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HIV testing and self-reported HIV status in South African MSM: Results from a community-based survey

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Abstract

Objective—To investigate the characteristics of South African men who have sex with men (MSM) who (1) have been tested for HIV and (2) are HIV-positive.

Methods—Data were collected among 1045 MSM in community surveys using questionnaires which were administered either face-to-face, mail, or on the internet. The mean age of the men was 29.9 years. The racial distribution was as follows: 35.3% black, 17.0% coloured, 5.3% Indian, and 41.1% white.

Results—The proportion of MSM that were HIV-tested was 69.7%; having been tested was independently associated with being older, being more open about one's homosexuality, and being homosexually instead of bisexually attracted; black MSM, students, and MSM living in KwaZulu-Natal were less likely to have been tested. Of the 728 MSM who had ever been tested, 14.1% (n=103) reported to be HIV-positive (9.9% of the total sample). Being HIV-positive is independently associated with two factors: men who were positive were more likely to have a lower level of education and to know other persons who were living with HIV/AIDS; race was not independently associated with HIV status among those who had been tested.

Conclusions—The likelihood of having been tested for HIV seems to decrease with increasing social vulnerability. Racially, the distribution of HIV among MSM seems to differ from that of the general South African population, suggesting that while intertwined with the heterosexual epidemic, there is also an epidemic among South African MSM with specific dynamics. These findings suggest that in-depth research is urgently needed to address the lack of understanding of HIV testing practices and HIV prevalence in South African MSM.

Keywords

HIV testing; HIV status; MSM; South Africa; community-based survey; health disparities

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CONTRIBUTORS TS led the conceptualization of the study, the data analysis, and the writing. JN, ER and VR were involved in the execution of the surveys. JN and ER supported the integration of the surveys. HY executed data analysis and supported the interpretation of the results. All authors helped to conceptualize ideas, interpret findings, and critically revise the paper.

INTRODUCTION

There currently is a lack of knowledge about HIV testing practices and HIV prevalence in South African men who have sex with men (MSM). This is somewhat surprising given that the first cases of HIV-infection and AIDS in South Africa, reported in 1983, were identified among white gay men.¹⁻⁵ With the exception of a recently published large national study among South African teachers, which showed that male teachers who had sex with men had comparable rates of HIV as men who had sex with women only⁶, the latest South African seroprevalence study in which same-sex sexuality as a transmission route was included dates from 1990.⁷ The absence of data about the prevalence of HIV among MSM is paralleled by a lack of understanding of the cultural, structural, interpersonal, and individual factors that affect protective practices in same-sex sexual activities.

Without an understanding of the extent to which MSM are affected, their treatment needs, and the role of homosexual transmission in the overall HIV/AIDS epidemic in South Africa, it is difficult to argue for resources for MSM-targeted prevention and care. Also, the lack of understanding of the dynamics that contribute to unsafe sex practices and further spread of HIV makes it impossible to develop and implement evidence-based interventions. Furthermore, there are no benchmarks that can be used to assess progress being made in addressing same-sex sexual transmission.

The disappearance of gay men, or more broadly MSMⁱ, from the South African epidemiological picture can be explained in various ways. The most plausible explanation is that in South Africa, unlike in Western, industrialized countries, heterosexual intercourse had become the dominant mode of HIV transmission.⁸ This second epidemic, which had moved Southwards from Central Africa, involved a different subtype of HIV,^{9 10} had differential survival rates,¹¹ and would predominantly affect blackⁱⁱ persons.^{12 13} There are other explanations as well. One such belief is that same-sex sexuality is un-African and does supposedly not occur among the predominantly black population in South Africa¹⁴⁻¹⁶; it should also not be forgotten that same-sex sexuality was criminalized under apartheid. Further in-depth explanations require an understanding of the political mismanagement of HIV and AIDS in South Africa more generally.¹⁷⁻¹⁹ South Africa does not stand on its own in this: same-sex sexuality is “off the map” in several African countries.²⁰ However, while several studies on same-sex sexuality and HIV/AIDS in Africa have recently been published,²¹⁻²⁴ South Africa still lags behind.

