

Black Men Who Have Sex with Men, Sexual Risk-Taking, and Willingness to Use Rapid Home HIV Tests

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Abstract The availability of rapid home-based HIV testing (RHT) in the USA has provided us with a valuable, new option in our efforts to identify more people living with HIV and to do so sooner. Furthermore, it is possible that RHT will be or is currently being used as a means of learning one's own and one's partner's HIV status prior to engaging in condomless intercourse. Data regarding knowledge and willingness to use RHT, however, is very limited. In particular, no studies have investigated RHT use among Black men who have sex with men (BMSM). Understanding RHT use among BMSM is critical as we have observed alarming rates of HIV prevalence among this group, and RHT may provide an opportunity to slow HIV transmission among BMSM. In order to better understand RHT, we assessed knowledge, willingness to use and actual use of RHT, HIV testing history, substance use, and sexual risk-taking among 387 HIV-negative BMSM and 157 HIV-positive BMSM attending a community event in the southeastern USA. We used generalized linear modeling to assess factors associated with their willingness to use RHT. Although familiarity with the availability of RHT was somewhat limited among these men, a substantial portion of BMSM did report an interest in using RHT, including with their sex partners. Among HIV-negative BMSM, however, we found a negative relationship between willingness to use RHT and sexual risk-taking, i.e., higher numbers of condomless anal sex acts were associated with a reduction in willingness to use RHT. It appears that men who report the greatest risk-taking for HIV are least interested in RHT. Future research

should focus on better understanding concerns regarding RHT among at-risk HIV-negative men and should investigate the usefulness of using RHT as a HIV prevention method.

Keywords Black gay men · Home HIV test · Sexual risk-taking

Introduction

Men who have sex with men (MSM) account for 48 % of people living with HIV and 53 % of incident HIV infections in the USA. Furthermore, the rate of HIV diagnosis among MSM is 44 times that of other men (CDC 2010). Not only do MSM experience the greatest burden of HIV infection, but also recent analyses show that HIV infection among MSM is now increasing at a rate faster than what occurred in the late 1990s (Sullivan et al. 2009). Moreover, Black men who have sex with men (BMSM), in particular, experience alarmingly high rates of HIV transmission (USCB 2008; Koblin 2012). The number of HIV-infected BMSM is disproportionately greater than the number of HIV infections observed among other race/behavior categories in the USA (CDC 2011). Given what is known about those at greatest risk for HIV in the USA, it is imperative that BMSM receive the utmost attention with regard to HIV prevention and treatment efforts.

The recent availability of rapid home HIV testing (RHT) provides an innovative avenue in the area of HIV prevention. RHTs are similar or identical to other rapid HIV tests carried out in health care clinics. Positive test results are considered preliminary, and those who use RHT are encouraged to follow up with confirmatory testing with a health care provider if they test positive at home. Although the idea of testing for HIV outside of a clinic is not new (FDA 1990; McCarthy 1994), receiving rapid test results in non-clinical settings is and, as a result, potentially creates new opportunities for HIV prevention

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(Arnold 2012). RHT affords individuals the ability to learn their HIV test results in the privacy of their own home which removes multiple barriers that exist when seeking out in-office testing (Young and Zhu 2012). This shift in accessibility is critical given the high number of individuals HIV-infected yet unaware of their infection. With the ability to test for HIV at one's home, it is a natural extension of this opportunity to use RHT with sex partners as well. Sex partner testing at home and learning their results together is a relatively new area of HIV behavioral research, and therefore, we have limited knowledge in regard to the limits and benefits of this strategy. Within this area, it is unknown who would be interested in using RHT. For example, from a conceptual standpoint, it is unclear if willingness to use RHT would be related to sexual risk-taking.

