High levels of acceptability of couples-based HIV testing among MSM in South Africa

Rob Stephenson[1], **Christopher Rentsch**[1,2], and **Patrick Sullivan**[2]

[1]Hubert Department of Global Health, Rollins School of Public Health, Emory University, Atlanta, GA

[2]Department of Epidemiology, Rollins School of Public Health, Emory University, Atlanta, GA

Abstract

The acceptability of couples-based voluntary HIV counseling and testing (CVCT) has not been previously investigated among MSM in South Africa. Using online advertisements, data were collected from 486 MSM, who were 18 years of age or older with a current residence in South Africa and had at least one male sex partner in the previous 12 months. The analysis examined associations between individual characteristics and willingness to utilize CVCT services. The willingness to utilize CVCT services was compellingly high (89%) among this sample of mostly White/European African (89%) and HIV-negative (83%) men. MSM who reported higher numbers of completed school years were less likely to report willingness to use CVCT. Willingness did not vary significantly across other individual demographic or behavioral characteristics. Our results show an overwhelmingly high acceptance of CVCT services. Future studies should survey a more heterogeneous population of MSM, explore the complex nature of same-sex male relationships, and why respondents would or would not use these HIV testing services.

Keywords

CVCT; MSM; HIV testing; Couples

INTRODUCTION

Couples voluntary HIV counseling and testing (CVCT) is a strategy that has been used in Africa for over 20 years among heterosexual couples, and has been described to be "the most effective behavioral intervention to prevent HIV transmission" in this at-risk population (Allen et al., 2003). Previous studies with heterosexual sero-discordant couples have demonstrated CVCT to be effective in reducing HIV transmission, increasing and sustaining condom use, and reducing sexual risk-taking (Allen et al., 2003; Allen et al., 1992; Dunkle et al., 2008; Painter, 2001; Roth et al., 2001). A typical CVCT service allows couples to participate in the whole cycle of voluntary HIV counseling and testing (VCT) together: they receive pretest information, pretest counseling and risk ascertainment, the results of HIV testing, and posttest counseling.

It has been hypothesized that HIV prevalence among MSM in South Africa may exceed that in the general population (Sandfort, Nel, Rich, Reddy, & Yi, 2008), but precise national estimates are lacking due to studies focusing on different subpopulations of MSM and the

Author for correspondence: Rob Stephenson Hubert Department of Global Health Rollins School of Public Health 1518 Clifton Road NE, #7025 Atlanta, GA, 30322 Tel: 404 727 9976 rbsteph@sph.emory.edu .

relatively small sample sizes accessed for analysis. Despite not having a national estimate, several localized studies have all consistently yielded results showing that HIV prevalence ranged from 12.6% to 47.2% among different subpopulations of MSM (Burrell, Baral, Beyrer, Wood, & Bekker, 2009; Lane et al., 2009; Rispel et al., 2009). Compared with a national HIV prevalence estimate around 11% in the general population (in 2008, 10.9%, 95%CI 10.0, 11.9%) (Shisana et al., 2009), these findings suggest an unlinked epidemic pattern between MSM and that in the general population (Beyrer, 2007; van Harmelen et al., 1997; Wade et al., 2005) and that current HIV prevention efforts have been unable to contain or reduce the spread of HIV infection among MSM in these settings (van Griensven, de Lind van Wijngaarden, Baral, & Grulich, 2009).

Despite the relatively high proportions of MSM in the world who reported recent awareness of their HIV status (UNAIDS, 2010; WHO, in press), the majority of South African MSM reported being unaware of their sero-status in 2008 (Shisana et al., 2009). Thus, many MSM did not utilize HIV testing services. In fact, several studies have substantiated the discontent MSM have with public and government clinics offering these services (Parry et al., 2008; Spielberg et al., 2003). Further evidence of discontent suggested that healthcare providers tend to assume heterosexuality in their patients and that some MSM postponed seeking care because of the fear that they would be forced to disclose their sexual orientation and the subsequent fear of discrimination (Wells & Polders). Therefore, there is a lack of HIV testing interventions that are accepted by MSM in South Africa.

