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Cruel Intentions? HIV Prevalence and Criminalization During an Age of Mass Incarceration, U.S. 1999 to 2012

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Abstract: A 2014 U.S. Department of Justice Best Practices Report advocates that states eliminate HIV-specific criminal penalties except under 2 conditions: when a human immunodeficiency virus (HIV)-positive person intentionally commits a sex crime or transmits the virus by engaging in behavior that poses a significant risk of transmission, regardless of actual transmission. We assess the premise of these exceptions to understand whether these best practices are based on scientific evidence about the population at risk of infection and the risk of sexual violence by HIV-positive individuals.

We employ nationally representative, cross-sectional survey data from the Current Population Survey (CPS), the Survey of Inmates in State, Federal, and Local Jails (SISFLJ), and the National Health and Nutrition Survey (NHANES).

Data from the CPS, SISFLJ, and NHANES are weighted and combined to analyze bias in the population at risk of HIV. Linear probability models are employed to estimate the likelihood that HIV-positive inmates are incarcerated for violent or sexual offenses, net of socioeconomic factors.

We find significant measurement bias in HIV prevalence rates. The selection of national surveys for population denominators distorts contemporary estimates of HIV prevalence by 7% to 20%. Our findings also illustrate that HIV-positive inmates are 10 percentage-points less likely to be incarcerated for violent offenses than HIV-negative inmates.

National best practice guidelines may undermine effective social policy that aims to curtail stigma within HIV-positive communities because scientific evidence neither include inmates into prevalence denominators (as a measure of the population at risk) nor assess the likelihood that HIV-positive inmates commit violent or sexual crimes.

(*Medicine* 95(16):e3352)

Abbreviations: CDC = Center for Disease Control, CPS = Current Population Survey, DoJ = U.S. Department of Justice, NHANES = National Health and Nutrition Examination Survey, SISFCF = Survey of Inmates in State and Federal Correctional Facilities.

Editor: Lauren Richey.

Received: October 28, 2015; revised: March 11, 2016; accepted: March 21, 2016.

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The authors have no funding and conflicts of interest to disclose.

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ISSN: 0025-7974

DOI: 10.1097/MD.0000000000003352

INTRODUCTION

A recent U.S. Department of Justice (DoJ) guide has proposed to align scientific research about the risk of human immunodeficiency virus (HIV) transmission with best practices on when states should use HIV-specific laws to seek criminal charges and penalty enhancements.¹ In particular, the DoJ report says that “states may wish to retain criminal liability when a person who knows he/she is HIV-positive commits a (non-HIV specific) sex crime where there is a risk of transmission (e.g., rape or other sexual assault)” or when “the individual knows he/she is HIV positive and the evidence clearly demonstrates that individual’s intent was to transmit the virus and that the behavior engaged in had a significant risk of transmission, whether or not transmission actually occurred,” (p. 4).¹ Beyond these 2 circumstances, the best practices guide recommends that states reform and modernize laws to accurately reflect the underlying low risk of HIV transmission from biting, spitting, throwing body fluids, insertive/receptive oral intercourse, and antiretroviral therapy.

Yet, the infrequent application of HIV criminalization laws, the rise of mass incarceration in America, and penal policy changes in inmate HIV testing converge to raise 2 important questions about the sexual health and criminal demeanor of the HIV-positive community. First, recent work shows that growth in the criminal justice system has obscured national estimates of wages, employment, educational attainment, and political participation. As inmates are not included in household-based sample surveys, national statistics on major social indicators are distorted, with some estimates being biased by as much as 60%.² It is possible that such sample selectivity among HIV-positive inmates induce similar statistical biases that inflate the overall prevalence and risk, belying the rationale for criminalization laws in states that rely on HIV prevalence rates from household surveys like the National Health and Nutrition Examination Survey (NHANES). There is some evidence that including inmates in national estimates of HIV and TB makes little difference, but that finding is based on 1 wave of data that span 2 years.² This study assesses bias over a 14 year period (i.e., 1999–2012) to investigate whether the population at risk of HIV exposure is contingent upon the inclusion of inmates.