There are signs that the situation in South Africa is changing. For the first time, MSM are mentioned in South Africa's latest strategic plan for HIV/AIDS.²⁵ The plan acknowledges the lack of knowledge about the HIV epidemic amongst MSM, and that “MSM have also not been considered to any great extent in national HIV and AIDS interventions” (p. 38). The strategic plan further argues that behaviors of MSM also include bisexuality, implying that the HIV epidemic amongst MSM and the heterosexual HIV epidemic are interconnected.

In order to create a basis for the understanding of the HIV epidemic among MSM in South Africa, we used data from a LGBT community survey²⁶⁻²⁸ to answer two questions: (1) which MSM in South African have been tested for HIV, and (2) who reported being HIV-positive.

ⁱIn this context, we prefer to use MSM even though many of the men in this study are likely to identify as gay; using the label “gay” would, however, suggest that the men involved experience their sexual attraction and identity in identical ways, while there is strong evidence indicating that this is not the case.⁶⁻⁸

ⁱⁱ“Black” refers to the racial group that in South Africa itself is labeled as “African.” In the South African context, “black” should be distinguished from “coloured,” which indicates mixed-race ancestry.

METHODS

For this study we combined data collected in community surveys carried out in the following provinces: Gauteng, KwaZulu-Natal, and Western Cape. The questionnaires used in these surveys were virtually identical, in order to allow for comparisons between provinces; some minor editorial changes were made in subsequent versions, while a few questions that were thought to be confusing were reformulated. At all three sites, a purposive nonproportional quota sampling strategy was used to promote diversity within the samples. In the Western Cape, quota categories were gender, race, and age; in Gauteng and KwaZulu-Natal quota categories also included socio-economic status.²⁶⁻²⁸ Recruitment of participants took place via various LGBT organizations, support groups and counseling centers, friendship networks, at the annual Gay and Lesbian Pride March (in Gauteng), and via the Internet. The actual implementation of the study and the obtained samples reflect the opportunities available in each province to recruit persons with same-sex sexual desires. E.g., in KwaZulu-Natal, where LGBT organizations are fewer, recruitment was more cumbersome and more use was made of informal social networks; because the LGBT center in Durban services a predominantly black population, it was more difficult to recruit white and Indian persons in this province. In the Western Cape, including Cape Town which has been perceived to be Africa's gay capital, there is a more extensive gay infrastructure which facilitated recruitment. Except in a few cases of illiteracy, all questionnaires were self-completed in face-to-face interviews, group sessions, in private without an interviewer (in which case participants were asked to return the filled out questionnaire by mail or hand them to research staff), or via the Internet (about 25% of the total sample). Data collection took place over the following periods: Gauteng, October - December, 2003; KwaZulu-Natal, May - August, 2005; and Western Cape, mid-September - mid-December, 2005. Data from these three surveys were combined for these analyses. Although women were included in the surveys as well, this study focuses on men.

Measures

Testing status and HIV status were asked with the following two questions: "Have you been tested for HIV?" and "What is your HIV status?" Persons who had been tested but did not know their HIV status could indicate that they "did not fetch the test results" or "did not understand the test results." Assessment of socioeconomic status was based on the SAARF Universal Living Standards Measure (SU-LSM)^{29 30} in Western Cape and monthly income in Gauteng and KwaZulu-Natal. Level of openness about one's homosexuality was assessed by a three-item scale asking to what extent men were open about their sexual orientation to family, friends, and colleagues at work (None; Some; Most; All; Cronbach alpha = .85). Gay community involvement was assessed with seven items asking how frequently men socialized in a variety of LGBT situations, including bars, events, and homes of other LGBT friends (Never; Almost never; Sometimes; Often; Cronbach alpha = .79).