In terms of HIV prevention, it is unclear whether using RHT with partners prior to sex lowers one's overall likelihood of being infected with HIV. Modeling studies suggest that the frequency and type of HIV exposure and the HIV incidence in one's sexual network are critical factors in determining the effectiveness of RHT for HIV prevention (Leu et al. 2012). Yet, there is evidence that RHT could be an important tool in preventing HIV infection among men who are engaging in high-risk behavior (Balan et al. 2014; Katz et al. 2012). Among these men, prior research has found that using RHT with sexual partners prior to intercourse leads to important conversations regarding HIV status disclosure (Carballo-Dieguez et al. 2012). The use of RHT among men already engaging in risk behavior appears to be beneficial in terms of HIV prevention; however, what is concerning is the use of RHT as a rationale for forgoing the use of condoms. This scenario is problematic due to the presence of acute infection—a time period in which an individual will test HIV antibody negative and yet be highly infectious. Given that the effectiveness of using RHT for HIV prevention may be dependent on sexual risk-taking profiles, it is important to understand how sexual risk-taking is related to RHT use.

Another extension of RHT testing is to understand the experiences and perspectives of RHT among men who are HIV-positive and aware of their HIV infection. Although the traditional intent of using RHT—that is, for HIV status screening—would not apply to HIV-positive men, this notion should not imply that HIV-positive men would not be interested in using RHT for their partners. It is possible that HIV-positive men would want their presumed HIV-negative partners to use RHT prior sexual intercourse. Desire to test potential sex partners may also be related to sexual risk-taking behaviors.

Study Objectives

The focus of this study was to understand experiences with and willingness to use RHT among HIV-positive and HIV-negative BMSM. This focus was driven by a two-aim approach. Firstly, we wanted to assess awareness and use of

RHT among BMSM and assess whether BMSM would be willing to use RHT with sex partners prior to engaging in sex. Secondly, we wanted to understand how engaging in risk behavior (specifically sexual risk-taking and substance use) may be related to willingness to use RHT among HIV-negative and HIV-positive BMSM. We separated results by BMSM reporting HIV-negative or HIV-positive status due to the inherent differences in HIV-positive men's ability to be certain of their status vs. the uncertainty in reporting being HIV-negative. The purpose of this second aim was to gain an understanding of the sexual risk profile of the men who would be likely users of RHT. Specifically, among HIV-negative BMSM, we were interested in assessing whether those who were at elevated risk for HIV would use RHT, and for HIV-positive BMSM, if sexual risk-taking would be related to *asking a partner* to use RHT.

Method

Participants and Setting

Surveys were collected using venue intercept procedures (Eaton et al. 2009, 2010; Halkitis et al. 2004). Briefly, potential participants were asked to complete a survey as they walked through the exhibit and display area of a large Black Gay Pride community festival, where two booths were rented for the purpose of this study. Participants were told that the survey was about health-related beliefs and behaviors and that it contained personal questions, was anonymous, and would take 15 min to complete. Participants were also provided informed consent prior to data collection and names were not obtained at any time. All festival attendees over the age of 18 who provided consent were eligible for the study. Participants were offered \$7 for completing the survey and were given the option of donating their incentive payment to a local AIDS service organization. Approximately 80 % of men approached agreed to complete a survey.

Measures

Surveys included measures of demographic information, RHT items, sexual partners and behaviors, and drug and alcohol use items.

Demographic Characteristics Participants were asked their age; years of education; income; employment status; ethnicity; whether they identified as gay, bisexual, or heterosexual; and how “out” they are about their sexual orientation. Participants were also asked to report their HIV status, how often they get HIV-tested, how many times they have been HIV-tested, and the date of their last HIV test.

Rapid HIV Home-Based Testing Participants were asked whether they had heard of RHT, if they had ever used RHT, if they would ask a sex partner to use RHT prior to sex, if they would use RHT if a sex partner asked them to prior to sex, and how much they would be willing to pay for RHT. Responses to these items included a dichotomous *yes/no*.

