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Substance Use and Sexual Risk Mediated by Social Support among Black Men

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Abstract

Health and social disparities are widespread among men who have sex with men (MSM). Although literature indicates that Black MSM (BMSM) are no more likely than other MSM to report sexual risk behaviors, such as unprotected anal intercourse, studies have reported that buying and trading sex appear to be important risk factors for BMSM. Substance use generally is not significantly greater among BMSM than other MSM, studies have found that BMSM report more powder and crack cocaine use than other MSM. The lack of adequate coping skills and social support for BMSM has also been documented. This paper examines differences in substance use, sexual risk behaviors and social support among Black and non-black MSM, in a sample of 515 men participating in a randomized intervention trial. BMSM reported higher rates of substance dependence (72.2% vs. 59.5%, P=.015) and buying sex (49.1% vs. 17.4%, P<.000) than non-Black MSM. BMSM also reported lower levels of social support than other MSM on all measures included in the study; e.g., getting help and emotional support from others (38.0% vs. 52.8%, P<.006). Mediation analyses showed that BMSM's higher rates of substance dependence and buying sex are partially mediated by lower levels of social support. Our data appear to show that lack of social support is an important influence on risk behaviors among BMSM. Qualitative data also supported these findings. Sexual risk and substance use prevention interventions should address BMSM's capacity to build adequate and supportive relationships.

Keywords

African American; MSM; substance use; sexual risk behavior; social support

Introduction

Much of the current research focused on urban men who have sex with men (MSM) emphasizes syndemic theory as a framework for understanding the multiple health disparities among MSM [1, 2]. Syndemic theory views adverse health conditions as fundamentally interconnected; that is, "two or more afflictions, interacting synergistically,

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contributing to an excess burden of disease in a population" [3]. As compared to men in the general population, health disparities among MSM are evidenced in higher rates of depression and other mental health problems, victimization, and substance dependence [4, 5]. Research has employed a syndemic approach to understand the conditions driving the HIV epidemic among MSM [6], and more recently studies have shown that the linkages between mental distress, substance use and sexual risk behaviors are further evidenced by the frequent use of sex and drugs in combination for sexual or cognitive escape purposes [7].

While such disparities are generally common among MSM in the United States, they are also widespread among African American/Black MSM (BMSM), especially with regard to incarceration rates, low socioeconomic status, and victimization [8]. HIV prevalence among BMSM is also significantly higher than for other racial/ethnic groups [9], but a recent review of research on BMSM and sex risk suggests that these men are no more likely than other MSM to report sexual risk behaviors, such as unprotected anal intercourse (UAI) [10]. However, several studies have reported that buying, selling, or trading sex appears to be important risk factors for BMSM [11, 12]. Similarly, although substance use is not significantly greater among BMSM than other MSM [10, 13], several studies have found that BMSM report more powder and crack cocaine use than White or Latino MSM [14, 15]. BMSM also experience more frequent and severe consequences of drug and alcohol use than do White MSM, leading to health disparities such as poorer physical health and increased likelihood of incarceration [16], in addition to higher rates of other factors such as victimization and gang involvement, as compared to other MSM [5, 8].

The lack of adequate coping skills and social support for BMSM has been documented [13, 17]. Research suggests that these difficulties stem largely from negative attitudes toward homosexuality in African American communities that prohibit BMSM from fully expressing themselves or their identities for fear of being rejected by their culture or ostracized from the their community, leaving BMSM with feelings of isolation and alienation [16–18]. Among MSM in general, substance use has been identified as a coping mechanism for men to excuse sexual behaviors that they or society find unacceptable [19]. Qualitative research among BMSM has confirmed these findings [16], but similar quantitative evidence is scant. Thus, the absence of social support from family, friends, church, and neighborhood is a key determinant in understanding substance use, sexual risk behaviors and a host of additional vulnerabilities faced by BMSM [8].

