

HIV-Untested Men Who Have Sex with Men in South Africa: The Perception of Not Being at Risk and Fear of Being Tested

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Published online: 4 October 2012
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Abstract A community-based needs assessment among men who have sex with men (MSM) in South Africa found that 27 % ($n = 280/1,045$) of MSM had never been tested for HIV. The most frequently reported reasons for not having been tested were the perception of not being at risk (57 %) and fear of being tested (52 %). This article explores factors associated with these two reasons among the untested MSM. In multiple logistic regressions, the perception of not being at risk of HIV infection was negatively associated with being black, coloured or Indian, being sexually active, knowing people living with HIV, and a history of sexually transmitted infections (STIs) in the past 24 months (adj. OR = .24, .32, .38, and .22, respectively). Fear of being tested for HIV was positively associated with being black, coloured or Indian, preferred gender expression as feminine, being sexually active, a history of STIs, and experience of victimization on the basis of sexual orientation (adj. OR = 2.90, 4.07, 4.62, 5.05, and 2.34, respectively). Results suggest that HIV prevention programs directed at South African MSM will be more effective if testing and treatment of STIs are better integrated into HIV testing systems. Finally, social exclusion on the basis of race and sexual orientation ought to be

addressed in order to reach hidden, at-risk, populations of MSM.

Keywords HIV testing · Prevention programs · Reasons for not being tested for HIV · Social exclusion · Men who have sex with men · South Africa

Introduction

South Africa is experiencing one of the most severe HIV epidemics in the world. According to the 2010 UNAIDS Global Epidemic Report [1], at the end of 2009, there were an estimated 5.6 million people living with HIV in South Africa. In response to the continuing epidemic, South Africa's National Strategic Plan (NSP) on HIV and AIDS and STIs for 2007–2011 [2] prioritized scaling up HIV testing as one of the primary means to reduce HIV transmission and promote early enrollment in treatment for HIV/AIDS [3, 4].

HIV testing serves various purposes in controlling the AIDS epidemic. With data drawn from HIV testing, public health officials establish a statistical baseline of the rates of HIV infection incidence and prevalence in target populations, and regular surveillance helps to develop a national HIV/AIDS policy and related strategies [5–9]. At the individual level, knowing one's HIV status may motivate people to engage in HIV preventive behavior, especially when other personal, social and structural factors are in place for such behavior change to occur; and decision making around sexual risk reduction strategies is mainly possible on the basis of knowledge of one's own serostatus and that of one's sex partner(s) [10, 11]. HIV testing is critical for receiving effective and timely treatment if one is found to be HIV-positive. Early biomedical and

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psychosocial interventions help delay disease progression, reduce the likelihood of HIV transmission (especially in the early stages of infection), facilitate treatment of AIDS-related diseases, enable coping with related psychological distress, and foster change with respect to sexual risk practices [12–14].

In South Africa, until recently, little attention has, however, been paid to the at-risk population of men who have sex with men (MSM), as HIV surveillance defined the major HIV transmission mode as heterosexual behaviors [15]. The need for HIV prevention programs among MSM was first officially acknowledged in South Africa's 2007–2011 NSP [2], which states:

Whilst HIV infection amongst MSM was a focus in the early phases of the epidemic in South Africa, there is very little currently known about the HIV epidemic amongst MSM in the country. MSM have also not been considered to any great extent in national HIV and AIDS interventions ... MSM practices are also more likely to occur in particular institutional settings such as prisons, often underpinned by coercion and violence.

Notably, while the 2007–2011 NSP implicitly suggests that same-sex interactions are mostly *situational*, the statement above also indicates that there is a dearth of socio-behavioral understanding of HIV risk in the context of the life course of MSM [16]. The most recent NSP (2012–2016), however, now acknowledges the disproportionate HIV prevalence rates between MSM and the heterosexual population and further concedes that transgender people are a crucial population that has not been included in previous strategic plans and interventions [17]. The NSP correspondingly commits to target future intervention to MSM and transgender populations [17]. In developing HIV prevention intervention strategies for MSM in South Africa, it is important to understand underlying structural barriers to utilization of prevention (e.g., testing and counseling) and treatment services among this disadvantaged population [18, 19].