Second, HIV criminalization laws emerged during the pre-ART era when the potential for HIV transmission was very high.^{1,3} Failure to disclose one’s HIV status placed romantic partners at risk for future infection, resulting in a sexual offense that increased the risk of morbidity and mortality because very few treatment options existed during the 1980s and early 1990s.¹ Furthermore, HIV legislation associated and codified into law specific violent and nonsexual acts that legislators inaccurately feared could transmit HIV (biting, spitting, etc.).^{1,3} Thus, many states criminalized the failure to disclose one’s HIV status as a sexual offense as well as violent behavior among individuals living with HIV, while other states enacted penalty enhancements for HIV-positive defendants during sentencing

for other sexual offenses such as prostitution.^{1,3} In Tennessee, for example, HIV exposure is specifically categorized as a violent offense that requires public sex offender registration for life.⁴ One supposition of HIV criminalization laws is that, by failing to disclose their infection, individuals who are infected seek to intentionally (or negligently) infect their partners and the population through sexual offenses and violent acts. Yet research has not focused on how crimes committed by HIV-positive inmates differ from the overall crimes of other inmates. HIV criminalization laws rest partly on the assumption that the overall risk of transmitting the infection within the general population is high, regardless of treatment or safer sex practices. However, no research has assessed whether HIV-positive inmates are more or less likely to be jailed or imprisoned for violent offenses, in comparison to HIV-negative inmates. If HIV criminalization laws are meant to redress illegalities associated with sexually transmitting the infection without a partner's knowledge or violence that threatens public health, the likelihood of serving sentences for violent acts should be greater among HIV-positive inmates (compared to non-HIV inmates) once the distribution of possible offenses (violent, drug, property, etc.) is controlled.

This paper makes 3 contributions to the literature. First, we assess measurement biases in HIV prevalence from national household-based surveys that do not include incarcerated population, which may be used to generate state-specific HIV prevalence rates in the absence of access to surveillance data. These household surveys can be used to set national and state social policy on corrections and population health.² Second, we show how statistical biases in household surveys undermine the conceptual basis for HIV criminal laws, particularly for states that draw on data from the noninstitutionalized population to make general claims that buttresses social policy. Finally, we present a general criticism of the legal basis for HIV criminal laws that make assumptions about criminal intent and violent dispositions among individuals living with HIV/AIDS.^{1,3}

BACKGROUND

In 2008, 1 in 100 adults was behind bars,⁵ but over 64 million adults had some form of arrest or criminal conviction, representing 30% of the American adult population.⁶ By the close of 2012, nearly 2.23 million men and women were incarcerated in local, state, and federal correctional facilities, and another 4.79 million were under some form of criminal justice supervision.⁷ Exposure to the criminal justice system is not uniform; race and class inequality in the likelihood of incarceration has grown over the last 40 years,^{8,9} with the life-time risk of imprisonment among young, undereducated African-American men hovering around 70%.^{2,10,11}

The expansion of the criminal justice system is known to significantly shape population health. Incarceration is associated with an increased risk of infectious disease, stress, depression, unhealthy eating habits, body mass indexes (BMI), and smoking,^{12–16} and recent work links incarceration to excess infant mortality in America and Denmark.^{17,18} Mass incarceration has such a profound impact on levels of social inequality in America that the health effects spill into and diffuse through communities, as male incarceration rates in the early 1980s through the mid-1990s are shown to be strongly associated with AIDS rates among men and women.¹⁹

During the rise of the AIDS epidemic, state legislatures began legislating sexual and social behavior around HIV-status. Twenty-four states currently impose misdemeanor or felony

penalties on HIV-positive people for engaging in a range of practices.²⁰ Most statutes criminalize sexual contact without first disclosing one's HIV-positive status, regardless of whether that contact poses a risk of transmitting the virus; others are widely construed to criminalize a range of potential exposures, even behaviors that are not plausible transmission pathways such as spitting and biting.²⁰ In addition, a handful of other states impose sentence enhancements on HIV-positive defendants convicted of other sexual offenses such as rape or prostitution. In total, 32 states currently have an HIV-specific criminal statute on the books.²⁰

Although HIV was largely terminal without treatment during the pre-ART era, the introduction of antiretrovirals in 1995 substantially increased survivorship. These treatments not only transformed the disease into a chronic, manageable illness, but also greatly reduced the infectiousness of those taking it.^{21,22} Data recently announced from a trial involving virally suppressed partners in both heterosexual and same-sex serodiscordant relationships (where one partner is HIV-positive and the other HIV-negative) who were not using condoms at least some of the time reveal that, after an estimated 44,400 sexual encounters, zero transmissions were observed.²³