Sex Partners and Sexually Transmitted Infections Participants were asked to report the number of male sex partners they had had in the past 6 months. Next, we asked participants to report numbers of partners with whom they had done the following with: “anal sex, no condom used, my partner inserted his penis in me” and “anal sex, no condom used, I inserted my penis in my partner” in the past 6 months. These measures have been used and evaluated in prior research (Schroder et al. 2003; Weinhardt et al. 1998). Open response format was used to avoid answering biases. Furthermore, participants were asked to report whether a health care provider had diagnosed them with syphilis, chlamydia, gonorrhea, or other sexually transmitted infections (STI) in the past year.

Substance Use Alcohol use was assessed using various measures each capturing unique components of alcohol intake (Saunders et al. 1993). We used the following items to assess alcohol use: (1) alcohol frequency—participants were asked to report how often they have a drink containing alcohol; responses ranged from “never” to “more than four times a week” and (2) alcohol consumption—participants reported how many drinks containing alcohol they have on a typical day when they are drinking; responses ranged from “I don’t drink” to “10 or more.” These items have documented acceptable sensitivity ($\alpha=0.86$) and specificity ($\alpha=0.89$) (Bradley et al. 2007). For drug use, we asked participants how often they used nitrate inhalants, cocaine, ecstasy, methamphetamine, or Viagra, Levitra, or Cialis without a prescription in the past 6 months.

Data Analysis

Participants were 699 men surveyed at a Black Gay Pride Festival that occurred in August 2012. One hundred forty-nine men were excluded due to reporting heterosexual identity and no male sex partners, and six men were excluded for reporting race other than African-American. All remaining analysis included 544 BMSM of whom 157 were HIV-positive and 387 were HIV-negative/unknown. We provide descriptive data including means and standard deviations or numbers and percentages for all variables. We provide chi-square and non-parametric Mann–Whitney *U* tests for identifying group differences between men who report HIV-negative vs. HIV-positive status. We then conducted multivariate analyses, using generalized linear modeling, in order to identify factors uniquely associated with willingness to use RHT. For our

multivariate models, we included variables that were either conceptually important or were significant ($p<0.05$) in univariate analyses. Our dependent variables, “would take HIV test if partner asked before sex” and “would ask partner to take HIV test before sex,” were both treated as a dichotomous “yes or no” outcome, and therefore, we specified a binary logistic model. Analyses were run separately for HIV-positive and HIV-negative BMSM. Results are reported as adjusted odds ratios (aOR). There were less than 5 % missing data for any given variable. For all analyses, we used $p<0.05$ to define statistical significance. PASW Statistics version 18.0 (SPSS Inc., Chicago, IL) was used for all analyses.

Results

Demographics On average, HIV-negative BMSM reported being 35 years of age and HIV-positive BMSM reported being 40 years of age. HIV-positive BMSM were significantly older than HIV-negative BMSM. Both groups reported similar educational levels (14 years—corresponding to some college). Incomes varied with most participants earning $< \$30,000$ annually. About 60 % of HIV-negative BMSM were employed; this finding was significantly higher than HIV-positive BMSM of whom 50 % were employed. Most men identified as gay/bisexual and were out about their sexual orientation. A small percentage of men did identify as heterosexual (although they did report male sex partners) and reported not being out about their sexual orientation. Among HIV-negative BMSM, the average date of their last HIV test was a year ago and, among these men, HIV testing every 6 months was most commonly reported (see Table 1).

Rapid HIV Home-Based Testing HIV-positive BMSM were more likely to have heard of RHT prior to the day of the survey. Around 13 % of both HIV-negative and HIV-positive BMSM had ever used RHT. Sixty-six percent of HIV-negative BMSM reported that they would take RHT prior to having sex if a partner asked them to, and 65 % of these men would ask a partner to take RHT prior to having sex. HIV-negative BMSM were more likely to report willingness to ask a partner to take RHT prior to sex than HIV-positive BMSM. Forty-four percent of HIV-positive men reported being willing to ask a sex partner to take RHT prior to sex, and 47 % reported that they would take a RHT prior to sex if a partner asked. Men most commonly reported being willing to spend \$11–\$20 for RHT. There were no group differences in terms of how much men were willing to spend on the test (see Table 2).