Since the availability of HIV testing in 1985, research has addressed the behavioral and psychological responses to HIV testing among MSM in terms of perceived and actual benefits and losses due to knowing one's HIV status [20–24]. In the context of South Africa, studies have also identified a range of reasons for not being tested for HIV in various populations. These reasons include structural barriers to access to HIV testing (e.g., discriminatory HIV testing policy, lack of confidentiality, and geographical distance); socio-cultural barriers (e.g., negative attitudes toward homosexuality); fear of learning the test results (e.g., stigma attached to HIV-positive status); perceived lack of benefit from HIV testing (e.g., discrimination, loss

of employment, domestic violence, lack of treatment and care access, and fatalistic attitudes toward HIV prevention); and perceptions of being at low or not being at risk of HIV infection [25–29].

This study aims to contribute to the understanding of the reasons why some MSM in South Africa don't get tested. Furthermore, little work has been done to examine the underlying factors of such reasons among HIV-untested MSM. In this article, our main research question was why some MSM have not been tested for HIV, while the epidemic is highly saturated and testing is widely available. In order to understand ecological constraints that account for the reasons, we explored socio-demographic and sexual orientation-related psychosocial characteristics of those untested men who reported that they perceived themselves not to be at risk of HIV infection or feared being tested for HIV.

Methods

Procedure

A community-based needs assessment survey was conducted among lesbian, gay, bisexual, and transgendered (LGBT) people in the provinces of Gauteng, KwaZulu-Natal and Western Cape (About 50 % of the South African population inhabits these three provinces that cover about 20 % of the geographical area). To increase variability within the study sample, we ensured that quotas based on age, race and socio-economic status were filled. In collaboration with local LGBT community-based organizations, participants were recruited from various sources, including LGBT organizations, support groups and counseling centers, friendship networks, at the annual Johannesburg Gay and Lesbian Pride March, and via the internet. Eligibility to participate in the study included being attracted to persons of the same sex, regardless of actual sex partners and sexual identity. Except in a few cases of illiteracy, in which questionnaires were interviewer-administered, all questionnaires were self-completed (1) in private settings without an interviewer, (2) via the internet, or (3) in group sessions in which privacy was ensured. Data collection took place from October to December 2003 in Gauteng, May to August 2005 in KwaZulu-Natal, and September to December 2005 in the Western Cape. More details about the study procedure were reported elsewhere [19].

Among 1045 MSM who completed the survey in Gauteng, KwaZulu-Natal and the Western Cape, 28 % ($n = 291$) had never been tested for HIV. After screening the missing responses, the sample size of analysis in this article was 280 ($n = 280$). The most frequently endorsed

reasons for avoiding HIV testing among the untested MSM were (1) the perception of not being at risk of HIV infection (“I do not consider myself as at risk of HIV infection”; 57 %, $n = 159/280$) and (2) fear of being tested for HIV (“I am too scared to get tested”; 52 %, $n = 145/280$). Eighty-eight percent of the untested MSM endorsed either of the two reasons and 22 % of the men endorsed both reasons. Additionally, a small number of MSM (11 %) responded that they did not know how to get tested for HIV. It ought to be noted that not knowing how to get tested for HIV was not significantly related to any of the variables that were included in the subsequent analyses.

Measures

The survey questionnaire included demographic information, various domains of sexual orientation (e.g., sexual attraction, behavior, and relationships), use of alcohol and recreational drugs, history of STIs, and HIV status and testing. In reference to STIs, participants were asked if they had experienced an STI in the previous 24 months and if so, had they sought treatment. Questions focused on HIV included: (1) Have you been tested for HIV? (2) How recent was your last HIV test? (3) If you have not been tested for HIV, why not? and (4) What is your HIV status? Socioeconomic status was assessed based on the South African Advertising Research Foundation (SAARF) Universal Living Standards Measure [30]. Multidimensional questions probed participants about (1) the extent of *self-disclosure of sexual orientation* to family, friends, and colleagues at work (none, some, most, all; Cronbach $\alpha = .85$); (2) *LGBT community involvement* with seven questionnaire items asking how frequently men socialized in a variety of LGBT situations, including bars, events, and homes of other LGBT friends (“How often do you socialize at...?”; never, almost never, sometimes, often; $\alpha = .79$); and (3) *sexual orientation-based victimization* assessing whether men had been verbally, physically, or sexually abused at school or work places [“Have you experienced any of the following things (at school or in workplace) over the last 24 months because of your sexual orientation?”; never, almost never, sometimes, most of the time, $\alpha = .64$]. To assess experience of unequal services in health care settings, participants were asked whether they had been refused, delayed, or poorly served due to their same-sex orientation.

