Published in final edited form as:

J Offender Rehabil. 2018 ; 57(5): 330–342. doi:10.1080/10509674.2018.1487899.

Examining factors associated with unprotected sexual behavior among Black Americans postrelease from incarceration in New York City

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Abstract

Black Americans are overrepresented among incarcerated individuals and those infected with sexually transmitted infections. We assessed unprotected sexual behavior among 165 formerly incarcerated Black Americans in New York City, New York. Most participants (63%) reported engaging in unprotected sexual behavior post-incarceration. According to our regression results, less time spent in jail and reporting multiple sexual partnerships were associated with a greater likelihood of engaging in unprotected sexual behavior. High rates of unprotected sexual behavior may place formerly incarcerated Black Americans at risk for sexually transmitted infections. Discharge planning programs that include STI/HIV prevention information and education may be useful for this population.

Introduction

Black Americans are incarcerated at disproportionate rates in the United States (U.S) (A. E. Carson, 2015), which currently leads the world in the number of citizens incarcerated per capita (Walmsley, 2015). Recent statistics show that Black men are eight times more likely than White men to be incarcerated, and Black women are three times more likely than White women to experience incarceration (A. E. Carson, 2015).

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The authors have no conflicts of interest to report.

In addition to disparate rates of incarceration, according to the Centers for Disease Control and Prevention (CDC), nationally, human immunodeficiency virus (HIV) and sexually transmitted infections (STIs) prevalence rates among Black Americans remain higher compared to those among other racial groups. For instance, the Black population in the U.S. currently represents the segment of the population where HIV is steadily increasing and for which the HIV burden is most substantial (Centers for Disease Control and Prevention, 2015). In 2013, Black Americans comprised 12 percent of the U.S. population, but 46 percent of new HIV infections (Centers for Disease Control and Prevention, 2015). In addition to being overburdened with HIV, Black Americans are also at an elevated risk for contracting other STIs, including chlamydia, syphilis, gonorrhea, and chlamydia (Aral, Adimora, & Fenton, 2008; Newman & Berman, 2008; Pflieger, Cook, Niccolai, & Connell, 2013).

A growing body of research has shown that incarceration may be associated with an elevated risk for STIs and HIV transmission for Black Americans (Dauria et al., 2015; Epperson, El-Bassel, Gilbert, Orellana, & Chang, 2008; Khan, Behrend, Adimora, Weir, White, et al., 2011; Khan et al., 2009; Krebs, 2006). Incarceration has been linked to the dissolution of primary intimate relationships (Khan, Behrend, Adimora, Weir, Tisdale, et al., 2011). Because incarceration removes such a substantial number of eligible Black men from their communities, it creates an imbalance in the male-to-female sex ratio, limiting the availability of sexual partners (Johnson & Raphael, 2009), which promotes relationship instability (Khan, Wohl, et al., 2008; Knittel, Snow, Riolo, Griffith, & Morenoff, 2015). This scenario may place Black Americans at an elevated risk for STI transmission, even when their sexual behavior is not any riskier than individuals from other racial groups (Hallfors, Iritani, Miller, & Bauer, 2007).

Unprotected sexual behavior is a substantial driver of HIV among Black Americans (Centers for Disease Control and Prevention, 2015). Because incarceration is disruptive to sexual partnerships, the period immediately following incarceration may be particularly prone to HIV/STI vulnerability. This period may be chaotic for formerly incarcerated individuals attempting to rebuild their lives (Clear, Rose, & Ryder, 2001; Holtfreter & Watanaporn, 2014), and may include an increase in unprotected sexual behavior, transactional sexual activities, and the initiation of multiple (or concurrent) sexual partnerships, which are all substantial contributors to HIV infection (J. Adams et al., 2011; Adimora & Schoenbach, 2005; Adimora et al., 2004; Grieb, Davey-Rothwell, & Latkin, 2012; Khan, Behrend, Adimora, Weir, Tisdale, et al., 2011; Thomas, Levandowski, Isler, Torrone, & Wilson, 2008).

Approximately 600,000 individuals are released from prisons each year; a significant proportion are Black Americans (E. A. Carson & Golinelli, 2014). Research suggests that incarceration duration is an important indicator for unprotected sexual behavior post-incarceration (Khan, Miller, et al., 2008). A recent study indicated that experiencing incarceration for at least six months increased the odds of engaging in condomless sex (Brinkley-Rubinstein et al., 2016).