Sex Partners and Sexually Transmitted Infections HIV-negative BMSM reported an average of 3.80 (SD=8.32) sex partners in the past 6 months, and HIV-positive BMSM

Table 1 Demographic characteristics among HIV-negative and HIV-positive BMSM

	HIV-negative BMSM (n=387)		HIV-positive BMSM (n=157)		t
	M	SD	M	SD	
Age	35.2	11.4	39.9	10.6	4.35***
Education ^a	13.8	2.3	13.8	2.1	0.30
	N	%	N	%	χ^2
Income					9.04
\$0–\$15,000	107	28.5	56	36.4	
\$16–\$30,000	107	28.5	38	24.7	
\$31–\$45,000	74	19.7	35	22.7	
\$46–\$60,000	42	11.2	14	9.1	
Over \$60,000	45	12.0	11	7.1	
Employed	230	60.5	78	50.3	4.69*
Sexual orientation					2.59
Same-gender loving/bisexual	347	90	147	94	
Heterosexual ^b	39	10	9	6	
How out about sexual orientation?					4.82
Closeted	50	16.2	18	14.6	
Out sometimes	121	39.2	35	28.5	
Out	138	44.7	70	56.9	
How many times have you tested for HIV?	8.48	14.8	n/a	n/a	
When was your last HIV test? (months)	11.9 (5 median, 4 mode)	25.5	n/a	n/a	
How often do you get HIV-tested?					
Less than yearly	50	16.3	n/a	n/a	
Every year	87	28.4			
Every 6 months	114	37.3			
Every 3 months	50	16.3			
Monthly	5	1.6			

^a Corresponds to some college

^b Heterosexual men were included only if they reported male sex partners

* $p < 0.05$; *** $p < .001$

reported an average of 6.12 (SD=13.83) sex partners in the past 6 months; however, these findings were not significantly different. HIV-positive BMSM were significantly more likely to report having both condomless insertive and receptive anal sex partners than HIV-negative BMSM. In regard to STI, HIV-positive BMSM were significantly more likely to have syphilis (21.7 vs. 6.7 %), gonorrhea (17.8 vs. 8.5 %), and other STI (22.3 vs. 7.5 %) diagnoses in the past year than HIV-negative BMSM (see Table 3).

Substance Use HIV-negative BMSM were more likely to report higher rates of both alcohol frequency and alcohol consumption than HIV-positive BMSM. Thirty-seven percent of HIV-negative BMSM vs. 23 % of HIV-positive BMSM reported consuming alcohol at least two to three times per week, and 18 % of HIV-negative BMSM vs. 10 % of HIV-positive BMSM reported consuming at least five drinks during a typical drinking session. In terms of drug use, HIV-positive BMSM were significantly more likely to have used

nitrate inhalants in the past 6 months (20 vs. 9 %). Similar rates of drug use were observed between groups for cocaine (16 %), ecstasy (11 %), methamphetamines (8 %), and sexual enhancement drugs (without a prescription [12 %], see Table 4).

Multivariate Model We included four separate multivariate models in order to identify factors uniquely associated with willingness to use RHT if a partner asked to do so and willingness to ask a partner to use RHT while controlling for conceptually relevant variables. For our models predicting RHT use with sex partners, we found multiple significant factors associated with this outcome among HIV-negative BMSM. Numbers of condomless, insertive, and receptive sex partners were negatively associated with willingness to take a HIV test if a partner asked among HIV-negative BMSM. Furthermore, drug use was negatively associated with both willingness to ask a sex partner to use RHT and willingness to use RHT if a sex partner asked. However, these