Data Analysis

We used a standard process of univariate, bivariate, and multivariate analyses to examine the associations between independent and outcome variables [31]. Univariate analyses included frequencies and measures of central tendency

and variability. We conducted χ^2 or t tests to assess the relationships between predictor and outcome variables. For logistic regression analysis, all categorical variables were recoded as dummy variables; age was dichotomized by the median. Univariate logistic regressions were performed with each explanatory covariate separately. Variables with a Wald static significant at the p value $<.20$ were retained for multivariate analysis. Before multivariate analysis, bivariate correlation analysis was conducted among independent variables: phi coefficients (ϕ) between two dichotomous variables; Cramer’s V between two categorical variables (e.g., 2 by 3 contingency); and point-biserial coefficients (r_{pb}) between continuous and dichotomous variables. Multiple regressions were performed to determine the best-fit model using the covariates retained from the univariate regression model. Covariates that were not found to be significant at the $p < .05$ were subsequently removed, and regression was again performed without the non-significant covariates. We used likelihood ratio tests to compare the reduced and full models to see whether the improvement was statistically significant. The process of removing non-significant covariates continued until all covariates were significant at the $p < .05$. We computed 95 % confidence intervals (CI) for crude and adjusted odds ratios (OR) in testing the measure of association. Data analysis was conducted using SPSS 15.0.

Results

Sample Characteristics

Table 1 presents the characteristics of the 280 untested MSM. Their age ranged from 16 to 74 years old, with a mean of 26.7 years ($SD = 9.3$). The group was racially diverse: 53 % black, 25 % white, 16 % coloured, and 6 % Indian (Note, black refers to the racial group that in South Africa, itself, is labeled as “African”. In the South African context, black ought to be distinguished from coloured, which indicates mixed-race ancestry). With regard to socioeconomic status (SES) and educational attainment, 58 % of the participants reported low SES and 42 % high SES; and 50 % had an educational level of Grade 12 and below and 50 % above Grade 12. Almost half of the men (42 %) lived in the Western Cape, and others lived in Gauteng (33 %) and KwaZulu-Natal (25 %). Slightly more than half (54 %) reported that they preferred to express themselves as feminine, while 34 % preferred masculine expression; 12 % had no preference with gender expression. The majority of the men were attracted to only men (87 %), were sexually active (76 %), and knew LGBT people living with HIV/AIDS (57 %). Twenty-eight (11 %) untested men had an STI in the past 24 months.

Table 1 Characteristics of HIV-untested MSM and reasons for not being tested for HIV

