

UCSF

UC San Francisco Previously Published Works

Title

Whose Responsibility Is It? Beliefs About Preventing HIV Transmission Among Men Who Have Sex With Men

Permalink

<https://escholarship.org/uc/item/3r6167d4>

Journal

Sexually Transmitted Diseases, 45(7)

ISSN

0148-5717

Authors

Truong, Hong-Ha M
Fatch, Robin
Tan, Judy Y
[et al.](#)

Publication Date

2018-07-01

DOI

10.1097/olq.0000000000000795

Peer reviewed



Published in final edited form as:

Sex Transm Dis. 2018 July ; 45(7): e43–e48. doi:10.1097/OLQ.0000000000000795.

Whose Responsibility Is It? Beliefs about Preventing HIV Transmission among Men Who Have Sex with Men

Hong-Ha M. Truong, PhD, MS, MPH¹, Robin Fatch, MPH¹, Judy Y. Tan, PhD¹, H. Fisher Raymond, DrPH, MPH^{1,2}, and Willi McFarland, MD, PhD^{1,2}

¹University of California, San Francisco, CA, USA

²Department of Public Health, San Francisco, CA, USA

Abstract

HIV-negative and HIV-positive men believed they both are responsible for preventing HIV. Responsibility beliefs, however, did not always correspond with discussing HIV status or refraining from serodiscordant condomless anal sex. Discrepancies between individuals' HIV prevention responsibility beliefs and their sexual risk behaviors merit further examination, particularly in the PrEP era.

Keywords

HIV; prevention responsibility beliefs; sexual risk behavior; serostatus discussion; men who have sex with men

Many factors influence individuals' choice to engage in risky sexual practices, for example, self-efficacy and substance use.^{1,2} Beliefs about who is responsible for preventing HIV transmission may also influence sexual practices. In sexual partnerships, including serodiscordant partnerships, these beliefs may differ between partners.

Studies of HIV-positive men who have sex with men (MSM) found varying beliefs about their responsibility to protect others from infection or their partners' responsibility to protect themselves.^{3,4} Data are limited on prevention responsibility beliefs from the perspective of HIV-negative individuals.⁵

We conducted a secondary analysis using data from an HIV seroadaptation study among MSM in San Francisco to assess prevention responsibility beliefs of HIV-negative and HIV-positive MSM.⁶ We examined associations between these beliefs, and HIV status discussion and serodiscordant condomless anal intercourse (CAI). MSM 18 years and San Francisco area residents were recruited by time-location sampling between December 2007 and October 2008. Demographic characteristics and behavioral data were collected using a computer-based, self-administered survey. Recruitment and survey administration

Corresponding Author: Dr. Hong-Ha M. Truong, Department of Medicine, University of California, San Francisco, 550 16th Street, 3rd Floor, San Francisco, CA 94158, Telephone: 415-476-6384, Hong-Ha.Truong@ucsf.edu.

Conflicts: The authors have no conflict of interest to disclose

procedures are detailed in a previous publication.⁶ The study received approval from the Institutional Review Board at the University of California, San Francisco.

HIV prevention responsibility beliefs were assessed via 5 statements. Two statements indicated HIV-positive persons were primarily responsible for preventing transmission; two indicated HIV-negative persons were primarily responsible; one indicated mutual responsibility. Responses consisted of a five-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree), and were considered as continuous variables in multivariable regression models. Respondents were asked about their 5 most recent male sexual partnerships (i.e., sexual dyad) in the previous 6 months, including partnership type, sexual behaviors, and whether they discussed HIV status. Serodiscordant CAI was defined as CAI with a partner of discordant/unknown serostatus. Partnerships were grouped as main, casual and anonymous/exchange.

Respondents reporting any sex in the previous 6 months were included in these analyses. Mean and standard deviations for belief statements were calculated overall and by respondent HIV status. Differences were assessed using the Mann-Whitney U or Chi-squared tests. To determine correlates of responsibility beliefs, statements were dichotomized (strongly/somewhat agree vs. neutral-somewhat/strongly disagree). Multivariable generalized estimating equations with the binomial model, logistic link, and robust standard errors examined associations between responsibility beliefs and outcomes of interest (discussed HIV status and had serodiscordant CAI) within sexual dyads, adjusting for multiple observations per respondent. Separate models were conducted for each belief and by serostatus. Demographic characteristics associated with any beliefs in bivariate analyses at $p < 0.10$ and partnership type were included in multivariable models.