Data analysis

To identify characteristics associated with having been tested for HIV and being HIV-positive, we first conducted bivariate logistic regression analyses. To simplify interpretation, we dichotomized socioeconomic status ("low" = monthly income of up to 5000 South African Rand; "high" = monthly income higher than 5000 South African Rand); additionally, dummy variables were created for race, employment status, and region. We also included identity and community variables to understand testing status and HIV status. To identify characteristics that were independently associated with both outcomes, we subsequently conducted multiple logistic regression analyses. In these analyses we also included variables that were not bivariate related to the outcomes, because in bivariate analyses the effect of some characteristics might have been masked by others.

RESULTS

All men in this study (N=1045) reported to be sexually and emotionally attracted to either the same sex (87.8%) or the same and the opposite sex (12.2%). The mean age of the men was 29.9 years (SD = 10.0; range 16 to 74). The racial distribution was as follows: 35.3% black, 17.0% coloured, ⁱⁱ 5.3% Indian, and 41.1% white. Of all men, 17.1% reported currently not being sexually active. Thirty-four percent of the men were living in Gauteng, 18.0% in KwaZulu-Natal, and 47.9% in the Western Cape.

Of all men in the sample, 69.7% (n=728) reported to ever having been tested for HIV (2.5% of the men were missing). Table 1 compares the MSM who have never been tested with the MSM who have been tested and shows that MSM who had never been tested were more likely to be younger, black, a student or unemployed, less educated, of lower socio-economic status, and living in KwaZulu-Natal. MSM who ever had been tested were more likely to be self-employed and to know persons with HIV/AIDS, were more likely to be sexually active, vasuwere more open about their homosexuality, and participated more frequently in LGBT situations. Bivariately, there were no differences in testing rates between homosexually and bisexually attracted men.

For 73.2% of the tested MSM there was information about whether their latest test had occurred within the preceding year or earlier (respectively, 71.1% and 28.9%). The only characteristic that distinguished recent and earlier testers was age: recent testers were younger than earlier testers (30.4 years versus 34.9 years; $t = -4.62$, $p < .001$). Other variables were not associated with recency of the HIV test (data not shown).

In the multivariate logistic analysis, only six variables were independently associated with testing status (Table 1): older men were more likely to have been tested than younger men; black men were less likely to be tested compared to white men; students were less likely to be tested than men who were employed; men who were more open about their homosexuality were more likely to have been tested; and men in KwaZulu-Natal were less likely to have been tested compared to men in Western Cape. The effect of sexual attraction only showed up in the multiple regression analysis: men attracted to both men and women were less likely to have been tested compared to men who are only attracted to same-sex persons.

To understand why the strong bivariate relationship between being black and being tested was attenuated by other variables in the multivariate logistic analysis, we explored the relationships between being black and the independent correlates of being tested. Black men turned out to be younger (mean age 24.9 years compared to 32.5 years for all other men; $t = -12.43$, $p < .001$), were more likely to be a student (39.5% of the black men compared to 13.4% of the other men; $\chi^2 = 89.91$, $p < .001$), were more likely to be sexually attracted to both men and women than other men (16.3% vs. 9.9%; $\chi^2 = 9.33$, $p < .002$), and were less open about their homosexuality (mean score 2.7 compared to 3.1 in all other men; $t = 7.29$, $p < .001$). Finally, ethnicity differed by region: 56.4% of men in KwaZulu-Natal were black, compared to 20.6% in the Western Cape and 44.9% in Gauteng; $\chi^2 = 98.74$, $df = 2$, $p < .001$). To some extent these associations reflect actual differences between black and other MSM, underscoring the role of being black in determining testing status. Additional support for the importance of being black in the prediction of testing status comes from the finding that none of the above factors that were associated with being black and that were independently related with testing status in the total group could predict testing status exclusively within the group of black MSM.