Given these potential linkages between lack of social support and the syndemic factors of substance use sexual behavior among BMSM, this paper seeks to understand BMSM health disparities compared to other MSM, using a mixed method design. First we examine survey data from a large sample of ethnically diverse substance-using MSM, comparing BMSM with non-Black men. Next, we test the hypothesis that social support mediates the relationship between Black race/ethnicity and substance use and sexual risk behavior. We then present qualitative data from BMSM to provide additional context to these analyses. The paper concludes with a discussion of the implications of our findings for substance use and sexual risk reduction interventions.

Methods

Data in these analyses are drawn from baseline assessments of 515 MSM participating in a risk reduction intervention trial being conducted in the Miami/Ft. Lauderdale metropolitan area. The study is a two-armed randomized clinical trial (RCT) testing the efficacy of an empowerment theory-based small group intervention compared to a single session counseling condition based on resilience theory [20]. Participants were recruited into the study between November 2008 and October 2010. Multiple recruitment methods were

employed, including direct outreach, participant referral, and internet and print media. Eligible men were between the ages of 18 and 55; reported recent (past 90 days) UAI with a non-monogamous partner(s); and met one or more of three substance use inclusion criteria: binge drinking (5 or more drinks) at least three times in the past month, using marijuana on 20 or more days in the past month, or using any other drug at least three times in the past month. Research protocols were approved by the University of Delaware's (predecessor institution) and Nova Southeastern University's Institutional Review Boards.

The Miami/Ft. Lauderdale metropolitan area is a well-known migration destination for MSM, with the second highest ratio of same-sex households among large urban centers in the nation [21]. Miami reports the highest AIDS and HIV incidence rates in the U.S.[22] and almost half (45%) of HIV-positive MSM in a recent Miami study were unaware of their infection [9]. Although initially centered in the South Beach district of Miami, the gay subculture has dispersed more widely throughout the urban area over the last decade. Residential concentrations of MSM, gay social venues, drug copping areas, and male commercial sex solicitation strips are located in several Miami-area neighborhoods, as well as in neighboring downtown Ft. Lauderdale and its adjacent suburb of Wilton Manors.

The project is housed in two field offices, one in Wilton Manors (Ft. Lauderdale) and one in Miami Beach. At intake, the nature of the project was explained by the research staff, including its voluntary and confidential nature and the monetary stipends. Each client was screened for eligibility, followed by informed consent and enrollment and locator data collection. Men reporting HIV-negative status were also offered confidential testing. The baseline interview session was scheduled about two weeks from enrollment, so that HIV test results could be given to men who elected testing during the same visit. All interviews were conducted in private offices using computer-assisted face-to-face interviews. Clients received HIV and drug education literature, condoms, and a $50 stipend upon completion of the baseline activities. Baseline interviews lasted about two hours.

Measures

Substance use measures included past 90 day frequency of use of each substance, including the non-medical use of prescription medications. Participants were also asked to use a calendar to calculate the number of days they were either drunk or high all or most of the day during the past 90 days. Substance dependence was assessed by the endorsement of three or more of seven DSM-IVR criteria in the past year (e.g., needing more drug to get the same effect, experiencing withdrawal symptoms, being unable to quit or cut down). An extensive battery of sexual behavior questions specific to MSM included counts of past 90 day receptive and insertive anal intercourse events, with or without substance use, with or without a condom, with a casual or primary partner, and with a seroconcordant, serodiscordant, or unknown serostatus partner. Additional questions asked if, during the past 90 days, a respondent had "used money or drugs to purchase or get sex" and whether he had "traded sex to get drugs, gifts, or money."

Social support was operationalized with three measures: the use of help and emotional support from others, the number of people available for help and support, and the level of satisfaction with the help and support available. We asked respondents to rate their recent coping behavior when under stress by responding to this statement, "I have been getting help and emotional support from other people," using a four-point scale from "I've been doing this a lot" to "I haven't been doing this at all." In these analyses the responses were dichotomized such that 1 = "a lot / moderately" and 0 = "a little / not at all."