Although the science of HIV treatment and prevention has dramatically advanced in the 30 years since its discovery, the criminal laws governing those infected with HIV have remained largely static. The majority of HIV-specific criminal laws were enacted during the mid-1980s and early 1990s during a general panic about the disease and its potential to spread from minority communities to the general population.^{24,25} In this context, states enacted broadly construed laws that could be used to criminalize sexual contact without any risk of transmission. Additionally, some policy debates have centered on highly aberrant cases involving male defendants (often of color) infecting multiple (often white) female partners.²⁶ However, an analysis of convictions under Michigan's felony HIV disclosure statute between 1992 and 2010 reveals that less than 5% of convictions involved a defendant accused of transmitting the disease to a partner.²⁷ The vast majority of cases involved a sexual exposure without transmission, some involving no or low risk sexual behaviors – such as a 2009 case involving an HIV-positive Michigan dancer accused of allowing a male client's nose to “penetrate” her vagina during a lapdance.²⁷

The criminal justice system is known to structure and recreate inequalities in health among inmates by selectively testing prisoners for HIV depending on state-specific laws and institutional facility type (jail, state prison, etc.).²⁸ For instance, although inmates are at a higher risk of contracting HIV/AIDS than the general population,²⁹ state legislatures enact different guidelines about when and where to test inmates for this infection. In 2004, 18 states had policies specifically aimed at testing all inmates for HIV at admission into prison/jail, while only 2 states had policies for testing inmates in custody, and 3 states tested prisoners upon release.³⁰ Nationally, the number of states that mandated HIV testing among inmates was greater around the dawn of the millennium than in subsequent years. Between 2000 and 2004, federal prisons ended testing all inmates and began testing groups they deemed to be high-risk.²⁸ We assess the 2 critical suppositions of HIV criminalization laws: whether a prominent, national household survey routinely used to generate state-specific estimates of HIV overstates the level of prevalence in the population due to the exclusion of inmates; and whether inmates with HIV are more or less violent than non-HIV infected inmates.

METHODS

Data

We use publicly available data from the NHANES from 1999 to 2012. NHANES data are collected by the National Center for Health Statistics (NCHS), as part of the Centers for Disease Control (CDC). Data on the health and well-being of the U.S. population have been gathered by NHANES surveys since the 1960s. These data capture demographic, dietary, and health-related markers of a nationally representative sample of about 5000 residents each year.³¹ NHANES administers biennial laboratory tests for HIV antibodies to estimate the prevalence of HIV in the population. The age of the participants varied by survey wave, with the range going from 18–49 in 1999 to 18–59 in 2012. To standardize across years, we limit the age range from 20 to 49 and apply survey weights to obtain nationally representative statistics by race. As the vast majority of inmates are male, we restrict our analysis to men.

We also leverage data from the Survey of Inmates in State, Federal, and Local custody. Data for the Survey of Inmates series are collected by the U.S. Census Bureau and distributed by the Bureau of Justice Statistics.^{32–35} The Survey of Inmates is nationally representative sample of all inmates held in correctional facilities throughout the United States. Respondents include inmates being held pretrial, those serving local sentences, and those awaiting transfer into the custody of another correctional facility. The Survey of Inmates in State and Federal Correctional Facilities was administered in 1997 and 2004. Data from the Survey of Inmates in Local Jails were collected in 1996 and 2002. In each of these surveys, inmates were asked if they were ever tested for HIV and for the result of the test. To construct panel estimates of HIV prevalence among American inmates, we estimate the distribution of inmates who report being positive by race, weighted in proportion to aggregate penal population counts from Bureau of Justice Statistics. Estimates from between survey years are linearly interpolated, and postsurvey year prevalence is assumed to follow the weighted distribution of the most recent survey. This method has been used to construct time-series for parental incarceration, wage inequality, and the life-time risk of imprisonment.^{2,9–11,36–38} Further details on our methodology and additional data

used to produce these estimates can be found in other work.^{2,10} To make the analysis consistent with NHANES, we limit the sample to men age 20 to 49.