Data from 912 men (752 HIV-negative and 160 HIV-positive) and 3,364 sexual dyads were included. Respondents were 18 to 77 years old (median 35); 7% Black, 11% Asian, 69% white, 13% other race, and 19% were Hispanic; 57% graduated college, 31% attended some college and 10% were high school graduates or the equivalent. Respondents reported a median of 5 (IQR: 2–5) sexual dyads, consisting of 47% casual, 14% main, and 38% anonymous/exchange.

HIV prevention responsibility belief by HIV status are presented in Table 1. Beliefs were grouped as HIV-positive individuals' responsibility, HIV-negative individuals' responsibility or mutual responsibility. HIV-negative men agreed more with statements for both HIV-positive and HIV-negative responsibility compared to HIV-positive men. HIV-negative and HIV-positive men had similar agreement on mutual responsibility ($p=0.27$).

Bivariate associations with beliefs by HIV status are shown in Table 2. Older HIV-positive men and Hispanic HIV-negative men were more likely to agree with HIV-positive responsibility beliefs. Older and Hispanic HIV-negative men were more likely to agree with HIV-negative and mutual responsibility beliefs.

Multivariable models are presented in Table 3. Higher agreement was associated with increased odds of discussing HIV status for the statements: "*A man who is HIV-positive should discuss his status before having anal sex with new partners*" among HIV-negative

($p=0.04$) and HIV-positive men ($p<0.01$), and “*It is the responsibility of HIV-positive men to make sure that they don’t infect their partners*” among HIV-positive men ($p<0.01$). HIV status discussion was not associated with HIV-negative or mutual responsibility beliefs among HIV-negative or HIV-positive men.

HIV-negative and HIV-positive men with higher levels of agreement that “*It is the responsibility of HIV-positive men to make sure that they don’t infect their partners*” were less likely to report discordant CAI ($p<0.01$). Among HIV-negative men, higher levels of agreement were associated with decreased odds of serodiscordant CAI for the statements: “*Men who are HIV-negative should always make sure they are safe with positive or unknown HIV status partners*” ($p<0.01$), “*It is the responsibility of HIV-negative men to make sure that they don’t get infected*” ($p<0.01$), and “*HIV-positive and HIV-negative men have an equal responsibility to stop more men from becoming infected*” ($p<0.01$). In contrast, agreeing that HIV-negative MSM hold responsibility or that the responsibility is mutual was not associated with decreased serodiscordant CAI among HIV-positive MSM ($p=0.06$ and 0.15 , respectively).

Among both HIV-negative and HIV-positive men, discussing HIV status was lower with casual and anonymous/exchange partners compared to main partners ($p<0.01$, all models). Odds of discussing HIV status tended to decrease with increasing age for HIV-positive men, although not significantly across all models. Among HIV-negative men, serodiscordant CAI was lower with casual and anonymous/exchange partners compared to main partners, and higher among men who did not graduate college compared to those who graduated. Demographic characteristics and partnership type were not consistently associated with serodiscordant CAI among HIV-positive men in multivariable models.

We found high levels of agreement regarding HIV-positive and HIV-negative men’s prevention responsibility beliefs. HIV-negative men felt it is the responsibility of HIV-positive men to discuss their status and not infect partners, and their own responsibility to not become infected. Accepting mutual responsibility for prevention was similarly high among HIV-negative and HIV-positive men. However, decreased likelihood of serodiscordant CAI among HIV-positive MSM was only evident when they felt prevention was the responsibility of HIV-positive men. That is, significantly decreased CAI was not reported when HIV-positive men felt HIV-negative men had or shared responsibility. Taken together, these findings suggest the effectiveness of supporting HIV-positive men’s altruism and social responsibility for preventing transmission.^{7–10}

Prevention responsibility beliefs, however, did not always correspond with discussing HIV status with sexual partners or refraining from serodiscordant CAI. Men who agreed more strongly that HIV-positive men should discuss their status before sex with new partners were significantly more likely to report discussing HIV status with their partner, whereas the other four beliefs were not consistently associated with serostatus discussion. Further research is needed to examine discrepancies between individuals’ HIV prevention responsibility beliefs and their sexual behaviors, particularly in the pre-exposure prophylaxis (PrEP) era.

