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Binge Drinking, Stimulant Use and HIV Risk in a Sample of Illicit Drug Using Heterosexual Black Men

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Abstract

Relatively little research has examined the effects of binge drinking and HIV risk in heterosexual Black men. Even less research has explored this relationship in illicit drug using heterosexual Black men who are at an elevated risk of contracting and transmitting HIV through various vectors, including risky sexual behavior, in the Black community. The current study examined the associations between binge drinking, drug use and HIV status in a community-based sample of 127 self-identified heterosexual Black men. Overall, 17% reported binge drinking in the past month. Both stimulant use (AOR 7.29; 95% CIs, 2.07, 25.70), and binge drinking (AOR = 5.28; 95% CIs, 1.34, 20.91) were associated with HIV. These findings will inform prevention interventions to reduce the HIV risk among Black heterosexual men.

Keywords

Black; Heterosexual; Drug Use; HIV; Binge Drinking; Men

1. Introduction

HIV in the United States disproportionately impacts Black men. (Prejean, J. et al., 2011; CDC, 2012). Black men account for approximately 70% of incident cases of HIV (CDC 2012). Though having sex with men is the leading cause of HIV transmission for both men and women (CDC 2012), there is a dearth of research which focuses on risk among men who have sex with women only (Siegel, Schrimshaw, and Karus, 2004; Bowen, Williams, Dearing, Timpson and Ross, 2006; Cederbaum, Coleman, Goller, and Jemmott, 2006; Raj et al., 2009; Kuo et al., 2011; Raj and Bowleg, 2012; Bowleg et al, 2013). Heterosexuals account for 25% of new HIV infections, which recently has surpassed injection drug use

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(IDU) as the second leading vector of HIV transmission, which represents 8% of new cases (CDC, 2012).

The Black community has constricted sexual networks, given low availability of Black men due to incarceration and mortality to disease (Pettit and Western, 2004; Cherlin, 1992). Moreover, older adult African Americans are more likely to have more sexual partnerships in their lifetimes in comparison to other races (Harawa et al., 2011). Additionally, Adimora (et al., 2003) found that men have a higher rate of concurrent partnerships in a sample of heterosexual Blacks. Despite these statistics, heterosexual Black men have been given very little attention from research examining their risk for HIV (Bowleg and Raj, 2011). Given the increasing risk among heterosexual Black men for HIV contraction and the risk to their female partners, it is critical to identify factors for HIV risk among self-identified heterosexual Black men who have never had sexual contact with another man. This is imperative in subgroups of Blacks, such as illicit drug users, as they are generally at an elevated risk for HIV contraction and transmission than their non-illicit drug using counterparts.

Illicit drug use is linked to HIV risk in numerous sample types (Macleod et al., 2004; Mathers et al., 2008; Baum, Rafie, lai, Sales, Page and Campa, 2009; Trezn, Pacek, Scherer, Harrell, Zur and Latimer, 2012). Specifically, IDU is associated with risk of HIV in samples of heterosexual men and women (Battjes, Pickens, Amsel, and Brown Jr., 1990; Kane, 1991). Stimulant use has often been the target drug in Black communities (Kuo et al., 2011; Harrell, Mancha, Petras, Trezn and Latimer, 2012). Stimulant drug use (both injection and non-injection) is associated with risky heterosexual activity (Bowen, Williams, Dearing, Timpson and Ross, 2006) sex trade (Wright et al., 2007) and HIV diagnosis (Fiest-Price, Logan, Leukefeld, Moore and Ebreo, 2003). Moreover, Black communities have presented disproportionately high rates of crack cocaine usage over the past decade (Whitehead, Trezn, Keen, Rose and Latimer, in press). However, HIV positive Black men and women who also smoke crack cocaine are more likely to not use condoms during intercourse (Timpson, Williams, Bowen, Atkinson and Ross, 2010).

Previous research has presented higher rates of stimulant drug use and binge drinking in metropolitan low income heterosexual Black communities in comparison to the national averages of their racial counterparts (Kuo et al, 2011). However, very few studies have explored relationship between substance use and HIV risk in heterosexual Black men (Wohl et al, 2002; Raj et al, 2012; Reed, Santana, Bowleg, Welles, Horsburg, and Raj, 2012; Bowleg, 2013). In a nationally representative survey examining drinking behaviors in middle aged and elderly community adults, Black men reported a higher percentage of binge drinking despite having less than half of the responders as their White male counterparts (Blazer and Wu, 2009). To date, only Raj et al. (2009) has explored binge drinking as a determinant of HIV status in heterosexual Black men. Specifically, this study found a higher prevalence of binge drinking than national rates (34% in comparison to 19%) and that binge drinking increases the likelihood of having riskier sex and HIV diagnosis. The authors' findings suggest an association between binge drinking and risky sexual behavior, HIV diagnosis. Interestingly, illicit drug use was a global measurement, and did not present

primary drug of choice or whether this global measurement itself was associated with HIV risk.