Population denominators to calculate prevalence rates are obtained from 2 sources. When weighted, NHANES totals represent the noninstitutionalized population. Another source of information about population counts come from the March Current Population Survey (CPS). Each month the CPS samples approximately 50,000 to 60,000 Americans living in households, and survey measures capture the demographic and labor market attributes of the noninstitutionalized population. CPS data are jointly collected by the U.S. Census Bureau and the Bureau of Labor Statistics, and the CPS has been fielded monthly since the 1940s.³⁹ We compare HIV prevalence rates under each of these surveys to ensure that any bias in rates due to institutionalization are not due to population count differences between surveys.

As this observational study relies on publicly available, secondary data sources that have been anonymized for widespread use, the risk to potential subjects is low. The data have been collected by government agencies tasked with anonymizing survey participants and ensuring minimal harm, and the data have been deidentified and cannot be linked. As such, the Institutional Review Board at the University of California-Irvine classifies this research as exempt from review.⁴⁰

RESULTS

Table 1 displays the descriptive statistics for the Survey of Inmates and NHANES for the years that begin and end our survey. Although subsequent analyses are only for men, this table is used to display the overall sample demographics. Over 90% of all inmates are male, compared to almost half of respondents who had their blood tested by NHANES. Although the overall modal ages are fairly similar for 1999 and 2012 among American inmates, the mean age among the NHANES sample increased over 5 years between 1999 and 2012.

Similarly, the racial composition of the inmates in jails and prisons remained fairly stable, with roughly 65% of all inmates being non-Hispanic Whites. The NHANES sample shows relatively stable percentages among non-Hispanic Blacks and

TABLE 1. Descriptive Statistics of the Survey of Inmates and the NHANES for Select Years, U.S. 1999 to 2012

	Survey of Inmates		NHANES	
	1999	2012	1999	2012
Male	92.5	91.5	48.7	49.5
Age (in years)	32.8	34.3	33.5	38.6
NH-White	34.3	35.0	67.0	62.2
NH-Black	44.2	41.4	12.2	12.6
Hispanic	18.0	18.7	16.7	16.9
NH-other	3.4	4.8	4.1	8.3
LT HS	41.4	55.7	21.1	19.3
High School	47.4	35.4	25.7	18.6
College	11.2	12.9	52.9	62.1
HIV prevalence	2.8	3.3	1.1	0.42
N	1,893,115	2,228,400	130,564,768	174,159,864

Source: Authors’ calculations from the Survey of Inmates and the NHANES. All estimates use sample weights and are weighted percentages except for age, which is the weighted average. Reported Ns for the Survey of Inmates represent the total number of inmates in custody during that year, as reported by the Bureau of Justice Statistics. HS = High School, HIV = human immunodeficiency virus, LT HS = Less Than High School, NH = Non-Hispanic, NHANES = National Health and Nutrition Examination Study.

Hispanics over the period, but the percentage of non-Hispanic Whites declines by almost 5 percentage-points, and the non-Hispanic Other group more than doubled in size.

The educational disadvantage of American inmates has also increased overtime. In 1999, roughly 41.4% of all men and women behind bars had less than a high school diploma (i.e., they dropped out of high school). By 2012, that estimate increased by 14.3 percentage-points to 55.7%. Shifts in the educational redistribution of inmates were largely at the expense of inmates who completed high school, as the percentage of inmates with a high school diploma dropped from 47.4% in 1999 to 35.4 in 2012. Respondents in the NHANES sample, on the other hand, experienced opposite movement in the redistribution of educational attainment. Although individuals with low levels of education experienced some declines in representation between 1999 and 2012, highly advantaged respondents became more prevalent by 2012. College educated men and women, for example, increased their responsiveness by 9.2%-points, with 62.1% of NHANES respondents having some college education.

The shifting educational distribution in these surveys raises important questions about whether HIV prevalence is concealed and distorted when institutions like the criminal justice system concentrate disadvantage and inmates remain outside sample selection eligibility for national surveys. Indeed, some scholars have raised this concern for a number of clinical trial studies, where individuals unincarcerated in earlier waves of a study cannot be followed at later times due to incapacitation and IRB protocols around inmate research.⁴¹ Table 1 shows that HIV prevalence among inmates increased from 2.8% in 1999 to 3.3% by 2012. Comparatively, lab work by NHANES shows that the percentage of Americans who are HIV-positive declined, going from 1.1% in 1999 to 0.42% by 2012. As inmates are disproportionately poor and possess low levels of education,³⁶ resulting in their exclusion from national household-based surveys,^{2,38} a reexamination of HIV prevalence rates and bias due to their exclusion is warranted.

