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HIV Testing Avoidance: A Comparison of Psychosocial Factors Affecting HIV Testing in Gay and Bisexual Men

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HIV Testing Avoidance: A Comparison of Psychosocial Factors Affecting HIV Testing in Gay and Bisexual Men

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Abstract

This paper explores the role three psychosocial factors influence an at-risk individual's decision to get tested for HIV**.** Two of the psychosocial factors, HIV stigma and fatalistic beliefs regarding an HIV positive diagnosis, have been well documented in the literature on HIV testing and psychosocial barriers. However, the third psychosocial factor, the tendency to avoid threatening information, has not been studied in relation to HIV testing. The present paper seeks to explore how each of these factors impact both past and present HIV testing behaviors in gay and bisexual identified men. HIV stigma and fatalistic beliefs related to an HIV positive diagnosis were not found as significant predictors of past or present HIV testing behavior. However, HIV status related information avoidance was a predictor of both past and present HIV testing behavior.

HIV Testing Avoidance: A Comparison of Psychosocial Factors Affecting HIV Testing in Gay and Bisexual Men

Despite advances in HIV treatments, new HIV infections continue to outpace prevention efforts. In the year 2015 alone, the Center for Disease Control reported roughly 33,200 new HIV infections in the United States (CDC, 2015). Additionally, the HIV epicenter has shifted from urban centers, like New York and Los Angeles, to the 16 states that make up the South in the United States (CDC Brief Issue, 2016). The HIV prevalence in those Southern states accounts for 44% of all people living with an HIV diagnosis in the country despite only having about one third of the overall U.S. population. In particular, Atlanta, Georgia, a progressive and diverse city, was ranked first for new HIV cases in 2015 (CDC, 2015). Of these new HIV cases in Atlanta, one third were also diagnosed with AIDS at the same time, indicating as much as a five to ten year lag between infection and HIV testing. The HIV prevalence and rates of new infection in Atlanta, Georgia make the area a compelling place to conduct HIV research.

Despite continued targeted prevention strategies towards at-risk groups, the face of those most strongly affected by the disease have not changed. Men who have sex with men (MSM) remain the predominant group affected by HIV infection, accounting for roughly 60% of current HIV cases and approximately two-thirds of all new HIV infections each year (CDC, 2015). Despite the fact that MSM have been affected by the disease since its discovery and thus directly targeted by prevention efforts, the latest national HIV incidence reports show between 2007 and 2010 there was a 12% increase in new HIV infections among MSM (CDC, 2012). The incidence rate grows even larger when considering younger MSM. In MSM aged 13-24, new infections have increased by 22% from 2008 to 2010 (CDC, 2012). In Georgia alone, 72% of men who

were diagnosed with HIV in 2013 were MSM, while MSM only comprise 2% of the male population (Georgia Department of Public Health, 2016).

With the disease remaining a consistent threat to many communities, new efforts to reduce HIV transmission largely rely on reducing the burden of HIV at the community level rather than overarching federal policies (CDC, 2014). These efforts focus on immediately connecting those who test positive for HIV to the health care system and keeping them adherent to treatment. As the diagnostic gateway to care, HIV testing has become the primary strategy for preventing the spread of HIV. That is, in order for one to receive needed treatment and reduce their transmission of the virus to others, an HIV positive person must first be made aware of their status. Given their group's high risk, the Center for Disease Control and Prevention (CDC) recommends that sexually active MSM get tested every 4-6 months (CDC, 2014). Despite the current efforts to use HIV testing as the first line of prevention, the latest reports estimate that 1 in 5 of people living with HIV are unaware of their positive status. Thus, in order for the CDC's HIV prevention policy to succeed, full coverage of HIV tests among MSM in the Southern US must be achieved.

Many HIV testing campaigns directly target gay and bisexual men as high risk populations. The most recent data from the National HIV Behavioral Surveillance System shows that only 49% of young gay and bisexual men aged 18 to 24 years knew of their HIV positive status, whereas 76% of those aged 40 and older were aware of their HIV infection (CDC, 2014). This means that less than half of the same young men who saw their HIV incidence increase by 22% in two years know their HIV status. When the race of the gay or bisexual man is considered, clear disparities in those who are aware of their HIV positive status arise. Specifically, 54% of black/African American gay and bisexual men knew of their infection, compared with 63% of

Hispanic/Latino gay and bisexual men, and 86% of white gay and bisexual men (CDC, 2014). In an attempt to curtail the incidence of people being unaware of their HIV positive status, the Center for Disease Control awarded $55 million over 5 years to 34 community-based organizations to provide HIV testing to more than 90,000 young gay and bisexual men of color and transgender youth of color. Their goal with this investment in HIV testing is to identify more than 3,500 previously unrecognized HIV infections and linking those who have HIV to care and prevention services. Additionally, CDC's MSM Testing Initiative seeks to identify at least 3,000 MSM with HIV who were previously unaware of their infection and link at least 85% of them to care. With such strong HIV testing initiatives taking place and such clear discrepancies in HIV testing behavior, research is needed to consider what factors may actively prevent some people from engaging in testing.

Although there are structural barriers like transportation and lack of HIV testing locations that can prevent people from getting tested, there are also psychosocial factors that can impede testing, including psychological mechanisms that can result in an at-risk person making the deliberate choice to avoid testing. A systematic literature review was conducted in order to understand what psychological factors have been found in the recent past to motivate people to avoid testing uptake. Two main categories of psychosocial testing avoidance predictors were identified in the review: HIV stigma (the stigma anticipated from others and themselves upon receiving an HIV positive diagnosis) and fatalistic beliefs related to contracting the virus.

Much of the research done on the psychosocial factors that can influence a person's decision to get tested for HIV have specifically focused on the impact of HIV stigma. Stigma is related to both anticipated experiences of internalized HIV stigma (e.g., believing one is worth less than others due to an HIV positive diagnosis) or anticipated experiences of HIV stigma from

those around them (e.g., people being afraid to touch them). For instance, Bolsewicz, Vallely, Debattista, Whittaker and Fitzgerald (2014) found that gay men in the UK, Australia, and Canada all cited HIV related stigma—including threats to self-perceptions and concerns about discrimination from others—as barriers HIV testing. In another study conducted with 28 women residing in a domestic violence shelter, residents indicated that the shame associated with an HIV positive diagnosis kept them from learning their results, even when given access to free, rapid HIV testing (Draucker, Johnson, Johnson-Quay, Kadeba, Mazurczyk & Zlotnick, 2015). Individuals who already have stigmatized identities (ex. sexual minorities, injection drug user, sex worker, etc) were even more motivated to evade HIV results in an attempt to avoid gaining another stigmatized identity. In yet another study conducted with 60 African American men and women attending a public clinic, those who identified as gay were concerned an HIV positive status would further stigmatize them within their community (Nunn, Eng, Cornwall, Beckwith, Dickman, Flanigan, Kwakwa, 2012).

In some cases, HIV testing itself was viewed as a stigmatizing experience. Bond, Frye, Taylor, and collegues (2015) interviewed 56 African-American men who reported that they were hesitant to get tested for HIV not only because a positive result would make their friends and family form unfavorable opinions of them, but also the act of getting tested for HIV was seen as a stigmatizing experience. Participants felt that by getting tested, they were confirming a positive status, or confirming that they had engaged in a stigmatizing act (e.g., anal sex, intravenous drug use) that put themselves at risk for HIV. These concerns prevented them from seeking out needed testing.

