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Exploring the relationship between incarceration and HIV among Black men who have sex with men in the United States

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Abstract

This study examined the predictors of new incarceration and its association with HIV infection among 1,278 Black men who have sex with men (BMSM) enrolled and followed in the HIV Prevention Trials Network (HPTN) 061 study. HPTN 061 was conducted to determine the feasibility and acceptability of a multi-component intervention to reduce HIV infection among BMSM in six U.S. cities. In the current study, multivariable logistic regression models were used to explore the association between incarceration during study follow-up and several demographic, behavioral, and psychosocial variables at baseline found to be significant in bivariate analyses. In addition, Cox proportional hazard regression was used to explore the association between incarceration during study follow-up and incident HIV infection. Among the 1,278 BMSM with follow-up data, 305 (24%) reported a new incarceration within one year of entering the study with an estimated incarceration incidence of 35% (95% CI: 31% - 38%). After adjusting for confounders, lower education, lower annual income, previous incarceration frequency, and higher levels of perceived racism were significantly associated with new incarcerations during study follow-up. There was no observed association between incarceration during study follow-up and incident HIV infection. The very high level of new incarcerations highlight the importance of structural-level interventions to prevent incarceration among economically disenfranchised Black MSM in the United States.

INTRODUCTION

Black men are disproportionately impacted by incarceration in the United States.[1–6] Of the estimated 2 million men and women who are currently incarcerated, more than 40% are Black men.[7] Stratifying by gender, Black men represent more than 60% of the male prison population, yet they comprise just 13% of the U.S. male population.[7,8] Even more striking is

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the observed racial disparity for young men between 18–24 years of age. Black men in this age group are only 2.6 times more likely to be in college than in prison compared with White men who are 28 times more likely to be in college than in prison - a nearly 10-fold difference between the two groups.[7]

The mass incarceration of Black men in the United States has been described as a contributor to the burden of HIV in Black communities.[6] Incarceration concentrates individuals at high risk for substance abuse, mental illness, and infectious diseases such as HIV.[9] The social inequality produced by mass incarceration is also invisible, cumulative, and intergenerational.[10] Incarceration adversely affects employment, housing, and access to care for ex-offenders.[10,11] Upon release, bans on welfare, public housing, educational aid, employment, and voting make it virtually impossible for ex-offenders to have a real chance at life, almost guaranteeing recidivism.[7] The mass incarceration of Black men damages broader social norms in several ways.[12] It disrupts family life and pushes children into foster care.[9] It damages networks by removing fathers, brothers, and other male figures from a web of mutually supportive family and community relationships.[12] In addition, the absence of Black men has a strong impact on the adolescent boys who are left behind. It creates conditions where incarceration becomes a community norm or “rite of passage” for young Black boys.[6] It also creates a sense of contempt toward law enforcement who become regarded as an oppressive force in the community rather than partners in protecting the safety and well being of the community.[12] Finally, it affects sexual norms and sexual behaviors resulting in concurrent partnerships (based on insecurity about the stability of monogamous relationships) and risky sexual practices.[6,13]

Race and education are directly associated with incarceration risk in the United States. For example, one in every 15 adult (at least 18 years of age) Black men is currently incarcerated compared with 1 in every 106 White adult men.[1] In addition, more than a 1/3 of Black men 20–34 years of age in 2008 who had dropped out of high school were also in prison.[10] Therefore, the probability that a Black man will go to prison is increased threefold if he is a high school dropout.[7]

Little is known about the specific predictors of new incarceration among Black men who have sex with men (BMSM) and the relationship between incarceration and HIV among BMSM.[14] The purpose of this study was to: determine an “incident” incarceration estimate among a cohort of BMSM enrolled in the HIV Prevention Trials Network (HPTN) 061 study; examine the demographic, behavioral, and psychosocial predictors of new incarcerations; and explore the relationship between incarceration and incident HIV.

