

Risk factors for greater undiagnosed HIV infection of black MSM in New York City

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Introduction

- NYC has the largest population of men who have sex with men (MSM) of any U.S. city
- MSM are the largest transmission category living with HIV/AIDS and with new HIV diagnoses
- Black MSM are disproportionately affected by the HIV epidemic
- In NYC, black men make up 24% of the population, but in 2010 were 36.6% of new diagnoses among MSM¹
- Nationally, HIV incidence has increased among young, black MSM²
- Most studies have found that black MSM are not more likely to engage in unprotected anal sex³
- The reasons for this race/ethnic disparity in HIV infection are not well understood

Materials and methods

The Centers for Disease Control and Prevention-sponsored National HIV Behavioral Surveillance System is a cross-sectional, cyclical study of MSM, injection drug users, and heterosexuals at-high-risk. The 3rd MSM cycle was conducted in NYC in 2011. Eligible MSM were venue-sampled, interviewed, and offered HIV testing (oral-fluid-based).

Eligibility criteria

- Born male, currently identifies as male
- At least 18 years old
- NYC Resident
- Ever had oral or anal sex with another man
- Speaks English or Spanish

Venue-Based Sampling

- Venues randomly selected from a sampling frame developed through formative research; special events added non-randomly
- Field team sequentially and non-preferentially sampled men at venues
- Participants were screened, gave informed consent, interviewed, and tested for HIV

Measures

Covariates potentially associated with both HIV and black race/ethnicity³

Proximal risk factors (direct risk for HIV transmission or exposure):

- sexual risk behaviors; sexual networks; sexually transmitted diseases; injection drug use

Distal risk factors (influences direct risk for HIV transmission or exposure):

- sexual identity and disclosure; non-injection drug and alcohol use/misuse; HIV testing; health care access and utilization; socio-economic resources; incarceration

Analysis

- Analysis data set (n = 416/510) includes those who had sex with another man in the last 12 months, were tested by the study for HIV, reported their race/ethnicity, and did not self-report being HIV positive
- Bivariate analyses to determine variables associated (p < 0.10) with both black race/ethnicity and HIV infection
- Multivariate logistic regression model with black vs. other race/ethnicity retained and other variables included using stepwise method (p < 0.10 for entry and p < 0.05 for retention) to estimate adjusted odds ratios (aOR) and 95% confidence intervals (95% CI)
- Percentage change in the crude and aOR of black race/ethnicity used to assess the influence of covariates on the race/ethnic disparity in HIV infection of black MSM

Results

**Table 1. Sociodemographics and venue recruitment
NYC NHBS-MSM, 2011, n=416**

Race/Ethnicity	Age	Venue Recruitment
Black	19.5%	18-29 54.8%
Hispanic	41.1%	≥ 30 45.2%
White	30.5%	
Other	8.9%	
Sexual identity		
Gay	78.1%	Bar 64.7%
Bisexual/straight	21.9%	Park 14.7%
		Other 20.7%

**Table 2. HIV prevalence by race/ethnicity
NYC NHBS-MSM, 2011, n=416 (tested in study)**

	N	HIV-Positive	95% CI	OR	95% CI	P <
Total	416	8.7%	6.0 – 11.4%	-	-	-
By Race						
Black (ref)	81	24.7%	15.3 – 34.1%	1.0	-	-
Hispanic	127	7.6%	3.6 – 11.6%	0.02	0.003, 0.2	0.001
White	171	0.8%	0.0 – 2.3%	0.3	0.1, 0.5	0.001
Other	37	5.4%	0.0 – 12.7%	0.2	0.04, 0.8	0.05

Black MSM were over 6 times more likely than other MSM to test HIV positive (24.7% vs. 4.8%, OR = 6.5, 95% CI = 3.2,13.3, p < 0.001)

Black MSM were less likely (non-significant) than other MSM to engage in unprotected anal sex with a man (46.9% vs. 54.6%, OR = 0.7, 95% CI = 0.5, 1.2, p < 0.21)

