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Racial Discrimination and HIV-related Risk Behaviors in Southeast Louisiana

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Abstract

Objectives—We examined the relationship between cumulative experiences of racial discrimination and HIV-related risk taking, and whether these relationships are mediated through alcohol use among African Americans in semi-rural southeast Louisiana.

Methods—Participants (N = 214) reported on experiences of discrimination, HIV sexual risk-taking, history of sexually transmitted infection (STI), and health behaviors including alcohol use in the previous 90 days. Experiences of discrimination (scaled both by frequency of occurrence and situational counts) as a predictor of a sexual risk composite score as well as a history of STI was assessed using multivariate linear and logistic regression, respectively, including tests for mediation by alcohol use.

Results—Discrimination was common in this cohort, with respondents confirming their experience on average 7 of the 9 potential situations and on more than 34 separate occasions. After adjustment, discrimination was significantly associated with increasing sexual risk-taking and lifetime history of STI when measured either by frequency of occurrence or number of situations, although there was no evidence that these relationships were mediated through alcohol use.

Conclusions—Cumulative experiences of discrimination may play a significant role in sexual risk behavior and consequently increase vulnerability to HIV and other STIs.

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Human Subjects Statement

This study was approved by the Louisiana State University Health Sciences Center Institutional Review Board.

Conflict of Interest Statement

The authors have no conflicts of interest to report.

Keywords

racial discrimination; sexually transmitted infection; alcohol

The southern United States (US) is consistently ranked lower on numerous indicators of adverse health outcomes including diabetes, obesity, heart disease, and sexually transmitted infections (STIs), such as human immunodeficiency virus (HIV), relative to the rest of the nation.[1] States in the southern US also rank lower on factors related to adverse health outcomes such as poverty, access to healthcare, and unemployment.[1,2] An analysis found that 90% of counties experiencing the largest increase in AIDS prevalence rates since the mid-1990s were located in the southeast and some rural areas in this region, including the Mississippi Delta.[3] Southern states continue to have higher HIV diagnosis rates than other regions of the US and the highest death rate among persons living with HIV of any region.[4] Moreover, communities of color in the south, particularly Afican-American communities, are disproportionally affected by the HIV epidemic.[4] Given this unequal representation, it is imperative to explore the underlying causes of health disparities within rural and urban areas to close these widening gaps.

Demographic, environmental, economic, and social factors all play a role in influencing HIV-related behavior.[5] Research has shown that discrimination on the basis of race, sexuality, and the intersection of both, can play a role in sexual and other risk behaviors.[6-8] Racial discrimination may take on many forms—cultural, interpersonal, and institutional as well as internalization[9]—and may occur at simultaneously on multiple levels.[10] There is abundant evidence of widespread, racial discrimination against African Americans in the US, with discriminatory (or racist) events including use of racial epithets, inflated pricing for goods and services, housing and salary discrimination, and physical attacks.[11-14] Studies indicate that 70%–90% of African Americans report experiencing at least one discriminatory event in the past year, and 90%–100% report experiencing at least one such event in their lifetimes.[12,13,15] Data on employment, housing, and education suggest patterns of systemic discrimination that may exist even in the absence of individual self-reported perceived discrimination.[16-18]

The study of racial discrimination has spawned a body of theory and research identifying it as a social determinant of poor health and driver of health inequities experienced by African Americans.[19-21] In this body of research, discrimination is conceptualized as a chronic stressor that contributes to poor health in the same manner that other stressful events do, such as by increasing biologic stress-responses (eg, blood pressure and production of proinflammatory factors) and by similarly increasing health-damaging behaviors (these are understood as maladaptive/poor strategies for coping with the stress of discrimination). Kessler et al[22] and others[23,24] argue that discrimination ranks in significance with major stressful life events such as divorce, job loss, and death of a loved one. A growing amount of research reports associations between racial discrimination and numerous physical and mental health outcomes including hypertension,[25] self-rated poor health,[26] cardiovascular disease[27] depression,[28] psychological distress,[29-31] decreased self-esteem[32,33] elevated anxiety and depression,[34] anger and hostility.[35,36] The Minority Stress model, can provide a

basis for illustrating the pathways in which contextual factors may impact and influence individual behaviors and outcomes.[37] Application of this model allows for examination of HIV/STI risk behavior as an outcome of resulting stress from lifetime discrimination, shifting the STI/HIV risk paradigm away from a strictly biomedical individualism approach to a contextual approach which incorporates social determinants of health and utilizes an intersectional lens to understand various risk behaviors.[38]