METHODS

Study design

HPTN 061 was a longitudinal study designed to determine the feasibility and acceptability of a multi-component intervention to reduce HIV infection among Black MSM in six US cities. The study was conducted in Boston, Atlanta, Los Angeles, New York City, San Francisco and Washington, D.C. Enrollment occurred over a two-year period from July 2009 to December 2011, but BMSM were only followed for one year from enrollment. Participants were recruited directly from the community or as sexual network partners referred by index participants. Men were eligible to participate in the study if they: self-identified as a man or male at birth; identified as African American, Black, Caribbean Black, or multiethnic Black; were at least 18 years old; reported at least one instance of unprotected anal intercourse (UAI) with a man in the past six months; resided in the metropolitan area and did not plan to move within the next year; and provided informed consent for the study. Participants who were newly identified with HIV infection, or who were previously

diagnosed HIV infection but were not in HIV care, or who tested HIV negative at enrollment were eligible for follow-up visits. Participants completed a behavioral assessment using audio computer-assisted self-interview (ACASI) technology. HIV and STI testing and risk reduction counseling were offered to all participants at enrollment, 6 month follow-up, and 12 month follow-up.

Study variables

Outcome variable—The main outcome variable assessed for this analysis was incarceration during study follow up. Participants were asked the following question at their 6 and 12 month follow-up visits: "How many times in the last six months have you spent one or more nights in jail or prison?" Individuals who reported at least one instance in the past six months of being in jail or prison were considered as being incarcerated. Raw ACASI data indicated that some participants might have misunderstood the question and reported the number of nights spent in jail or prison. Therefore, if the reported number was great than one, it was set to one in the incidence calculation. A dichotomized outcome variable was derived to indicate whether a participant was ever incarcerated during the study follow-up. For those participants who missed their follow-up visit as a result of incarceration which was documented on the Missed Visit form, the outcome was set to Yes. For the purposes of this analysis, those who missed one visit and reported no incarceration at the other visit were considered as not being incarcerated during follow-up.

Demographic variables—The demographic characteristics assessed at enrollment for this analysis included: city of enrollment; gender (male, female or transgender); sexual identity (heterosexual or straight, and gay, bisexual, or other MSM category such as same gender loving); age at study enrollment; household income; employment status; country of birth; student status; education level; if they had health care coverage; housing status; and relationship status (single, divorced, or widowed was classified as not being in a relationship and married, living with partner, or have a partner but not living together were classified as currently in a relationship).

Behavioral Variables—Behavioral questions included: age at first intercourse; frequency of recreational drug use (i.e., opiates, poppers, stimulant, marijuana, and injection drugs) in the last 6 months prior to study enrollment, and specific drug use in the last 6 months prior to study enrollment.

Psychosocial variables—Several barriers to effective HIV prevention and treatment efforts for BMSM have been identified in the literature. They include the barriers related to social networks; barriers related to personal, social, and institutional racism; barriers related to religion; and barriers related to the interconnectedness of poverty, violence, and substance use.[15] The following psychosocial characteristics were therefore included in the current study: incarceration history at enrollment; incarceration frequency at enrollment; level of social support; belief in the use of meditation/prayer; belief in God or higher power; belief in an overall purpose and life plan; frequency of religious or spiritual services; affiliation with a church or religious institution; childhood involvement in a religious or spiritual body; depressive symptomatology; internalized homophobia; perceived racism; early childhood (< 12 years of age) physical violence including being hit, punched, kicked or beaten up in a way that resulted in injury, severe pain or other serious harm; early childhood (< 12 years of age) sexual experience including sexual touching and sexual intercourse; and any form of intimate partner violence. Social support was assessed using an adapted version of a social support scale from the Human Population Laboratory survey.[16] Depressive symptomatology was measured using the Center for Epidemiologic Studies Depression Scale (CES-D), a 20-item measure for symptoms of clinical depression.[17]