Quantifying Bias in HIV Prevalence

Currently, more than 1.2 million people are living with HIV.⁴² Although national HIV prevalence estimates from the CDC are based on surveillance site statistics, national household-based surveys like NHANES are another source of data for states that seek to utilize social and epidemiological data on HIV prevalence within the population. The potential use of NHANES data to set social policy around state-specific HIV criminalization laws has yet to be investigated.

To understand whether the rationale for HIV criminalization laws may be due to an overestimated risk of HIV spreading throughout the population due violent and deviant behavior, the number of Americans living with HIV (i.e., the numerator) must be standardized before adjusting the national prevalence rates for individuals living outside of households or in institutions. Thus, cases reported to the CDC by its surveillance programs must be reconciled with national survey estimates from NHANES. Table 2 shows the number of male adult or adolescent cases from 2008 to 2010. Even if the total population (i.e., the denominator) included all persons in the United States, NHANES would overestimate HIV prevalence because the number of cases diverges from published CDC estimates in 2 of the 3 most recent years. For instance, NHANES HIV-positive cases are 2.8% and 10.6% greater than CDC estimates in 2008 and 2009, respectively. Only in 2010 does the number of HIV

TABLE 2. Number of Male Adult or Adolescent HIV Cases Published by the CDC and Estimated from NHANES, U.S. 2008 to 2010

	2008	2009	2010
CDC	612,581	635,243	658,002
NHANES	629,586	702,426	657,024
Percent Difference	2.8%	10.6%	-0.149%

Source: Authors' calculations from the NHANES. Estimates from the CDC are contained in Table 15a (p. 52) of the 2011 HIV Surveillance Report.⁵¹ The age ranges have been standardized for consistent measurement between surveys. CDC = Center for Disease Control, HIV = human immunodeficiency virus, NHANES = National Health and Nutrition Examination Study

cases converge between NHANES and CDC estimates, with NHANES reporting 0.149% fewer infected individuals.

Prevalence estimates require information from household surveys on the noninstitutionalized to generate population counts. The total population counts from NHANES differ significantly from the CPS. Population counts from NHANES produce different HIV prevalence estimates than population counts from CPS. Similar to Table 2, where the incident counts differed for the numerator, the population counts for the denominator also induce sizeable differences in HIV prevalence rates. The population counts for the denominator (i.e., the population at risk of exposure) can induce sizeable differences in HIV prevalence rates. We fix the numerator to be the number of HIV cases from NHANES and vary only the population denominators. If all members living in households have the

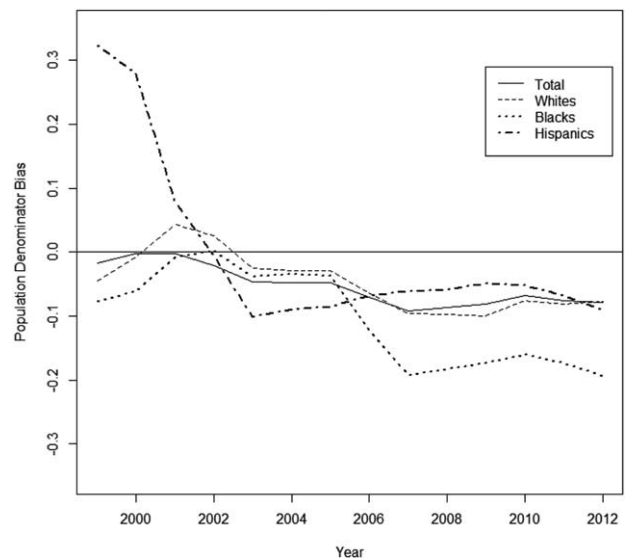


FIGURE 1. Source: Authors' calculations from the NHANES and the CPS. Note: Positive estimates indicate that prevalence rates are higher when using the NHANES population as the base, whereas negative estimates indicate that using population totals from the CPS lowers the prevalence rate by the corresponding percentage. CPS = Current Population Survey, NHANES = National Health and Nutrition Examination Study.