Alcohol and illicit substance use may be a coping mechanism for individuals experiencing discrimination on the basis of race and/or sexuality particularly in response to internalization of negative interpersonal judgments.[11,39,40] However, research examining the association between racial discrimination and alcohol consumption has produced mixed results.[39,41-46] In the National Survey of Black Workers, Martin et al[43] found that African Americans reporting discrimination were more than 2 times as likely to report problem drinking than were those who did not. Pascoe and Richman[46] identified 13 studies that linked discrimination with unhealthy behaviors, such as substance use, and found an average correlation of 0.18. Several of these studies included prospective data. Gibbons et al[39] found that discrimination assessed at age 10 to 11 years predicted substance use 5 years later in a panel of black adolescents in the Family and Community Health Study. A similar relation between discrimination and problematic substance use was also found among the parents of these African-American children. In fact, discrimination was the strongest predictor of problematic use of all of the factors that were assessed with the parents, including multiple types of stressors (social, financial, familial) and contextual factors (eg, substance availability, neighborhood crime).[39]

Whereas there is some research to support the assumption that experiences of discrimination are significantly associated with HIV-related risk-taking across diverse populations, including urban Latinos, men having sex with men (MSM), women, and African Americans,[47-49] further work is needed to establish this link.[50] In addition, although a substantial body of research has linked substance use and sexual risk behavior across diverse samples,[51-55] the relation is complex and likely dependent on setting.[56] We identified no studies to date that have examined substance use as a mediator between racial discrimination and sexual risk behavior, although the mechanisms may be similar to those related to experiences of trauma, substance use and subsequent sexual risk behavior.[57]

The objectives of this secondary study were to examine: (1) the relationship between cumulative experiences of racial discrimination and HIV-related risk taking—sexual risk and a history of sexually transmitted infections (STI)—and (2) potential mediation of the discrimination-sexual risk association by alcohol use. We hypothesized that experiences of discrimination would be positively associated with increased sexual risk and a history of STI, and that alcohol use is one potential pathway through which racial discrimination increases sexual risk behavior.

METHODS

Study Design and Participants

This cross-sectional, secondary analysis included 244 adults recruited between October 2008 and October 2010 as part of baseline sampling for a community-level Popular Opinion Leader intervention.[58] The intervention targeted high-HIV risk social networks in a southern Louisiana city with a population size of approximately 20,000 (54.1% female, 45.2% African-American) and average household income of $37,429.[59]

Participants were recruited using street outreach techniques, including ethnographic mapping and targeted sampling.[60] Target communities for recruitment were identified using the community identification (CID) process, a method for mapping data (eg, from emergency rooms, drug treatment, and social and health service providers) and recording epidemiological indicators of the prevalence and incidence of selected health conditions and risk behavior, such as HIV/AIDS and drug and alcohol abuse.[61] POL interventions target social networks as part of a defined community, and our intervention targeted alcohol-using social networks and was venue based (primarily in bars and clubs). Venues were chosen in the community based on CID and clear identification of opinion leaders within social networks in these venues.

Eligible participants were 18 years or older, resided in the study community, and proficient in English. Informed consent was verbally confirmed. Anonymous face-to-face interviews took place in a private and quiet location (typically outside). Settings included alcohol consumption (ie, bars and clubs) and purchase venues, a multi-practice health center and an addictive disorders clinic. Trained field staff administered a breathalyzer prior to interviews. Individuals with levels above 0.80 were excluded. Interviews lasted approximately 20-30 minutes and were conducted at various times of day (ie, afternoon, evening and late evening) and days of the week (ie, weekdays and weekends). The overall response rate across venues was 40%, and varied by venue likely due to venue size which included both large clubs and bars but also small liquor stores where networks congregated. Age and sex of respondents did not differ from non-respondents, and participants were similar across venues except for age, where younger respondents were more likely to be recruited from larger venues. Trained interviewers coded responses using handheld computers equipped with handheld assisted personal interview (HAPI) software (Nova Research, Bethesda, MD). Data were encrypted and made inaccessible until they were uploaded into the warehouse manager program.