Perceived racism was based on a scale of 28 questions with scores 1–5 for 'doesn't bother me at all', 'only bothers me a little', 'bothers me somewhat', 'bothers me a lot', and 'bothers me extremely', respectively, and score 0 for 'has never happened to me'. All 28 questions must be answered to calculate the sum score. Perceived racism was categorized to high (sum>=95), medium (48<=sum<95), and low (sum<48) based on the sum score. Internalized homophobia (IHP) was collected using a 7–question scale. Scores 1, 2, 3, 4, 5 were assigned for 'Disagree strongly', 'Disagree', 'Neither agree nor disagree', 'Agree', and 'Agree strongly', respectively. All 7 questions must be answered to compute the sum score. A participant was categorized as "low/medium" IHP if the sum score was <=25, or as "high" IHP if the sum score was >25. The Social support scale had 6 questions with answers 'None of the time', 'A little of the time', 'Some of the time', 'Most of the time', and 'All of the time'. Each answer was assigned a score of 1 to 5, respectively. All questions must be answered to compute the sum score. A participant was considered as having "low social support" if the sum was <13, or as having "moderate/high social support" if the sum was 14 and more.

Data Analysis

In order to be included in the analysis, participants had to be eligible for follow-up visits (must not have been previously diagnosed with HIV at enrollment) and provide information about incarceration at enrollment and at least one of the follow-up visits. Incarceration events during study follow-up were used to estimate the incident incarceration rate for this sample of BMSM. Given the concern that there may be over-reporting of incarceration events due to misunderstanding of the ACASI question, if the reported incarceration number at a visit was great than one, it was set to one in the incidence calculation, which resulted in a conservative incident estimate. Poisson regression with robust standard errors was used for incarceration incidence and confidence interval estimation. Univariate logistic regression model was used to assess associations between incarceration during study follow-up (a binary outcome variable) and pre-defined baseline demographic, psychosocial, and behavioral characteristics. Covariates that were statistically significant at $p = 0.1$ level were included in the multivariable model which also adjusted for enrollment city and incarceration frequency at enrollment. Even though the binary incarceration variable (incarceration history at enrollment) was significantly associated with incarceration during study follow-up, it was not included in the multivariable model (MVM) since it was highly correlated with incarceration frequency at enrollment. In addition, the specific drug use variables (opiate use, popper use, stimulant use, and marijuana use) were not included in the multivariable model since they were all correlated with drug use which was included in the MVM.

Cox proportional hazards regression model stratified by city was conducted to assess whether (time-updated) incarceration during the last 6 months was a predictor of HIV acquisition, in bivariate model and in multivariable model controlling for demographics and sexual risk behavior (i.e., URAI with male partner, also time-updated). Only HIV-negative participants at enrollment were included in this analysis. SAS® version 9.2 statistical software was used to perform all analyses.[18]

RESULTS

The study enrolled 1,553 BMSM from the six U.S. sites. Eighty-six participants were not eligible to attend follow-up visits (i.e., previously diagnosed with HIV and in care), 28 participants did not respond to the incarceration question at enrollment, and an additional 161 participants who did not provide any information regarding incarceration during study follow-up were excluded from the analysis. As a result, the final cohort for this analysis included 1,278 participants who responded to the incarceration question at enrollment and at

least one of the follow-up visits. Twenty-four percent (24%, n=305) of participants reported a recent incarceration during 12 months of study follow up. A total of 398 incarceration events were reported over a total of 1151.2 person years of follow-up with an estimated annualized incarceration incidence rate of 35% (95% confidence interval [CI] = 31%, 38%). The incidence of incarceration was directly related to the frequency of incarceration at enrollment (TABLE 1). Almost half (49%) of younger participants (less than 30 years of age) reported some form of incarceration before enrollment or during study follow-up. Among older participants (30 or more), 73% reported some form of incarceration before and/or during study follow-up (TABLE 2). New incarcerations during study follow-up ranged from 12.1% in Washington, DC to 31.0% in Atlanta, GA (TABLE 3).