In addition to incarceration duration, there is also evidence that personal characteristics such as gender, age, and illicit drug use are associated with sexual behavior post-incarceration.

For instance, a study on predictors of risk behaviors among formerly incarcerated men indicated that drug use was significantly associated with risky sexual behavior (MacGowan et al., 2003), while another suggested that women are more likely than men to engage in HIV sex-related risk behaviors post-incarceration (Zhu et al., 2015). In addition, a study on risk behaviors among young Black men reported that those with a history of incarceration were less likely to report condom use during the last sexual act, and more likely to report drug use before sex within the last two months (Ricks, Crosby, & Terrell, 2015).

Given the aforementioned risks associated with incarceration among Black Americans, the purpose of this study was twofold: 1) to examine the extent to which incarceration duration is associated with unprotected sexual behavior among Black Americans recently released from incarceration; and 2) to identify additional factors (in addition to incarceration duration) that may be associated with unprotected sexual behavior among formerly incarcerated Black Americans.

Methods

Participants and Recruitment

This cross-sectional study was conducted from January 2014 through August 2015. Individuals who met the following inclusion criteria were eligible for participation: 1) released from prison or jail; 2) living in the metropolitan New York City area; 3) identify as Black American; and 4) age 18 years or older. This sample was recruited from community-based agencies that provide services to ex-offenders in the New York City metropolitan area, including those offering substance abuse treatment, transitional housing organizations and homeless shelters, harm reduction programs, and employment agencies. Recruitment flyers and advertisements with basic information about the study were posted at agencies throughout the metropolitan area, and given to agency staff to distribute. The flyers contained a phone number for individuals to call if they were interested in participating in the study. Research staff also gave presentations at orientation meetings and educational seminars for individuals recently released from incarceration. Finally, research participants were also encouraged, and compensated, for recruiting other individuals into the study.

Participants were interviewed by trained research assistants. During the informed consent process participants were reminded that their participation was anonymous, no information would be shared with any criminal justice agencies or representatives, and that a Certificate of Confidentiality was issued to further protect their rights. Study protocols were approved by the Columbia University Medical Center Institutional Review Board.

Measures

Demographics.—Data on socio-demographics such as gender, age, race and ethnicity, sexual orientation, and marital status were collected. Because of low frequencies for some categories, race (Black and non-Black), marital status (single and married), and sexual orientation (heterosexual and non-heterosexual) were collapsed into two categories. Participants were also asked to disclose whether they had medical insurance and insurance type.

Criminal justice involvement.—We assessed the number of times individuals had been incarcerated as an adult and type of offense(s) committed. Participants were also asked whether they were previously and currently on probation or parole, total number of days and months served during their most recent incarceration, total lifetime incarceration duration in jail and prison, and time since release from incarceration. Total incarceration duration was coded as a continuous variable measured in days.

Illicit drug use.—Participants were asked to report any illicit drug use post-release from jail or prison. They were also asked to provide the types of drugs used post-incarceration. For drug use categories, a code of 0 was assigned if they had not used a specific drug post-incarceration, and a 1 if they reported using that specific drug.

Sexual behavior.—Participants were asked whether they engaged in unprotected sexual behavior since they had been released from their most recent incarceration. Other sexual behavioral measures include the number of male and female sexual partners post-release from incarceration.

Data Analytical Plan

Descriptive statistics were used to examine the distribution of the sample. We conducted continuity-adjusted chi-square tests to determine whether there were any differences between participants who reportedly engaged in unprotected sexual behavior post-release from incarceration versus those who did not. Fisher's exact test was used for variables with expected cell counts of less than five. We also used t-tests to compare the means of continuous variables. We entered statistically significant variables at the .10 level during univariate analyses into two multivariable logistic regression models to predict unprotected sexual behavior. All data analytical procedures were performed using R statistical software.

Results

Our sample consisted of 165 Black Americans. The sample was largely male (82%) and heterosexual (81%). The age range was 19 to 66 years old ($M=45.2$, $SD=10.1$). On average, participants had been released from incarceration within the previous 10 months. The mean for most recent incarceration duration was 3.6 years (range: 5 days to 32 years). Although most participants reported drug offenses (89%), participants were also incarcerated for committing violent (19%) and property offenses (17%). Of those who reportedly used illicit drugs after being released ($N=104$), the most commonly used substances were crack and/or powder cocaine (59%), marijuana (57%), and heroin (30%).