Measures

Demographics and additional covariates—The questionnaire assessed demographics including information about sex, age, race and ethnicity, work, income, living situation, criminal history, and alcohol, illegal drug use and tobacco use (days of use in the last 90 days), alcohol use in sexual contexts (ie, before, during and after sex), and alcohol use expectancies during sexual contexts.

Experiences of discrimination measure—Participants completed the Experiences of Discrimination (EOD) measure, a survey instrument specifically designed to be employed in research on the effects of discrimination on health outcomes.[62] The EOD contains 2 subscales, assessing “Situations” and “Frequency” of discrimination (Table 1). The “Situations” subscale of the EOD measure is scored by counting the total number of 9 situations in which participants have experienced any discrimination over their lifetime for possible scores ranging from 0-9. Examples of situations include experiencing discrimination at school, work and housing among others. The “Frequency” score is derived by asking participants to rate the frequency of discrimination encountered in each of the 9 situations. This was recoded to include ‘never’ and operationalized on a scale of 0-3 (0 = never, 1 = once, 2 = 2-3 times, 3 = 4 or more times).

HIV-related sexual risk taking, knowledge, and risk behaviors—Participants provided information about the number of sex partners in the previous year and frequency of condom use for vaginal, oral, and anal intercourse, rated on a scale of 0-4 (0=never, 1=rarely, 2=sometimes, 3=almost always and 4=always). Participants reported on their sexual health history, including instances of past HIV testing, current HIV status, and whether they had ever had an STI. Respondents rated their perception of their personal risk of contracting HIV on a scale of 0-5 [0 = no chance (0%), 1= little chance (1%-20%), 2= some chance (21%-40%), 3 = half chance (41%-60%), 4 = high chance (61%-90%), and 5 = sure chance (91%-100%)]. HIV-related knowledge was assessed using responses to the following 7 true-false questions, adapted from Carey and Schroder's HIV knowledge scale:[63] (1) You can tell from looking at a person if they have the HIV virus; (2) Cleaning a syringe with bleach protects you from becoming infected; (3) A negative test for HIV means you do not have HIV infection; (4) It is possible for a baby to get HIV from breastfeeding if the mother is HIV positive; (5) Using a condom can reduce your chances of becoming infected with HIV; (6) HIV, the virus that causes AIDS, is present in semen, blood, vaginal fluid, and breast milk; and (7) If a woman does not use drugs, she is not at risk for HIV infection. Correct responses were summed for a total HIV knowledge score ranging from 0-7 and higher scores indicating greater knowledge (Cronbach's alpha = 0.87). Assessment of participants’ HIV-related risk behavior included the following 7 established risk factors: (1) having sex while high; (2) having sex with a partner who is high; (3) purchasing sex; (4) exchanging sex for drugs or money; (5) having sex with men who have sex with other men; (6) having multiple sex partners at a time; (7) having sexual contact with intravenous drug users. Respondents were asked to report the frequency with which they engaged in each of these behaviors (0=never, 1=rarely, 2=rarely, 3= almost always, 4=always) and responses were summed for a total possible score ranging from 0 to 28 with higher scores indicating higher risk.

Statistical Analyses

Univariate, bivariate, and multivariate analyses were performed using SAS version 9.2, including principal components analysis (PCA) and Cronbach's alpha for internal consistency reliability of EOD. We conducted a bivariate analysis between EOD (scaled both by frequency of occurrence and situational counts) and socio-demographic characteristics, lifetime history of having an STI, the sexual risk composite score, perceived

risk of HIV, and HIV knowledge. Crude and adjusted linear and logistic regressions assessed associations between the sexual risk composite and having ever had an STI, respectively, and EOD scaled on “Frequency” (regression 1) and “Situations” (regression 2). Final models included age and sex *a priori*, and all remaining socio-demographic characteristics were tested as potential confounders and retained in the final model if they had at least a 10% influence on the predictor parameter estimate. We also examined the potential role of alcohol use as a mediator in the relation between EOD and sexual risk behavior by assessing the change in estimate between models with and without the mediator as well as via the Sobel test of mediation.[64]