Multivariable logistic regression analyses showed that incarceration during study follow up was significantly associated with household income of less than $30,000 per year (adjusted odds ratio [aOR] 1.74; 95% CI = 1.10–2.76); lower education (high school education or less) (aOR 1.83; 95% CI = 1.27, 2.62), previous incarceration frequency at enrollment (once vs. never, aOR 2.49, 95% CI = 1.40–4.42; twice vs. never, aOR 2.63, 95% CI = 1.43–4.86; three times or more vs. never, aOR 3.13, 95% CI = 2.00–4.91). Several of the behavioral (i.e. drug use in the last 6 months) and psychosocial variables (i.e. history of childhood violence, early sexual experience, depressive symptomatology, and low levels of social support) were significant in the univariate analysis but did not remain significant in the multivariable analysis. One psychosocial characteristic - perceived racism - did however remain significant in the multivariable logistic analyses. Incarceration during study follow up was significantly associated with high levels of perceived racism (aOR 1.82; 95% CI = 1.02 – 3.27) (TABLE 3).

One thousand and twelve (1012) BMSM (79% of participants) who tested HIV negative at enrollment were included in the analysis that assessed whether incarceration during the last 6 months of study follow-up was a predictor of incident HIV acquisition. The analysis did not find a statistically significant association between incarceration and HIV acquisition (aHR 1.69, 95% CI = 0.64–4.44) after controlling for demographics (i.e. age, sexual identify, education, income, housing, employment, student status, and insurance status) and unprotected receptive anal intercourse (URAI) (data not shown).

DISCUSSION

Almost one-quarter of BMSM enrolled in the study reported a recent incarceration during study follow-up with an estimated incarceration incidence rate of 35%. This study is the first to document an incarceration incidence estimate specifically among BMSM in the United States. Differences in city-specific new incarcerations during study follow-up were also observed. The city-specific differences should be interpreted with caution given differences in site recruitment strategies and locations. The association between incarceration during study follow-up and lower education and income is not a surprising finding given that lower education increases the probability of incarceration[7] and the relationship between education and income is well known. However, the current study was the first to show that BMSM, are at particularly high risk for incarceration.

The observed relationship between new incarcerations during study follow-up and previous history of incarceration is also not surprising. A Department of Justice report revealed that almost 73% of all Black offenders released from jail in 1994 were re-arrested.[19] Several childhood factors related to adult incarceration have also been described in the literature.[20] Data from the ongoing, 20-year Chicago Longitudinal Study comprised of low-income minority children (93% Black) identified several predictors of adult offending or future incarceration. Common predictors of any future adult conviction, felony conviction, or any

incarceration (jail) term included family public aid receipt (AFDC) by child's age 3, negative home environment from birth to 5 years of age (frequent family conflict, family financial problems, and parental substance abuse), maltreatment experiences between 4–13 years of age (substantiated abuse or neglect as documented by court and Department of Child and Family Services records), troublemaking behavior at school and home from 9–12 years of age (i.e., does not follow rules, gets into fights), and number of school moves between 10–14 years of age.[20]

However, the observed relationship between incarceration during study follow up and high levels of perceived racism is an interesting finding. It has been noted that discrimination may occur in any number of steps leading up to sentencing.[21] Data from the Department of Justice revealed that there were no racial differences in being stopped by law enforcement, but Black men were more likely to be subjected to a search of their cars and greater force used or threatened against them compared with their White counterparts.[22] There is also evidence indicating that Blacks receive harsher sentences than Whites who commit the same crime.[7] Furthermore, the current study found no association between new incarcerations during study follow-up and HIV acquisition. This is similar to the findings of Wohl et al. (2000) who found no association between incarceration and HIV infection among a case-control study of 610 HIV-infected Black men (40% MSM) in North Carolina.[23]