The second most studied factor in HIV testing is fatalistic beliefs associated with an HIV positive diagnosis. Individuals who receive an HIV positive diagnosis may be perceived as

inevitably going to die shortly after their infection, regardless of treatment. For example, 142 African American participants reported that a reason they avoided HIV testing was that they viewed a positive diagnosis as a "death sentence" that no medication could prevent (Wallace, McLellan-Lemal, Harris, Townsend & Miller 2011). For this reason, they did not see getting tested for HIV as giving them more of a chance of surviving, so they chose not to learn their status to preserve their mental health. This sentiment of "ignorance is bliss" when it comes to learning about one's HIV status was shared by another high-risk group as well. In a systematic review of HIV testing barriers for gay and bisexual identified men, men reported that they avoided getting tested for HIV due to a fear that their quality of life would significantly deteriorate from the HIV treatments the disease warranted (Lorenc, Marrero-Guillamón, Llewellyn, Aggleton, Cooper, Lehmann & Lindsay 2011). The fear induced by inaccurate or outdated views of HIV treatments and the potential quality of life outcomes from said treatments may be a factor driving reluctance to get tested for HIV.

Other factors less studied that may be driving the fatalistic thinking associated with an HIV positive status include false information about HIV treatment. HIV is now a treatable disease. Those who are prescribed antiretroviral therapy (ART) and who take it on a consistent basis often live lives just as long as an uninfected individual. Additionally, those who adhere to their ART therapy will become less infections in that they will have an undetectable amount of the virus in their system, making it far less likely for them to transmit it to anybody else. Many of the reported fears surrounding an HIV positive status involve an inability to prevent both imminent death and a fear that one will always be a vessel for the disease, forever infectious. However, neither of these outcomes are any longer the case. Beliefs in the efficacy of HIV

treatments and the ability of the HIV infected individual to become less infectious may have an effect on HIV testing behavior.

Despite the fact that the previously discussed psychosocial factors have been well documented in the literature and have led to both HIV testing campaigns and HIV testing interventions being designed around them (Stangl, Lloyd, Brady, Holland & Baral, 2015; Miller, Lee, Henderson, 2012) new cases of HIV every year have remained mostly stable (roughly 30,000 - 40,000 new cases for the past 15 years). Clearly, there is more to learn about the psychosocial factors driving HIV testing behavior that the other two factors don't fully encompass.

An additional explanatory factor for why people fail to seek out needed testing is that learning about their HIV positive diagnosis might negatively impact them on a broader psychological and interpersonal level than HIV stigma and fatalistic beliefs. Information avoidance is a psychological framework for understanding individual differences in the extent to which people actively avoid information that is relevant to their lives. Reviews of information avoidance suggest that people avoid information that they believe will threaten their cognitions (how they think about themselves and the world around them), their affect (how they feel), and their behaviors (Shepperd & Howell, 2015; Sweeny et al., 2010). For instance, people will avoid information that might lead them to see themselves in a negative light (e.g., as racist; Howell et al., 2013). Additionally, people have been motivated to avoid learning types of information about their partner if they anticipated the knowledge would negatively change how they feel about them (Gesselman, Price, & Howerll, in prep). Moreover, people will avoid health screenings if they believe the screening will be unpleasant, or will obligate them to make an undesired lifestyle changes (Howell & Shepperd, 2013). Recent theorizing suggests that an individual's

interpersonal relationships also affect the types of information they are more likely to avoid. Specifically, people will avoid information if they know learning it will threaten how others think about them, feel about them, or behave toward them (Howell et al., in press). For instance, research suggests that people will avoid genetic testing results if they believe that a diagnosis would cause others to leave them or perceive them as burdensome (Yaniv, Benador, & Sagi, 2004). Due to the broadness of the construct, information avoidance taps different levels of motivations for evading certain knowledge. Therefore this framework may prove a more powerful predictor of HIV testing avoidance than HIV stigma or HIV fatalistic beliefs on their own.

The information avoidance framework has been applied extensively to various kinds of health information individuals may be motivated to evade learning, like their risk of developing a chronic disease or their partner's sexual history (Gesselman, Price, & Howell, in prep). However, it has also been successfully applied to medical testing. Research on information avoidance shows people display measurable individual differences in their tendency to avoid relevant medical screening for a disease they may be at-risk for (Emanuel et al., 2015; Howell, Crosier, & Shepperd, 2014; Howell & Shepperd, in press). Researchers have applied the information avoidance framework in the health domain to predict screening acceptance for multiple diseases such as cancer (Emanuel et al., 2015; Howell et al., 2012; Shepperd & Howell, 2015; Shepperd et al., 2014), diabetes (Howell & Shepperd, 2013; van Koningsbruggen & Das, 2009), heart disease (Howell, Ratliff, & Shepperd, 2015), UV-related skin damage (Dwyer, Shepperd, & Stock, 2015), and STD testing (Ganguly & Tasoff, 2014). Nevertheless, we know of no study that has examined information avoidance in the context of HIV screening behavior.

Studies of people who fail to accept medical testing confirm that lack of HIV testing might be driven, at least in part, by motivated information avoidance. Consistent with an affective-threat motive for avoidance, when "late" HIV testers (those who were diagnosed with AIDS at the same time as their HIV diagnosis) were asked why they had waited so long to get tested, a frequently reported reason was a general fear of HIV and the anxiety over what a positive status could mean for their lives (Dowson, Kober, Perry, Fisher & Richardson 2015). Consistent with a cognitive-threat motive for information avoidance, participants in one study were less likely to enroll in an HIV-prevention counseling session to the extent that they reported behavior that put them at higher risk for being exposed to HIV (Earl, Albarracín, Durantini, Gunnoe, Leeper & Levitt, 2009). Presumably, high-risk participants realized that the information contained in the sessions would challenge their view of themselves as good decision makers and threaten their future behaviors. Finally, supporting the behavioral-threat motive for information avoidance, African American men attending a historically black college reported not wanting to learn their HIV status because a positive result would force them to change their behavior (e.g., frequent doctor's visits, consistent condom use) (Hall, Peterson, & Johnson 2014). Additionally, in interviews with African-Americans in a health clinic respondents mentioned an apprehension about the behavioral changes required when getting treated for HIV in the form of concerns over not being able to afford their HIV care (Wallace, McLellan-Lemal, Harris, Townsend & Miller 2011). This finding had been experimentally demonstrated as well in that study participants are more likely to avoid learning their risk for a disease if having the disease requires that they take a pill for their rest of their lives versus for a week (Howell & Shepperd, 2013).

The desire to avoid health information also involves a component of control. When people feel like they have no control over their health, they are more likely to avoid relevant

health information (Sweeny et al, 2010). For example, Melnyk and Shepperd (2012) found women were more likely to avoid learning their risk of breast cancer if they first read information about uncontrollable predictors than if they read about controllable predictors. Additionally, Yaniv et al (2003) found that participants were more willing to find out their genetic testing results if they knew the potential diseases they may be at risk for were treatable. This idea can extend to HIV, as well, as some people may feel that HIV is an uncontrollable disease that results in either significant decrease in quality of life or even results in death. For example, Iqbal, De Souza and Yudin (2014) found that women reported they would be more likely to accept an HIV test if they were informed of the potential benefits of doing so. Specifically, they wanted to know how an earlier diagnosis could help them control their health outcomes with the disease. Since an earlier HIV diagnosis increases the effectiveness of HIV treatments (Herout, Mandorfer, Breitenecker, Reiberger, Grabmeier-Pfistershammer, Rieger, & Aichelburg, 2016), having a sense of control over this positive health outcome may motivate some to seek out testing.