RESULTS

Consistent with the initial EOD validation study,[62] the main analyses included only those respondents who identified as African-American (N = 214, 89.4% of entire study sample). Characteristics of participants are presented in Table 2. Participants were on average 29 years old and majority female (56.1%, N = 120). The majority of the cohort reported having sex with only the opposite sex (77.5%), held a full time (49.5%) or part time job (17.3%), and had graduated high school (68.3%). Most of the respondents reported an income of less than $2000 a month (62.6%) and a majority reported being single (52.3%).

None of the participants who indicated their HIV status (75%, N = 161) reported being seropositive. Respondents had been tested for HIV an average of 1.4 times, with women reporting being tested significantly more often than men ($p < .001$), and participants who engaged in sex with both men and women reporting testing most often ($p = .03$). Over half of the cohort reported a lifetime history of having been diagnosed with any STI (53.3%, N = 114). On a scale of 1-7, the average HIV knowledge score was 5.02 (SD=1.02). Overall the mean composite score for HIV-related risk taking was 5.31 (SD=4.23) on a scale of 0-28, with no significant difference by sex. Participants who reported sexual intercourse with the same sex or both sexes scored significantly higher than participants reporting intercourse with the opposite sex on risk-taking ($p < .001$).

Experiences of Discrimination

In the case of both the “Situations” and “Frequency” subscales, PCA revealed the presence of 2 components with an eigenvalue exceeding 1; an inspection of the Scree plots showed a break after the first component. This component accounted for 63.32% (“Situations”) and 47.11% (“Frequency”) of the variance in scores, respectively. Factor loadings for the 9 situation items ranged from 0.64 to 0.91; frequency items factor loadings ranged from 0.51 to 0.81.

Cronbach's alphas for the situations (α=0.91) and frequency scales (α=0.85) suggested good to excellent internal consistency reliability of the measure in this semi-rural African-American study population. Among these respondents, all EOD frequency items were positively correlated with one another, with inter-item correlation coefficients ranging from 0.10 (frequency of discrimination at work – in public) to 0.67 (frequency of discrimination in medical setting – housing).

Reported levels of discrimination were high in this sample (Table 3). Participants on average reported experiencing discrimination at over 7 of the 9 different situations (mean = 7.5) and on more than 34 (mean = 34.1) separate occasions. The largest proportion of people reported experiencing discrimination more than 4 times at school (76.6%) and when receiving services (76.2%). There was no significant difference by sex in experiences of discrimination.

Alcohol and Other Substance Use

Overall, over a period of 90 days, survey respondents used alcohol an average of 27 days. Respondents reported more frequently using illegal substances (namely marijuana) than alcohol (Table 4). On a scale of 1-4 respondents scored relatively low on using alcohol before (1.7), during (1.2) or after sex (1.6). The majority of respondents also reported that alcohol made sex more pleasant (77.3%), and that after consuming alcohol a majority of respondents were less selective in choosing partners (92.7%) and less likely to use a condom (82.4%).

Experiences of Discrimination and Sexual Risk-taking Behavior

Bivariate correlations—Table 5 presents the bivariate correlation data. EOD frequency scores were significantly and positively associated with the sexual risk composite variable (0.31, $p < .001$, a=.05) as well as with age (0.15, $p = .03$, a=.05), work status (0.21, $p = .003$, a=.05) and having been in jail in the past 72 hours (0.31, $p < .001$, a=.05) and negatively associated with education level (−0.28, $p < .001$, a=.05). EOD situations scores were positively associated with the sexual risk composite variable (0.35, $p < .001$, a=.05) and age (0.214, $p = .002$, a=.05) and was negatively associated with education level (−0.31, $p < .001$, a=.05). The measure of EOD situations was positively and significantly associated with perception of HIV risk (0.21, $p < .001$, a=.05). The association between EOD frequency and perception of HIV risk, and the association between either measure of EOD and HIV knowledge composite were non-significant. Ever having an STI was significantly associated with higher scores on the EOD frequency (0.33, $p < .001$, a=.05) and EOD situations (0.38, $p < .001$, a=.05) scales.