The purpose of the current preliminary study is to identify substance use determinants of HIV risk among self-identified heterosexual Black men who reported never having sex with another man in their lifetimes. Our hypothesis is that binge drinking will significantly predict HIV diagnosis even in the presence of demographic and illicit drug use covariates.

2. Methods

2.1 Participants

One hundred and twenty-seven heterosexual Black men were recruited through flyers and street recruitment in Baltimore, Maryland for the parent study entitled “*NEURO-HIV Epidemiologic Study*.” Inclusion criteria for the parent study included individuals who were 18 years of age and older, no history of brain injury and illicit drug use in the past six months. The University of Florida institutional review board approved this study. A total of 726 participated in the parent study, but only males whom responded “no” to the item “Have you ever had [any] sexual contact with another man” and those who had complete binge drinking, illicit drug use, and HIV diagnosis data were included in the current study. The median age was 36 years. The current sample contained 70 (55%) participants who tested positive for opiates, 63 (50%) for cocaine and 16 (13%) for cannabinoids upon entry into the study. Six participants had missing data for urine drug testing due to problems with the testing kits, but were not excluded from the study.

2.2 Procedure

Participants in this study consisted of self-identified heterosexual Black men taken from the baseline assessment of the NEURO-HIV Epidemiologic Study. The study was originally designed to explore the behavioral and neuropsychological risk factors associated with HIV and sexually transmitted infections among injection and non-injection drug users. Participants were recruited through street recruitment utilizing referrals and advertisements from the Baltimore city community area. Upon entering the study, participants were given detailed information about the study and informed consent was obtained. Participants were administered a semi-structured interview where they were asked questions about their substance use and sexual history. Participants also completed paper and pencil measures, which included a demographic questionnaire. Participants received \$45 as remuneration for completion of assessment.

2.3 Measures

Measures in the current study were selected from a battery of neuro-behavioral measures, which included demographic constructs, sexual history and current drug use. Demographic variables utilized in the current study were age, education, income and homelessness. Age was split at the median for use in statistical analyses. Education was split into three levels, some high school or less, high school diploma or GED and some college or training and above. Homelessness in the past six months and income from a regular job were single yes or no items within the battery.

The “binge drinking” variable was created from the single item “On average, how many drinks do you have in one sitting in the past month?” As determined by the National Institute of Alcohol Abuse and Alcoholism (NIAAA, 2004), those who reported five or more drinks in one sitting were considered binge drinkers. Binge drinking participants were dummy coded as “1” and all values below were coded as “0”.

The illicit drug use variables consisted of lifetime IDU and stimulant use versus use of other illicit drugs. The lifetime IDU variable was a single item “Have you ever injected any drug?” The responses were coded as “1” for yes and “0” for no. The stimulant versus other variable was created by recoding the levels of the question “What drug do you use regularly?” Crack, cocaine and speedball were coded as “1” and all other drugs were coded as “0.”

HIV diagnoses were determined based on blood draw upon entry into the larger study. HIV antibody testing on oral fluid samples was performed using the OraQuick Advance HIV-1/2 Rapid Antibody Test. The HIV-1/2 rapid test is FDA approved and CLIA waived with 99% sensitivity and 99% specificity.

2.4 Data Analysis

Frequency distributions of demographic information, self-reported substance use and disease diagnosis were tabulated. A series of unadjusted logistic regression analyses were conducted to examine the influence of demographic and substance use variables on the odds of having a positive HIV diagnosis. Subsequently, multivariate logistic regression analyses were employed, statistically adjustment for covariates that included age, education, money from a regular job in the past six months, homelessness in the past six months, and lifetime IDU were conducted. Drugs of regular use were categorized into “stimulant users” and “other” for purposes of interpretation in logistic regression analyses. All data analyses were performed using the Statistical Package for Social Sciences version 20 (SPSS, 2012).