Table 2 Rapid home-based HIV testing among HIV-negative and HIV-positive BMSM

	HIV-negative BMSM (n=387)		HIV-positive BMSM (n=157)		χ^2
	N	%	N	%	
Have you ever heard of home-based HIV testing before today?					
Yes	179	46.3	85	54.1	8.84**
Have you taken an HIV test at your home or someone else’s home?					
Yes	53	13.7	21	13.4	0.60
Would you take a HIV test at home if a sex partner asked you to before sex?					
Yes	256	66.1	73	47.1	2.53
Would you ask a sex partner to take a HIV test at home before sex?					
Yes	253	65.4	70	44.6	6.22*
How much would you be willing to pay for a rapid HIV test that you can take at home?					4.75
0	57	14.7	26	17.7	
1–10	92	23.8	35	23.8	
11–20	125	32.3	54	36.7	
21–30	43	11.1	10	6.8	
31–40	19	4.9	10	6.8	
41–50	13	3.4	5	3.4	
>50	27	7.0	7	4.8	

* $p < 0.05$; ** $p < 0.01$

associations were not significant among HIV-positive BMSM. Age, education, income, HIV testing history, and alcohol use were not significant in these models (Table 5).

Discussion

The current study sheds light on BMSM’s perspectives of using RHT with sex partners and offers direction for future research efforts in this area. Although familiarity with the

availability of RHT was somewhat limited among these men, a substantial proportion of BMSM did report an interest in using RHT with their sex partners. Based on these data, it appears that improved awareness of the availability of RHT is a critical first step in getting BMSM access to this technology.

Among HIV-negative BMSM, we found that a majority would be willing to use RHT with sex partners. Furthermore, a small but substantial number of participants had reported having used RHT in the past. There were, however, important differences as well. HIV-positive BMSM were more likely to be aware of the availability of RHT and were less likely to

Table 3 Sex partners and sexually transmitted infections among HIV-negative and HIV-positive BMSM

	HIV-negative BMSM (n=387)		HIV-positive BMSM (n=157)		Mann–Whitney U
	M	SD	M	SD	
In the past 6 months					
Number of male sex partners	3.80	8.32	6.12	13.83	23,617
Condomless, insertive, anal sex partners	1.45	3.85	2.82	6.78	27,399*
Condomless, receptive, anal sex partners	1.14	3.37	2.27	6.01	27,811*
In the past year, have you been told by a health care provider that you have					χ^2
Syphilis	26	6.7	34	21.7	25.5***
Chlamydia	33	8.5	19	12.1	1.64
Gonorrhea	33	8.5	28	17.8	9.76**
Other STI	29	7.5	35	22.3	23.4***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 4 Alcohol and drug use among HIV-negative and HIV-positive BMSM

	HIV-negative BMSM (n=387)		HIV-positive BMSM (n=157)		χ^2
	n	%	n	%	
Substance use in the past 6 months					
Alcohol frequency					11.5*
How often do you have a drink containing alcohol?					
Never	64	16.8	36	23.5	
Monthly or less	91	23.9	47	30.7	
2–4 times a month	84	22.0	35	22.9	
2–3 times a week	90	23.6	22	14.4	
>4 times per week	52	13.6	13	8.5	
Alcohol consumption					11.1*
How many drinks containing alcohol do you have on a typical day when you are drinking?					
0	68	17.9	37	24.0	
1–2	148	38.9	73	47.4	
3–4	96	25.3	28	18.2	
5–6	41	10.8	8	5.2	
7–9	13	3.4	5	3.2	
>10	14	3.7	3	1.9	
Drug use in the past 6 months					
Nitrate inhalants					17.5**
Once or twice	13	3.5	19	12.4	
Several times	14	3.8	8	5.2	
At least every week	5	1.3	4	2.6	
Cocaine					5.9
Once or twice	31	8.2	16	10.4	
Several times	13	3.4	12	7.8	
At least every week	8	2.1	2	1.3	
Ecstasy					1.75
Once or twice	21	5.6	8	5.3	
Several times	11	2.9	8	5.3	
At least every week	4	1.1	2	1.3	
Methamphetamine					2.55
Once or twice	12	3.2	9	5.8	
Several times	10	2.7	3	1.9	
At least every week	3	0.8	2	1.3	
Viagra (without prescription)					7.19
Once or twice	18	4.8	10	6.5	
Several times	11	2.9	12	7.8	
At least every week	5	1.3	2	1.3	