The HIV epidemic among MSM in South Africa is analogous to the HIV epidemic among MSM in the United States. Albeit the relatively low prevalence of HIV in the US general population (UNAIDS, 2010), over half (53%) of the cases of HIV in 2008 were among MSM (CDC, 2010). Additionally, a recent US investigation demonstrated that most new HIV infections among MSM were attributed to transmission from an HIV-positive main sex partner (Sullivan, Salazar, Buchbinder, & Sanchez, 2009), which emphasized the influential role that couples may have in an HIV epidemic. There has been strong evidence that MSM in the US would be highly receptive to CVCT services. The results of focus group discussions with MSM in three US cities (Stephenson et al., 2011) indicated that CVCT services could potentially overcome many barriers to seeking HIV testing, particularly the fear of receiving a positive test result alone. Men in these focus groups reported that CVCT could provide an opportunity for MSM to disclose their sero-status to their partners and have conversations about their sexual behaviors in the presence of a trained counselor. Further, they suggested that the counseling components of the service could allow a couple to explore methods of how to effectively reduce their risk of acquiring or transmitting HIV. This paper examines the acceptability of CVCT among MSM in South Africa, the first time this has been examined in an African setting.

METHODS

Internet-using MSM were recruited through selective placement of banner advertisements on Facebook.com in June and July 2010. Participants who clicked on the displayed banner ads were taken to an internet-based survey. Eligibility criteria to complete the survey were reporting being a male aged 18 or older with a current residence in selected African countries and having at least one male sex partner in the previous 12 months. For this analysis, we applied additional eligibility criteria of being a current resident in South Africa (77% of the total sample). The survey collected information on the participant's demographic characteristics, such as race and education; their previous and current sexual relationships; their knowledge of HIV and its transmission routes; their HIV testing behavior and sero-status; and their willingness to utilize CVCT services ("If there were a service in which you could go with your male partner and receive your HIV test results together, do

you think you would use this service?"). In addition, participants were asked if they had experienced or perpetrated intimate partner violence (IPV) in the 12 months prior to the survey. Participants also responded to the shortened version of the Gay Identity Scale, a scale developed to measure the stages of gay identity formation and validated with MSM in the US (Brady & Busse, 1994). Finally, respondents answered 11 questions on their experience of discrimination: the responses are enumerated to create a scale (0-11), with a higher score representing a greater perceived experience of discrimination.

Potential covariates were selected based on previous literature regarding influences on HIV testing behavior. The covariates were screened using bivariate analyses, and were dropped from further analyses if their crude association's p-value with the willingness to CVCT was greater than 0.5. All remaining covariates were assessed for collinearity. Covariates that remained were utilized throughout all analyses. A logistic model was fitted to a binary outcome coded '1' if the participant reported willingness to utilize CVCT services with a male partner and '0' otherwise. The research was approved by Emory University's Institutional Review Board. Analyses were conducted with SAS 9.2, Cary, NC.

RESULTS

Of the 777 individuals who responded to the advertisements, 486 were eligible, of whom 449 (92%) completed the question regarding willingness to utilize a CVCT service with a male partner and were included in the analysis.

An overwhelming majority (89%) of respondents expressed willingness to utilize CVCT services. Tables 1 and 2 show that respondents were mostly White/European African (89%) and HIV-negative (83%). The majority of men identified as homosexual or gay (96%). Reported ages ranged from 18 to 60, with a median age of 31; reported number of completed school years ranged from 1 to 22 with a median of 13 years. The respondents exhibited exceptional amounts of knowledge regarding HIV and had high levels of self-identification as gay males. Most men reported having ever been tested for HIV (87%).

