and Sexual Health (N=57).

HIV Risk/Prevention Behavior	N (%)	95% CI of Prevalence
HIV Viral Load		
Detectable	3 (5.3%)	(0.0%, 13.5%)
Undetectable	54 (94.7%)	
On Antiretroviral Treatment		
No	0 (0.0%)	
Yes	57 (100.0%)	(98.8%,100.0%)
Length of Antiretroviral Treatment		
<= 1 year	2 (3.5%)	
> 1 year	55 (96.5%)	(89.7%, 100.0%)
Antiretroviral Treatment Adherence in Last 30 days		
Missed 0 days	39 (69.6%)	(52.9%, 85.5%)
Missed 1 day	8 (14.3%)	(2.4%, 27.3%)
Missed 2+ days	9 (16.1%)	(3.0%, 29.0%)

Table 4.

Prevalence of HIV Risk and Prevention Behaviors in the National Study of Stigma and Sexual Health, Stratified by Key Demographic Characteristics (N=502).

	Race		Age		U.S. Region	
	Non-	White	18-35	36+	South	All

HIV Risk/Prevention Behavior	White (N=191)	(N=311)	(N=165)	(N=337)	(N=185)	Other Regions (N=317)
Condom Used During Anal Sex With Most Recent Male Partner	74 (45.4%)	129 (46.2%)	59 (46.5%)	144 (45.6%)	73 (41.5%)	129 (48.5%)
Ever Tested for HIV	162 (84.8%)	243 (78.1%)	112 (67.5%)	293 (86.9%)**	158 (85.4%)	247 (77.9%)
Tested Positive for HIV	25 (15.4%)	32 (13.2%)	8 (7.2%)	49 (16.7%)	26 (16.5%)	31 (12.6%)
Ever Tested for STI	129 (67.5%)	207 (66.6%)	108 (65.1%)	229 (68.0%)	130 (70.3%)	207 (65.3%)
Tested Positive for an STI	16 (12.3%)	14 (6.8%)	8 (7.4%)	22 (9.6%)	17 (13.1%)	13 (6.3%)
Used PrEP in Past 6 Months	20 (12.1%)	10 (3.6%)*	15 (9.6%)	15 (5.2%)	12 (7.6%)	18 (6.3%)
Took PrEP Every day for 7 Days	10 (50.0%)	9 (100.0%)**	10 (62.5%)	9 (64.3%)	5 (41.7%)	15 (83.3%)
Used PEP in Past 6 Months	3 (1.8%)	3 (1.1%)	1 (0.6%)	5 (1.7%)	3 (1.9%)	4 (1.4%)

***p<0.001;

**p<0.01;

*p<0.05

Note: Chi-squared tests were performed for all variables. P-values less than 0.05 were considered statistically significant. Comparisons were made between two levels of each category (e.g., within race/ethnicity non-white was compared to white)