The measures for the number of people available for help and support and the level of satisfaction with that support, were based upon the design of the Social Support

Questionnaire [23], using questions specifically adapted for this population. Thus, social support was measured with a five-item inventory in which respondents listed from 0–9 people who would offer help or support for each item (e.g., "Whom can you really count on to let you live with them if you lost your housing?"; "Whom can you really count on to help you if you had a health crisis?"). Participants were then asked to rate their level of satisfaction with the overall support available to them for each item on a 6-point scale ranging from "very dissatisfied" to "very satisfied." We summed the people listed for all questions to generate the inventory of the total number of people offering support, ranging from 0–45. Similarly, the responses to participant satisfaction with social support were aggregated to generate the total level of satisfaction (ranging from 0–25).

Survey Data Analyses

Analyses of baseline data presented here were conducted using the IBM SPSS Statistics version 19. Presentation of final outcome data, analyses, and comparison between the two RCT arms will be presented in subsequent publications. Descriptive statistics were calculated for the variables of interest, including age, education, substance use, sexual behavior, and social support measures by Black and non-Black race/ethnicity. Based on these results, we tested the hypothesis that social support mediates BMSM's heightened vulnerabilities related to substance use and sexual behavior. In the mediation analyses, substance dependence was selected to measure substance use risk. Buying sex was chosen to measure sexual risk because trading or selling is primarily an economic survival strategy [24] and we hypothesized that buying sex would likely be related to lack of social support. Getting help and emotional support from others was used to assess social support. All three measures are dichotomous; 1 indicates presence of the behavior and 0 its absence.

Logistic regression models were constructed to predict substance dependence by the social support measure and by black race/ethnicity, and to predict social support by black race/ethnicity. Mediation tests [25] were then conducted using social support as the mediating variable. An identical process was repeated with "bought sex" as the dependent variable.

Qualitative Data

Semi-structured in-depth interviews were conducted with 5 BMSM who completed the Project ROOM (Men Reaching Out to Other Men) study in order to gain a deeper insight into their substance use, sexual risks, and social support. Interview guides were developed with a particular focus on BMSM's beliefs about their unique challenges. A large portion of each interview focused on the linkages between substance use, sexual behavior, and social support. Questions were open-ended to allow for multiple themes to emerge from the discussion; each interview lasted approximately 75 minutes. Interviews were recorded and transcribed for analysis using QSR NVivo 8 software. Coding for each interview was performed using a grounded theory approach to allow for key themes to emerge from each interview [26].

RESULTS

Demographic, substance use, sexual behavior, and social support characteristics of the sample are shown in Table I. The diverse sample of MSM was 21% Black (N=108), 25.8% Hispanic (N=133), 48.5% White (N=250), and 4.7% Other (N=24; data not shown). For analysis, we examined BMSM compared to non-Black men (N=407). There were no significant differences in age by race/ethnicity. Fewer BMSM were college educated (14.8%), compared to non-Black MSM (36.6%; $P < .000$). BMSM were significantly more likely to be HIV-positive (63.9%) than their non-Black counterparts (44.5%; $P=.001$).

BMSM reported 34.37 (SD 33.61; range 0–90) mean number of days high or drunk for all or most of the day, which was nearly double the 17.29 (SD 25.13; range 0–90; $P < .000$) mean number of days reported by non-Black MSM. Similarly, the mean number of times any drug was used during sex was 77.66 for BMSM (SD 97.44; range 0–662), which was significantly higher compared to non-Black MSM who reported 42.84 mean times (SD 52.96; range 0–417; $P < .000$). Substance dependence was more prevalent among BMSM (72.2%) than non-Black MSM (59.5%; $P = .015$).

Rates of binge drinking (5 or more drinks at one sitting) and the misuse of prescription sedatives and opioids in the past 90 days did not significantly differ by race/ethnicity. BMSM were less likely than non-BMSM to use poppers (amyl nitrites; 31.5% vs. 59.2%; $P < .000$) and methamphetamine (13% vs. 29%; $P = .001$). However, compared to non-Black men, BMSM reported more frequent marijuana (75.9% vs. 62.4%; $P = .009$), powder cocaine (59.3% vs. 41%; $P = .001$), crack cocaine (40.7% vs. 14.7%; $P < .000$), and ecstasy use (27.8% vs. 15.5%; $P = .003$).