Multivariate analysis—We conducted multiple linear and logistic regressions to examine whether EOD was a predictor for the sexual risk composite score and STI history, respectively, after controlling for significant socio-demographic variables (Table 5). Of potential confounders tested, only sexual preference, education level and number of drinks after 90 days passed the 10% change criteria for inclusion in the model which also included age and gender. EOD frequency explained 5% of the variance in sexual risk and 7% (pseudo R-square) of the variance in STI history and a substantial proportion of the variance in sexual risk and STI history were explained after including additional predictors. EOD significantly predicted sexual risk scored on both the (1) “Frequency” ($p = .004$) and (2) “Situations” ($p < .001$) scales after adjustment.

Alcohol use over 90 days was not associated with sexual risk behaviors in these data and therefore did not meet the criteria for mediation. The Sobel Test for mediation was also non-significant (EOD frequency = 0.30; EOD situation = 0.46; $p > .05$). Additional sensitivity

analyses examining other measures of alcohol consumption, including days drunk in the last 90 days and the use of alcohol before, during or after sex revealed similar results (data not shown).

We also conducted a logistic regression with EOD as a predictor for ever having had an STI. After adjusting for sex, sexual preference, age and education, both EOD measured on the "Frequency" and "Situations" scales were found to be significantly associated with lifetime history of STI ("Frequency" OR=1.54, 95% CI=1.21, 1.95;"Situations" OR = 1.72, 95% CI = 1.34, 2.20). As a strong confounder, the additional adjustment for alcohol use attenuated the point estimates ("Frequency" OR=1.11 95% CI=0.91, 1.35; "Situations" OR=1.51, 95% CI=1.29, 1.76), but again there was no evidence of mediation by alcohol use.

DISCUSSION

Cumulative experiences of discrimination appear to play a significant role in sexual risk behavior and consequently, risk for HIV and other STIs among African Americans in semi-rural southeast Louisiana. We observed a significant association between EOD and sexual risk, as well as a significant association between EOD and increased lifetime history of diagnosed STIs, whether measured on the "Frequency" or "Situational" scale. However, alcohol use did not behave as a mediator between sexual risk or history of STIs and discrimination measures in these data.

These results corroborate findings related to alcohol use and discrimination, indicating a strong positive relation between these 2 phenomena.[43] They also support previous studies that have examined the relation between discrimination and sexual risk behavior.[11,48,49] Alcohol may represent one of many potential pathways through which discrimination may influence sexual risk. Discrimination may also influence exposure to high-risk social ties and increased chance of engaging in sexual risk behavior.[65,66]

Our findings have several critical public health implications. Several studies, conducted largely in urban situations, have shown that racial discrimination, especially early in life, may have long-lasting detrimental effects.[67,68] Our results extend previous findings of a clear effect of EOD on sexual risk behavior to a more rural and semi-rural area. The intersection of race, sex, and sexuality can lead to increased discrimination for African-American men in same sex relationships, which may be exacerbated in more rural communities.[68] This was evident in the prevalence of experiences reported by participants.

Results also suggest that the EOD measure is an appropriate tool for use in this southern Louisiana cohort. Psychometric properties of the measure in this sample, including factor structure and internal consistency reliability were comparable to those detected previously in other samples. Levels of discrimination, however, were substantially higher in our sample than in previously reported samples. For example, in the validation study by Krieger et al,[62] more than 60% of African-American respondents reported never experiencing discrimination in these situations, across all situations; however, in our sample, only one-third or less indicated never experiencing discrimination across these situations. The average

situation and frequency discrimination scores in our sample were more than 3- and 5-fold greater, respectively, than reported in the previous study.