Table 3. Correlates of testing HIV positive

Variables*	N	% HIV positive	OR	95% CI	P <
Recruited in Park (vs. Bars)	61	24.6%	5.9	2.7, 13.1	0.001
Age ≥ 30	188	12.8%	2.6	1.3, 5.4	0.01
Race/Ethnicity					
Black	81	24.7%	1.0	-	-
White	127	0.8%	0.02	0.003, 0.2	0.001
Hispanic	171	7.6%	0.3	0.1, 0.5	0.001
Other races	37	5.4%	0.2	0.04, 0.8	0.05
< H.S. grad	35	22.9%	3.7	1.6, 9.0	0.01
Unemployed	134	13.4%	2.3	1.1, 4.5	0.05
≤ \$20,000/year	159	15.7%	4.2	2.0, 8.8	0.001
Incarcerated > 24 hours	35	17.1%	2.4	0.9, 6.3	0.1
Not tested for HIV (past 12 months)	100	18.0%	3.6	1.8, 7.3	0.001
Last sex partner was black	93	21.5%	5.2	2.6, 10.6	0.001

* Variables in bold are significant for both testing HIV positive and black race/ethnicity

Table 4. Correlates of black race/ethnicity

Variables*	N	% Black	OR	95% CI	P <
Recruited in Park (vs. Bars)	61	44.3%	5.3	2.9, 9.8	0.001
Recruited in Other Venues (vs. Bars)	86	21.1%	1.9	1.0, 3.5	0.05
< H.S. grad	35	42.9%	3.6	1.7, 7.4	0.001
Unemployed	134	29.9%	2.5	1.5, 4.1	0.001
≤ \$20,000/year	159	27.7%	2.3	1.4, 3.7	0.01
Currently Homeless	31	38.7%	2.9	1.3, 6.2	0.01
Incarcerated > 24 hours	35	34.3%	2.4	1.1, 5.0	0.05
Not tested for HIV (past 12 months)	100	26.0%	1.7	1.0, 2.8	0.1
Bisexual/straight sexual identity	91	27.5%	1.8	1.1, 3.1	0.05
Drugs or money received for sex	39	43.6%	3.8	1.9, 7.5	0.001
Last sex partner was black	93	40.9%	4.5	2.7, 7.6	0.001
Tested HIV positive	36	55.6%	6.5	3.2, 13.3	0.001

* Variables in bold are significant for both testing HIV positive and black race/ethnicity

Table 5. The association of black race/ethnicity with testing HIV positive adjusted for other factors

Variables	OR	95% CI	p-value	aOR	95% CI	P <
Black race/ethnicity	6.5	3.2, 13.3	<0.0001	3.4	1.5, 7.7	0.01
Income ≤ \$20,000/year	4.2	2.0, 8.8	0.0002	2.6	1.2, 5.8	0.05
Last sex partner was black race/ethnicity	5.2	2.6, 10.6	<0.0001	3.7	1.6, 8.4	0.01
Not tested for HIV (past 12 months)	3.6	1.8, 7.3	0.0003	3.5	1.6, 7.8	0.01

Discussion

- In the multivariate model, the magnitude of the association of black race/ethnicity with testing HIV positive was reduced by 47.7% from the bivariate model
- Black race/ethnicity was not associated with being more likely to engage in unprotected anal sex with a man
- The disparity in undiagnosed HIV infection of black MSM may result in part from:
 - assortative sexual networks with other black MSM, which increases their risk of exposure to HIV
 - their greater economic impoverishment and social marginalization
 - a lower frequency of HIV testing
- These factors were also independently associated with undiagnosed HIV infection

Conclusions

- Research on the disparity in HIV infection of black MSM needs to focus more on the relationship of their sexual networks, economic impoverishment and social marginalization to their risk of infection
- Interventions among black MSM should target their sexual networks to further reduce unsafe sex among network members and to lower the network prevalence of HIV infection and viral load, develop strategies to ameliorate their economic impoverishment and social marginalization, and promote frequent HIV testing

Literature cited

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Acknowledgments

This research was funded by a cooperative agreement between the New York City Department of Health and Mental Hygiene (NYC DOHMH) and the Centers for Disease Control and Prevention (CDC) (grant# 1U1BPS003246-01).