Unprotected sexual behavior post-incarceration was reported by most participants ($N=104$, 63%); forty-three (41%) of these individuals reported multiple sexual partnerships. The average number of sexual partners for these participants was 4.33 ($SD=4.29$). Women in our study reported 2.17 ($SD=2.61$) sexual partners post-incarceration. Heterosexual women ($N=22$) had 1.55 male sexual partners ($SD=2.09$). Bisexual women ($N=6$) had 3.17 male ($SD=2.93$) and 1 female ($SD=1.1$) partners. Women who identified as lesbian ($N=2$) had 3 female partners ($SD=2.83$). Men had 3.22 sexual partners ($SD=5.59$), on average. Heterosexual men ($N=111$) had 2.61 female sexual partners ($SD=4.22$). Men who identified

as bisexual (N=18) had 4.28 male (SD=9.20) and 2.22 female (SD=3.87) partners, while gay men (N=5) reported 5 male partners (SD=5.87).

As shown in Table 1, at the univariate level, a significantly higher proportion of people who had unprotected sex post-release had more than one sexual partner than participants who did not have unprotected sex post-release ($p=0.02$). Moreover, a significantly higher proportion of participants engaging in unprotected sex post-release used illicit drugs after incarceration (69% vs. 52%, $p=0.03$). A higher proportion of participants who engaged in unprotected sex post-release used cocaine (44% vs. 25%, $p=0.02$) and marijuana ($p=0.07$) compared to those who did not have unprotected sex post-incarceration.

A comparison of the means for participant age, incarceration duration, and time since release from incarceration indicated that total time spent in jail was the only statistically significant predictor of unprotected sexual behavior (Table 2). As Table 2 demonstrates, participants who spent more time in jail during their lifetime (in years) had lower odds of having unprotected sex ($p=0.05$). Total time spent in prison was not statistically significant; total incarceration time regardless of facility (prison and jail time combined) also did not reach statistical significance.

The multivariable logistic regression results after screening and entering variables from Tables 1 and 2 with significance levels of $p<0.10$ are presented in Table 3. Because drug use post-incarceration was highly associated with marijuana and cocaine use, and because participants who used any type of illicit drugs were also included in the drug use post-incarceration variable, we only placed the drug use post-incarceration variable in the regression model to avoid collinearity (Model 1). Because of the strength of the bivariate relationship between cocaine use and unprotected sexual behavior ($p=0.02$) and their well-documented association (Colfax et al., 2005; Koffarnus et al., 2016), we examined the impact of cocaine use in a sub-model (Model 2). In Model 1, the multivariable odds ratio of engaging in unprotected sex was significantly higher among participants who spent less time in jail (OR=0.90, 95% CI: [0.83, 0.98]). Additionally, the odds of engaging in unprotected sex was also significantly higher among participants who reported more than one sexual partner (OR=2.12, 95% CI: [1.06, 4.28]). Comparable to Model 1, in Model 2, the odds of engaging in unprotected sexual behavior was significantly higher among participants who spent less time in jail (OR=0.91, 95% CI: [0.84, 0.99]), and among those who reported more than one sexual partner post-incarceration (OR=2.14, 95% CI: [1.07, 4.26]).

Discussion

The aim of this study was to examine predictors of unprotected sexual behavior among formerly incarcerated Black Americans. Comparable to prior research in this area (Morrow et al., 2009; Seal, Eldridge, Kacanek, Binson, & MacGowan, 2007; Stephenson et al., 2006), a large proportion of our study sample reportedly engaged in unprotected sexual behavior post-release from incarceration. At the univariate level, the odds of engaging in unprotected sex were higher among participants who used illicit drugs such as cocaine and marijuana, which has been observed in previous research examining HIV risk behaviors post-

incarceration (L. M. Adams et al., 2013; Nyamathi et al., 2016; Ricks et al., 2015; Zhu et al., 2015).

Although our bivariate results were aligned with previous research suggesting an association between cocaine use and unprotected sexual behavior among populations at an elevated risk for STIs (Binswanger, Mueller, Beaty, Min, & Corsi, 2014; Borders et al., 2013; Colfax et al., 2004), this relationship did not persist at the multivariable level. Previous research suggests that cocaine and marijuana usage are associated with risky sexual behaviors such as unprotected sexual behavior (Ritchwood, DeCoster, Metzger, Bolland, & Danielson, 2016; Simons, Maisto, & Wray, 2010) and having multiple sexual partnerships (Simons et al., 2010). Since marijuana use, cocaine use, and multiple sexual partnerships were evident among a substantial proportion of our participants, more research is needed to examine drivers of these risk behaviors among criminal justice-involved populations.