Table 3 shows the distributions of covariates between men willing to use CVCT and men not willing to use CVCT. Willingness was universally high across all individual characteristics, and men who reported willingness to use CVCT services had a significantly lower number of completed school years than those who did not report willingness to use CVCT services. Willingness did not vary significantly across all other individual characteristics.

Table 4 shows the results of the crude and adjusted analyses based on the multivariate logistic regression model. For both the crude and adjusted analyses, men who reported higher numbers of completed school years were less likely to report willingness to use CVCT (cOR 0.85, 95%CI 0.76, 0.95; aOR 0.85, 95%CI 0.75, 0.97). All other measures of effect were insignificant at the $p < 0.05$ significance level.

DISCUSSION

This is the first quantitative study to examine the willingness to utilize CVCT services within MSM populations in an African setting. The results suggest that MSM in South Africa would universally accept this couples-based HIV testing and counseling service. Given the low proportions of MSM who were aware of their sero-status in 2008 (Shisana et al., 2009) and their considerable discontent with current HIV testing services (Parry et al., 2008; Spielberg et al., 2003), this finding provides optimism for an alternative intervention that would be accepted and used by MSM.

The MSM in this sample demonstrated high levels of knowledge regarding HIV and its transmission patterns. This finding is likely due to the high levels of education among the men, only 7% of whom reported fewer than 12 years of schooling. Interestingly, MSM with more schooling were significantly less likely to express willingness to utilize CVCT services. One possible explanation is that higher education may be linked with a lower risk (or perceived risk) of acquiring HIV. A longitudinal study monitored risk behaviors and sero-conversion of 1642 HIV-negative MSM for 25 years. It was found that MSM who had no college degree were 1.63 (95%CI 1.23-2.18) times more likely than those who had at least a college degree to acquire HIV (Jansen et al., 2011). If MSM perceive themselves as having a lower risk of HIV infection, this may lead them to have less need or willingness to utilize CVCT, or other HIV testing services.

The key limitations of this study were the small sample size and the homogeneity within the sample. The sample is predominantly White and gay-identifying, which is a significant selection bias: further work is needed to examine the acceptability of CVCT among other races and MSM populations.

CONCLUSIONS

This quantitative study demonstrates a compellingly high acceptance of CVCT services among MSM in South Africa. Future studies are needed to examine whether this high level of acceptability exists for other MSM populations in this setting and to explore how current models of CVCT should be adapted for these populations.

Acknowledgments

REFERENCES

Allen S, Meinzen-Derr J, Kautzman M, Zulu I, Trask S, Fideli U, Haworth A. Sexual behavior of HIV discordant couples after HIV counseling and testing. AIDS. 2003; 17(5):733–740. doi: 10.1097/01.aids.0000050867.71999.ed. [PubMed: 12646797]

Allen S, Tice J, Van de Perre P, Serufilira A, Hudes ES, Nsengumuremyi F, Hulley S. Effect of serotesting with counselling on condom use and seroconversion among HIV discordant couples in Africa. British Medical Journal. 1992; 304:1605–1609. [PubMed: 1628088]

Beyrer C. HIV/AIDS: HIV epidemiology update and transmission factors: Risks and risk contexts— 16th International AIDS Conference epidemiology plenary. Clinical Infectious Diseases. 2007; 44(7):981–987. doi: 10.1086/512371. [PubMed: 17342654]

Brady S, Busse WJ. The gay identity questionnaire: A brief measure of homosexual identity formation. Journal of Homosexuality. 1994; 26(4):1–22. [PubMed: 8006415]

Burrell, E.; Baral, S.; Beyrer, C.; Wood, R.; Bekker, L. Comparison of sexual risk behaviours and HIV prevalence among men who have sex with men (MSM) in traditionally black and coloured townships in Cape Town, South Africa. Paper presented at the 4th South African AIDS Conference; 2009.

CDC. HIV among gay, bisexual and other men who have sex with men. 2010.