| | Whole | Perception of not being at risk of HIV (<i>n</i> = 159, 56.8 %) | | Fear of being tested for HIV (<i>n</i> = 145, 51.8 %) | |
|-------------------------------------|--------------|--|----------------|--|----------------|
| | <i>n</i> (%) | <i>n</i> (%) | <i>p</i> value | <i>n</i> (%) | <i>p</i> value |
| Age (M, SD) | 26.7 (9.3) | | .257 | | .021 |
| 18–24 years old | 139 (51.9) | 86 (61.9) | | 80 (57.6) | |
| >24 years old | 129 (48.1) | 71 (55.0) | | 56 (43.4) | |
| Race | | | <.001 | | <.001 |
| White | 70 (25.0) | 54 (77.1) | | 22 (31.4) | |
| Black | 149 (53.2) | 75 (50.3) | | 83 (55.7) | |
| Other (coloured, Indian) | 61 (21.8) | 30 (49.2) | | 40 (65.6) | |
| SES | | | <.001 | | .070 |
| Low | 111 (57.8) | 46 (41.4) | | 64 (57.7) | |
| High | 81 (42.2) | 56 (69.1) | | 36 (44.4) | |
| Education | | | .014 | | .138 |
| Completed 12 grade | 132 (49.6) | 64 (48.5) | | 76 (57.6) | |
| More than 12 grade | 134 (50.4) | 85 (63.4) | | 65 (48.5) | |
| Province | | | .065 | | .423 |
| Western Cape | 117 (41.8) | 57 (48.7) | | 66 (56.4) | |
| Gauteng | 93 (33.2) | 57 (61.3) | | 45 (48.4) | |
| KwaZulu-Natal | 70 (25.0) | 45 (64.3) | | 34 (48.6) | |
| Gender expression | | | .012 | | <.001 |
| Masculine | 93 (33.8) | 92 (61.7) | | 65 (43.6) | |
| Feminine | 149 (54.2) | 42 (45.2) | | 63 (67.7) | |
| Sexual attraction | | | .846 | | .525 |
| Men only | 242 (87.1) | 137 (56.6) | | 128 (52.9) | |
| Men and women | 36 (12.9) | 21 (58.3) | | 17 (47.2) | |
| Sexually active | | | .004 | | <.001 |
| Not sexually active | 67 (24.5) | 48 (71.6) | | 19 (28.4) | |
| Sexually active | 207 (75.5) | 107 (51.7) | | 125 (60.4) | |
| Gay openness and community | | | | | |
| Coming out ^a | 2.6 (1.0) | 2.5 (1.1) | .269 | 2.6 (.9) | .479 |
| Community involvement ^a | 2.2 (.7) | 2.2 (.7) | .328 | 2.1 (.7) | .409 |
| Know HIV + LGBT | | | .019 | | .049 |
| No | 76 (43.2) | 47 (61.8) | | 35 (46.1) | |
| Yes | 100 (56.8) | 44 (44.0) | | 61 (61.0) | |
| STI in the past 24 months | | | .025 | | <.001 |
| No | 228 (89.1) | 140 (61.4) | | 103 (45.2) | |
| Yes | 28 (10.9) | 11 (39.3) | | 24 (85.7) | |
| Victimization at school/work | | | .874 | | .001 |
| No | 94 (33.6) | 54 (57.4) | | 35 (37.2) | |
| Yes | 186 (66.4) | 105 (56.5) | | 110 (59.1) | |
| Unequal services in health settings | | | .003 | | .001 |
| No | 220 (78.6) | 135 (61.4) | | 103 (46.8) | |
| Yes | 60 (21.4) | 24 (40.0) | | 42 (70.0) | |

^a Possible highest scores are 4 (range: 1–4); means and standard deviations are presented in yes groups

One-third of the men (34 %) reported having experienced sexual orientation-based victimization at school or work places and about a fifth (21 %) reported having experienced

unequal services (e.g., poor or denied service) in health care settings due to their same-sex orientation in the past year.

Table 2 Correlations between predictor variables

| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|--------|--------|--------|-------|--------|------|-------|-------|--------|--------|
| 1. Age >24 years old | -.18** | .09 | .17** | .08 | -.16* | .07 | .07 | .06 | -.26** | .01 |
| 2. Non-white | – | -.39** | -.29** | .03 | .38** | .01 | .05 | .09 | -.06 | .12* |
| 3. High SES | | – | .28** | .17 | -.27** | -.07 | -.10 | -.12 | .04 | -.13 |
| 4. Education >12-grade | | | – | .23** | -.12 | .10 | -.08 | -.17* | -.05 | -.18** |
| 5. Provinces | | | | – | .13 | .15* | .29** | .03 | .12 | .09 |
| 6. Feminine expression | | | | | – | .01 | .08 | .06 | .27** | .14* |
| 7. Sexually active | | | | | | – | .24** | .11 | -.03 | .11 |
| 8. Know HIV + LGBT | | | | | | | – | .05 | -.09 | -.04 |
| 9. STI in the past 24 months | | | | | | | | – | .15* | .42** |
| 10. Victimization at school/work | | | | | | | | | – | .19** |
| 11. Unequal services in health settings | | | | | | | | | | – |