3. Results

3.1 Demographic and Substance Use Frequencies

Frequencies for demographic and substance use information is provided in Table 1. Over half of the sample were under 36 years of age and had a high school diploma or GED. In the last six months, ten percent of the current sample reported being homeless and 57% reported having received income from a regular job in the past six months.

Over half of the current sample reported injecting drugs at any point in their lifetime. Heroin was the most regularly used drug (53%) followed by crack (11%), marijuana (10%), Speedball (9%), cocaine (6%) and other (1%). Overall, 17% of the current sample reported binge drinking in the past month.

3.2 Unadjusted Demographic and Substance Use Associations with HIV Diagnosis

There were no significant unadjusted associations between HIV status and any demographic variables. Participants who reported lifetime IDU were 3.37 (95% CIs, 1.03, 10.98) times more likely to have HIV. Stimulant users were 9.60 (95% CIs, (3.06, 30.11) times more

likely to have HIV than participants that used other drugs. Binge drinkers in the past month were 4.43 (95% CIs, 1.46, 13.44) times more likely than non-binge drinking participants to have HIV in the current sample. These results can be found in Table 2.

3.3 Adjusted Demographic and Substance Use Associations with HIV Diagnosis

As seen in Table 2, in the presence of all demographic and substance use variables, lifetime IDU was not significantly associated with HIV status. Stimulant users were 7.29 (95% CIs, 2.07, 25.70) times more likely than other drug users to have HIV. Moreover, binge drinkers were 5.28 (95% CIs, 1.34, 20.91) times more likely to have HIV than their non-binge drinking counterparts.

4. Discussion

The current findings from a sample of community recruited, illicit drug using heterosexual drug users in Baltimore, MD indicate both binge drinking and stimulant use are associated HIV diagnosis. Specifically, participants who self-reported stimulant use or binge drinking in the past thirty days were more likely to test seropositive for HIV. These individuals are at higher sexual risk for HIV contraction and transmission, due to self-reported drug use and binge drinking behaviors. In contrast to other studies on Black men who identify as heterosexual though they report having sex with other men (Wohl et al, 2002), the current study focused on substance using heterosexual Black men who reported never having a sexual relationship with another man. Additionally, the current findings present an increase in the likelihood of binge drinking predicting HIV diagnosis in the presence of covariates and stimulant use. With binge drinking and stimulant use being the primary predictors of HIV risk, the current findings support previous research in other groups of Black men (Wohl, 2002; Raj et al, 2009).

Binge drinkers in comparison to non-binge drinkers were more likely to have been diagnosed with HIV, even in the presence of lifetime IDU and regular drug use variables. The association between binge drinking and HIV diagnosis in the current study furthers findings from Raj, et al (2009), which to date, is the only other study that has focused on binge drinking in heterosexual Black men. Interestingly, Raj et al (2009) used a general “illicit drug use” construct which did not truly specify which type of drug was mainly used or which had the most influence upon the sexual risk outcomes. Moreover, the contrast between the urgent care clinic sample which Raj et al (2009) and the current street recruited drug using sample enables researchers to suggest that the association between binge drinking and HIV seems to be salient within both clinical and non-clinical substance using heterosexual Black men.

Stimulant use during sex is associated with risky sexual behavior, such as unprotected anal and vaginal intercourse (Molitor et al., 1998). Concomitant stimulant use and alcohol use during sex is also associated with group sex and increased risk for HIV transmission (Zule et al., 2007). Though alcohol and stimulant use chemically induce seemingly opposite effects, the use of both substances together may illicit increased likelihood of risky sexual behavior. The current study potentially supports this notion, by identifying both stimulant use and binge drinking as independent predictors of HIV diagnosis in heterosexual Black men.

Ultimately, this relationship reflects the deleterious effects of both stimulant use and binge drinking.

The current study adjusts statistically for the effects of stimulant use, in accordance with their previously presented associations with sexual risk (Bowen, 2011, Timpson, Williams, Bowen, Atkinson and Ross, 2010; Harrell, Mancha, Petras, Trezn and Latimer, 2012). Moreover, the current findings support research findings in previous work in heterosexual Black men use with stimulants being associated with HIV (Wohl et al, 2002). Though this sample was considerably smaller, approximately one third of the current sample was stimulant users, in line with prevalence rates presented in previous research (Kuo et al, 2011). Given the known association between stimulant use and risk of HIV among drug users, identifying stimulant use as a predictor in the presence of binge drinking in heterosexual Black men should further inform future research designs in examining unique predictors of risk of HIV in heterosexual Black men. Future research should explore the interaction of current stimulant and alcohol usage to help elucidate the current findings. For example, studies can explore whether stimulant use in general is more strongly associated with sexual encounters *while* using stimulants compared to binge drinking given that alcohol is a depressant or whether the combination of the two suggest an additive effect that increases risk and HIV infection.