* $p < 0.05$; ** $p < 0.01$

report willingness to ask a partner to use RHT before sex. It is possible that the differences in willingness to use RHT are attributable to a reduced concern about a partner's HIV status among men who are HIV-positive and/or a reduced desire to discuss HIV status and, therefore, disclose HIV-positive status with sex partners. An important area of future research should focus on establishing the feasibility of and guidelines around RHT use with partners.

In regard to risk factors associated with willingness to use RHT, we found that among HIV-negative BMSM, reporting a greater number of condomless anal sex partners was associated with a reduced willingness to use RHT. Understanding this relationship is likely critical for any prevention programs that would incorporate RHT use for men who are at an elevated risk for HIV. It is possible that those who are engaging in condomless anal sex are anxious about having exposed

Table 5 Multivariate model examining factors associated with rapid home-based HIV testing among HIV-negative and HIV-positive BMSM

	HIV-negative BMSM (n=387)		HIV-positive BMSM (n=157)	
	Would take HIV test if partner asked before sex aOR (95 % CI)	Would ask partner to take HIV test before sex aOR (95 % CI)	Would take HIV test if partner asked before sex aOR (95 % CI)	Would ask partner to take HIV test before sex aOR (95 % CI)
Age	1.01 (0.99–1.03)	0.99 (0.98–1.02)	1.00 (0.98–1.01)	0.99 (0.96–1.03)
Education	0.97 (0.88–1.07)	1.05 (0.95–1.16)	1.00 (0.95–1.06)	0.95 (0.80–1.14)
Income	1.02 (0.88–1.18)	1.04 (0.89–1.20)	1.00 (0.99–1.01)	1.11 (0.83–1.48)
How many times have you tested for HIV?	1.01 (0.99–1.04)	1.02 (0.99–1.05)	n/a	n/a
When was your last HIV test? (months)	1.00 (0.99–1.01)	0.99 (0.98–1.01)	n/a	n/a
How often do you get HIV-tested?	0.95 (0.74–1.22)	0.92 (0.72–1.19)	n/a	n/a
Sexual risk factors				
Number of male sex partners	1.03 (0.99–1.06)	1.02 (0.99–1.05)	0.99 (0.97–1.02)	1.01 (0.99–1.04)
Condomless, receptive, anal sex partners	0.93 (0.87–0.99)*	0.96 (0.91–1.02)	0.99 (0.97–1.01)	0.95 (0.90–1.02)
Condomless, insertive, anal sex partners	0.94 (0.89–0.99)*	0.95 (0.90–1.01)†	0.99 (0.97–1.02)	0.96 (0.91–1.02)
STI diagnosis	1.50 (0.83–2.70)	1.24 (0.66–2.30)	0.99 (0.90–1.09)	0.74 (0.36–1.53)
Substance use				
Alcohol frequency	0.89 (0.75–1.05)	0.96 (0.81–1.14)	1.02 (0.91–1.13)	1.11 (0.82–1.50)
Alcohol consumption	0.88 (0.73–1.06)	1.01 (0.84–1.22)	0.91 (0.79–1.05)	1.38 (0.96–1.98)
Sum of drug use	0.86 (0.77–0.96)**	0.89 (0.79–0.99)*	0.99 (0.94–1.05)	0.97 (0.81–1.14)

* $p < 0.05$; ** $p < 0.01$; † $p < 0.10$

themselves to HIV and, therefore, concerned about receiving a HIV-positive result. It is also possible that among men who engage in sexual risk-taking, they have less concern for knowing their own HIV status or the HIV status of their partners—this might be the result of safer sex fatigue or reduced concerns about HIV given advances in treatment (Chen 2013; Peterson et al. 2012). Also, it is imperative that we better understand what is driving this relationship as BMSM who engage in sexual risk-taking are an important target group for offering new technologies that may prevent HIV. However, future research is needed as our data do not allow for conclusions about the causal pathways of this relationship. Similarly, those engaging in elevated rates of drug use were more likely to report to be unwilling to use RHT. Again, additional research is needed to better understand how the context that sexual negotiations occur in may affect use of RHT.