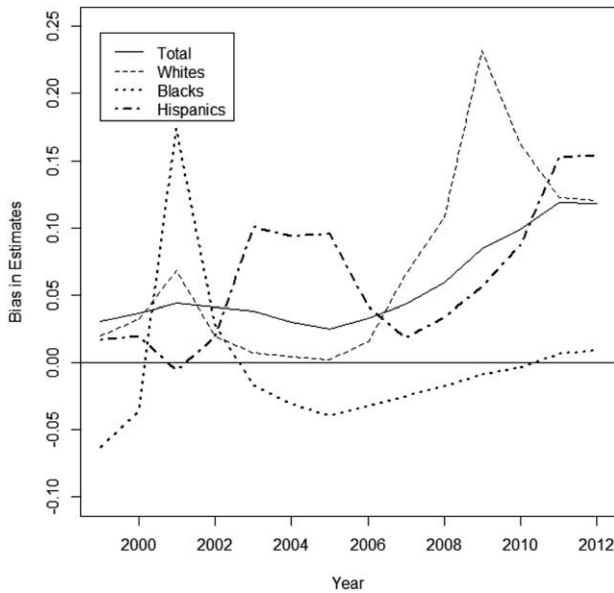


FIGURE 2. Source: Authors’ calculations from the Survey of Inmates, the NHANES and the CPS. Note: Positive numbers indicate that current national HIV prevalence rates should be adjusted upward by the corresponding percentage to include inmates. Negative numbers indicate that the inclusion of inmates lowered prevalence rates by the corresponding percentage. CPS=Current Population Survey, HIV= human immunodeficiency virus, NHANES=National Health and Nutrition Examination Study.

same sampling probability across surveys, then HIV prevalence estimates between NHANES and the CPS should not differ significantly. Figure 1 shows the level of denominator bias associated with survey selection. Positive estimates indicate that prevalence rates are higher when using the NHANES population as the base, and negative estimates indicate that using population totals from the CPS lowers the prevalence rate. For example, while NHANES and CPS denominators made little difference in the total HIV prevalence rate for 1999 to 2001, since 2002, bias in

population counts have diverged between the surveys. Current estimates indicate that CPS population totals produce a rate that is 7.8% lower than NHANES. Race-specific HIV prevalence rates are particularly distorted, as NHANES overrepresented prevalence among non-Hispanic Blacks by 7.8% in 1999. By 2012, CPS population totals lowered HIV prevalence by 19.3% compared to population counts from NHANES. Prior to 2002, CPS population rates underrepresented HIV prevalence among Hispanics. After that period, however, NHANES overestimated their prevalence rates.

As population counts are known to produce different estimates before including inmates, we average CPS and NHANES population counts to limit the overall bias associated with choosing between surveys. We estimate bias in the HIV prevalence rate due to excluding inmates from household-based surveys in Figure 2. Positive numbers indicate that current HIV prevalence rates should adjusted upward by the corresponding percentage to include inmates. Negative numbers indicate that the inclusion of inmates lowered prevalence rates by the corresponding percentage. Including inmates generally increases national HIV prevalence rates. Yet, for non-Hispanic Blacks, inmate inclusion lowers national HIV prevalence for many of the years in our study. This finding is consistent with past research that examined 1 wave of NHANES data during the mid-2000s.²

Dangerous Liaisons?

Most men are incarcerated for nonviolent and nonsexual crimes. Table 3 presents the distribution of controlling offenses (or the most serious crime) among inmates by race. HIV-positive inmates were incarcerated for violent offenses at rates substantially lower than other inmates. For example, in 1999, 22.1% of all inmates were incarcerated for violent offenses compared to 14.5% of HIV-positive inmates, a 7.6%-point difference ($P < 0.001$). The rise in mass incarceration changed the overall offending composition by the end of our time series. By 2012, the percentage of HIV-positive inmates incarcerated for violent offenses was lower than the overall population by 8.1 percentage-points ($P < 0.001$). The fraction of non-Hispanic Black men living with HIV who committed a violent offense was almost 15 percentage-points lower ($P < 0.001$) than the overall population of Black inmates.