The concepts of “others” and “shared” responsibility have been noted in qualitative studies.^{9, 10} One study defining four categories of personal responsibility found men in the “self” category (high personal/low partner responsibility) reported the lowest levels of risk behaviors, whereas men in the “others” category (low personal/ high partner responsibility) exhibited the highest levels.⁴ Men who accept personal responsibility for preventing HIV may be more willing to adopt risk reduction strategies. We acknowledge that thinking on personal responsibility is controversial in the field, particularly in a context of structural factors, inequalities, and disparities among the populations most affected by HIV. We refer the readers to Siconolfi *et al* for alternate views on the subject.¹¹

A major limitation of our study is that it was conducted during a time when antiretrovirals were increasingly seen as a means to prevent onward transmission (“treatment as prevention”) but before the wide use of PrEP. We hypothesize PrEP will enable HIV-negative persons to assume more responsibility for HIV prevention and may be reflected in prevention beliefs in current and future studies. Our findings may also be limited by social desirability of reporting higher personal responsibility and lower risk behavior. Our findings also may not be generalizable, as there may be greater knowledge about HIV prevention, less HIV stigma, more visible HIV-positive individuals, high levels of treatment and higher levels of HIV status discussion in San Francisco compared to MSM elsewhere.

Since treatment as prevention and PrEP have been shown to be effective in reducing HIV transmission risk, these bio-behavioral interventions are likely to impact individuals’ perspectives on prevention responsibility.^{12–17} While PrEP may encourage some HIV-negative individuals to accept greater personal responsibility in preventing HIV acquisition, some HIV-positive persons may transfer more responsibility to HIV-negative partners. However, the assumption that a partner is using PrEP may not be accurate. Likewise, increased effectiveness of antiretroviral treatment may lead some HIV-positive persons to accept greater personal responsibility to reduce transmission risk by adhering to their regimen in order to attain viral suppression. However, some HIV-negative individuals may transfer more responsibility to HIV-positive partners under the assumption the partner is virally suppressed, which may not be accurate. With wider scale-up of early treatment and PrEP, it is important to evaluate the impact of these recent bio-behavioral interventions on HIV prevention responsibility beliefs and subsequent sexual behavior. Our findings of correlations of responsibility with increased odds of preventive behavior indicate HIV-positive and negative MSM can be supported in these beliefs to maximize prevention efforts even in the current era. Efforts to stem the HIV epidemic may be greatly advanced if HIV-negative and HIV-positive individuals both assume greater personal prevention responsibility by maximizing HIV combination prevention options such as condoms, PrEP and treatment.

Acknowledgments

Funding: NIH R01 MH077509 (PI: W. McFarland)

References

1. O’Leary A, Wolitski RJ. Moral agency and the sexual transmission of HIV. *Psychol Bull.* 2009; 135(3):478–494. [PubMed: 19379026]

2. Crepaz N, Marks G, Liao A, et al. Prevalence of unprotected anal intercourse among HIV-diagnosed MSM in the United States: a meta-analysis. *AIDS*. 2009; 23(13):1617–1629. [PubMed: 19584704]
3. Wolitski RJ, Bailey CJ, O’Leary A, Gómez CA, Parsons JT. Seropositive Urban Men’s Study. Self-perceived responsibility of HIV-seropositive men who have sex with men for preventing HIV transmission. *AIDS Behav*. 2003; 7(2):363–72. [PubMed: 14707533]
4. Wolitski RJ, Flores SA, O’Leary A, Bimbi DS, Gómez CA. Beliefs about personal and partner responsibility among HIV-seropositive men who have sex with men: measurement and association with transmission risk behavior. *AIDS Behav*. 2007; 11(5):676–686. [PubMed: 17103125]
5. Frasca T, Dowsett GW, Carballo-Diéguez A. The ethics of barebacking: Implications of gay men’s concepts of right and wrong in the context of HIV. *Int J Sex Health*. 2013; 25(3)
6. McFarland W, Chen YH, Raymond HF, et al. HIV seroadaptation among individuals within sexual dyads, and by sexual episodes, men who have sex with men, San Francisco, 2008. *AIDS Care*. 2011; 23(3):261–268. [PubMed: 21347888]
7. O’Dell BL, Rosser BRS, Miner MH, Jacoby SM. HIV prevention altruism and sexual risk behavior in HIV-positive men who have sex with men. *AIDS Behav*. 2008; 12(5):713–720. [PubMed: 17985229]
8. Martin AM, Benotsch EG, Cejka A, Luckman D. Social responsibility, substance use, and sexual risk behavior in men who have sex with men. *J Homosex*. 2014; 61(2):251–269. [PubMed: 24383857]
9. Van Kesteren NMC, Hospers HJ, Kok G, van Empelen P. Sexuality and sexual risk behavior in HIV-positive men who have sex with men. *Qual Health Res*. 2005; 15:145–168. [PubMed: 15611201]
10. Wolitski, RJ., Bailey, C. It takes two to tango: HIV-positive gay and bisexual men’s beliefs about their responsibility to protect others from HIV infection. In: Halkitis, PN, Gómez, CA., Wolitski, RJ., editors. *Positive sex: The psychological and interpersonal dynamics of HIV seropositive gay and bisexual men’s relationships*. Washington DC: American Psychological Association; 2005. p. 147-162.
11. Siconolfi DE, Halkitis PN, Moeller RW. Homo economicus: young gay and bisexual men and the new public health. *Critical Public Health*. 2015; 25(5):554–568.
12. Cohen MS, Chen YQ, McCauley M, et al. Prevention of HIV-1 infection with early antiretroviral therapy. *N Engl J Med*. 2011; 365(6):493–505. [PubMed: 21767103]
13. Lundgren JD, Babiker AG, et al. INSIGHT START Study Group. Initiation of Antiretroviral Therapy in Early Asymptomatic HIV Infection. *N Engl J Med*. 2015; 373(9):795–807. [PubMed: 26192873]
14. Danel C, Moh R, et al. TEMPRANO ANRS Study Group. A trial of early antiretrovirals and isoniazid preventive therapy in Africa. *N Engl J Med*. 2015; 373(9):808–822. [PubMed: 26193126]
15. Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services; Available at <http://aidsinfo.nih.gov/guidelines>
16. Grant RM, Lama JR, Anderson PL, et al. Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *N Engl J Med*. 2010; 363(27):2587–2599. [PubMed: 21091279]
17. CDC. Recommendations for HIV prevention with adults and adolescents with HIV in the United States. 2014. Available at: <http://stacks.cdc.gov/view/cdc/26062>