Although this analysis contributes to our understanding of the predictors of new incarceration and the relationship between incident incarcerations and HIV among BMSM, there are several study limitations to consider. The observed study findings cannot be generalized to BMSM as a whole since participants were recruited from a community sample of BMSM in six U.S. cities. Self-reported incarceration during study follow-up may have been underestimated as a result of social desirability bias given the stigma and discrimination associated with being incarcerated. Finally, there were a small number of incarceration-related questions resulting in a limited analysis about the circumstances surrounding incarceration during study follow-up. Specifically we did not assess incarcerations for new crimes versus parole violations. Also data indicated that some participants misinterpreted the ACASI question "How many times have you spent one or more nights in jail or prison?" as "How many nights did you spend in jail or prison?" Therefore, if the reported number was greater than one, it was set to one in the incidence calculation, which resulted in a more conservative incident estimate. Despite these limitations, this analysis is the first to our knowledge to describe the predictors of new incarceration among BMSM.

Conclusion and Recommendations

This study demonstrates that U.S. BMSM enrolled and followed in the HPTN 061 study were affected by incarceration. Future studies among BMSM should incorporate incarceration-specific questions to enhance scientific understanding of the impact of incarceration among BMSM. Given that almost one-quarter of participants reported a recent incarceration during study follow-up, BMSM enrolled in this study may have also been at risk for lower employment prospects, limited housing opportunities, and reduced access to care that exist for Black male ex- offenders in general. This study also adds to the body of literature describing the devastating impact of incarceration among Black men in the United States and highlights the urgent need for structural and policy-level approaches to prevent new and re-occurring incarcerations and its resulting negative consequences for Black men, their families, networks, and whole communities. These structural and policy-level solutions may include a greater investment in education,[24] conflict resolution, and job training resources[24] for Black youth and adults pre-and-post incarceration and reforming federal

restrictions for ex-offenders related to voting, receiving food stamps, public housing, and student financial aid.

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TABLE 1

Estimated incarceration incidence rate during study follow-up by incarceration history at enrollment.

Incarceration History	Number of incarcerations	Person-years	Incarceration incidence estimate per 100 person-yrs
Overall	398	1151.2	35% [31, 38]
Reported 0 incarceration before enrollment	73	453.3	16% [12, 21]
Reported 1–2 incarcerations before enrollment	87	249.9	35% [28, 43]
Reported 3 or more incarcerations before enrollment	238	454.9	53% [46, 60]

TABLE 2

Number and percentage of participants reported incarceration before and during HPTN 061, by age category.

Incarceration Category by age			
Age < 30	**n/N (%)**	**Age >= 30**	**n/N (%)**
No incarceration before enrollment or during follow-up	214/418 (51%)	No incarceration before enrollment or during follow-up	230/860 (27%)
No incarceration before enrollment, incarcerated during follow-up	29/418 (7%)	No incarceration before enrollment, incarcerated during follow-up	28/860 (3%)
Incarcerated before enrollment, not during follow-up	108/418 (26%)	Incarcerated before enrollment, not during follow-up	421/860 (49%)
Incarcerated before enrollment and during follow-up	67/418 (16%)	Incarcerated before enrollment and during follow-up	181/860 (21%)

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TABLE 3

Odds ratio (OR) and 95% CI from univariate and multivariate logistic regression models, modeling the probability of being incarcerated during study follow-up.