The mean number of sex partners and (UAI) frequency were not significantly different for Black and non-Black MSM. However, the mean number of anal sex times among BMSM was 44.69 (SD 67.1; range 1–360) was higher than non-Black men whose mean was 30.07 (SD 34.63; range 1–325; $P = .002$). Buying sex during the past 90 days was nearly three times more prevalent among BMSM (49.1%) than non-Black MSM (17.4%; $P < .000$). The number of BMSM who traded or sold sex during the past 90 days was also higher (36.1%) compared to non-Black men (19.7%; $P < .000$).

Fewer BMSM than non-Black MSM reported coping by getting help and emotional support from others (38% vs. 52.8%; $P = .006$). The mean number of people available for support among BMSM was 11.97 (SD 8.48; range 0–45) compared to non-BMSM whose mean was 17.23 (SD 10.15; $P < .000$). Finally, the mean score for satisfaction with available social support was 16.91 for BMSM (SD 7.13; range 0–25) and 18.64 for non-Black MSM (SD 6.03; $P = .011$).

Mediation Model 1: Analysis of Social Support and Substance Use

Based on the higher levels of substance dependence and transactional sex, but lower levels of social support, reported by BMSM compared to non-Black MSM, we tested models to examine whether low social support mediates the relationship between Black race/ethnicity and these health risk factors. The results of logistic regression models examining whether social support mediates the relationship between Black race/ethnicity and substance dependence are shown in Table II. BMSM had higher odds of substance dependence (OR = 1.773, 95% CI = 1.113, 2.823; $P = .016$) and lower odds of getting help and emotional support from others (OR = .546, 95% CI = .354, .844; $P = .006$) than other MSM. Getting help and emotional support was associated with lower odds of substance dependence (OR = .495, 95% CI = .344, .711; $P < .000$).

Table II also shows the multivariate logistic regression model including both social support (OR = .515, 95% CI = .357, .742; $P < .000$) and Black race/ethnicity (OR = 1.625, 95% CI = 1.013, 2.607; $P = .044$) as potential predictors of substance dependence. In this model, the relationship between Black race/ethnicity and substance dependence was reduced, and the association between getting help and emotional support from others and substance dependence was significant ($P < .000$). This provides evidence that the lack of social support plays an important role in BMSM's higher rates of substance dependence. A Sobel test determined that the mediation was significant ($P < .026$; two-tailed).

Mediation Model II: Analysis of Social Support and Sexual Behavior

The results of logistic regression models examining whether social support mediates the relationship between Black race/ethnicity and buying sex are shown in Table III. BMSM had higher odds of buying sex (OR = 4.56, 95% CI = 2.891, 7.194; $P < .000$) and lower odds of getting help and emotional support from others (OR = .546, 95% CI = .354, .844; $P = .006$) than other MSM. Getting help and emotional support was associated with lower odds of buying sex (OR = .464, 95% CI = .306, .706; $P < .000$).

Table III also shows the multivariate logistic regression model including both social support (OR = .519, 95% CI = .336, .802; $P < .003$) and Black race/ethnicity (OR = 4.274, 95% CI = 2.694, 6.78; $P < .000$) as potential predictors of buying sex. In this model, the relationship between Black race/ethnicity and buying sex was reduced, reduced and the association between getting help and emotional support from others and buying sex was significant ($P < .000$). This provides evidence that the lack of social support for BMSM is implicated in BMSM's higher rates of buying sex compared to other MSM. A Sobel test determined that the mediation was significant ($P < .026$; two-tailed).

Qualitative Data Analysis

In qualitative interviews, questions related to social support were not directly asked, however as each respondent discussed substance use and sexual behavior, their lack of social support was frequently mentioned.