It is important to note how the behavioral and substance use data varied by HIV status. We found that HIV-positive BMSM were more likely to report condomless sex than HIV-negative BMSM. In order to better understand these findings, we conducted further analyses investigating whether the higher rate of condomless anal sex was related to viral load (a factor that has been linked to sexual risk-taking in prior studies (Van de Ven et al. 2005)); however, we found no differences in rates of condomless sex by viral load. Yet, we also noted that substance use varied by HIV status; on the whole, HIV-negative BMSM reported greater alcohol consumption and

frequency, but HIV-positive BMSM reported higher rates of nitrate inhalant use. Nitrate inhalant use is a robust predictor of sexual risk-taking (Buchbinder et al. 2005) and may explain, in part, the higher rates of condomless sex we observed among HIV-positive BMSM when compared to HIV-negative BMSM.

Based on the currently available literature and findings from the current study, we propose multiple future areas of investigation relating to the use of RHT. Specifically, we call for a better understanding of RHT in regard to the following: (1) *expectations* around its usefulness for preventing HIV and how it fits in the broader context of the currently available HIV prevention toolbox, i.e., the sensitivity and specificity of the RHT limit its ability for partners to be certain of their status, thereby, impeding its effectiveness as a prevention strategy; (2) how to improve *accessibility* of RHT for all men and women who believe they may have been exposed to HIV; (3) *social factors* that affect the utility of RHT, such as how RHT affects HIV status disclosure and subsequent condom use behaviors; (4) *message framing*—how can community-based organizations and other similar public health outlets present RHT to men interested in using this technology; and (5) how *linkage to care* unfolds in the context of learning one’s HIV results outside of a health organization. RHT may serve an important role in preventing HIV infections and may also decrease the time intervals between HIV infection, HIV diagnosis, and linkage to HIV treatment. In

order for the goals to be realized, however, we need a more complete understanding of the social context in which it can be used.

The current study was conducted using a convenience sample of men at a gay pride event in a southeastern US city. It is likely that this sample underrepresents men who are not open about their sexual orientation and, therefore, would not attend such an event. This study also used a cross-sectional survey method, precluding any inferences of causation regarding RHT and sexual risk behaviors. The RHT items were created for the purpose of this survey assessment and, therefore, have not been evaluated using psychometric testing. Future studies to examine the psychometric properties of these items are needed and should be prioritized. The survey method relied on self-report of sensitive and often stigmatized experiences and behaviors. The potential for social desirability influences were minimized by anonymous survey procedures. Research using more sensitive methods, however, such as in-depth interviewing techniques, is required to confirm study findings.

Research has documented that among people with recent HIV diagnosis, the majority report reduced sexual risk-taking after diagnosis and this reduction tends to be maintained over time (Dombrowski et al. 2013). These findings and similar findings (Colfax et al. 2002; Marks et al. 2005) underscore the need for novel avenues of identifying people earlier during the course of HIV disease stage in order to improve health outcomes and reduce the likelihood of onward transmission. RHT offers a novel approach to achieving earlier HIV diagnosis which should be capitalized on. Using RHT with partners is a practical application of this technology; however, very little is understood about this process and further research, particularly in the areas we have highlighted above, is urgently needed. With effective strategies for improving knowledge of and accessibility to RHT, it is possible to maximize the potential of RHT for HIV diagnosis and prevention.

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