There are limitations to the current study. Given the small sample size and cross sectional study design, generalizability of the current findings is low. Moreover, the current findings yielded wide confidence intervals, requiring replication in larger sample sizes to be more precise. Also, given that sexual history questions were self-report, it is possible that participants were not honest about homosexual activity. Stigma associated with a Black man self-identifying as heterosexual but who may engage in homosexual activity during their past may induce participant acquiescence to absolute heterosexual presentation of themselves. Lastly, only 57% of the current sample received income from a job in the last six months. This suggests that the sample has low income. Though we statistically adjusted for this, future research should incorporate more detailed measures of income in their predictive models. In light of these limitations, researchers used objective substance use assessment to identify binge drinkers and categorize illicit drug users. Additionally, we were able to biologically confirm HIV diagnosis for each participant.

Conclusions/Implications

These data further the notion that binge drinking, along with stimulant usage, increases the risk of contracting or transmitting HIV in a sample of heterosexual Black men. These results also help to inform prevention methods to reduce the risk of HIV in the Black community. Identifying behaviors associated with HIV diagnosis in heterosexual Black men will provide critical information for HIV prevention and intervention based programs. Given the disproportionate rate of HIV diagnosis and new cases in recent years within the Black community, the heterosexual Black men who have not already contracted HIV are at increased risk for the disease. This notion is also compounded by the increased likelihood of HIV contraction due to both alcohol use and illicit drug use. The current findings help build a scant literature on substance use among heterosexual Black men who have never had sex

with another man; a group that remains underrepresented in both published research and federally funded grant-based research efforts.

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Table 1
Demographic and Substance Use Characteristics (N= 127)

	<i>n</i>	%
<i>Demographics</i>		
Under 36 Years of Age	68	54%
Did not Graduate from High School	41	32%
Diploma/GED	64	50%
College/Technical Training	22	17%
Homeless Last 6 Months	13	10%
Income from Regular Job Last 6 Months	72	57%
<i>Substance Use</i>		
Lifetime Injection Drug Use	67	53%
Primary Drug Used Regularly: <i>Heroin</i>	79	62%
Primary Drug Used Regularly: <i>Crack</i>	14	11%
Primary Drug Used Regularly: <i>Marijuana</i>	13	10%
Primary Drug Used Regularly: <i>Speedball</i>	12	9%
Primary Drug Used Regularly: <i>Cocaine</i>	8	6%
Primary Drug Used Regularly: <i>Other</i>	1	1%
Positive for Opiates (n=121)	70	55%
Positive for Cocaine (n=121)	63	50%
Positive for Cannabinoids (n=121)	16	13%
Binge Drinker Past Month	22	17%
<i>Disease Risk Status</i>		
HIV	17	13%

Table 2
Unadjusted and Adjusted Associations between Demographic, Substance Use Variables
and HIV Status

	Unadjusted OR (CI 95%)	Adjusted OR (CI 95%)
<i>Demographics</i>		
<36 years of age	1	1
>36 years of age	1.35 (4.85, 3.76)	0.92 (0.25, 3.42)
Education		
Some HS	1	1
Diploma/GED	0.43 (0.14, 1.34)	0.62 (0.16, 3.42)
College/Training	0.65 (0.15, 2.75)	0.83 (0.16, 4.43)
Homelessness		
No	1	1
Yes	2.14 (0.53, 8.74)	1.17 (0.24, 5.58)
Income From Regular Job		
No	1	1
Yes	0.27 (0.09, 0.81)	0.30 (0.08, 1.44)
<i>Substance Use</i>		
Lifetime IDU		
No	1	1
Yes	3.37 (1.03, 10.98)*	2.08 (0.49, 8.77)
Stimulant vs Other		
Other	1	1
Stimulant	9.60 (3.06, 30.11)**	7.29 (2.07, 25.70)**
Binge Drinking		
No	1	1
Yes	4.43 (1.46, 13.44)*	5.28 (1.34, 20.91)*

*
p<.05;

**
p<.01;

HIV = Human Immunodeficiency Virus; IDU = Injection Drug Use

*
AOR done with all variables in one step of the logistic regression.*