- Most black guys, we don't have, like support, where the white guys have support.
- If you give a black guy support, they'll be your friend for life…it's not always money support either. Somebody to talk to, somebody to be there, and somebody to hang out with that's positive, other than, like, what they're use to – the drugs, the alcohol, the gangbangers, the thugs, the criminals – you know, somebody positive.
- Black guys have more hardships and therefore they thrive in a more supportive place. White and Hispanic guys have jobs, healthcare. Blacks [in the study] didn't.
- I started looking forward to it [the study visits]. I don't have people to talk to about certain things and having that helped me realize I need those kind of people and that kind of support. Now I'm trying to make friends so I can have that.

Qualitative interviews suggest that a lack of adequate social support was the primary obstacle for overcoming problems of substance use and sexual risk. Respondents volunteered that providing BMSM with necessary social support would go a long way in helping this population overcome a multitude of health and social risk factors that they feel are not faced by other racial/ethnic groups in South Florida.

Discussion

Much of the literature discussing BMSM substance use and sexual risk behaviors references the multitude of syndemic problems that are also present in this population [8, 10]. Our sample was no different. All of the men in our sample, regardless of race/ethnicity, reported high levels of substance use and sexual risk behaviors. However, BMSM reported greater frequency of being high all or most of the day and also using drugs during sex. In addition, BMSM were also more likely to be cocaine users and to meet DSM-IVR criteria for substance dependence. Our finding that BMSM are more likely to buy, trade, or sell sex than

non-Black MSM would appear to be potentially related to their concerns about disclosing sexual identities and desires.

Further, our data show BMSM to be more vulnerable than non-Black men due to a lack of adequate social support. We found BMSM were less likely to report getting help and emotional support from others and having fewer people available and less satisfaction with available supports than non-Black men. This is consistent with recent studies of BMSM that demonstrate the negative association between social support and risk factors related to substance use and sexual behavior [16].

Our analyses demonstrate that social support partially mediates the relationships between Black race/ethnicity and substance dependence and between Black race/ethnicity and buying sex. This finding is important to the design of prevention programming for BMSM because it suggests that enhancing social support is a critical point of intervention for both substance use and sexual risk behaviors among vulnerable BMSM. Our findings are among the first to provide statistical evidence that supports similar qualitative research by others [16]. The in-depth interview data we collected also support our findings and suggest that intervention in communities of BMSM do not need to be elaborate to be successful. Taken together, the qualitative findings from prior work and the quantitative analysis from the present study suggest that interventions focused on the social support needs of BMSM are urgently needed.

These results should be viewed within the context of several limitations. Although the recruitment procedures resulted in a sample of a wide age range and broadly inclusive of the racial/ethnic makeup of South Florida, our ability to generalize the findings to other MSM is limited by the study eligibility requirements, including regular substance use and recent UAI. Syndemic characteristics are likely much more prevalent among high risk substance users than among MSM in general. We also note that all data are based on self-report, potentially leading to underreporting of socially undesirable behaviors. Given the high levels of substance use and sexual risk behaviors we found, however, underreporting of these and other stigmatized behaviors would appear to be uncommon. Finally, the cross-sectional nature of our data limits our ability to make causal inferences among the key variables.

Our data suggest a risk reduction strategy tailored to BMSM should focus not only substance use or sexual risk behaviors, but also concentrate on providing a safe space for social and emotional support. Community and social support have been suggested as means to reduce sexual risks for BMSM [27, 28]. This is especially important for BMSM struggling with sexual identity, as feelings of isolation and alienation are lessened when MSM feel acceptance and realize they are not alone in their identities and desires [8]. Interventions, perhaps especially those grounded in resilience theory, that address BMSM's capacity to build adequate and supportive relationships would appear to contribute to alleviating some of the risk factors faced by them.