Despite important findings, the present study is not without limitations including the cross-sectional nature of the study and reliance on self-reported data. First, the findings cannot be generalized beyond this population. This was a specific group of individuals primarily recruited from alcohol-serving establishments. The location of the participant recruitment may also have had an effect on the non-significant finding of alcohol as a mediator in the pathway. Though participants rated the frequency of experiences of discrimination and indicated situations in which discrimination was likely to occur, findings presented here do not speak to the exact nature of the discrimination, including the reasons why an individual may have been discriminated against and the severity of the instances in which discrimination occurred.

Future research should assess differences in types, targets, and severity of discrimination and determine how they may differentially relate to risk behaviors such as those assessed here. We understand that some of the sexual behaviors included in the sexual composite score may be more common among one sex or sexual identity than others. Therefore, future research should focus on recruiting larger samples of individuals to achieve greater numbers of diverse sexual identities for further analysis. Similarly, future studies should examine EOD and adverse health outcomes in rural areas which are more racially and ethnically diverse, including those with growing Hispanic/Latino populations. Lastly, we recognize that discrimination is a complex subjective construct and that one measure will not be able to fully capture the picture of experiencing discrimination or perhaps more importantly, day-to-day micro aggressions that contribute to overall experiences of discrimination.

Our results present evidence to suggest that discrimination poses a significant health risk to these individuals and their community. Identifying populations such as this one who may experience discrimination more frequently—whether due to race, ethnicity, sex, sexual orientation, place of residence, or other characteristics—and tailoring sexual health resources and programs together with communities to fit their needs and context may assist in decreasing the HIV and STI rates in marginalized populations. More importantly, larger multi-level and multi-disciplinary socio-economic and socio-political approaches are needed to address structural sources of discrimination and to improve the social environment of marginalized communities. This will entail increased recognition of institutional and contextual factors that may influence risk behavior.

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Table 1

Experiences of Discrimination Measure[62]

Have you ever experienced discrimination, been prevented from doing something, or been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color?	
1. At school?	For each situation to which the participant responded “yes” (versus “no”), the follow-up question was: How many times did this happen?
2. Getting hired or getting a job.	
3. At work?	1.Once
4. Getting housing?	2.Two or three times 3.Four or more times
5. Getting medical care?	
6. Getting service in a store or restaurant?	
7. Getting cred, bank loans, or a mortgage?	
8. On the street or in a public setting?	
9. From police or in the courts?	

Table 2

Demographics of Study Population

	Overall (N = 214) %	Female (N = 120) %	Male (N = 93) %
Mean Age in Years (range 18-47)	29.03	28.84	29.10
Sexual Preference			
Sex w/ opposite sex	77%	63%	96%
Sex w/ same sex	8%	10%	4%
Sex w/ both sexes	15%	27%	0
Education Level			
Less than high school	31%	28%	34%
High school	29%	30%	26%
Greater than high school	41%	42%	40%
Monthly Income			
<$2,000	63%	73%	48%
$2,000-$3,999	31%	23%	41%
$4,000+	7%	3%	11%
Employment			
Full-time	50%	52%	46%
Part-time	17%	23%	11%
Unemployed	13%	8%	18%
Living Situation			
Own house	47%	44%	51%
Someone else's home	22%	23%	22%
Relationship Status			
Single	52%	52%	53%
Married, common law married	10%	9%	12%
In a relationship (casual or steady)	18%	17%	20%
Lifetime History of Jail for at Least 72 hrs.	24%	12%	40%

Note.