TABLE 3. The Distribution of Controlling Offenses among Men 20 to 49 by Race (in Percentages), U.S. 1999 to 2012

	1999: All Inmates				2012: All Inmates			
	Violent	Drug	Property	Other	Violent	Drug	Property	Other
NH-White	20.2	13.7	25.4	40.7	43.0	15.5	25.0	16.5
NH-Black	22.5	26.4	18.5	32.5	40.7	28.4	17.4	13.5
Hispanic	22.6	27.0	17.4	32.9	32.0	25.7	15.7	26.6
Total	22.1	24.0	19.5	34.4	37.9	25.1	17.9	19.1
	1999: HIV+ Inmates				2012: HIV+ Inmates			
NH-White	19.3	9.5	15.5	55.8	40.2	3.3	34.5	22.0
NH-Black	13.0	23.5	32.4	31.0	25.9	22.8	40.4	10.9
Hispanic	14.3	41.9	17.4	26.4	29.9	33.5	21.8	14.7
Total	14.5	27.0	24.6	33.9	29.8	23.5	32.7	14.0

Source: Authors’ calculations from the Survey of Inmates. All estimates reported use sample weights. Due to rounding, some row totals may not sum to 100%. HIV = human immunodeficiency virus, NH = non-Hispanic.

TABLE 4. Estimated Probabilities of Being Incarcerated for Violent and Nonviolent Offenses, U.S. 1999 to 2012

	Violent	P-Value	Drug	P-Value	Property	P-Value	Other	P-Value
HIV+	-0.100 [-0.106, -0.095]	<0.001	0.026 [0.021, 0.030]	<0.001	0.073 [0.069, 0.077]	<0.001	-0.021 [-0.026, -0.016]	<0.001
NH-Black	0.028 [0.026, 0.029]	<0.001	0.120 [0.118, 0.121]	<0.001	-0.082 [-0.083, -0.075]	<0.001	-0.063 [-0.064, -0.061]	<0.001
Hispanic	0.015 [0.013, 0.017]	<0.001	0.110 [0.106, 0.110]	<0.001	-0.077 [-0.078, -0.095]	<0.001	-0.042 [-0.044, -0.040]	<0.001
NH-Other	0.075 [0.071, 0.080]	<0.001	-0.0001 [-0.003, 0.0005]	0.969	-0.068 [-0.072, -0.065]	<0.001	-0.005 [-0.009, -0.0007]	0.022
Age	0.001 [0.0008, 0.001]	<0.001	0.0004 [0.0004, 0.0005]	<0.001	-0.001 [0.0013, 0.0011]	<0.001	-0.00002 [0.0001, 0.00006]	0.558
High School	0.012 [0.010, 0.014]	<0.001	-0.010 [-0.011, -0.008]	<0.001	0.011 [0.009, 0.012]	<0.001	-0.003 [-0.005, -0.002]	<0.001
Some College	-0.016 [0.018, 0.014]	<0.001	-0.024 [-0.026, -0.021]	<0.001	0.031 [0.029, 0.033]	<0.001	0.013 [0.010, 0.015]	<0.001
Jail	0.096 [0.092, 0.010]	<0.001	-0.239 [-0.241, -0.236]	<0.001	0.174 [0.171, 0.177]	<0.001	0.189 [0.186, 0.193]	<0.001
State	0.324 [0.320, 0.327]	<0.001	-0.308 [-0.310, -0.306]	<0.001	0.118 [0.116, 0.121]	<0.001	0.040 [-0.038, -0.043]	<0.001
N	1,567,812		1,567,812		1,567,812		1,567,812	

Source: Authors' calculations from the Survey of Inmates. All probit models include year fixed-effects and estimates are reported marginal effects evaluated at their mean values. The 95% confidence interval is in brackets. HIV negative, non-Hispanic Whites, having less than a high school education, and being institutionalized in a federal prison are the baseline reference groups. Reported estimates are survey weighted. HIV = human immunodeficiency virus, NH = non-Hispanic.

In Table 4, we fit probit models to estimate differences in the likelihood that HIV-positive inmates are more/less violent than HIV-negative inmates. We report marginal effects, which express the rate of change in the dependent variable (i.e., the predicted probability) relative to a unit change in an independent variable.^{43,44} All models are evaluated at their mean values. HIV-positive men were 10%-points less likely to have a violent offense than HIV-negative inmates. In fact, HIV-positive inmates are statistically more likely to be incarcerated for drug and property crimes (2.6% and 7.3%, respectively), not sexual or violent offenses. Although drug and property crimes may increase the likelihood of experiencing violence, these findings indicate that HIV-positive inmates are significantly less violent than their counterparts.