Of the 728 MSM who had ever been tested, 14.1% (n=103; 9.9% of the total sample) reported being HIV-positive; 21 of the tested men (2.9%) did not report their HIV status, while 15 men (2.1%) reported that they did not fetch their test results or did not understand them. Table 2 compares men who reported being HIV-positive on socio-demographic variables with the men

who had ever tested for HIV and reported to be HIV-negative. As Table 2 shows, MSM who reported to be HIV-positive were more likely to be black and self-employed. Furthermore, HIV-positive men were more open about their homosexuality and more likely to know other persons with HIV/AIDS. Bivariately, there were no other differences between HIV-positive and HIV-negative men. The multivariate analysis showed that HIV-positive men were somewhat more likely to have a lower level of education and to know other persons with HIV/AIDS; the effect of being black disappeared from this model because tested black MSM had a lower level of education compared to other tested MSM (for education attainment of 12th grade 23.7% versus 76.3%, $\chi^2 = 12.28$, $p < .001$). Comparing HIV-positive MSM with all other MSM, regardless of whether they had been tested, resulted in a similar pattern of outcomes (results not shown).

DISCUSSION

This study among a racially and socio-economically diverse group of South African MSM found a relatively high rate of HIV testing and among those tested a high prevalence of HIV. Having been tested was independently associated with being older, being more open about one's homosexuality, and being homosexually instead of bisexually attracted; black MSM, students, and MSM living in KwaZulu-Natal were less likely to have been tested. Being HIV-positive is associated with two factors: men who were positive were more likely to have a lower level of education and to know other persons living with HIV/AIDS; race was not independently associated with HIV status.

Our findings indicate that being tested for HIV is influenced by one's social position; although the underlying mechanisms are unclear, it seems that the more vulnerable one's social position because of being black, younger, and a student, the less likely it is that one has been tested. In addition, getting tested seems to be encouraged by being part of the LGBT community. Being part of such communities facilitates openness about one's same-sex sexual desires and increases the likelihood that involved individuals will be tested. Although not assessed, it is likely that social norms regarding testing for HIV in the South African LGBT community are positive. These findings suggest that community building might contribute to HIV testing, prevention of future transmission of HIV, and timely care if needed.

Compared to national South African figures, the proportion of MSM in this study that has been tested is remarkably high. Nationally, only 30.3% of persons aged 15 years and older are estimated to have previously been tested.³¹ The bigger proportion of tested MSM in our study could result from recruitment procedures and be specific to our sample, being relatively more attached than other MSM to a gay community that favors testing; it is also possible that HIV testing among MSM in general is more prevalent.

Although comparisons have to be made with caution, the racial and geographic distribution of HIV among MSM in this study seems to deviate markedly from the distribution of HIV in the general South African population. While we did not find racial differences in HIV prevalence among MSM, the HIV prevalence among adults aged 15 to 49 years in the general population varies widely: 19.9% in black, 3.2% in coloured, 1% in Indian, and 0.5% in white persons are estimated to be infected.³¹ The absence of racial differences in our study suggests that the original gay epidemic among white men in Cape Town did not stop but continued to develop. As in the general population, HIV prevalence was highest among MSM from KwaZulu-Natal³¹; HIV is, however, remarkably more prevalent among the MSM in Western Cape (15.1%) than the estimated 3.2% among persons aged 15-49 years in the general Western Cape population.

This study has several limitations. The original surveys had a much broader focus and were not designed to assess more specific information about HIV testing practices and serostatus. The reported HIV prevalence is only a rough indication and is likely to be higher (a substantial number of men in the study had never been tested and it is likely that positive status was underreported); furthermore, a reported negative status is not necessarily correct because it is not always based on recent testing. Another limitation is that although racially and socio-economically diverse samples were recruited for the surveys, the final study group is not representative of the South African MSM population. Finally, only MSM from three of the nine South African provinces were included in this study (about 50% of the South African population lives in these three provinces that cover about 20% of the land area); there is no information about MSM from the remaining six provinces.