Phi (ϕ) coefficients between dichotomous variables and Cramer's V coefficient between dichotomous variable and provinces; coming out (i.e., disclosure of sexual orientation) and gay community involvement were not presented because those variables were not included in multivariate analyses. Coming out was significantly correlated with gay community involvement ($r = .36$), knowing HIV + LGBT ($r = .21$), and victimization ($r = .20$); community involvement was significantly correlated with age ($r = .13$), SES ($r = .14$), education ($r = .15$), sexually active ($r = .21$), and victimization ($r = .17$)

* $p < .05$; ** $p < .01$

Perception of Not Being at Risk of HIV Infection

Among untested men, we compared men who had the perception of not being at risk of HIV infection (hereafter 'perception of not being at HIV risk') with men who did not report this as a reason for not having been tested. In bivariate analysis, most of the sociodemographic variables were related to the perception of not being at HIV risk. White MSM (77 %) and men with high SES (69 %) were more likely to report that they perceived themselves as not being at HIV risk than other racial groups (50 % black, $p < .001$) and men with low SES (41 %, $p < .001$). There appeared to be regional differences in the perception of not being at HIV risk: untested MSM in the Western Cape were less likely to report not being at HIV risk, compared to MSM in the provinces of Gauteng and KwaZulu-Natal (49, 61, and 64 %, respectively). With regard to sexual orientation domains, men who preferred a masculine gender expression were more likely to report not being at HIV risk than men with feminine gender expression (62 vs. 45 %, $p = .012$). Being sexually active, knowing LGBT people living with HIV/AIDS, and having had an STI in the past 24 months were negatively associated with the perception of not being at HIV risk ($p < .05$ for all variables). Notably, 39 % of the HIV-untested men with STIs stated not to be at HIV risk. Having experienced victimization at school or work places was not associated with perception of being at HIV risk. Experiencing unequal services in health care settings was negatively associated with the perception of not being at risk for HIV ($p = .003$).

Fear of Being Tested for HIV

As with the perception of not being at HIV risk, fear of being tested for HIV among the untested MSM was related to socio-demographic variables, including age (58 % men aged between 18 and 24 years old reported fear as a reason for not being tested vs. 43 % men over 24 years old, $p = .021$), race (56 % black, 66 % other race groups, vs. 31 % white, $p < .001$), and SES (58 % of low SES vs. 44 % of high SES, $p = .07$). MSM who preferred a feminine gender expression were more likely to report fear of being tested for HIV than men with a masculine gender expression (68 vs. 44 %, $p < .001$). Being sexually active was also related to fear of being tested for HIV (60 % sexually active men vs. 28 % non-sexually active, $p < .001$). Notably, untested MSM with STIs in the past 24 months were more likely than untested MSM without STIs to report fear of being tested for HIV (86 vs. 45 %, $p < .001$). Having experienced sexual orientation-based victimization at school and work places (59 vs. 37 %, $p < .001$) and unequal services in health care settings due to sexual orientation (70 vs. 47 %, $p < .001$) were significantly associated with fear of being tested for HIV. The level of openness of sexual orientation and LGBT community involvement was not associated with either the perception of not being at risk of HIV or fear of being tested for HIV.

Correlations Between Independent Variables

Before testing multiple regression models, bivariate correlation analyses were conducted to examine the relationships

Table 3 Regression models of the perception of not being at risk of HIV infection and fear of being tested for HIV among untested MSM