Despite several studies examining motivated information avoidance, none have examined the role of motivated information avoidance in HIV testing. In the present study, we aim to fill this gap in the literature by examining the unique predictive power of information avoidance tendencies in explaining HIV screening while accounting for HIV stigma and fatalistic beliefs. Specifically, we investigate how information avoidance predicts both past and present HIV testing behaviors. More broadly, the current study seeks to understand the role psychosocial factors have in influencing HIV testing behavior. We examined the self-reported testing behaviors of 399 men who have sex with men (MSM) and gave them the opportunity to receive a free, at-home, rapid HIV test. These tests can be taken in the privacy of one's own home, away

from the potentially stigmatizing public view. We used demographic factors, sexual behaviors, other health behaviors (e.g., drug and alcohol use), information avoidance tendencies, perceptions of HIV stigma, optimism about HIV treatment, and HIV-related infectiousness beliefs to predict both past HIV testing behavior and current at-home HIV testing uptake. We expected all 4 psychosocial factors to be associated with both past and present HIV testing behavior. However we expected HIV related information avoidance to predict both outcomes over and above the other three psychosocial outcomes.

Methods

Participants

A total of 491 men between the ages of 18 and 81 completed the surveys. Of our initial participants 362 identified as gay, 40 identified as bisexual, 68 identified as heterosexual and 21 identified as other. We removed 192 of these men from analysis for two reasons. First, we excluded from the analysis men who did not report having sex with men in the past 4 months (N= 127). Second, of the 364 men who reported having sex with men, 310 reported an HIV negative status, 65 reported an HIV positive status, 7 reported they did not know their status, 44 reported they had never been tested for HIV and 3 did not respond at all. Men who reported being HIV positive were removed from the analysis as their testing behavior was not relevant to the study question.

The final sample was comprised of 299 gay/bisexual men who were sexually active. The 299 men examined had an average age of 33 years old (SD: 12.60), 70% of the participants identified as white, and the majority (95%) identified as gay or bisexual.

Procedure

Participants were recruited between 9am and 3pm on the second day of the 2015 Atlanta Pride Festival. LGBT Pride Festival goers were approached by one of several field staff members and were asked if they would like to complete a 10-minute survey on LGBT health. The staff member gave a brief explanation of the survey and answered questions from potential participants. Those who agreed to participate were directed to a table at our team's booth and given a survey and a pencil.

After consenting, participants completed the survey, and then gave their survey to a research staff member to check for accidentally skipped pages or incomplete answers. The field staff then collected the survey and compensated the participant $5 for their time. An additional $3 was given to an Atlanta-based HIV support program for each participant survey we collected as an altruistic element for the payment incentive. The staff also gave participants the opportunity to receive a free, at-home HIV test in the mail. Participants who wanted the at-home HIV test provided a mailing address where they wished to receive the test.

Measures

Our measures were divided into 6 categories: demographics, HIV related information avoidance, HIV stigma, fatalistic beliefs, substance use and sexual behaviors, and HIV testing outcomes.

Demographic Characteristics

Participants reported their age, race, education, income, employment status, relationship status, sexual orientation, and level of "outness" about their sexual orientation. Self-identified sexual orientation was specifically assessed by circling the identity of either gay, bisexual, heterosexual or other. Participants also circled the extent to which they were "out" about their

sexual orientation. The responses ranged from "*Not 'out' about my sexual orientation*" to "*'out' about my sexual orientation*."

Information Avoidance Tendencies

HIV testing related information avoidance. Previous research indicates that the desire to avoid unwanted health information will predict testing uptake in that those who express a desire to avoid health information will be less likely to take a medical test (Sullivan, Lansky, Drake, & Investigators, 2004). We adapted the 10-item Information Avoidance Scale (Howell & Shepperd, in press) to assess an overall tendency to avoid HIV testing. Items were modified to indicate HIV-status avoidance. Example items included "I want to know my HIV status immediately" and "I can think of situations in which I would rather not know my HIV status." Participants either responded that an item was "*True for me*" or "*N*ot *true for me.*" A summary score was calculated on the items such that a higher score meant higher desire to avoid one's HIV status ($\alpha = 0.90$).

HIV Stigma

HIV stigma. Previous research suggests that participants who hold strong negative attitudes about how they will be treated and how they will feel about themselves if they have HIV may be less likely to get tested (Bolsewicz, 2014; Drauker, 2015; Nunn, 2012). We used 9 items from Earnshaw's validated HIV Stigma scales to assess participant's own endorsements of HIV stigma (Earnshaw & Chaudoir, 2009). Example items include "I would worry that people would reject me if I tested positive for HIV" and "If I tested positive for HIV, I would feel I am not as good as others." Items were responded to on a 4 point Likert scale, 1 = *strongly disagree*

to 4 = *strongly agree*, and were coded such that lower scores indicated higher levels of anticipated HIV stigma ($\alpha = 0.90$).

Fatalistic Beliefs: HIV Treatment Optimism and HIV Infectiousness Beliefs

HIV treatment optimism beliefs. Prior research suggests that this variable is related to HIV testing in that it captures people's beliefs about the efficacy of HIV treatments and greater optimism in HIV treatments can lead to greater willingness to get tested (Lorenc, 2011; Wallace, 2011). To assess beliefs about the efficacy of HIV medication and treatment, we used the 3-item HIV Treatment Optimism Beliefs scale (Kalichman, 2007). Example items include "HIV treatments have brought hope for a cure" and "Because of HIV medications, people living with HIV can have a normal and healthy life." Items were responded to on a 4 point Likert scale, *1 = strongly disagree* to *4 = strongly agree*, and were coded such that higher scores indicated more optimism in the outcomes of those undergoing HIV treatments. This scale was internally consistent ($\alpha = 0.73$).

HIV infectiousness beliefs. Prior research suggests that this variable captures people's beliefs about quality of life outcomes while living with HIV. Beliefs that one cannot control their level of infectiousness living with HIV has been indicated as a reason not get tested (Hall et al., 2014). To assess participants' beliefs about the infectiousness of HIV, we used the 3-item HIV Infectiousness Beliefs scale (Kalichman, 2007). Example items include "HIV positive persons are less likely who take HIV medications are less likely to infect their sex partners" and "It is safe to have anal sex without a condom with an HIV positive man who has an undetectable viral load." Participants responded to the items on a 4-point Likert scale, *1 = strongly disagree* to *4 = strongly agree.* Responses were coded such that higher scores indicated a stronger belief that HIV positive people who were taking HIV medications could become less infectious ($\alpha = 0.76$).

Substance Use, Sexual Behavior, and Risk Perception

Drug use. Participants reported their current (past month) use of four drugs (marijuana, crack/cocaine, meth or other drug) and to indicate how frequently on a scale ranging from *0 = None* to *3 =At least every week*.

Alcohol use. Three items were used from the Alcohol Use Disorders Identification Test (AUDI) (Daeppen, Yersin, Landry, Pécoud & Decrey, 2000) in order to assess participant's alcohol use behaviors. These items represent current quantity and frequency of alcohol use. Participants indicated the frequency of alcohol use (*Never* to *more than 4 times a week*), how many drinks they typically have on a day they are drinking (*0, I do not drink* to *10 or more*), and how often they have 6 or more drinks at once (*never* to *daily or almost daily*) ($\alpha = 0.83$).