Table 1

HIV prevention responsibility beliefs of respondents reporting any sex in the previous 6 months, by self-reported HIV status, men who have sex with men, San Francisco, 2007–2009 (N=912)

HIV Prevention Responsibility Beliefs	HIV-Negative (N=752)	HIV-Positive (N=160)	Mann-Whitney U test (p-value)
	mean (sd) *	mean (sd) *	
HIV-Positive Responsibility			
<i>A man who is HIV+ should discuss his status before having anal sex with new partners.</i>	4.4 (1.0)	4.1 (1.2)	-4.37 (<0.01)
<i>It is the responsibility of HIV+ men to make sure that they don't infect their partners.</i>	4.2 (1.2)	4.1 (1.2)	-1.94 (0.05)
HIV-Negative Responsibility			
<i>Men who are HIV- should always make sure they are safe with positive or unknown HIV status partners.</i>	4.5 (1.0)	4.3 (1.0)	-2.92 (<0.01)
<i>It is the responsibility of HIV- men to make sure that they don't get infected.</i>	4.4 (0.9)	4.1 (1.2)	-3.78 (<0.01)
Mutual Responsibility			
<i>HIV+ and HIV- men have an equal responsibility to stop more men from becoming infected.</i>	4.6 (0.8)	4.5 (0.9)	-1.11 (0.27)

* 5-point Likert scales: 1 = strongly disagree, 5 = strongly agree

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 2

Bivariate associations between respondent demographic characteristics and agreement with HIV prevention responsibility beliefs, men who have sex with men, San Francisco, 2007–2009 (N=912)

	HIV-Negative Respondents (n=752)		HIV-Positive Respondents (n=160)	
	OR (95% CI)	X ²	OR (95% CI)	X ²
HIV-Positive Responsibility				
<i>AGREE: A man who is HIV+ should discuss his status before having anal sex with new partners.</i>				
Race		1.73	0.63	1.02
White	1.00			1.00
Black	1.28 (0.49, 3.34)		0.52 (0.12, 2.24)	
Asian	0.83 (0.43, 1.62)		0.78 (0.20, 3.12)	
Other	0.72 (0.40, 1.31)		0.74 (0.26, 2.08)	
Hispanic ethnicity		6.66	<0.01	2.83
Non-Hispanic	1.00		1.00	
Hispanic	1.89 (1.16, 3.03)		2.13 (0.88, 5.00)	
Age (per year)	1.01 (0.99, 1.03)	1.05	0.29	4.81
Education		1.27	0.53	0.04
College graduate	1.00		1.00	
Some college	1.09 (0.66, 1.81)		1.02 (0.45, 2.29)	
No college	0.73 (0.39, 1.39)		0.91 (0.31, 2.70)	
HIV-Positive Responsibility				
<i>AGREE: It is the responsibility of HIV+ men to make sure that they don't infect their partners.</i>				
Race		5.15	0.16	7.80
White	1.00		1.00	
Black	0.49 (0.26, 0.91)		0.55 (0.13, 2.35)	
Asian	0.88 (0.49, 1.56)		0.27 (0.08, 0.93)	
Other	0.83 (2.44, 1.40)		0.36 (0.14, 0.91)	
Hispanic ethnicity		4.74	0.03	0.00
Non-Hispanic	1.00		1.00	