| | Univariate | | Multivariate | |
|--|--------------------|----------------|-----------------------|----------------|
| | Crude OR (95 % CI) | <i>p</i> value | Adjusted OR (96 % CI) | <i>p</i> value |
| Perception of not being at risk of HIV | | | | |
| Non-white | .30 (.16–.55) | <.001 | .24 (.10–.57) | <.001 |
| High SES | 3.17 (1.73–5.79) | <.001 | – | – |
| Education >12 grade | 1.84 (1.13–3.01) | .14 | – | – |
| Province | | | | |
| Western Cape | – | – | – | – |
| Gauteng | 1.67 (.96–2.90) | .070 | – | – |
| KwaZulu-Natal | 1.90 (1.03–3.48) | .040 | – | – |
| Feminine gender expression | .51 (.30–.86) | .012 | – | – |
| Sexually active | .42 (.23–.77) | .005 | .32 (.10–.98) | .045 |
| Know HIV + LGBT | .49 (.26–.89) | .020 | .38 (.17–.88) | .024 |
| STI in the past 24 months | .41 (.18–.91) | .028 | .22 (.05–.99) | .050 |
| Unequal services in health settings | .42 (.23–.75) | .004 | – | – |
| Fear of being tested for HIV | | | | |
| Age >24 years old | .57 (.35–.92) | .021 | – | – |
| Non-white | 3.09 (1.74–5.48) | <.001 | 2.90 (1.43–5.88) | .003 |
| High SES | .59 (.33–1.05) | .071 | – | – |
| Education >12 grade | .69 (.43–1.13) | .139 | – | – |
| Feminine gender expression | 2.71 (1.58–4.67) | <.001 | 4.07 (1.55–10.69) | .004 |
| Sexually active | 3.85 (2.11–7.02) | <.001 | 4.62 (2.29–9.31) | <.001 |
| Know HIV + LGBT | 1.83 (1.01–3.35) | .049 | – | – |
| STI in the past 24 months | 7.28 (2.45–21.66) | <.001 | 5.05 (1.59–16.10) | .006 |
| Victimization at school or work | 2.44 (1.47–4.06) | <.001 | 2.34 (1.25–4.34) | .007 |
| Unequal services in health settings | 2.65 (1.44–4.89) | .002 | – | – |

between independent variables (Table 2). Phi and Cramer's V coefficients were used for categorical variables. There were few significant differences in the outcome variables between black, coloured and Indian participants. Thus, we conducted bivariate and multivariate analyses using a dichotomous race variable (i.e., white and 'non-white', in reference to black, coloured or Indian). Being over 24 years old was negatively correlated with feminine gender expression and sexual orientation-based victimization ($\phi = -.16$ and $-.26$). Compared to white MSM, black, coloured or Indian MSM were less likely to report high SES or an educational level higher than Grade 12 ($\phi = -.39$ and $-.29$): 71 % whites reported high SES compared to 23 % black, 45 % coloured, and 15 % Indian ($\chi^2 = 36.0$, $df = 3$, $p < .001$); and 77 % whites reporting an education higher than Grade 12 compared to 46 % black, 40 % Indian, and 28 % coloured ($\chi^2 = 27.7$, $df = 3$, $p < .001$). Accordingly, educational level was significantly associated with SES: 55 % men with a qualification level higher than Grade 12 reported high SES compared to 30 % with Grade 12 or less ($\chi^2 = 12.6$, $p < .001$).

Black, coloured or Indian MSM were more likely to prefer to express themselves as feminine and to have received unequal health services ($\phi = .38$, and $.12$). Likewise, high SES was negatively correlated with feminine gender expression. There were regional differences in knowing people living with HIV/AIDS ($\chi^2 = 15.0$, $df = 2$, $p < .001$): Gauteng (71 %), the Western Cape (65 %), and KwaZulu-Natal (33 %). Having experienced victimization at school or workplaces was also correlated with receiving unequal services in health settings ($\phi = .19$). MSM who preferred feminine gender expression were more likely to have experienced victimization and received unequal health services ($\phi = .27$ and $.14$). Having had an STI in the past 24 months was not related to femininity and being sexually active, but positively related to victimization ($\phi = .15$). In particular, the correlation between having had an STI and experienced unequal health services was high ($\phi = .42$): 63 % of the untested MSM with STIs reported unequal services in health care settings compared to 13 % of the men without STIs ($\chi^2 = 44.2$, $p < .001$).