Sexual partners and sexual behavior. Participants completed six items about their sexual behavior. Items are similar to those used in previous HIV research studies (Kalichman, 2007). Participants were asked to report their number of male sex partners, the number of times they had condomless anal sex, the number of times they had condom protected anal sex as well as the number of female sex partners, the number of times they had condomless vaginal sex and the number of times they had condom protected vaginal sex. All items referred to the previous 4 months of sexual activity.

Risk perception. We used one item to assess perceived risk for HIV infection (Kalichman, 2007). The item specifically asked: "Think about your sexual relations for the past 4-months. Based on your sexual behaviors for the past 4 months, how much risk do you believe you are at for getting HIV or infecting someone with HIV?" Participants were asked to respond on a scale of *0 = not at all at risk* to *4 = very high risk*.

Primary HIV Testing Outcomes

HIV testing behavior and status. Questions were developed to capture both current testing behavior as well as HIV testing history. Based on earlier assessments of HIV testing (Kalichman, 2007), participants indicated whether they had ever been tested for HIV, the date of the last time they were tested, the results of their most frequent test, how many times they had been tested, and if they planned on getting tested in the next year.

HIV at-home testing. Three items were created to assess previous HIV at-home testing use and future use of HIV testing. Participants were asked to respond to items "Have you ever used an at-home HIV test? (*yes/no*)", "How much would you be willing to pay for an at-home HIV test? (*$0 to $40*)", and "Would you like to receive a free at-home HIV test in the mail (*yes, yes to give to someone else, no*)". Those who requested the test for someone else were not included in the analyses.

Data Analysis

Two sets of analyses were conducted: (a) descriptive analyses partitioned by HIV testing history group and predictors of HIV testing history group and (b) descriptive analyses partitioned by HIV testing uptake and predictors of HIV testing uptake.

First, we examined participants' testing history, and divided them into three outcome groups: tested recently (in the year 2015), tested before but not recently (not in 2015), and never tested. The first group, men who were tested recently, included men who had reported they got tested for HIV in the year 2015 (n= 159). The CDC recommends that sexually active gay or bisexual men should get tested for HIV every 3-6 months. Since our survey was conducted in October 2015, those who reported being tested that year were approximately up to date on their

recommended testing. Even though some participants may be considered "overdue" for a test if they had not been tested since the first few months of the year, we wanted to be certain that those who were due for a test were truly out of date. Our second group, tested but not recently, consisted of men who reported being tested for HIV, but not in the year 2015 (n=85). Thus, they were due for a test. The third group, never tested, consisted of men who reported never testing for HIV or did not know their status (n = 55). First, we performed chi-square tests for categorical variables and one way ANOVAs for continuous variables in order to compare the characteristics of the study participants stratified by testing history group as determined by CDC HIV testing guidelines (tested in 2015, tested 2014 or later, never been tested). Next, we used multinomial logistic regression to examine the extent to which each of our demographic and psychosocial variables individually predicted testing history group membership (e.g., tested in 2015, tested 2014 or later, never been tested). In order to test the different psychosocial factors to see if HIV related information avoidance was the strongest predictor of testing history group (e.g., tested in 2015, tested 2014 or later, never been tested), we used multinomial logistic regression modeling and adjusted for potential confounds of the effects. We included as controls those variables that significantly predicted group membership with a p-value of 0.06 or lower in our initial examination of demographic variables. The covariates examined as potential confounds for testing history included: age, employment, relationship status, sexual orientation, outness, and risk perception.

Next, we ran chi-square tests for categorical variables and t-tests for the continuous variables in order to compare the descriptors of those who accepted an at-home HIV test versus those who did not. We then used univariate binomial logistic regression to examine the extent to which each of our demographic and psychosocial variables individually predicted at-home HIV

test uptake (yes/no). Finally, a binomial logistic regression model was used in order to predict HIV testing uptake group (yes/no) from the psychosocial variables, adjusting for potential confounds of the effects. Again, those demographic variables that had a *p*-value of 0.06 or lower were included in our model. The covariates examined as potential confounds for testing uptake included: age, marital status, and risk perception.

Results

Descriptive and predictive modeling of HIV testing history. There were significant differences among the three testing history groups (tested in 2015, tested but not in 2015, never tested) on age, employment, relationship status, sexual orientation, and outness (See Table 1). Those who had recently been tested (in 2015) were more likely to be employed, be in a committed relationship or having sex with multiple partners but not in a relationship, identify as gay, and be entirely "out" about their sexual orientation. There were no differences in alcohol, drug use, or sex behavior among the three groups. There was, however, a significant difference in risk perception between the three groups. Those who had been recently tested (in 2015) rated themselves at higher risk for having HIV than those who had not been tested recently (not tested in 2015) and those who had never been tested. See Table 2 to view descriptive statistics on drug, alcohol, and sex behavior. Finally, there were significant differences among the three groups on the psychosocial variables HIV stigma and HIV related information avoidance. Those who were never tested scored higher in HIV related information avoidance and anticipated HIV stigma than did those who had been tested in 2015 or had been tested before but not recently (See Table 3).

A correlation matrix, seen in Table 4, was created to better inform the theoretical relationships between the constructs. HIV related information avoidance was most strongly

related to HIV stigma ($r = 0.22$, $p < .01$). Infectiousness beliefs were also statistically correlated with HIV related information avoidance, however the correlation coefficient is indicated a small association between the two ($r = -0.13$, $p < .05$). The two scales we used to capture the general concept of fatalistic beliefs, HIV infectiousness beliefs and HIV treatment optimism, had a medium relationship to each other ($r = 0.36$, $p < .01$) indicating that they were related to each other but not redundant in the construct they were measuring.

Next, univariate multinomial logistic regressions were conducted to analyze the independent associations between the different testing history groups in reference to each psychosocial variable (see Table 5). The only significant predictor of group membership was HIV related information avoidance. Those high in HIV related information avoidance were more likely to never have been tested than the group that was up to date on testing, *OR* 0.64, 95% CI [0.54-0.77], and the group that was never tested, *OR* 0.69, 95% CI [.57-.84].

Finally, a multivariate multinomial logistic regression model was used to simultaneously analyze all of the psychosocial variables. In this final model, only HIV related information avoidance predicted group membership in both contrasts (testing in 2015 vs. never tested; Tested, but not in 2015 vs. never tested) (See Table 6). Those who reported greater HIV related avoidance tendencies were more likely to have never been tested than they were to be tested recently (in 2015), *OR* 0.62, 95% CI [0.50-0.76], or to ever have been tested but not recently (not in the year 2015) *OR* 0.72, 95% CI [0.57-0.91]. For only one contrast being significant, those who endorsed higher scores in treatment optimism were significantly more likely to have tested recently (in 2015) than to have never tested, *OR* 0.49, 95% CI [0.24-1.01], but were equally likely to have never been tested as they were to be out of date of testing (tested, but not tested in 2015), *OR* 0.75, 95% CI [0.62-2.86].