Percentages based on non-missing values; < 10% missing on all variables

Table 3

Experiences of Discrimination Measure (EOD) and Response to Discrimination

Experience of Discrimination	Overall (%) (N = 214)	Male (%) (N = 93)	Female (%) (N = 120)	Fisher's exact test χ^2 p-value
School				0.14
Never	11.68	8.60	14.17	
1	2.80	2.15	3.33	
2-3	8.88	7.53	10.00	
4+	76.64	81.72	72.50	
Work				0.20
Never	30.84	9.68	16.67	
1	1.87	4.30	3.33	
2-3	10.75	15.05	17.50	
4+	56.54	70.97	62.50	
Job Search				
Never	15.42	11.83	18.33	
1	1.40	1.08	1.67	
2-3	18.22	17.20	19.17	
4+	64.95	69.89	60.83	
Housing				0.99
Never	30.37	30.11	30.83	
1	6.54	8.60	5.00	
2-3	17.76	13.98	20.83	
4+	45.33	47.31	43.33	
Medical Care				0.93
Never	27.57	26.88	28.33	
1	7.94	8.60	7.50	
2-3	20.56	19.35	21.67	
4+	43.93	45.16	42.50	
Service				0.24
Never	12.62	9.68	15.00	
1	1.40	2.15	0.83	
2-3	9.81	7.53	11.67	
4+	76.17	80.65	72.50	
Bank				0.71
Never	35.51	35.51	73.08	
1	16.36	16.36	11.54	
2-3	16.82	16.82	3.85	
4+	31.31	31.31	11.54	
Public				0.29
Never	12.15	9.68	14.17	
1	2.34	1.08	3.33	
2-3	11.21	11.83	10.83	

Experience of Discrimination	Overall (%) (N = 214)	Male (%) (N = 93)	Female (%) (N = 120)	Fisher's exact test χ^2 p-value
4+	74.30	77.42	71.67	
Courts				0.01
Never	20.09	13.98	25.00	
1	17.29	10.75	22.50	
2-3	18.22	19.35	16.67	
4+	44.39	55.91	35.83	
Mean EOD (SD)				
Situation (0-9)	7.53 (2.48)	7.53 (2.29)	7.52 (2.64)	0.19
Frequency (0-45)	34.06 (13.96)	31.87 (14.75	28.82 (12.76)	0.84
Cronbach's Alpha				
EOD, situation	0.91	0.88	0.93	
EOD, frequency	0.85	0.85	0.85	

Table 4

Prevalence of Substance Use (N = 214)

	Mean (SD, n)		
	Overall	**Male**	**Female**
Number of past 90 days tobacco used	76.85 (30.92, N = 84)	80.24 (27.07, N = 42)	73.45 (34.33, N = 42)
Number of past 90 days alcohol was used*	26.77 (22.28, N = 202)	29.76 (24.27, N = 90)	24.43 (20.45, N = 112)
Number of past 90 days illegal substances were used**	46.60 (34.81, N = 125)	52.60 (36.53, N = 55)	40.37 (33.01, N = 70)
Number of past 90 days drunk	7.51 (12.55, N = 108)	8.77 (15.09, N = 52)	6.36 (9.625, N = 56)
Alcohol use before sex (0-4)	1.71 (1.11, N = 213)	1.828, (1.16, N = 93)	1.61 (1.07, N = 120)
Alcohol use during sex (0-4)	1.15 (1.08, N = 213)	1.18 (1.180, N = 93)	1.12 (1.01, N = 120)
Alcohol use after sex (0-4)	1.63 (1.24, N = 213)	1.77 (1.23, N=93)	1.52 (1.21, N = 120)

	% Yes (n)		
	Overall	**Male**	**Female**
Substance use w/I 24 hrs	62% (N = 132)	65% (N = 60)	59% (N = 71)
Injected drug use	2% (N = 5)	3% (N = 3)	2% (N = 2)
% alcohol makes sex more pleasant	77% (N = 160)	77% (N = 71)	77% (N = 81)
% alcohol makes sex less pleasant	5% (N = 11)	3% (N = 3)	7% (N = 8)
% who are more selective in sex partners after alcohol	7% (N = 8)	6% (N = 3)	1% (N = 5)
% who are less selective in sex partners after alcohol	93% (N =102)	94% (N = 48)	92% (N = 54)
% less likely to use a condom after consuming alcohol	82% (N = 75)	83% (N = 30)	82% (N = 45)

*
t=1.66, p = .10

**
t=1.96, p = .05

Table 5

Correlations of Substance Use Behaviors and Other Factors with Experiences of Discrimination and a Sexual Risk Composite