Multivariate Analysis

Table 3 presents the final models of multiple logistic regressions for the outcome variables. In the left column, we included crude ORs and *p* values to show changes in the strength of the association and the level of significance. The final regression model identified the following variables that were negatively associated with the perception of not being at HIV risk: racial minority (i.e., black, coloured or Indian), being sexually active, knowing LGBT people living with HIV/AIDS, and history of STIs in the past 24 months (adj. OR = .24, .32, .38, and .22, respectively). Fear of being tested for HIV was positively associated with gender expression as feminine, being sexually active, history of STI in the past 24 months, and victimization at school or workplaces (adj. OR = 2.90, 4.07, 4.62, 5.05, and 2.34, respectively). With regard to changes between crude and adjusted ORs, most variables in both models did not change significantly in the multivariate analyses. In the model that tested fear of being tested for HIV, the odds ratio of feminine gender expression increased, while the odds ratio of history of STI decreased, because other covariates entered in the multiple regression model. Although most variables in the model were correlated (see Table 2), no significant interaction effects were found in the final models.

Discussion

The results from this study demonstrate how socio-demographic and sexual orientation-related psychosocial characteristics, were related to the perception of not being at HIV risk and fear of being tested for HIV, among untested MSM in three provinces of South Africa. Although the majority of these men were sexually active (76 %) and had an STI in the past 24 months (11 %), they have never tested for HIV. Of particular concern is that 52 % of untested MSM with an STI feared to get tested for HIV. This suggests that there is a lack of integration of health systems dealing with HIV and STIs, generally, given that men who had an STI do not seem to have been referred for HIV testing. Since having an STI makes one more susceptible to HIV infection and facilitates HIV transmission [32], immediate attention is required to promote HIV testing in this high risk group.

The reasons for avoiding HIV testing were not only associated with sexual practices and history of STIs but also with sociodemographic factors; race plays an important role in the accessibility of HIV testing. The result that white untested MSM perceived themselves less often to be at risk of HIV infection than black untested MSM, suggests that a social misperception of the epidemic (e.g., AIDS is

predominantly prevalent among blacks), may influence the untested white men's perceived susceptibility of HIV.

The role of LGBT communities and organizations in creating social, political and organizational spaces and actions that could enable the required changes is important to emphasize here. For instance, in the early 1990s members of gay communities in Australia, the United States and much of Western Europe, played a major role in mobilizing their constituencies and informing governmental policies on minimizing risk of HIV [33].

It can be argued that in recent years much has changed in the South African social, political, policy and programmatic terrain, and that this will extend to attitudes in the public health sector. However, consistent with results of other studies in other townships and cities throughout South Africa, adverse responses from health systems towards LGBT people, and negative social experiences of being gay in daily life, continue to exert an influence on the decision to get tested for HIV among this vulnerable population of MSM [29, 34–36]. The results in this study that fear of being tested for HIV was positively associated with feminine gender expression, sexual orientation-based victimization at school or in workplaces, and unequal services in health care settings, highlight the role of ecological constraints (sexuality, social status, and structural systems) which obstruct access to HIV prevention services. As previously noted [29, 37], gender expression was closely associated with unequal treatment in health services among South African MSM and this result was confirmed in other, more recent studies [35, 36]. Gender non-conforming MSM—i.e., their speech, movements, and dress are seen as feminine—experienced more harassment in health services settings, while “masculine” MSM could pass as “heterosexuals”. The concealment of same-sex orientation through masculinity may protect them from homophobic experiences, but it may also prevent them from seeking appropriate sexual health information.

While acknowledging that the public health care sector is itself at a critical cross road, given, for instance, current debates about a national health service, there none-the-less is an urgent need that this sector should be more LGBTI friendly. The development of culturally sensitive HIV prevention services [29, 36] to assist and encourage racially-diverse MSM to address the issue of acceptance of one's sexual orientation and to cope with race- and gay-related stressors have been known to be key protective factors in the epidemic [38, 39]. Also, in accordance with the related goal of the NSP [17], in order to scale up HIV testing among hidden, at risk, groups of MSM, dissemination of the benefits of early treatment may reduce barriers related to ambivalent attitudes towards HIV testing.

This study has several limitations. Firstly, the data were not recently collected and in terms of HIV/AIDS, much has

changed in the South African social, political policy and programmatic terrain. We tried to correct for this limitation by situating our results in the context of other South African studies, conducted since we collected our data [29, 34, 35].