Descriptive and predictive modeling of at-home HIV testing uptake. In parallel to the model testing the 4 psychosocial predictors of prior testing behavior, we next examined predictors of accepting an at-home HIV test. Table 7 shows the demographic characteristics of the participants' testing decisions. There were significant differences between those who accepted the HIV test and those who did not in terms of marital status and age. That is, compared to those who did not accept the at-home HIV test, those who accepted the free test were more often older and not married. There were no significant associations between alcohol or drug use and test acceptance (see Table 8). In terms of sex behavior, there were significant differences between those who accepted the HIV test and those who did not in the degree to which they viewed themselves at risk of contracting HIV and the number of times they had anal sex with a condom. Compared to those who did not accept the test, those who accepted the test had lower risk perceptions of acquiring HIV and had fewer instances of anal sex using condoms. Finally, Table 9 shows the t-test results for all of the psychosocial variables stratified by HIV testing uptake. Only HIV related information avoidance was significantly associated with accepting the HIV test. Those who did not accept an HIV test had higher scores of HIV related information avoidance than those who did not accept the HIV test.

Next, we conducted univariate binomial logistic regressions to examine the extent to which the demographic variables and the 4 psychosocial variables were independently associated with HIV testing uptake group (see Table 10). Of the demographic variables, marital status and age were again both significant predictors of testing uptake, marital status *OR* 0.43, CI [0.23-0.83]; age *OR* 0.98, CI [0.96-0.99], such that those who were older and who were married were more likely to accept an HIV test. Of the substance use and risk behavior items, alcohol use, anal sex with a condom, and risk perception were all significant predictors of testing uptake,

alcohol use *OR* 1.3, 95% CI [1.1-1.5]; anal sex with a condom *OR* 1.05, 95% CI [1.01-1.09]; risk perception *OR* 1.5, 95% CI [1.1-1.9]. Those who used alcohol more, had anal sex with a condom more frequently, and had higher risk perception were more likely to pick up an HIV test. None of the psychosocial variables were significant predictors of testing uptake when ran independently of each other and control variables ($p > .05$).

Finally, a multinomial logistic regression model was used to simultaneously test the 4 psychosocial predictors and adjust for potential confounds of the effects (See Table 10). After controlling for covariates, HIV related information avoidance remained significantly related to testing uptake above and beyond the other psychosocial variables, *OR* 0.85, 95% CI [0.73-0.98]. Those who were higher in HIV related information avoidance were less likely to accept the at-home HIV test. Additionally, risk perception remained a significant predictor of HIV testing uptake group, *OR* 1.37, CI [1.04-1.80]; those who had higher risk perceptions were more likely to accept and at-home HIV test. None of the covariates or other psychosocial variables were significantly predictive of testing uptake behavior ($p > .05$).

Discussion

As previous research has suggested, psychosocial variables have a significant impact on an individual's HIV testing behavior. In this case, HIV information avoidance tendencies are a reliable predictor of both past and present HIV testing behavior in a predominantly "out," White MSM population. Although this specific psychological construct has not been studied using HIV testing outcomes before, our results indicate that the concept seems to be an important psychological contributor to HIV testing behavior. That is, HIV information avoidance tendencies were associated with both HIV testing history and HIV testing uptake above and beyond the commonly studied psychological factors of HIV stigma and HIV fatalistic beliefs.

A variety of psychological motivations prevent people from learning about important health information. Some motivations may be more impactful upon behavior than others, however the importance of a given factor is determined on an individual basis. HIV information avoidance is a broader construct than some of the more specific psychosocial factors studied in the HIV testing literature. People may avoid health information due to its threat to their cognitions (how they think about themselves and the world around them), their affect (how they feel), or their behavior. This psychological framework captures the self-defensive process of selectively attending to information in that by avoiding certain kinds of health information, people are defending themselves against the implications of the testing and the ensuing results.

Results did not indicate that HIV stigma or fatalistic beliefs were associated with an individual's past HIV testing behavior or predicted HIV testing uptake. Even when these factors were studied independently of HIV information avoidance tendencies in their own regression equation, they did not predict any HIV testing behaviors. These findings stand in contrast to previous findings on HIV testing behavior (Wallace et al., 2011). Prior research has demonstrated repeatedly that HIV stigma and HIV fatalistic beliefs are common reasons individual's report avoiding HIV testing (Lorenc et al., 2011; Addis, Yalew, Shiferaw, Alemu, Birhan, Mathewose & Tachebele 2013; Christopoulos, Weiser, Koester, Myers, White, Kaplan & Morin, 2012). This study adds some needed nuance into the study of who is affected by which psychosocial barriers and to what extent they ultimately affect at-risk individual's HIV preventative behaviors. For example, the population we studied had specific demographic characteristics that do not represent everyone affected by HIV. Specifically, 70% of our overall sample identified as White, and 285 (of 288) of the men identified as either gay or bisexual. The majority of these men also indicated they were "out" about their sexual orientation and had an

average income well above the poverty line. White, out, men who identify as gay or bisexual with decent incomes may have distinct psychosocial barriers to HIV testing in comparison to those who are not out, who are racial minorities, and/or have financial barriers to health care. Therefore, out study indicates that HIV stigma and fatalistic beliefs surround HIV may not be as impactful upon white, out, gay or bisexual identified men's HIV testing behavior as they could be in other groups.

Other studies examining this population have found similar findings. Adam, de Wit, Bourne, Knox, and Puchas (2014) found that HIV stigma did no predict the HIV testing behavior of their predominantly white, gay and bisexual identified sample. Lorenc and colleagues (2011) found that a general fear of the consequences of getting an HIV test is what drove many men in their predominantly white, gay and bisexual identified men to avoid HIV testing. They found that this general fear was more important to the men than HIV stigma. This general fear of the results of an HIV test is similar to the concept that HIV related information avoidance attempts to capture.

There may be a few reasons why these patterns are found among samples with similar demographics to ours. "Out" gay and bisexual men who attend a Pride festival may be more connected to the LGBT community and therefore may be exposed to more HIV prevention campaign messaging via targeted interventions. They may also be more likely to know a person who has an HIV positive status given the prevalence of HIV among men who have sex with men. Knowing someone who has HIV can expose the individual to seeing the relatively normal quality of life an HIV positive individual has while undergoing modern HIV treatments. The gay community also has a long, traumatic lived-history of being exposed to the HIV epidemic. Due to the collective, traumatic effects of the epidemic, there are now extensive social support

networks among gay men who are HIV positive. Knowing someone who is HIV positive who not only has a similar quality of life as an uninfected person but also has a strong social support network may be a powerful force towards an at-risk individual developing resilience against anticipated stigma of receiving an HIV positive status. Ultimately, this resilience should reduce the threat of taking an HIV test.

Another reason we may not have replicated the findings of popular psychosocial factors for avoiding HIV testing in the literature is the race of our participants. The majority of our participants were white men. However, African American men who have sex with men have more new cases of HIV than white MSM in parts of the country, particularly in the south (CDC, 2015). However, African American may face more stigma in their communities for having sex with men, and thus may not benefit from the same sort of support networks that out gay men receive (Nunn, et al., 2012). Additionally, they may face prejudice and discrimination by the majority white LGBT groups of the south. Due to the fact that they do not have the same social support mechanisms as other out, gay men, African American MSM may have different psychosocial factors that motivate them to avoid HIV testing than the population in our study.