Dunkle KL, Stephenson R, Karita E, Chomba E, Kayitenkore K, Vwalika C, Allen S. New heterosexually transmitted HIV infections in married or cohabiting couples in urban Zambia and Rwanda: An analysis of survey and clinical data. The Lancet. 2008; 371(9631):2183–2191. doi: 10.1016/s0140-6736(08)60953-8.

Jansen IAV, Geskus RB, Davidovich U, Jurriaans S, Coutinho RA, Prins M, Stolte IG. Ongoing HIV-1 transmission among men who have sex with men in Amsterdam: A 25-year prospective cohort study. AIDS. 2011; 25:493–501. doi: 10.1097/QAD.0b013e328342fbe9. [PubMed: 21192230]

Lane T, Raymond HF, Dladla S, Rasethe J, Struthers H, McFarland W, McIntyre J. High HIV prevalence among men who have sex with men in Soweto, South Africa: Results from the Soweto Men's study. AIDS and Behavior. 2009 doi: 10.1007/s10461-009-9598-y.

Painter TM. Voluntary counseling and testing for couples: A high-leverage intervention for HIV/AIDS prevention in sub-Saharan Africa. Social Science & Medicine. 2001; 53:1397–1411. [PubMed: 11710416]

Parry C, Petersen P, Dewing S, Carney T, Needle R, Kroeger K, Treger L. Rapid assessment of drug-related HIV risk among men who have sex with men in three South African cities. Drug and Alcohol Dependence. 2008; 95(1-2):45–53. doi: 10.1016/j.drugalcdep.2007.12.005. [PubMed: 18242881]

Rispel, L.; Metcalf, C.; Cloete, A.; Reddy, V.; Townsend, T.; Zembe, Y. A hidden HIV epidemic among men who have sex with men (MSM)? Preliminary findings from the Johannesburg/Ethekwini men's study. Paper presented at the 4th South African AIDS Conference; Durban, South Africa. 2009.

Roth DL, Stewart KE, Clay OJ, van der Straten A, Karita E, Allen S. Sexual practices of HIV discordant and concordant couples in Rwanda: Effects of testing and counselling programme for men. International Jounral of STD & AIDS. 2001; 12:181–188.

Sandfort TGM, Nel J, Rich E, Reddy V, Yi H. HIV testing and self-reported HIV status in South African men who have sex with men: Results from a community-based survey. Sexually Transmitted Infections. 2008; 84(6):425–429. doi: 10.1136/sti.2008.031500. [PubMed: 19028940]

Shisana, O.; Rehle, T.; Simbayi, LC.; Zuma, K.; Jooste, S.; Pillay-Van Wyk, V.; Team, SII. South African national HIV prevalence, incidence, behaviour and communication survey 2008: A turning tide among teenagers?. HSRC Press; Cape Town: 2009.

Spielberg F, Branson BM, Goldbaum GM, Lockhart D, Kurth A, Celum CL, Wood RW. Overcoming barriers to HIV testing: Preferences for new strategies among clients of a needle exchange, a sexually transmitted disease clinic, and sex venues for men who have sex with men. Journal of Acquired Immune Deficiency Syndromes. 2003; 32:318–328. [PubMed: 12626893]

Stephenson R, Sullivan PS, Salazar LF, Gratzer B, Allen S, Seelbach E. Attitudes towards couples-based HIV testing among MSM in three US cities. AIDS and Behavior. 2011 doi: 10.1007/s10461-011-9893-2.