	HIV-Negative Respondents (n=752)			HIV-Positive Participants (n=160)		
	OR (95% CI)	X ²	p-value	OR (95% CI)	X ²	p-value
Hispanic	1.61 (1.05, 2.43)			1.01 (0.41, 2.50)		
Age (per year)	1.02 (1.00, 1.04)	1.99	0.05	1.04 (1.00, 1.07)	4.28	0.04
Education		1.13	0.57		1.67	0.43
College graduate	1.00			1.00		
Some college	1.26 (0.82, 1.91)			0.60 (0.28, 1.30)		
No college	1.05 (0.59, 1.87)			0.74 (0.26, 2.11)		
HIV-Negative Responsibility						
<i>AGREE: Men who are HIV- should always make sure they are safe with positive or unknown HIV status partners.</i>						
Race		1.87	0.60		4.15	0.25
White	1.00			1.00		
Black	1.34 (0.47, 3.87)			0.26 (0.06, 1.06)		
Asian	1.09 (0.50, 2.37)			0.63 (0.16, 2.52)		
Other	0.69 (0.37, 1.31)			0.59 (0.21, 1.68)		
Hispanic ethnicity		5.32	0.02		0.27	0.61
Non-Hispanic	1.00			1.00		
Not Hispanic	1.85 (1.10, 3.13)			1.28 (0.50, 3.33)		
Age (per year)	1.03 (1.00, 1.05)	2.30	0.02	1.01 (0.98, 1.05)	0.60	0.44
Education		3.61	0.16		2.46	0.29
College graduate	1.00			1.00		
Some college	0.92 (0.53, 1.58)			0.57 (0.24, 1.37)		
No college	0.53 (0.28, 1.03)			0.45 (0.15, 1.36)		
HIV-Negative Responsibility						
<i>AGREE: It is the responsibility of HIV- men to make sure that they don't get infected.</i>						
Race		0.86	0.83		1.70	0.64
White	1.00			1.00		
Black	1.16 (0.44, 3.04)			0.52 (0.12, 2.24)		
Asian	0.94 (0.46, 1.91)			0.52 (0.14, 1.88)		
Other	0.77 (0.41, 1.44)			0.74 (0.26, 2.08)		

	HIV-Negative Respondents (n=752)			HIV-Positive Participants (n=160)		
	OR (95% CI)	X ²	p-value	OR (95% CI)	X ²	p-value
Hispanic ethnicity		11.88	<0.01		4.20	0.04
Non-Hispanic	1.00			1.00		
Hispanic	2.38 (1.45, 3.84)			2.44 (1.04, 5.88)		
Age (per year)	1.05 (1.03, 1.08)	3.94	<0.01	1.02 (0.98, 1.06)	1.10	0.29
Education		14.47	<0.01		0.45	0.80
College graduate	1.00			1.00		
Some college	0.56 (0.34, 0.94)			1.31 (0.59, 2.93)		
No college	0.32 (0.17, 0.59)			1.08 (0.37, 3.14)		
Mutual Responsibility						
<i>AGREE: HIV+ and HIV- men have an equal responsibility to stop more men from becoming infected.</i>						
Race		1.08	0.78		3.82	0.28
White	1.00			1.00		
Black	1.60 (0.48, 5.34)			0.23 (0.05, 1.04)		
Asian	1.30 (0.54, 3.14)			1.27 (0.15, 10.71)		
Other	0.89 (0.43, 1.83)			0.77 (0.20, 2.98)		
Hispanic ethnicity		17.30	<0.01		4.71	0.03
Non-Hispanic	1.00			1.00		
Hispanic	3.13 (1.82, 5.26)			3.13 (1.12, 9.09)		
Age (per year)	1.04 (1.01, 1.07)	2.74	<0.01	1.03 (0.98, 1.08)	1.54	0.21
Education		8.22	0.02		0.51	0.78
College graduate	1.00			1.00		
Some college	0.68 (0.38, 1.21)			1.16 (0.42, 3.22)		
No college	0.37 (0.19, 0.74)			1.78 (0.36, 8.90)		