Our results support the idea that psychological motivations to avoid relevant health information vary by the individual and the experiences they have had that have shaped their psychology. Perhaps gay and bisexual identified men who are connected to the LGBT community have developed resilience to key factors, like HIV stigma, that typically would predict HIV testing behavior in other populations. Yet the measure of HIV information avoidance has predicative power in this population for predicting HIV testing behavior. HIV information avoidance manages to tap into a variety of reasons one would evade an HIV test by capturing the general tendency to avoid information one considers threatening. For example,

some people develop resilience to consistent experiences of discrimination despite these experiences leading to negative health outcomes for others (Russel & Richards, 2003). An individual who has resilience to stigma in general may anticipate HIV stigma upon learning of one's HIV positive status, however it will not be a powerful enough threat to avoid HIV testing. Therefore, HIV information avoidance manages to capture HIV testing behavior in a variety of individuals despite their potential resilience to other factors that traditionally are associated with HIV testing evasion, thus capturing another section of the at-risk population.

Individual experiences and perceptions of reality can vary greatly and thus impact health behavior differentially. This is not to say that individual factors like HIV stigma or knowledge about current HIV treatment are not important. However, our findings suggest that while these factors can be important to an individual, they may not translate into HIV testing behavior on their own. For example, our sample consistently reported that they anticipated experiencing HIV stigma if they were diagnosed with HIV, but those beliefs did not predict their testing behavior on their own. While it is important for us to understand how HIV-specific psychosocial factors can influence affective reactivity to HIV prevention strategies, they may not always be the most robust predictors of HIV preventative behavior. However, if researchers are interested in a construct that reliably predicts HIV testing behavior, our results suggest HIV related information avoidance has the desired predicative validity.

The majority of the work on psychosocial factors expected to impact HIV testing behavior have largely been conducted using correlational techniques or hypothetical scenarios. Few studies have examined the direct pathway of psychosocial factors and real-time HIV testing uptake. The present study identifies how frequently studied psychosocial barriers to testing impact the decision to accept HIV testing in a real-life scenario. HIV stigma and fatalistic beliefs

not being associated with either past or present HIV testing behavior may be a result of the direct way in which we studied the relationship between psychosocial factors and HIV testing behavior. That is, there may be a discrepancy in which psychosocial factors individuals believe will affect their choices versus which psychosocial factors actually do affect them in a real-life scenario. Future research should further explore the relationship to self-reported psychosocial factors and real-life decisions to get tested for HIV rather than relying on hypothetical scenarios or correlational designs.

Limitations and Future Directions

Although there may be overarching psychosocial themes that affect many individuals like HIV stigma or fatalistic beliefs, these individually determined factors may be more powerful as a whole than when studied as separate entities. What is particularly interesting about this study is that the three psychosocial variables of anticipated HIV stigma, HIV treatment optimism, and HIV infectiousness beliefs did not affect HIV testing behavior even when they were tested independently of each other. Although we cannot be certain of the reasons we did not find these frequently studied psychosocial factors as predictors of HIV testing uptake, we do know that our study highlighted the fact that these factors are not "one size fits all" predictors. Specifically, our sample's demographic characteristics may indicate that these previously studied factors are not as powerful in predicting HIV testing behavior in contemporary white, out, gay and bisexually identified men. Further research should explore how certain psychosocial predictors of HIV testing behavior may vary among the diverse array demographic groups affected by HIV. For example, perhaps anticipated HIV stigma will be a more impactful psychological threat to a Black man who has sex with men "on the down low" than an "out" gay-identified man due to the effects of multiple stigmatized identities (Nunn et al., 2012). Stigma may be the more salient

threat to these individuals than any other psychosocial factor and learning about an HIV positive status would just add to that stigma. These relationships need to be teased a part in order to better understand that impact various psychosocial factors have on different groups.

There were several limitations to our study. Our sample was about 70% white and 30% people of color. Since the majority of our sample was white, our findings may not extend Black and Latino populations due to the unique barriers these men face (multiple stigmatized identities). Additionally, we were looking at primarily men who identified as gay or bisexual who were attending a LGBT Pride Festival. Therefore we can infer that these men are fairly "out" and are involved in the gay community to some degree. Those men who are engaged in the gay community may have different factors driving their testing that those who are not. In order to understand these effects outside of a more dominant group's psychology, a more diverse sample will need to be studied to see how far the predictive power of the information avoidance framework extends.

Additionally, we collected our data from 9am until 3pm. Although this time frame allowed us to maximize the amount of participants we could collect, we may have biased our sample by missing out on the most at-risk individuals. Those who are most at risk for HIV may not come out to the LGBT Pride festival until later in the day. Therefore we may have missed out on collecting data from those at most risk.

Implications for Application

The psychosocial factors of HIV stigma and fatalistic beliefs associated with HIV have been well documented in the literature as important motivations for avoiding HIV testing. With new HIV infections remaining stable despite repeated attempts to address the specific

psychosocial factors that can increase problematic risk-behaviors like avoiding HIV testing, unexplored psychosocial barriers still exist. Our results indicate that HIV related information avoidance, the general tendency evade knowledge considered threatening, may be a more effective psychological mechanism around which to center an intervention.

Understanding the influence of a person's psychological state on their HIV testing behavior is key to understanding the differences in those who seek out HIV testing and those who avoid it. Those who seek out testing may be the least at risk for contracting HIV and psychosocial barriers may help account for this discrepancy. That is, those who are less threatened by an HIV test may be more likely to seek it out since they may be less concerned over the result. Therefore, the highest at-risk individuals may be making a conscious choice to avoid HIV testing, largely driven by psychosocial barriers, rather than structural ones. Understanding which psychosocial factors affect which demographic groups is vital to creating effective interventions for HIV testing.

As is well documented in the literature, there is no such thing as an intervention that works for all demographic groups for HIV prevention work. The populations affected by HIV vary greatly in characteristics and therefore need interventions that are tailored to their individual needs. Just as the unique demographics of a population determines their structural barriers to HIV testing, so too do their lived experiences result in different psychological factors having an influence over their behavior. One group may not be as affected by the psychological barrier of stigma if they have other mental resources available to cope with the anticipated societal prejudice (e.g., more accepting social support, etc.). However, the broad concept of HIV related information avoidance has demonstrated itself as a reliable predictor of both past and present HIV testing behavior in our sample. There have been multiples successful interventions

constructed around reducing avoidance behavior surrounding medical testing (Shepperd & Howell, in press). These interventions differ from prior HIV interventions in that rather than targeting specific psychosocial factors that could affect behavior, they focus on reducing threat more broadly (Shepperd and Howell, in press). Future interventions focused on increasing HIV testing behavior may want to focus on reducing the general threat of an HIV test rather than constructing interventions aimed at tackling more specific psychosocial factors on an individual basis.

Overall, our results indicate that an important psychological mechanism has been missing from the study of psychosocial barriers to HIV testing in the literature. HIV information avoidance predicts HIV testing behavior above and beyond the psychosocial factors that have previously been considered the primary motivators for avoidance. Further exploration of information avoidance and how it functions in relation to HIV testing is important to furthering the understanding of why some people seek out HIV testing and others actively avoid it.

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Table 1. Demographic descriptive statistics for testing history groups.