		Univariate Logistic Regression		Multivariate Logistic Regression	
Characteristics	**Incarcerated During Study**	**Unadjusted Odds Ratio (95% CI)**	**P-value**	**Adjusted Odds Ratio (95% CI)**	**P-value**
Demographics					
City					
Washington, DC *	22/181 (12%)				
San Francisco, CA	31/162 (19%)	1.71 (0.94, 3.10)	0.08	0.72 (0.32, 1.59)	0.42
Boston, MA	46/190 (24%)	2.31 (1.32, 4.03)	<.01	0.69 (0.32, 1.46)	0.33
Los Angeles, CA	57/232 (25%)	2.35 (1.38, 4.03)	<.01	1.07 (0.53, 2.15)	0.86
New York City, NY	72/265 (27%)	2.70 (1.60, 4.54)	<.01	1.30 (0.66, 2.55)	0.45
Atlanta, GA	77/248 (31%)	3.25 (1.93, 5.48)	<.01	1.29 (0.64, 2.61)	0.48
Gender					
Male	297/1253 (24%)	0.66 (0.28, 1.55)	0.34		
Transgender *	8/25 (32%)				
Sexual Identity					
Others	268/1156 (23%)	0.69 (0.45, 1.03)	0.07	1.08 (0.62, 1.90)	0.78
Straight or heterosexual *	37/121 (31%)				
Age (10-year Increment)		0.96 (0.86, 1.07)	0.45		
Income					
Higher (>=$30,000) *	44/346 (13%)				
Lower (<$30,000)	260/920 (28%)	2.70 (1.91, 3.83)	<.01	1.74 (1.10, 2.76)	0.02
Employment					
Employed *	61/408 (15%)				
Unemployed	244/869 (28%)	2.22 (1.63, 3.03)	<.01	1.23 (0.82, 1.85)	0.33
Country of Birth					
US born *	290/1226 (24%)				
Foreign born	15/52 (29%)	1.31 (0.71, 2.42)	0.39		
Student Status					

		Univariate Logistic Regression		Multivariate Logistic Regression	
Characteristics	**Incarcerated During Study**	**Unadjusted Odds Ratio (95% CI)**	**P-value**	**Adjusted Odds Ratio (95% CI)**	**P-value**
Student (part or full time) *	51/265 (19%)				
Non student	254/1013 (25%)	1.40 (1.00, 1.97)	0.05	0.84 (0.55, 1.29)	0.43
Education					
Higher (some college and more) *	96/609 (16%)				
Lower (High school and less)	209/668 (31%)	2.43 (1.85, 3.20)	<.01	1.83 (1.27, 2.62)	<.01
Health Care Coverage					
Have coverage *	169/761 (22%)				
No coverage	136/517 (26%)	1.25 (0.96, 1.62)	0.09	0.95 (0.64, 1.41)	0.79
Housing Status					
Have housing (living alone, living with people, etc) *	241/1100 (22%)				
No stable home	64/178 (36%)	2.00 (1.43, 2.81)	<.01	1.41 (0.90, 2.20)	0.13
Relationship Status					
Not in a relationship (Single/divorced/widowed)	271/1140 (24%)	0.94 (0.63, 1.42)	0.79		
In a relationship *	34/137 (25%)				
Incarceration Frequency at enrollment					
None *	57/501 (11%)				
Once	34/149 (23%)	2.30 (1.44, 3.69)	<.01	2.49 (1.40, 4.42)	<.01
Twice	36/120 (30%)	3.34 (2.07, 5.38)	<.01	2.63 (1.43, 4.86)	<.01
Three or More	178/508 (35%)	4.20 (3.02, 5.85)	<.01	3.13 (2.00, 4.91)	<.01
Incarceration History					
No *	57/501 (11%)				
Yes	248/777 (32%)	3.65 (2.67, 5.00)	<.01		
Behavioral Characteristics					
Age at First Intercourse (Anal or Vaginal)					
Don't remember	58/261 (22%)	0.90 (0.55, 1.50)	0.70		
12 and under	64/234 (27%)	1.19 (0.72, 1.97)	0.49		
13–16	104/433 (24%)	1.00 (0.63, 1.60)	1.00		
17–19	42/212 (20%)	0.78 (0.46, 1.33)	0.37		