Table 3

Multivariable associations* between HIV prevention responsibility beliefs and behaviors (discussed HIV status and had serodiscordant condomless anal intercourse [CAI]) within the 5 most recent male sexual partnerships reporting any sex in the previous 6 months, men who have sex with men, San Francisco, 2007–2009 (N=912 respondents, 3,364 sexual dyads)

	HIV-Negative Respondents (n=752 respondents, 2,753 sexual dyads)				HIV-Positive Respondents (n=160 respondents, 611 sexual dyads)			
	Discussed HIV status		Had serodiscordant CAI		Discussed HIV status		Had serodiscordant CAI	
	aOR (95% CI)	p-value	aOR (95% CI)	p-value	aOR (95% CI)	p-value	aOR (95% CI)	p-value
HIV-Positive Responsibility								
<i>A man who is HIV+ should discuss his status before having anal sex with new partners.</i> [†] α	1.14 (1.01, 1.29)	0.04	0.90 (0.75, 1.08)	0.26	1.64 (1.27, 2.13)	<0.01	0.97 (0.78, 1.21)	0.78
Race ^{α}		0.72		0.07				0.53
White	1.00		1.00		1.00		1.00	
Black	1.07 (0.65, 1.76)		0.93 (0.36, 2.40)		1.13 (0.31, 4.18)		2.02 (0.72, 5.61)	
Asian	0.91 (0.61, 1.35)		0.48 (0.22, 1.04)		0.79 (0.25, 2.45)		1.20 (0.39, 3.67)	
Other	1.22 (0.81, 1.83)		0.53 (0.29, 0.97)		1.04 (0.43, 2.53)		0.73 (0.26, 2.07)	
Hispanic ethnicity ^{α}		0.58		0.77		0.30		0.53
Hispanic	1.00		1.00		1.00		1.00	
Non-Hispanic	1.10 (0.79, 1.52)		1.07 (0.69, 1.67)		0.66 (0.30, 1.44)		1.27 (0.60, 2.68)	
Age ^{α} (per year)	0.99 (0.98, 1.00)	0.20	1.00 (0.98, 1.01)	0.58	0.97 (0.94, 1.00)	0.02	0.99 (0.97, 1.02)	0.59
Education ^{α}		0.14		0.02		0.26		0.80
College graduate	1.00		1.00		1.00		1.00	
Some college	1.19 (0.89, 1.61)		1.84 (1.17, 2.91)		0.60 (0.31, 1.18)		0.82 (0.44, 1.52)	
No college	1.49 (0.97, 2.28)		1.69 (0.95, 3.01)		0.59 (0.26, 1.34)		1.00 (0.45, 2.24)	
Partnership type ^{\pm}		<0.01		0.04		<0.01		0.15
Main	1.00		1.00		1.00		1.00	
Casual	0.24 (0.17, 0.34)		0.62 (0.40, 0.94)		0.22 (0.07, 0.70)		0.54 (0.27, 1.09)	
Anonymous/Exchange	0.09 (0.06, 0.12)		0.89 (0.58, 1.38)		0.06 (0.02, 0.20)		0.83 (0.43, 1.62)	
<i>It is the responsibility of HIV+ men to make sure that they don't infect their partners.</i> [†] α	1.01 (0.91, 1.12)	0.83	0.76 (0.65, 0.90)	<0.01	1.42 (1.11, 1.82)	<0.01	0.73 (0.60, 0.88)	<0.01