	EOD Frequency	EOD Situation	Sexual Risk Composite	STI History
EOD_ Frequency				
EOD_ Situation	0.86**			
Sexual Risk Composite	0.30**	0.35**		
STI History	0.33**	0.38**	0.25*	
Tobacco Use over 90 Days	0.04	0.05	−0.11	−0.07
Alcohol Use over 90 Days	0.34**	0.34**	0.18**	0.64*
Drugs over 90 Days	−0.15	−0.26**	0.34**	−0.30**
Drunk during the past 90 days	0.34**	0.19	−0.09	−0.11*
Substance Use in the past 24 hrs	0.17*	0.19**	0.36**	0.23**
Alcohol before Sex	0.30**	0.39**	0.62**	0.24**
Alcohol during sex	0.24**	0.37**	0.66**	0.29**
Alcohol after sex	0.35**	0.40**	0.56**	0.23**
Age	0.15*	0.21**	−0.07	0.01
Education level	−0.28**	−0.31**	−0.41**	−0.25**
Work Status	0.21**	0.08	0.08	0.004
Income level	0.02	0.11	−0.09	−0.15**
Jail in the past 72 Hours	0.31**	0.22**	0.10	0.20**

* **p < .05**

** **p < .01**

Table 6

Experiences of Discrimination (EOD) Frequency Impact on Sexual Risk Behavior: Results of Multivariate Regression Models (N = 213)

Variables	Model A	Model B	Model C	Model D	Model E	Model F
	Crude Sexual Risk Composite[a]	Adjusted Sexual Risk Composite	Mediation Model Sexual Risk	Crude Lifetime STI	Adjusted Lifetime STI	Mediation Model Lifetime STI
	Crude or Adjusted Beta Estimate (S.E.)			Crude or Adjusted Odds Ratio (95% Confidence Interval)		
EOD Frequency (0-5)	0.82 (0.18)***	0.51 (0.18)**	0.41 (0.15)***	1.52 (1.30, 1.95)*	1.54 (1.21, 1.95)*	1.11 (0.91, 1.35)
Female		−0.52 (0.57)	−0.15 (0.96)		1.03 (0.51, 2.05)	1.02 (0.51, 2.06)
Sexual Behavior						
Same-sex Sex partners		2.63 (1.11)*	2.98 (1.38)*		0.19 (0.05, 0.77)	4.54 (1.61, 12.84)*
Male+Female sex partners		2.64 (0.83)*	1.86 (2.18)*		1.33 (0.49, 3.62)	5.82 (1.25, 27.06)*
Age (years)		−0.029 (0.03)	0.052 (0.07)		1.02 (0.98, 1.06)	0.98 (0.94, 1.02)
Education Level[b]		−0.52 (0.13)***	−0.20 (0.22)***		0.69 (0.58, 0.82)**	0.81 (0.68, 0.97)*
Days alcohol use in Last 90 days			0.02 (0.01)			0.99 (0.98, 1.01)
R-Square[c]	5%	23%	24%	7%	17%	18%
EOD Situation (0-9)	0.60 (0.11)***	0.46 (0.11)***	0.43 (0.16)***	1.72 (1.38, 2.15)**	1.72 (1.34, 2.20)**	1.51 (1.29, 1.76)*
Female		−0.62 (0.58)	−0.89 (0.84)		0.75 (0.36, 1.76)	0.62 (0.33, 1.17)
Sexual Behavior						
Same-sex sex partners		2.80 (1.00)*	3.20 (1.19)*		0.20 (0.05, 0.83)**	1.34 (1.15, 1.56)*
Male + Female sex partners		2.36 (0.85)*	2.82 (1.79)*		1.20 (0.43, 3.39)	3.68 (1.00, 13.47)
Age (years)		−0.04 (.03)	0.11 (0.06)		1.00 (0.96, 1.05)	1.01 (0.97, 1.05)
Education Level[b]		−.45 (.13)**	−0.28 (0.18)*		0.69 (0.58, 0.83)**	0.74 (0.64, 0.87)**
Days alcohol use in Last 90 days			0.02 (0.01)			(1.00, 1.02)
R-Square	6%	29%	32%	14%	37%	38%

Note.

*p < .05

**p < .001

***p < .0001

[a]Sexual Composite scale = (0-21)

[b](0=1st-6th; 1=7th-8th; 2= 9th; 3=10th; 4=11th; 5= 12th/GED; 6= some college; 7= military/vocational tech; 8= college degree or higher)

[C]Based on pseudo-R-square in logistic regression models (for STI history)