		Recently Tested		Tested But Not Recently		Never tested		
		N	%	N	%	N	%	χ^2
Race	Non-White	52	33%	21	25%	17	32%	1.73
	White	107	67%	64	75%	37	68%	
Employment	Employed	118	75%	60	71%	32	58%	14.76*
	Student	25	15%	7	8%	15	27%	
	Unemployed	15	10%	18	21%	8	15%	
Gender	Man	157	100%	82	97%	54	98%	6.02
	Transwoman	0	0%	1	1%	0	0%	
	Transman	0	0%	2	2%	1	2%	
Income	$0-$15,000	30	19%	16	20%	20	37%	15.89
	$16-$30,000	26	16%	19	23%	9	17%	
	$31-$45,000	41	26%	18	22%	4	7%	
	$46- $60,000	22	14%	9	11%	9	17%	
	$61-$75,000	10	6%	7	9%	3	6%	
	Over $75,000	30	19%	13	16%	9	17%	
Relationship Status	I'm not having sexual relations	14	9%	9	11%	6	11%	13.90*
	Having sex but do not have an exclusive partner	60	38%	16	19%	14	26%	
	I'm in a relationship and I/we have outside partners	23	15%	9	11%	9	17%	
	In an exclusive relationship with one person (no outside partners)	61	39%	51	60%	25	46%	
Marital Status	Not Married	141	90%	68	80%	46	84%	4.96
	Married to a man	15	10%	15	18%	8	15%	
	Married to a woman	1	0%	2	2%	1	2%	

Table 1. Continued.

		Recently Tested		Tested But Not Recently		Never Tested		
		N	%	N	%	N	%	χ^2
Sexual Orientation	Gay	142	89%	74	88%	39	72%	15.55*
	Bisexual	15	9%	5	6%	10	19%	
	Heterosexual	0	0%	3	4%	3	6%	
	Other	2	1%	2	2%	2	4%	
Outness	Not "out" about sexual orientation	3	2%	5	6%	7	13%	12.00*
	Sometimes "out" about sexual orientation	43	27%	18	21%	16	29%	
	"Out" about sexual orientation	113	71%	62	72%	32	58%	
		Mean	SD	Mean	SD	Mean	SD	F
Age		32.03	11.62	36.13	13.62	30.1	12.87	4.62*
Education		9.97	2.04	9.33	2.43	9.50	2.30	2.65

Notes. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 2. Descriptive statistics of drug, alcohol, and sex behavior for testing history groups.

		Recently Tested		Tested But Not Recently		Never Tested		
		N	%	N	%	N	%	χ^2
How often do you have a drink containing alcohol?								
	Never	17	11%	9	11%	4	7%	5.34
	Monthly or less	30	19%	25	29%	14	26%	
	2-4 times a month	42	26%	22	26%	17	31%	
	2-3 times a week	37	23%	16	19%	11	20%	
	More than 4 times a week	33	21%	13	15%	9	16%	
How many drinks containing alcohol do you have on a typical day when you are drinking?								
	0, I do not drink	19	12%	10	12%	7	13%	5.45
	1 or 2	59	37%	35	41%	16	29%	
	3 or 4	53	34%	31	37%	25	46%	
	5 or 6	17	11%	6	7%	5	9%	
	7 or 9	4	3%	2	2%	1	2%	
	10 or more	6	4%	1	1%	1	2%	
How often do you have 6 or more drinks on one occasion?								
	Never	49	31%	34	40%	21	38%	6.77
	Less than monthly	51	32%	26	31%	15	27%	
	Monthly	32	20%	15	18%	9	16%	
	Weekly	22	14%	5	6%	8	15%	
	Daily or almost daily	5	3%	5	6%	2	4%	
Marijuana	Yes	50	31%	28	33%	22	40%	1.36
	No	109	69%	57	67%	33	60%	
Cocaine/Crack	Yes	17	11%	7	8%	6	11%	0.43
	No	142	89%	78	92%	49	89%	
Methamphetamine/Crystal/Crank/Tina	Yes	6	4%	2	2%	3	6%	0.89
	No	153	96%	82	98%	52	94%	
Any other drug	Yes	14	9%	7	8%	3	6%	0.63
	No	145	91%	78	92%	52	94%	

Table 2. Cont

	Mean	SD	Mean	SD	Mean	SD	F
How many men have you had sex with in the past 4 months?	4.08	6	2.4	3.96	8.16	36.63	2.13
Anal sex, no condom used by me or my partner	8.37	17.6	6.72	14.15	6.38	14.54	0.44
Anal sex, with a condom used by me or my partner	5.09	13.39	2.13	5.42	3.88	14.25	1.64
Number of times tested	14.12	57.17	4.68	6.26	2.5	3.41	2.01
Risk perception	1.08	0.95	0.52	0.76	0.84	0.86	11.16***

Table 3. Psychosocial variables descriptive statistics for testing history groups.

	Recently Tested		Tested But Not Recently		Never Tested		
	Mean	SD	Mean	SD	Mean	SD	F
Information Avoidance	0.85	1.40	0.99	1.41	2.42	2.43	19.48***
HIV Stigma	2.62	0.70	2.47	0.74	2.79	0.74	3.28*
Treatment Optimism	3.38	0.62	3.45	0.49	3.47	0.51	0.62
Infectiousness Beliefs	2.24	0.86	2.03	0.84	2.35	0.80	2.77

Notes. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 4. Psychosocial variables correlation matrix.

	Info Avoidance	HIV Stigma	Treatment Optimism	Infectiousness Beliefs
Info Avoidance	-			
HIV Stigma	.22**	-		
Treatment Optimism	0.11	0.07	-	
Infectiousness Beliefs	-0.13*	0	0.36**	-

Notes. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 5. Multivariate multinomial logistic regression for testing history groups.

Tested Recently vs Never Tested	B (SE)	Odds Ratios	95% CI
Age	0.02 (0.02)	1.02	0.98-1.05
Employment	0.23 (0.58)	1.26	0.41-3.89
Relationship Status	0.84 (0.66)	2.30	0.64-8.37
Sexual Orientation	-0.57 (0.31)	0.57	0.31-1.03
Outness	0.39 (0.32)	1.49	0.79-2.79
Risk Perception	0.44(0.23)+	1.56	0.99-2.44
Information Avoidance	-0.48 (0.11)***	0.62	0.50-0.76
HIV Stigma	0.01 (0.26)	1.01	0.61-1.69
Treatment Optimism	-0.71 (0.37)+	0.49	0.24-1.01
Infectiousness Beliefs	0.23 (0.24)	1.25	0.78-2.01
Tested But Not Recently vs Never Tested			
	B (SE)	Odds Ratios	95% CI
Age	0.22 (0.02)	1.02	0.99-1.06
Employment	-0.29 (0.57)	0.75	0.23-2.31
Relationship Status	0.43(0.70)	1.53	0.39-6.01
Sexual Orientation	-0.32 (0.30)	0.73	0.40-1.32
Outness	0.29 (0.35)	1.34	0.68-2.64
Risk Perception	-0.18(0.27)	0.74	0.50-1.40
Information Avoidance	-0.33 (0.12)**	0.72	0.57-0.91
HIV Stigma	0.25 (0.28)	1.28	0.74-2.22
Treatment Optimism	-0.28 (0.39)	0.75	0.35-1.62
Infectiousness Beliefs	-0.19 (0.26)	0.82	0.49-1.38

Notes. + p < .06 * *p* < .05. ** *p* < .01. *** *p* <.001

Table 6. Demographic variable descriptive statistics for testing uptake.