Secondly, although racially and socioeconomically diverse samples were recruited, the study sample is not representative of the total MSM populations in South Africa. The participants were mostly recruited through social networks of LGBT communities. MSM from only three of the nine South African provinces were included in this study; there is no information about MSM from the remaining six provinces. It is unknown to what extent MSM living in the other six provinces have homophobic experiences in their daily lives and health care settings and how this is associated with HIV testing. Furthermore, the Gauteng data were collected almost two years prior to the KwaZulu-Natal and Western Cape data. Although there were no between-province differences, the fact that the data were not collected at the same moment in time, limits the quality of this cross-sectional survey. The survey was originally designed as a needs assessment among members of the LGBT community; specific information about personal sexual practices (e.g., number of sex partners, unprotected anal sex, and use of sexual risk reduction strategies) was not collected. Thus, little can be said about the relationship between behavioral risk factors and the outcome variables. Future research needs to explore MSM's perceived norms of HIV testing and experiences with testing services, and the systems of delivery of testing services in order to better understand environmental barriers that impact HIV testing.

If HIV testing is being scaled up as part of an effective HIV/AIDS policy, special attention is required to those who are at disproportionately high risk of HIV. There has been discussion of alternative health service delivery models in Sub-Saharan Africa to increase availability and accessibility of HIV testing, using mobile and home-based testing approaches [40]. Although these models may overcome the barrier of physical distance to access to HIV testing, other contextual factors, such as acceptance of homosexuality (e.g., discrimination in health care settings) should be taken into consideration within the efforts [29, 36]. It is still unclear how these alternative mobile and home-based testing approaches can ensure the principles of HIV testing—consent, counseling, and confidentiality. Furthermore, these approaches lack the important linkage to community-based HIV prevention and LGBT organizations [7, 33], which, of course, should be broader than a narrow health or HIV focus. If vulnerability to HIV is informed by social cohesion, social capital and other complex social factors, then HIV prevention is more than the provision of community-based health interventions—it needs to focus more broadly on stigma (internal and external), mobilisation, mentoring, belonging, access to

economic, educational and other resources, and also access to human rights more generally.

Importantly, within the structure of existing testing systems, intervention to reduce stigma (e.g., training counselors in sexual diversity and gender identity) should be implemented. Otherwise, public health prevention will not be able to reach out to those who are at high risk of HIV. Fear of being tested for HIV would still continue to exist among those untested MSM who are highly vulnerable to HIV/STIs [16, 41]. If MSM perceive that the potential social and psychological harms from HIV testing are greater than the benefits of knowing their HIV status, they are unlikely to get tested. Thus, HIV testing ought to be integrated into medical treatment and care provision, more generally, especially in respect of disadvantaged populations [42, 43]. In order to reduce such ecological barriers to health promotion in the epidemic among MSM in South Africa, health inequities rooted in socioeconomic marginality and heterosexism should be addressed.

Acknowledgments This study used data collected by LGBT community organizations in South Africa, including OUT LGBT Well-Being, Triangle Project, and the Durban Lesbian and Gay Community and Health Centre, in collaboration with the Center for Applied Psychology at the University of South Africa [44–46]. The research was commissioned by the South African Joint Working Group (JWG); The JWG is a national network of several South African LGBT-focused community organizations. Special acknowledgment is due to Louise Polders, Helen Wells, Glenn de Swardt and Nonhlanhla Mkhize for assistance in the surveys in the respective community centers. This research was supported by grants from Atlantic Philanthropies and the Multi Agency Grants Initiative administered by the Humanist Institute for Cooperation with Developing Countries (HIVOS). Dr. Yi's contribution to the paper was supported by a training grant from the National Institute of Mental Health (T32-MH19139; Behavioral Sciences Research in HIV Infection; Principal Investigator: Theodorus Sandfort, Ph.D.) while additional support came from the National Institute of Mental Health to the HIV Center for Clinical and Behavioral Studies at the New York State Psychiatric Institute and Columbia University (P30-MH43520; Principal Investigator: Anke A. Ehrhardt, Ph.D.).

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