Sullivan PS, Salazar L, Buchbinder S, Sanchez TH. Estimating the proportion of HIV transmissions from main sex partners among men who have sex with men in five US cities. AIDS. 2009; 23(9):1153–1162. doi: 10.1097/QAD.0b013e32832baa34. [PubMed: 19417579]

UNAIDS. 2010 report on the global AIDS epidemic. Geneva: 2010.

van Griensven F, de Lind van Wijngaarden JW, Baral S, Grulich A. The global epidemic of HIV infection among men who have sex with men. Current Opinion in HIV and AIDS. 2009; 4(4):300–307. doi: 10.1097/COH.0b013e32832c3bb3. [PubMed: 19532068]

van Harmelen J, Wood R, Lambrick M, Rybicki EP, WIlliamson A-L, Williamson C. An association between HIV-1 subtypes and mode of transmission in Cape Town, South Africa. AIDS. 1997; 11:81–87. [PubMed: 9110079]

Wade AS, Kane CT, Diallo PAN, Diop AK, Gueye K, Mboup S, Lagarde E. HIV infection and sexually transmitted infections among men who have sex with men in Senegal. AIDS. 2005; 19:2133–2140. [PubMed: 16284463]

Wells, H.; Polders, L. Gay and lesbian people's experience of the health care sector in Gauteng. Joint Working Group Research Initiative, conducted by OUT LGBT Well-being in collaboration with the UNISA Centre for Applied Psychology; Pretoria: (undated)

WHO. The global forum on MSM and HIV (MSMGF) civil society consultation: MSM and transgender values and preferences regarding HIV- and STI-related services. Geneva: (in press)

Table 1

Descriptions and characteristics of continuous covariates among respondents who answered willingness to CVCT

Covariate	Description	Mean	Range
Age	Reported age	31.3	(18,60)
# of school years	Reported number of school years completed	13.4	(1,22)
Scales			
Discrimination	The extent to which the respondent ever experienced discrimination due to his sexual orientation *(higher values mean more discrimination)*	5.6	(0,11)
Knowledge	The extent of the respondent's knowledge regarding HIV *(higher values mean more knowledge)*	13.7	(−17,17)
Gay Identity	The extent to which the respondent identifies as a gay male, adapted from Brady and Busse (1994) *(higher values mean more identification as a gay male)*	65.4	(0,80)

Table 2

Descriptions and characteristics of categorical covariates among respondents who answered willingness to CVCT

Covariate	%	n
Willingness to CVCT		
Yes	88.9	404
No	11.1	45
Race		
Other	8.5	34
White/European African	91.5	368
Sex of partners		
Both men and women	40.1	162
Only men	59.9	242
Current sexual relationship		
Have one, with outside partners	16.8	67
Have one, monogamous	47.0	188
Do not have one	36.2	145
Description of last sex		
Did not use condom, insertive partner	20.3	82
Did not use condom, receptive partner	20.5	83
Used condom, insertive partner	14.1	57
Used condom, receptive partner	22.8	92
Did not answer	22.3	90
Ever tested for HIV		
Yes	86.7	344
No	13.3	53
Most recent HIV test result		
Negative	82.7	334
Positive	5.7	23
Other/Did not answer	11.6	47
Experience IPV in last 12 months		
No	88.0	352
Yes	12.0	48
Location of last HIV test		
Private doctor's office	39.4	159
Public center/testing site	25.0	101
Other	35.6	144

Table 3

Distributions of covariates between men willing to use CVCT and men not willing to use CVCT

Covariate[a]	CVCT[mean(sd)]		
	Willing	Not willing	*P*
Age	31.2 (8.9)	31.6 (8.7)	0.6957
# of school years [c]	13.2 (2.6)	14.4 (2.7)	0.0131
Scales			
Discrimination	5.5 (2.4)	5.8 (2.4)	0.4825
Knowledge	13.7 (2.8)	14.1 (3.1)	0.1387
Gay Identity	65.3 (14.1)	66.2 (11.5)	0.9615