The reported findings reflect the limited understanding of HIV testing and HIV status among South African MSM. They strongly indicate a need for more accurate HIV prevalence data for MSM, based on actual HIV testing. This could be done with studies focusing exclusively on MSM or by the inclusion of same-sex sexuality in future national HIV prevalence studies. Future studies among MSM should adopt more representative sampling strategies, for instance by using Respondent Driven Sampling. While little is known about HIV testing and HIV status among South African MSM, no studies have yet been done that identify the structural, cultural, interpersonal, and individual factors that determine sexual risk behavior in South African MSM. More research is urgently needed in order to be able to address this part of the South African population effectively. Given that the HIV epidemic among MSM has specific dynamics, a dedicated study is warranted. The reported bisexual behavior, however, clearly indicates that the epidemic among MSM cannot be viewed as independent of the general epidemic in South Africa.

KEY MESSAGES

- Our findings indicate a high prevalence of testing in South African MSM.
- Being black is an independent predictor of not having been tested.
- With a self-reported prevalence of 14.1%, HIV is widely spread in South African MSM.
- Unlike in the general population, in MSM being HIV-positive was not related to race.
- The HIV/AIDS epidemic among South African MSM is intertwined with the general epidemic but seems to have its own dynamics.

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Table 1
 Characteristics of MSM who have and who have not been tested

	Not Tested (n = 291)	Tested (n = 728)	Unadjusted		Adjusted	
			OR (95% CI)	p-value	OR (95% CI)	p-value
Age (mean) (SE)	26.6 (.55)	31.4 (.37)	1.06 (1.04-1.08)	<.001	1.04 (1.01-1.07)	.022
Race						
White	70	358 (83.6)	Referent		Referent	
Black	159	189 (54.3)	0.29 (0.22-0.39)	<.001	0.52 (0.28-0.94)	.029
Colored	44	132 (75.0)	1.24 (0.86-1.80)	.251	0.64 (0.36-1.14)	.133
Indian	16	37 (69.8)	0.92 (0.50-1.68)	.787	0.75 (0.29-1.96)	.561
Education						
≤ High school	141	226 (61.6)	Referent		Referent	
> High school	136	414 (75.3)	1.90 (1.43-2.53)	<.001	1.60 (0.99-2.59)	.085
Employment						
Employed	113	407 (78.3)	Referent		Referent	
Unemployed	50	73 (59.3)	0.53 (0.36-0.78)	.001	0.76 (0.40-1.47)	.422
Student	100	115 (53.5)	0.35 (0.25-0.48)	<.001	0.39 (0.21-0.73)	.003
Self-employed	15	107 (87.7)	3.15 (1.80-5.52)	<.001	2.15 (0.95-4.87)	.068
Socioeconomic Status						
Low	117	198 (62.9)	Referent		Referent	
High	82	359 (81.4)	2.59 (1.86-3.60)	<.001	1.30 (0.78-2.15)	.317
Sexual attraction						
Men only	249	641 (72.0)	Referent		Referent	
Men and women	39	81 (67.5)	1.24 (0.82-1.87)	.304	0.36 (0.16-0.81)	.013
Sexual behavior						
Not sexually active	67	106 (61.3)	Referent		Referent	
Sexually active	216	593 (73.3)	1.74 (1.23-2.45)	.002	1.17 (0.65-2.12)	.599
Identity & community						
Gay openness (mean) (SE)	2.6 (.06)	3.2 (.03)	1.80 (1.56-2.07)	<.001	1.48 (1.17-1.88)	.001
Gay community involvement (mean) (SE)	2.2 (.04)	2.4 (.02)	1.79 (1.44-2.22)	<.001	1.34 (0.95-1.90)	.101
Know PLWHA						
No	79	156 (66.5)	Referent		Referent	