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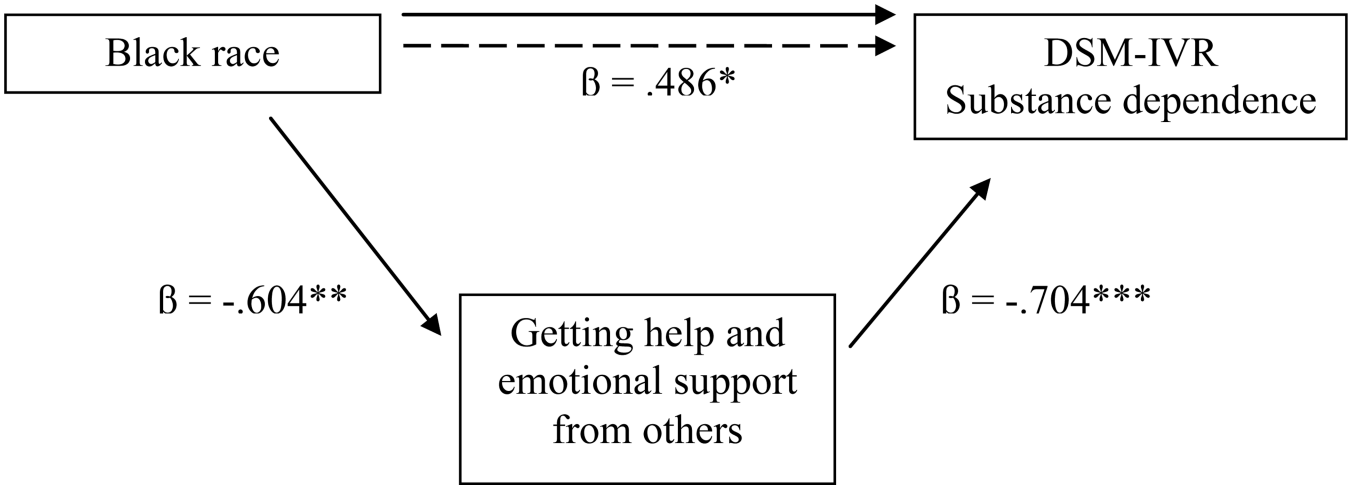

Figure I.
Regression model depicting social support mediating the relationship between Black race and DSM-IVR substance dependence. *Indicates significance at $P \leq 0.05$; **Indicates significance at $P \leq 0.01$; ***Indicates significance at $P \leq 0.001$.

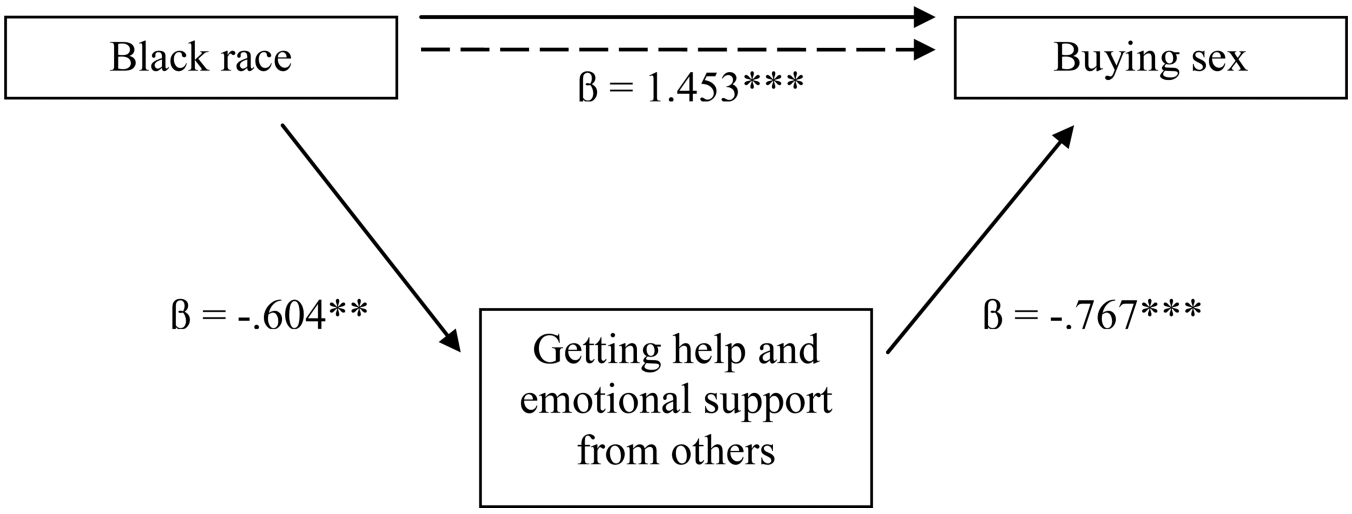

Figure II.
Regression model depicting social support mediating the relationship between Black race and buying sex. *Indicates significance at $P \leq 0.05$; **Indicates significance at $P \leq 0.01$; ***Indicates significance at $P \leq 0.001$.