Covariate [b]	CVCT [%(n)]		
	Willing	Not willing	*P*
Race			
Other	8.4 (30)	8.9 (4)	0.7826
White/European African	91.6 (327)	91.1 (41)	
Sex of partners			
Both men and women	39.8 (143)	42.2 (19)	0.7579
Only men	60.2 (216)	57.8 (26)	
Current sexual relationship			
Have one, with outside partners	16.3 (58)	20.0 (9)	0.6950
Have one, monogamous	46.8 (166)	48.9 (22)	
Do not have one	36.9 (131)	31.1 (14)	
Description of last sex			
Did not use condom, insertive partner	20.1 (72)	22.2 (10)	0.9556
Did not use condom, receptive partner	20.3 (73)	22.2 (10)	
Used condom, insertive partner	14.5 (52)	11.1 (5)	
Used condom, receptive partner	22.6 (81)	24.4 (11)	
Did not answer	22.6 (81)	20.0 (9)	
Ever tested for HIV			
Yes	86.9 (306)	84.4 (38)	0.6441
No	13.1 (46)	15.6 (7)	
Most recent HIV test result			
Negative	83.0 (298)	80.0 (36)	0.3016
Positive	6.1 (22)	2.2 (1)	
Other/Did not answer	10.9 (39)	17.8 (8)	
Experience IPV in last 12 months			
No	88.2 (313)	86.7 (39)	0.7702
Yes	11.8 (42)	13.3 (6)	
Location of last HIV test			
Private doctor's office	39.8 (146)	35.6 (16)	0.7818
Public center/testing site	24.5 (88)	28.9 (13)	

Covariate[a]	CVCT *[mean(sd)]*		
	Willing	**Not willing**	***P***
Other	35.7 (128)	35.6 (16)	

[a]Two-sided Wilcoxin rank-sum test

[b]Chi-square (χ^2) tests and Fisher's Exact, when expected cell counts were < 5

[c]p<0.05

Table 4

Crude ORs and adjusted ORs from a multivariate logistic model regressed on willingness to use CVCT (n=353)

Covariate	cOR (95% CI)	aOR (95% CI)
Age	1.00 (0.96, 1.03)	0.99 (0.95, 1.03)
# of school years	*0.85 (0.76, 0.95)*	*0.85 (0.75, 0.97)*
Scales		
Discrimination	0.96 (0.83, 1.09)	0.96 (0.83, 1.12)
Knowledge	0.94 (0.83, 1.06)	1.01 (0.89, 1.15)
Gay Identity	1.00 (0.97, 1.02)	0.99 (0.96, 1.02)
Race		
White/European African	1.00	1.00
Other	0.94 (0.32, 2.80)	0.88 (0.22, 3.59)
Sex of partners		
Only men	1.00	1.00
Both men and women	0.91 (0.48, 1.70)	1.16 (0.54, 2.49)
Current sexual relationship		
Do not have one	1.00	1.00
Have one, with outside partners	0.69 (0.28, 1.68)	0.74 (0.24, 2.29)
Have one, monogamous	0.81 (0.40, 1.64)	0.69 (0.29, 1.61)
Description of last sex		
Did not use condom, insertive partner	1.00	1.00
Did not use condom, receptive partner	1.01 (0.40, 2.58)	0.87 (0.32, 2.35)
Used condom, insertive partner	1.44 (0.47, 4.48)	2.89 (0.56, 14.77)
Used condom, receptive partner	1.02 (0.41, 2.55)	0.73 (0.25, 2.11)
Did not answer	1.25 (0.48, 3.25)	1.40 (0.46, 4.23)
Ever tested for HIV		
No	1.00	1.00
Yes	1.23 (0.52, 2.91)	0.65 (0.14, 3.12)
Most recent HIV test result		
Negative	1.00	1.00
Positive	2.66 (0.35, 20.28)	2.05 (0.25, 17.00)
Other/Did not answer	0.59 (0.26, 1.36)	0.48 (0.11, 2.11)
Experience IPV in last 12 months		
Yes	1.00	1.00
No	1.15 (0.46, 2.87)	0.97 (0.33, 2.88)
Location of last HIV test		
Private doctor's office	1.00	1.00
Public center/testing site	0.76 (0.35, 1.65)	0.50 (0.20, 1.22)
Other	0.90 (0.43, 1.86)	0.66 (0.26, 1.69)

Italicized ORs and CIs are significant at the p<0.05 level