		Univariate Logistic Regression		Multivariate Logistic Regression	
Characteristics	**Incarcerated During Study**	**Unadjusted Odds Ratio (95% CI)**	**P-value**	**Adjusted Odds Ratio (95% CI)**	**P-value**
20 or more *	30/125 (24%)				
Drug Use in Last 6 Months					
No *	62/369 (17%)				
Yes	243/909 (27%)	1.81 (1.33, 2.46)	<.01	1.24 (0.83, 1.86)	0.30
Opiate Use					
No *	261/1138 (23%)				
Yes	15/65 (23%)	1.01 (0.56, 1.82)	0.98		
Popper Use					
No *	257/1068 (24%)				
Yes	23/137 (17%)	0.64 (0.40, 1.02)	0.06		
Stimulant Use					
No *	162/783 (21%)				
Yes	131/458 (29%)	1.54 (1.18, 2.00)	<.01		
Marijuana Use					
No *	107/556 (19%)				
Yes	189/703 (27%)	1.54 (1.18, 2.02)	<.01		
Injection Drug Use in the Last 6 Months					
No *	284/1215 (23%)				
Yes	20/59 (34%)	1.68 (0.96, 2.93)	0.07	1.68 (0.77, 3.66)	0.19
Psychosocial Characteristics					
Level of Social Support					
High/Moderate *	203/953 (21%)				
Low	85/278 (31%)	1.63 (1.21, 2.19)	<.01	1.33 (0.87, 2.02)	0.19
Meditation/prayer helps provide solutions					
Strongly disagree/Disagree	26/101 (26%)	1.07 (0.67, 1.71)	0.78		
Neither agree or disagree	40/198 (20%)	0.78 (0.54, 1.14)	0.20		
Strongly agree/Agree *	239/976 (24%)				

		Univariate Logistic Regression		Multivariate Logistic Regression	
Characteristics	**Incarcerated During Study**	**Unadjusted Odds Ratio (95% CI)**	**P-value**	**Adjusted Odds Ratio (95% CI)**	**P-value**
Believing in a higher self/God gives meaning to my life					
Strongly disagree/Disagree	13/60 (22%)	0.86 (0.46, 1.61)	0.64		
Neither agree or disagree	24/114 (21%)	0.83 (0.52, 1.33)	0.43		
Strongly agree/Agree *	268/1101 (24%)				
Overall purpose and plan					
Strongly disagree/Disagree	19/68 (28%)	1.22 (0.70, 2.10)	0.49		
Neither agree or disagree	39/191 (20%)	0.80 (0.55, 1.18)	0.26		
Strongly agree/Agree *	244/1009 (24%)				
Frequency of religious or spiritual services					
Never	70/350 (20%)	0.74 (0.55, 1.00)	0.05	0.84 (0.56, 1.27)	0.41
Some *	232/920 (25%)				
Affiliation with a church or religious institution					
No	169/747 (23%)	0.84 (0.65, 1.09)	0.19		
Yes *	135/523 (26%)				
Involvement in religious/spiritual organization growing up					
Yes *	225/961 (23%)				
No	79/313 (25%)	1.10 (0.82, 1.48)	0.51		
Depression scale (CES-D)					
0 <= CES-D <= 15 *	146/679 (22%)				
CES-D>=16	130/486 (27%)	1.33 (1.02, 1.75)	0.04	0.82 (0.57, 1.17)	0.27
Internalized homophobia					
Low/medium *	260/1116 (23%)				
High	25/108 (23%)	0.99 (0.62, 1.58)	0.97		
Racism					
Never happened or Low *	46/166 (28%)				
Medium	132/598 (22%)	0.74 (0.50, 1.09)	0.13	1.55 (0.90, 2.68)	0.11
High	78/382 (20%)	0.67 (0.44, 1.02)	0.06	1.82 (1.02, 3.27)	0.04
Childhood Violence					

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		Univariate Logistic Regression		Multivariate Logistic Regression	
Characteristics	**Incarcerated During Study**	**Unadjusted Odds Ratio (95% CI)**	**P-value**	**Adjusted Odds Ratio (95% CI)**	**P-value**
No *	143/699 (20%)				
Yes	132/472 (28%)	1.51 (1.15, 1.98)	<.01	1.19 (0.83, 1.70)	0.36
Childhood Sexual Experience					
No *	84/446 (19%)				
Yes	178/712 (25%)	1.44 (1.07, 1.92)	0.01	1.15 (0.79, 1.67)	0.47
History of IPV					
No *	132/570 (23%)				
Yes	166/687 (24%)	1.06 (0.81, 1.37)	0.68		

* Reference Group