Table I

Baseline characteristics of substance-using MSM by race/ethnicity N=(515)

	Black MSM		Non-Black MSM		Chi-square or *F*-statistic	*P*
	N=108	21.0%	N=407	79.0%		
Demographics						
Age[a]	39.28	(9.140)	38.84	(9.784)	0.179	0.672
Education - 16 or more years	16	14.8%	149	36.6%	18.620	0.000
HIV-positive	69	63.9%	181	44.5%	12.883	0.000
Substance Use Behavior (past 90 days)						
Days high all or most of the day[a]	34.37	(33.61)	17.29	(25.13)	33.868	0.000
Used drugs during sex (times)[a]	77.66	(97.44)	42.84	(52.96)	24.642	0.000
DSM-IVR substance dependence	78	72.2%	242	59.5%	5.909	0.015
Alcohol (binge drinking)	89	82.4%	332	81.6%	0.040	0.842
Marijuana	82	75.9%	254	62.4%	6.878	0.009
Poppers	34	31.5%	241	59.2%	26.379	0.000
Cocaine (powder)	64	59.3%	167	41.0%	11.464	0.001
Crack cocaine	44	40.7%	60	14.7%	35.798	0.000
Methamphetamine	14	13.0%	118	29.0%	11.505	0.001
Ecstasy	30	27.8%	63	15.5%	8.725	0.003
Rx sedatives	31	28.7%	146	35.9%	1.944	0.163
Rx opioids	26	24.1%	103	25.3%	0.069	0.793
Sexual Behavior (past 90 days)						
Partners[a]	14.66	(21.23)	12.88	(17.82)	0.784	0.376
Anal sex times[a]	44.69	(67.10)	30.07	(34.63)	9.650	0.002
Unprotected anal intercourse (times)[a]	27.78	(51.00)	21.20	(29.89)	2.959	0.086
Buying sex	53	49.1%	71	17.4%	46.710	0.000
Trading or selling sex	39	36.1%	80	19.7%	13.007	0.000
Social Health						
Getting emotional support from others	41	38.0%	215	52.8%	7.542	0.006
Number of people available for support[a]	11.97	(8.48)	17.23	(10.15)	24.403	0.000

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	Black MSM		Non-Black MSM		Chi-square or *F*-statistic	*P*
	N=108	21.0%	N=407	79.0%		
Satisfaction with available support[a]	16.91	(7.13)	18.64	(6.03)	6.473	0.011

[a] Mean; SD

Table II

Mediation analysis logistic regression models predicting substance dependence (N=515)

	P	OR	95% CI
Bivariate logistic regression models			
DSM-IVR substance dependence by Black race	0.016	1.773	1.113, 2.823
Getting emotional support from others by Black race	0.006	0.546	0.354, 0.844
DSM-IVR substance dependence by emotional support	0.000	0.495	0.344, 0.711
Multivariate logistic regression models predicting substance dependence			
Getting emotional support from others	0.000	0.515	0.357, 0.742
Black race	0.044	1.625	1.013, 2.607

Table III

Mediation analysis logistic regression models predicting buying sex (N=515)

	P	OR	95% CI
Bivariate logistic regression models (N=515)			
Buying sex by Black race	0.000	4.560	2.891, 7.194
Getting emotional support from others by Black race	0.006	0.546	0.354, 0.844
Buying sex by emotional support	0.000	0.464	0.306, 0.706
Multivariate logistic regression models predicting buying sex (N=515)			
Getting emotional support from others	0.003	0.519	0.336, 0.802
Black race	0.000	4.274	2.694, 6.780