Total time spent in jail was a significant predictor of unprotected sexual behavior at the multivariable level. More specifically, participants who spent less time in jail were more likely to report unprotected sexual behavior post-incarceration. Although this finding was not in the hypothesized direction, this may indicate that a jail sentence may serve as a protective factor for formerly incarcerated individuals. Jail sentences tend to be shorter than prison sentences (typically less than one year), so it is plausible that those with less jail time had more time in the community to engage in sexual activities or that they were able to remain engaged in more established relationships and decided not to use protection during sexual activities with their partners. However, jail time has been shown to have a disruptive effect on sexual relationships, which may also promote an increase in the number of sexual partners (Khan, Epperson, et al., 2011; Knittel et al., 2015). Since our results suggest that those with a larger number of sexual partners were more likely to engage in unprotected sexual behavior, individuals who served less jail time may have found more opportunities to establish new sexual partnerships. Based on previous research in this area, we also speculate that some of our participants may have engaged in transactional sexual activities, which may limit their ability to negotiate condom usage (Bobashev, Zule, Osilla, Kline, & Wechsberg, 2009; Shannon & Csete, 2010).

Having more than one sexual partner was also associated with increased odds of engaging in unprotected sex post-release in both multivariable models, which is consistent with prior research on risky sexual behavior (Ashenhurst, Wilhite, Harden, & Fromme, 2016). Since individuals with multiple sexual partners may experience difficulty remaining diligent in using condoms during each encounter with a different partner, HIV/STI prevention programs for this population may be warranted. Participants in our study reported a high number of previous incarcerations, and although it was not associated with unprotected sexual behavior, it does suggest that periods of incarceration may be an opportune moment to provide risk reduction counseling and/or educational interventions for this population (Underhill, Dumont, & Operario, 2014).

This study does have a number of limitations that should be acknowledged. The cross-sectional design of our study limits our ability to make conclusions about causal relationships in our data. Additionally, the information collected in this study is highly

sensitive, and may have been underreported by our participants. Although information about unprotected sexual behavior was collected, data on the type of sexual acts and their frequency were not collected, which may mask the magnitude of the risk behaviors in which our participants were engaged and limit our ability to produce more precise estimates of risk. We were also unable to determine the extent to which unprotected sexual behavior resulted in the acquisition of STIs. However, our findings do suggest that individuals in our study may be at risk for infections transmitted through physical contact, which are elevated among criminal justice-involved populations (Khan, Behrend, Adimora, Weir, Tisdale, et al., 2011; Wiehe et al., 2015).

Although this study contains crucial public health information, we would like to emphasize that, due to our self-selected sample, our findings should be interpreted with some caution. Because our participants were self-selected and our convenience sampling approach is vulnerable to selection bias, our results are not generalizable to the entire prisoner population. However, we made a serious effort to recruit from diverse recruitment sites in New York City; our flyers were distributed to agencies within all five boroughs in New York City. However, we were unable to determine the extent to which our participants were representative of the individuals who were being released from correctional institutions in the area.

Conclusions

Our findings suggest that formerly incarcerated Black Americans are engaging in unprotected sexual behavior post-incarceration, reinforcing the importance of engaging this population in HIV risk reduction programs and interventions. Because individuals with shorter total duration of jail time and those with multiple sexual partners were more likely to engage in unprotected sexual behavior post-incarceration, they may benefit from increased counseling regarding safe sex practices or even pre-exposure HIV prophylaxis. Additionally, given the relationship between unprotected sexual behavior and cocaine use among this population, the importance of offering comprehensive drug treatment programs during and immediately following incarceration cannot be underestimated (Binswanger et al., 2007; Lim et al., 2012). Discharge planning programs that include STI/HIV prevention and educational information designed to promote healthy behaviors among those who are being released from incarceration may also be useful for this population (L. M. Adams et al., 2013; Binswanger et al., 2014; Hearn, Whitehead, Khan, & Latimer, 2015; Morrow et al., 2009; Ricks et al., 2015). It may be beneficial to promote access to such services and programs prior to release from incarceration. Future studies could benefit from targeting this high-risk population to better assess the impact of these and other interventions.

Acknowledgments

This work was supported by the National Institute on Drug Abuse under Grant number K01DA036411 (PI: Rowell-Cunsolo).