DISCUSSION

When HIV entered the national consciousness in the 1980s, HIV-positive people were quickly labeled as deviant by those holding homophobic views, increasing their willingness to believe myths of dangerousness.⁴⁵ Perceptions of HIV-infected persons as risky, dangerous, and threatening permeated public discourse to the point that a 1988 General Social Survey item revealed that 63.7% of Americans were in favor of a government mandate that would require HIV-positive individuals to wear identification tags.⁴⁶ The stigma associated with infection resulted in HIV criminalization laws that relied on national statistics about HIV prevalence among high risk groups, as well as misguided and biased assumptions about the criminal nature of HIV-positive men and women.

Recent studies suggest that HIV-specific criminal laws are not uniformly applied across the population. One study shows that HIV-positive heterosexual Black men are more likely to have been convicted under the Michigan nondisclosure law as compared to their White counterparts.⁴⁷ Contrary to expectations, however, HIV-positive gay men in the state were much less likely to have faced conviction as compared to their heterosexual counterparts. These findings echo those of other work,⁴ which shows that 80% of arrestees under Tennessee's HIV-specific criminal law, who were subsequently tried in Nashville courts between 2000 and 2010, involved men or women with opposite-gendered partners. Findings from Michigan and Tennessee underscore how HIV criminalization laws may be differentially applied to segments of the population based on beliefs about the risk of transmission, disclosure, violent intentions, and institutional discrimination by race and sexual orientation.

HIV criminalization laws promulgate myths of dangerousness through the presumption of individual duplicity between partners and collective misunderstandings about the overall risk to the population at large. Distorted prevalence and incidence rates due to survey and sample bias contribute to such misconceptions by obscuring scientific facts about HIV transmission and the relative rate of violent offenses among those who are infected. Our study finds that the population at risk of exposure is significantly overestimated and that HIV-positive inmates are significantly less likely to be incarcerated for violent offenses. HIV-specific laws compound the stigma associated with being HIV-positive, even if inmates are incarcerated for nonviolent and nonsexual crimes. An unintended consequence of this legislation is the further stigmatization of minority groups and communities, which may induce greater levels and varied forms of deviance as a result of increased ostracization and internalization of deviant labels.^{48,49}

We show that the very premise of these criminalization laws are problematic in at least 2 respects. First, the correctional system incarcerates many individuals experiencing the most serious social problems in the country. Prisons and jails concentrate disadvantaged men, most of whom have low levels of education and are disproportionately non-White.³⁶ The rise of mass incarceration since the 1980s has come to obscure basic social facts about a host of population processes, including HIV prevalence rates overtime when estimated using household-based data. Thus, health advocates and legislators should exercise caution when relying on nonsurveillance data from household surveys to devise state-specific social policy.

Second, HIV criminalization laws make explicit assumptions about the intentionality and negligence of those living with infections, particularly if they fail to disclose their HIV status. As a matter of fact, a number of men and women have been prosecuted even after disclosing their infection and in the absence of transmission, which serves to bolster claims about HIV stigma in the justice system.^{1,3,50} Furthermore, past characterizations of HIV-positive individuals as dangerous and violent are not validated by data on offense classifications of inmates. HIV-positive inmates are statistically less violent than their counterparts and are more likely to be incarcerated for drug and property crimes. Thus, HIV criminalization laws focused on sexual violations deliberately codify unfounded beliefs about who is at risk of exposure and the criminality of those who would seek to expose them.

Although public health institutions have been largely silent on HIV-specific criminal laws until very recently, a recent DoJ report calls for states to re-examine their HIV-specific criminal statutes and assess the laws in accordance with scientific understandings of transmission risk.¹ However, evidence suggests that this critical stance toward HIV criminalization is not shared at all levels of the public health infrastructure. For example, one study found that local health officials in Michigan had developed specific tools and strategies for catching HIV-positive clients suspected of nondisclosure.⁵⁰

HIV criminalization laws impute a host of assumptions about the HIV-positive community and their sexual partners.⁵¹ These laws were created during an era of public fear and scientific mystery about the evolution, progression, and transmission of the disease. Such legislation was enacted on speculation about the underlying risk of infection and the criminal intent of individuals living with HIV. Over 30 years after the discovery of this disease, HIV laws represent a relic of our collective biases and misunderstandings that have since been compounded by the rise of mass incarceration and its corresponding distortion of national prevalence estimates. In the interest of public health and scientific validity, social scientists and legislators should reassess the evidence that purportedly undergirds characterizations of HIV-positive persons as dangerous liaisons with cruel intentions.

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