	Not Tested (n = 291)	Tested (n = 728)	Unadjusted		Adjusted	
			OR (95% CI)	p-value	OR (95% CI)	p-value
Yes	103	342 (77.1)	1.70 (1.20-2.40)	.003	0.96 (0.60-1.54)	.858
Region						
Western Cape	122	376 (75.5)	Referent		Referent	
Gauteng	97	241 (71.3)	0.99 (0.74-1.32)	.944	1.14 (0.54-2.40)	.741
KwaZulu-Natal	72	111 (60.7)	0.55 (0.39-0.76)	<.001	0.50 (0.25-0.98)	.043

OR, odds ratio; CI, confidence interval; SE, standard error.

Table 2
 Characteristics of MSM who reported HIV-negative and HIV-positive status

	HIV-		HIV+		Unadjusted		Adjusted	
	(n = 589) %		(n = 103) %		OR (95% CI)	p-value	OR (95% CI)	p-value
Age (mean) (SE)	31.3 (.42)		33.0 (.94)		1.02 (1.00-1.04)	.132	1.03 (1.00-1.07)	.088
Race								
White	302		51 (14.4)		Referent		Referent	-
Black	135		33 (19.6)		1.59 (1.00-2.50)	.048	1.11 (0.44-2.79)	.821
Colored	112		14 (11.1)		0.67 (0.37-1.22)	.191	0.48 (0.20-1.14)	.096
Indian	29		5 (14.7)		0.99 (0.37-2.61)	.976	0.62 (0.14-2.68)	.518
Education								
≤ High school	169		42 (19.9)		Referent		Referent	-
> High school	340		56 (14.1)		0.66 (0.43-1.03)	.067	0.31 (0.16-0.60)	.001
Employment								
Employed	338		51 (13.1)		Referent		Referent	
Unemployed	56		12 (17.6)		1.30 (0.67-2.52)	.445	0.97 (0.37-2.55)	.946
Student	94		11 (10.5)		0.65 (0.33-1.26)	.201	0.29 (0.06-1.39)	.122
Self-employed	82		23 (21.9)		1.85 (1.10-3.12)	.021	1.30 (0.63-2.69)	.475
Socioeconomic Status								
Low	148		34 (18.7)		Referent		Referent	
High	300		49 (14.0)		0.71 (0.44-1.15)	.163	0.99 (0.48-2.07)	.989
Sexual attraction								
Men only	523		91 (14.8)		Referent		Referent	
Men and women	62		10 (13.9)		1.08 (0.53-2.18)	.833	0.85 (0.32-2.31)	.756
Sexual behavior								
Not sexually active	90		13 (12.6)		Referent		Referent	
Sexually active	476		87 (15.5)		1.27 (.68-2.36)	.460	2.34 (0.76-7.27)	.140
Identity & community								
Gay openness (mean) (SE)	3.1 (.04)		3.4 (.03)		1.48 (1.13-1.93)	.004	1.31 (0.89-1.94)	.175
Gay community involvement (mean) (SE)	2.4 (.08)		2.5 (.06)		1.28 (0.92-1.78)	.145	0.69 (0.42-1.11)	.127
Know PLWHA								

	HIV-		HIV+		Unadjusted		Adjusted	
	(n = 589) %		(n = 103) %		OR (95% CI)	p-value	OR (95% CI)	p-value
No	137		12 (8.1)		Referent		Referent	
Yes	268		68 (20.2)		2.90 (1.52-5.53)	.001	3.83 (1.63-8.98)	.002
Region								
Western Cape	309		55 (15.1)		Referent		Referent	
Gauteng	201		29 (12.6)		0.76 (0.48-1.20)	.236	1.27 (0.54-2.99)	.579
KwaZulu-Natal	79		19 (19.4)		1.46 (0.84-2.53)	.178	2.47 (0.92-6.59)	.071

OR, odds ratio; CI, confidence interval; SE, standard error.