	HIV-Negative Respondents (n=752 respondents, 2,753 sexual dyads)				HIV-Positive Respondents (n=160 respondents, 611 sexual dyads)			
	Discussed HIV status		Had serodiscordant CAI		Discussed HIV status		Had serodiscordant CAI	
	aOR (95% CI)	p-value	aOR (95% CI)	p-value	aOR (95% CI)	p-value	aOR (95% CI)	p-value
Race α	1.00	0.73		0.07		1.00		0.60
White	1.00		1.00		1.00		1.00	
Black	1.07 (0.65, 1.74)		0.91 (0.35, 2.39)		1.03 (0.28, 3.79)		1.78 (0.57, 5.59)	
Asian	0.90 (0.60, 1.33)		0.47 (0.22, 1.04)		1.04 (0.31, 3.50)		0.95 (0.30, 3.00)	
Other	1.20 (0.80, 1.79)		0.53 (0.29, 0.98)		1.07 (0.44, 2.58)		0.61 (0.21, 1.77)	
Hispanic ethnicity α		0.65		0.78		0.31		0.70
Hispanic	1.00		1.00		1.00		1.00	
Non-Hispanic	1.08 (0.78, 1.50)		1.06 (0.68, 1.67)		0.68 (0.32, 1.42)		1.17 (0.53, 2.57)	
Age α (per year)	0.99 (0.98, 1.00)	0.19	1.00 (0.98, 1.02)	0.80	0.97 (0.94, 1.00)	0.04	1.00 (0.97, 1.02)	0.78
Education α		0.13		<0.01		0.51		0.75
College graduate	1.00		1.00		1.00		1.00	
Some college	1.20 (0.89, 1.61)		1.92 (1.22, 3.02)		0.70 (0.35, 1.39)		0.80 (0.44, 1.44)	
No college	1.49 (0.98, 2.26)		1.83 (1.03, 3.25)		0.67 (0.30, 1.48)		0.91 (0.40, 2.08)	
Partnership type \pm		<0.01		0.04		<0.01		0.17
Main	1.00		1.00		1.00		1.00	
Casual	0.24 (0.17, 0.34)		0.61 (0.40, 0.94)		0.24 (0.08, 0.70)		0.53 (0.26, 1.10)	
Anonymous/Exchange	0.09 (0.06, 0.12)		0.89 (0.57, 1.38)		0.07 (0.03, 0.21)		0.80 (0.41, 1.57)	
HIV-Negative Responsibility								
<i>Men who are HIV- should always make sure they are safe with positive or unknown HIV status partners.</i> \ddagger α	0.93 (0.81, 1.07)	0.33	0.72 (0.61, 0.86)	<0.01	1.16 (0.87, 1.54)	0.32	0.81 (0.63, 1.04)	0.10
Race α		0.73		0.08		0.98		0.61
White	1.00		1.00		1.00		1.00	
Black	1.07 (0.66, 1.74)		1.05 (0.41, 2.68)		0.89 (0.24, 3.26)		1.79 (0.61, 5.27)	
Asian	0.90 (0.60, 1.33)		0.50 (0.23, 1.09)		0.82 (0.27, 2.52)		1.12 (0.37, 3.38)	
Other	1.19 (0.80, 1.79)		0.52 (0.28, 0.96)		1.04 (0.44, 2.48)		0.65 (0.21, 2.02)	
Hispanic ethnicity α		0.67		0.75		0.31		0.52

	HIV-Negative Respondents (n=752 respondents, 2,753 sexual dyads)				HIV-Positive Respondents (n=160 respondents, 611 sexual dyads)			
	Discussed HIV status		Had serodiscordant CAI		Discussed HIV status		Had serodiscordant CAI	
	aOR (95% CI)	p-value	aOR (95% CI)	p-value	aOR (95% CI)	p-value	aOR (95% CI)	p-value
Hispanic	1.00		1.00		1.00		1.00	
Non-Hispanic	1.07 (0.77, 1.49)		1.08 (0.69, 1.69)		0.67 (0.32, 1.44)		1.28 (0.61, 2.72)	
Age α (per year)	0.99 (0.98, 1.00)	0.20	1.00 (0.98, 1.03)	0.65	0.98 (0.95, 1.00)	0.08	0.99 (0.97, 1.02)	0.57
Education α		0.15		0.03		0.55		0.76
College graduate	1.00		1.00		1.00		1.00	
Some college	1.19 (0.89, 1.60)		1.78 (1.13, 2.80)		0.71 (0.36, 1.40)		0.79 (0.43, 1.47)	
No college	1.47 (0.97, 2.22)		1.65 (0.92, 2.95)		0.68 (0.29, 1.59)		0.91 (0.39, 2.13)	
Partnership type \neq		< 0.01		0.04		< 0.01		0.14
Main	1.00		1.00		1.00		1.00	
Casual	0.24 (0.17, 0.34)		0.62 (0.40, 0.95)		0.23 (0.08, 0.72)		0.52 (0.26, 1.06)	
Anonymous/Exchange	0.09 (0.06, 0.12)		0.89 (0.57, 1.38)		0.07 (0.02, 0.22)		0.81 (0.42, 1.55)	
<i>It is the responsibility of HIV- men to make sure that they don't get infected.</i> [†] α	0.94 (0.82, 1.09)	0.42	0.70 (0.56, 0.87)	< 0.01	0.92 (0.69, 1.22)	0.55	0.79 (0.62, 1.01)	0.06
Race α		0.72		0.08		0.95		0.52
White	1.00		1.00		1.00		1.00	
Black	1.07 (0.66, 1.75)		1.04 (0.41, 2.67)		0.78 (0.21, 2.92)		1.86 (0.74, 4.70)	
Asian	0.89 (0.60, 1.32)		0.49 (0.22, 1.06)		0.74 (0.24, 2.29)		1.04 (0.31, 3.50)	
Other	1.19 (0.80, 1.79)		0.53 (0.29, 0.97)		0.95 (0.42, 2.18)		0.67 (0.21, 2.10)	
Hispanic ethnicity α		0.66		0.73		0.26		0.83
Hispanic	1.00		1.00		1.00		1.00	
Non-Hispanic	1.08 (0.78, 1.49)		1.08 (0.69, 1.71)		0.64 (0.29, 1.39)		1.14 (0.54, 2.43)	
Age α (per year)	0.99 (0.98, 1.00)	0.22	1.00 (0.98, 1.02)	0.90	0.98 (0.95, 1.00)	0.08	1.00 (0.97, 1.02)	0.72
Education α		0.15		0.05		0.48		0.88
College graduate	1.00		1.00		1.00		1.00	
Some college	1.19 (0.89, 1.61)		1.73 (1.09, 2.75)		0.71 (0.36, 1.39)		0.87 (0.48, 1.58)	
No college	1.46 (0.96, 2.22)		1.52 (0.85, 2.74)		0.63 (0.28, 1.46)		1.04 (0.46, 2.35)	