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Table 1:

Sexual behavior post-release by participant characteristics

Variable	Had unprotected sex post-release		Did not have unprotected sex		Total		P-value
	N	%	N	%	N	%	
Overall	104	63	61	37	165	100	
Age							0.69
<30	13	12.5	5	8.2	18	10.91	
30–49	48	46.15	29	47.54	77	46.67	
50+	43	41.35	27	44.26	70	42.42	
Education							0.21
HS/GED/equivalent	45	43.27	24	39.34	69	41.82	
Less than HS	39	37.5	18	29.51	57	34.55	
More than HS	20	19.23	19	31.15	39	23.64	
Gender							1.0
Female	19	18.27	11	18.03	30	18.18	
Male	85	81.73	50	81.97	135	81.82	
Marital Status							0.29
Never been married	69	66.35	46	75.41	115	69.7	
Ever married	35	33.65	15	24.59	50	30.3	
Sexual Orientation							0.50
Heterosexual	86	82.69	47	77.05	133	80.61	
Non-heterosexual	18	17.31	14	22.95	32	19.39	
Legal Situation							0.30
Neither of these	39	37.5	29	47.54	68	41.21	
Parole	40	38.46	26	42.62	66	40	
Probation	9	8.65	2	3.28	11	6.67	
Health Insurance							0.74
No	17	16.35	8	13.11	25	15.15	
Yes	87	83.65	53	86.89	140	84.85	
Drug Use post-incarceration							0.06
No	32	30.77	28	45.9	60	36.36	
Yes	72	69.23	32	52.46	104	63.03	
Marijuana Use							0.07
No	61	58.65	45	73.77	106	64.24	
Yes	43	41.35	16	26.23	59	35.76	
Heroin Use							0.22
No	81	77.88	53	86.89	134	81.21	
Yes	23	22.12	8	13.11	31	18.79	
Cocaine Use							0.02
No	58	55.77	46	75.41	104	63.03	

Variable	Had unprotected sex post-release		Did not have unprotected sex		Total		P-value
	N	%	N	%	N	%	
Yes	46	44.23	15	24.59	61	36.97	
Drug Offense							0.55
No	13	12.5	5	8.2	18	10.91	
Yes	91	87.5	56	91.8	147	89.09	
Violent Offense							1.0
No	84	80.77	49	80.33	133	80.61	
Yes	20	19.23	12	19.67	32	19.39	
Property Offense							0.36
No	89	85.58	48	78.69	137	83.03	
Yes	15	14.42	13	21.31	28	16.97	
Number of Sexual Partners							
>1	59	56.73	22	36.07	81	49.09	0.02
<=1	45	43.27	39	63.93	84	50.91	

Table 2.

Mean age, incarceration duration, and number of sexual partners by unprotected sexual behavior

Variable	Had unprotected sex after release	Did not have unprotected sex after release	Total	P-value
	Mean (SD)	Mean (SD)	Mean (SD)	
Age	44.4 (10.1)	46.7 (9.9)	45.2 (10.1)	0.15
Time since released from Prison (months)	11.9 (28.8)	7.0 (8.8)	10.1 (23.5)	0.11
Time served before release (months)	38.8 (42.2)	51.1 (73.6)	43.3 (56.0)	0.23
Number of times incarcerated	11.3 (10.6)	12.1 (14.1)	11.6 (12.1)	0.72
Total time spent in prison (years)	9.5 (7.7)	10.8 (9.4)	10.0 (8.4)	0.38
Total time spent in jail (years)	3.0 (3.1)	4.8 (6.0)	3.7 (4.5)	0.03
Total time spent in prison & jail (years)	12.4 (8.8)	15.4 (12.9)	13.5 (10.5)	0.10
Number of sexual partners (unprotected sex)	2.40 (3.2)		2.40 (3.2)	

Table 3.

Odds ratios and 95% Confidence Intervals for predictors of unprotected sexual behavior

Predictor	Multivariable Analysis			
	Model 1		Model 2	
	OR 95% CI	Wald p-value	OR 95% CI	Wald p-value
More than one sexual partner	2.12 (1.06, 4.28)	0.04	2.14 (1.07, 4.26)	0.03
Total time spent in jail (years)	0.90 (0.83, 0.98)	0.01	0.91 (0.84, 0.99)	0.03
Drug use post-incarceration	1.47 (0.72, 2.98)	0.29	--	--
Cocaine Use post-incarceration			1.80 (0.86, 3.77)	0.12