		Accept		Did Not Accept		
		N	%	N	%	χ^2
Race	Non-White	48	33%	42	27%	1.30
	White	96	67%	112	73%	
Employment	Employed	99	69%	111	72%	5.74
	Student	29	20%	18	11%	
	Unemployed	15	11%	26	17%	
Income	$0-$15,000	36	25%	30	20%	3.41
	$16-$30,000	25	18%	29	19%	
	$31-$45,000	33	23%	30	20%	
	$46- $60,000	16	11%	24	15%	
	$61-$75,000	10	7%	10	6%	
	Over $75,000	22	16%	30	20%	
Relationship Status	I'm not having sexual relations	14	10%	15	10%	3.77
	Having sex but do not have an exclusive partner	47	32%	43	28%	
	I'm in a relationship and I/we have outside partners	24	17%	17	11%	
	In an exclusive relationship with one person (no outside partners)	59	41%	78	51%	
Marital Status	Not Married	130	92%	125	81%	7.28*
	Married to a man	11	7%	27	17%	
	Married to a woman	1	1%	3	2%	
Sexual Orientation	Gay	128	89%	127	83%	5.20
	Bisexual	11	9%	19	12%	
	Heterosexual	4	3%	2	1%	
	Other	1	1%	5	4%	
Outness	Not "out" about sexual orientation	4	3%	11	7%	3.58

Table 6. Cont

	Sometimes "out" about sexual orientation	41	29%	36	23%	
	"Out" about sexual orientation	99	69%	108	70%	
		Mean	SD	Mean	SD	t
Age		34.50	13.90	31.10	10.81	2.39*
Education		9.80	2.02	9.60	2.40	0.98

Notes. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 7. Sex and drug behavior descriptive statistics for testing uptake.

		Accept		Did Not Accept		
		N	%	N	%	χ^2
How often do you have a drink containing alcohol?	Never	13	8%	17	11%	9.32
	Monthly or less	27	19%	42	27%	
	2-4 times a month	37	26%	44	28%	
	2-3 times a week	31	22%	33	21%	
	more than 4 times a week	36	25%	19	13%	
How many drinks containing alcohol do you have on a typical day when you are drinking?	0, I do not drink	14	10%	22	14%	8.16
	1 or 2	46	32%	64	41%	
	3 or 4	61	43%	48	32%	
	5 or 6	12	7%	16	10%	
	7 or 9	5	4%	2	1%	
	10 or more	5	4%	3	2%	
How often do you have 6 or more drinks on one occasion?	Never	42	29%	62	40%	7.41
	Less than monthly	44	31%	48	31%	
	Monthly	29	20%	27	17%	
	Weekly	20	14%	15	10%	
	Daily or almost daily	9	6%	3	2%	
Marijuana	Yes	54	37%	46	30%	2.05
	No	90	63%	109	70%	
Cocaine/Crack	Yes	16	11%	14	9%	0.36
	No	128	89%	141	91%	
Methamphetamine/Crystal/ Crank/Tina	Yes	8	6%	3	2%	2.80
	No	135	94%	152	98%	
Any other drug	Yes	12	8%	12	8%	0.04
	No	132	92%	143	92%	

Table 7. Cont.

	Mean	SD	Mean	SD	t
How many men have you had sex with in the past 4 months?	2.99	6.05	5.81	22.81	-1.43
Anal sex, no condom used by me or my partner	7.03	13.82	8.06	18.23	-0.54
Anal sex, with a condom used by me or my partner	2.17	4.40	5.99	16.25	-2.67**
Number of times tested	11.58	59.66	7.44	7.70	0.81
Rick Perception	0.73	0.86	1.04	0.94	-3.00**

Notes. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 8. Psychosocial variables descriptive statistics for testing uptake.

	Accept		Did Not Accept		
	Mean	SD	Mean	SD	*t*
Information Avoidance	1.06	1.49	1.29	1.94	1.18**
HIV Stigma	2.55	0.71	2.68	0.72	-1.60
Treatment Optimism	1.57	0.52	1.60	0.62	-0.33
Infectiousness Beliefs	2.88	0.82	2.71	0.88	1.75

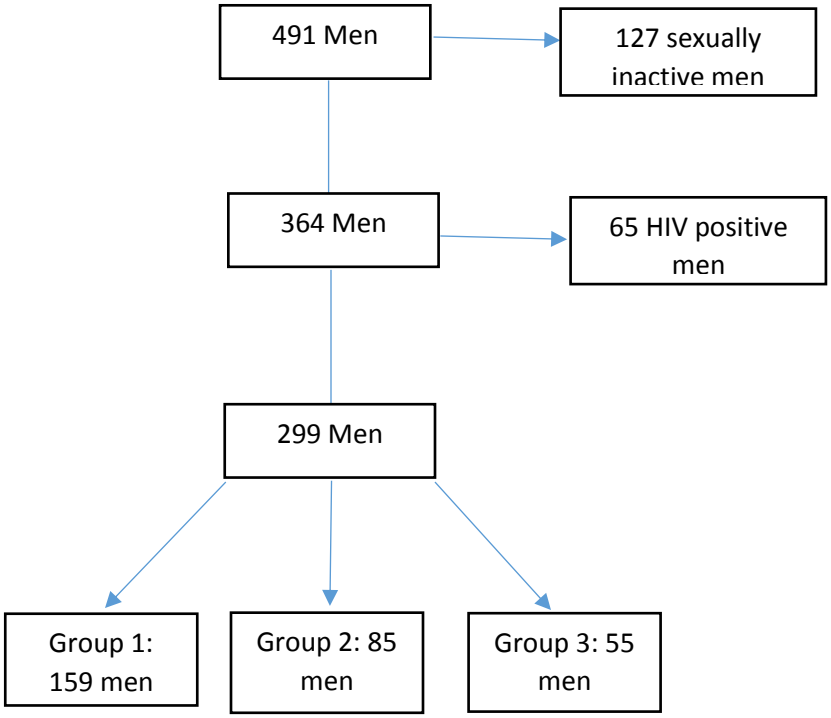
Notes. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 9. Testing Uptake univariate binomial logistic regression and binomial logistic regression model results.

		One Way Binomial Logistic Regression		Binomial Logistic Regression Results	
		Odds Ratios	95% CI	Odds Ratios	95% CI
Demographics	Race	1.3	.81-2.2		
	Employment	0.93	.68-1.3		
	Income	0.92	.81-1.05		
	Relationship Status	0.88	.71-1.1		
	Marital Status	0.43*	.23-.83	0.54	0.27-1.08
	Sexual Orientation	0.73	.48-1.1		
	Outness	1.1	0.75-1.6		
	Education	0.95	.86-1.05		
	Age	0.98*	.96-0.99	0.99	0.97-1.01
Substance Use and Risk Behavior	Drug Use	1.2	0.93-1.6		
	Alcohol Use	1.3**	1.1-1.5		
	Number of male sex partners	1.03	.99-1.1		
	Anal sex without condom	1	.99-1.01		
	Anal sex with condom	1.05*	1.01-1.09		
	Risk Perception	1.5**	1.1-1.9	1.37*	1.04-1.80
Psychosocial Beliefs	Information Avoidance	0.92	0.81-1.06	0.85*	.73-0.98
	HIV Stigma	1.3	0.94-1.79	1.30	.89-1.78
	Treatment Optimism	1.1	0.72-1.6	1.31	.84-2.1
	Infectiousness Beliefs	0.78	0.60-1.03	0.76	.56-1.05

Notes. * $p < .05$. ** $p < .01$. *** $p < .001$

Figure 1.


491 Men
127 sexually inactive men
364 Men
65 HIV positive men
299 Men
Group 1: 159 men
Group 2: 85 men
Group 3: 55 men