	HIV-Negative Respondents (n=752 respondents, 2,753 sexual dyads)			HIV-Positive Respondents (n=160 respondents, 611 sexual dyads)		
	Discussed HIV status aOR (95% CI)	p-value	Had serodiscordant CAI aOR (95% CI)	Discussed HIV status aOR (95% CI)	p-value	Had serodiscordant CAI aOR (95% CI)
Partnership type [‡]		<0.01			<0.01	
Main	1.00		1.00	1.00		1.00
Casual	0.24 (0.17, 0.34)		0.62 (0.41, 0.96)	0.24 (0.08, 0.73)		0.57 (0.28, 1.19)
Anonymous/Exchange	0.09 (0.06, 0.12)		0.89 (0.57, 1.38)	0.07 (0.02, 0.23)		0.87 (0.44, 1.73)
Mutual Responsibility						
<i>HIV+ and HIV- men have an equal responsibility to stop more men from becoming infected.</i> [†] α	1.00 (0.87, 1.16)	0.98	0.67 (0.56, 0.80)	1.11 (0.80, 1.53)	0.53	0.81 (0.61, 1.08)
Race α		0.73			0.96	
White	1.00		1.00	1.00		1.00
Black	1.06 (0.65, 1.73)		1.00 (0.39, 2.57)	0.80 (0.22, 2.91)		1.75 (0.67, 4.55)
Asian	0.89 (0.60, 1.33)		0.50 (0.23, 1.10)	0.78 (0.25, 2.42)		1.25 (0.43, 3.67)
Other	1.20 (0.80, 1.79)		0.52 (0.28, 0.97)	0.99 (0.43, 2.29)		0.68 (0.22, 2.14)
Hispanic ethnicity α		0.65			0.33	
Hispanic	1.00		1.00	1.00		1.00
Non-Hispanic	1.08 (0.78, 1.50)		1.00 (0.64, 1.57)	0.68 (0.32, 1.47)		1.16 (0.52, 2.59)
Age α (per year)	0.99 (0.98, 1.00)	0.19	1.00 (0.98, 1.01)	0.98 (0.95, 1.00)	0.07	1.00 (0.97, 1.02)
Education α		0.13			0.47	
College graduate	1.00		1.00	1.00		1.00
Some college	1.20 (0.89, 1.62)		1.90 (1.20, 2.99)	0.71 (0.37, 1.40)		0.85 (0.47, 1.53)
No college	1.49 (0.98, 2.27)		1.56 (0.88, 2.76)	0.62 (0.27, 1.44)		1.09 (0.49, 2.41)
Partnership type [‡]		<0.01			<0.01	
Main	1.00		1.00	1.00		1.00
Casual	0.24 (0.17, 0.34)		0.63 (0.41, 0.96)	0.23 (0.08, 0.70)		0.56 (0.28, 1.15)
Anonymous/Exchange	0.09 (0.06, 0.12)		0.88 (0.57, 1.37)	0.07 (0.02, 0.22)		0.86 (0.44, 1.68)

* generalized estimating equations, adjusted for multiple observations per respondent

[†] adjusted odds ratio (aOR) correspond to a 1-point increase in agreement with the belief

α respondent-level characteristic
 β sexual dyad-level characteristic

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript