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## Should it be illegal for HIV-positive persons to have unprotected sex without disclosure? An examination of attitudes among US men who have sex with men and the impact of state law

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The aims of this study were to describe the overall pattern and predictors of attitudes toward criminalizing unprotected sex without disclosure by persons living with HIV among a broad sample of men who have sex with men (MSM) living in the USA, and to examine whether attitudes and sexual risk behavior differ by states with HIV-specific laws or no such laws. Participants ( $n = 1725$ ) were recruited in a 3.5 month period to complete a cross-sectional 70-minute online survey assessing attitudes and high risk sexual behavior. Participants self-identified as male, 18 years of age or older, a US resident, and having ever had sex with a man. In addition, participants were coded as residing in a state with HIV-specific laws or not. Results showed that most (65%) respondents believed it should be illegal for persons living with HIV to have unprotected sex without disclosure. However, among the total sample and HIV-positive MSM, attitudes and unprotected sex with recent partners did not vary by state law. Believing that it should not be illegal for persons living with HIV to have unprotected sex without disclosure was associated with HIV-positive status (OR = 0.33), higher education (ORs = 0.42–0.64), gay orientation (non-gay orientation: OR = 1.54), perceptions that state residents were somewhat or very accepting toward homosexuality (OR = 0.75), unprotected anal intercourse with two or more recent sexual partners (OR = 0.72), and lower perceptions of responsibility (OR = 0.75). The results did not support the proposition that HIV-specific laws deter high-risk sexual behavior, however further research is needed to examine whether they act as a barrier for MSM at highest risk for acquiring or transmitting HIV.

**Keywords:** HIV; law; sexual risk behavior; men who have sex with men

### Introduction

Despite the adoption of a rights-based approach by several notable global HIV/AIDS organizations (UNAIDS, 2008; World Health Organization, 2008), at least 30 persons have been prosecuted for HIV exposure in the USA since 2008 (The Center for HIV Law and Policy, 2009). Penalties range from a US\$100 fine to up to 30 years of imprisonment (Global Network of People Living with HIV, 2009). Although the degree to which HIV-specific laws undermine or support national HIV prevention efforts continues to be debated (Burris & Cameron, 2008; Galletly & Pinkerton, 2006; Lowbury & Kinghorn, 2006; Wait, 2007), there is a continuing need to understand the attitudes that persons from groups disproportionately affected by the HIV epidemic hold about such laws, and how HIV-specific laws affect sexual behavior (UNAIDS, 2008).

Assessing the impact of HIV-specific laws in the USA is complex as laws vary across states on several dimensions, including whether one has knowledge of his or her HIV status, whether or not HIV status disclosure occurred, or if there was a clear intent to

transmit HIV. To examine whether HIV-specific laws, and knowledge of such laws, influenced condom use, Burris, Beletsky, Bureson, Case, and Lazzarini (2007) interviewed 482 men and women living in a state that either has a HIV-specific law requiring disclosure of HIV status by infected individuals (Illinois) or a state that has no such law (New York). Approximately 45% ( $n = 219/482$ ) of respondents believed the law prohibited HIV-positive individuals from having sex without using a condom. With respect to anal sex, neither living in a state with a HIV-specific law nor having knowledge of the law was significantly associated with increased condom use. However, participants living in Illinois who disclosed their HIV status were less likely to use condoms, while New York residents who disclosed were more likely to use a condom. An online study of men who have sex with men (MSM) in the UK showed that over half (57%) of participants believed it “is a good idea to imprison people who know they have HIV if they pass it to sexual partners who do not know they have it,” with 25% being unsure, and 18% opposed (Dodds, 2008; Dodds et al., 2009). Men who had never been tested for

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HIV in this study were more likely to support imprisonment than those who had tested negative for HIV or who self-reported as HIV-positive, while HIV-positive participants tended to believe that responsibility for negotiating sexual exchanges rested with both partners. Overall, these and other (e.g., Adam, Elliott, Husbands, Murray, & Maxwell, 2008) studies suggest variation in knowledge of and attitudes toward laws that criminalize unprotected sex among persons living with HIV.

MSM remain the largest population infected with HIV in the USA and similar countries (Centers for Disease Control and Prevention, 2008; Sullivan et al., 2009). Studies are lacking that examine the attitudes of MSM living in the USA toward laws that prohibit unprotected sex by HIV-positive individuals without disclosure. Therefore, the aims of this study were to: (1) describe overall attitudes toward criminalizing unprotected sex without disclosure by persons living with HIV among a broad sample of MSM living in the USA; (2) examine whether attitudes and sexual risk behavior differ by states that either have HIV-specific laws or no such laws; and (3) determine the demographic, psychosocial, and behavioral predictors of attitudes toward criminalizing unprotected sex without disclosure by HIV-positive persons. The results have implications for policy-makers regarding criminal laws surrounding HIV transmission, as well as for prevention efforts aimed to reduce rates of HIV infection in the USA.

## Method

### *Recruitment and enrollment*

Recruitment was guided a priori by the degree to which legal and HIV experts believed that state laws were generally favorable or unfavorable to gay, lesbian, bisexual, and transgender (GLBT) residents living in US population centers, and matched on population size and the number of alcohol establishments catering to the GLBT community. Participants were recruited in a 3.5 month period in 2008 using online banner advertisements placed on two websites popular among gay and bisexual men to meet sexual partners, and targeted toward men living in the selected population centers. Banner ads stated, "Participate in University Research on Sex and Alcohol and Earn \$30", included the university and study logo, and a picture of a man. Participants must have self-identified as male, been 18 years of age or older, and have ever had sex with a man to be eligible for the study. Of the men who clicked on the banner ad ( $n = 3370$ ), 56% ( $n = 1874$ ) met eligibility requirements

and enrolled in the survey, and 92% ( $n = 1725$ ) of these men completed the survey.

### *Procedures*

All procedures were approved by the University of Minnesota Institutional Review Board and a federal Certificate of Confidentiality was obtained to guard against the subpoena of participant data. Participants who clicked on the study banner advertisement were taken to a secure study website. Prospective participants viewed a welcome page with an overview of procedures and information about the study and staff. After answering eligibility questions, eligible respondents were guided through a series of consent pages (Rosser, Gurak, et al., 2009). An email was sent to participants with a link to the survey for re-entry if they chose to discontinue before completion. Participants who started the survey without finishing were sent reminders. The mean completion time was approximately 70 minutes. Automated and manual de-duplication and validation protocols were applied to ensure that each case represented a unique respondent. Ineligible persons viewed a web page that thanked them for their interest.

### *Measures*

Items used for the purpose of this study were taken from a larger online survey of online and offline sexual attitudes and behaviors, substance use, and laws relevant to the GLBT community. Using algorithms, participants were asked a variable number of items depending on their responses. Participants responded to each relevant question with either their answer or by clicking a "refuse to answer" option.

The main outcome variable of interest was: "should it be illegal for an HIV-positive person who knows his or her status to have unprotected sex without telling the other person of their HIV-status?" Response options were: "no, it shouldn't be illegal," "I don't know," or "Yes, it should be illegal."

Demographic factors (see Table 1) included age (open-ended format), HIV-status (calculated from two questions of when they had their last HIV test and whether they have ever been diagnosed with HIV), ethnicity (Hispanic versus non-Hispanic) and race (check box for American Indian, Asian American, Black, Pacific Islander, White, or an open-ended text box for "other" race), and educational attainment. Participants self-reported their sexual identity (gay, bisexual, heterosexual, or a different sexual identity), as well as their comfort with their sexual orientation (Likert scale from 1 = Very Comfortable to 5 = Very Uncomfortable). Men were asked to report the political party for which they tend to vote, and how gay

Table 1. Sample sociodemographics.

	Should it be illegal for an HIV-positive person who knows his or her status to have unprotected anal sex without telling the other person of their HIV-status? <sup>a</sup>				Chi-square value
	Total ( <i>n</i> = 1725)	No ( <i>n</i> = 393)	Don't Know ( <i>n</i> = 213)	Yes ( <i>n</i> = 1116)	
	Column (%)	Row (%)	Row (%)	Row (%)	
Age					47.28***
18–20	7	11	10	79	
21–30	41	18	11	71	
31–40	24	28	12	61	
41–70	28	28	16	56	
HIV-status					112.21***
Negative	77	18	12	70	
Positive	14	48	14	38	
Never tested	9	20	11	69	
Ethnicity/race					0.65
White	76	23	12	65	
Hispanic	15	21	13	65	
All other	8	22	12	66	
Education					20.03**
H.S. or less	11	17	8	75	
Technical/some college	37	21	12	67	
College degree	34	25	14	62	
Grad degree	18	27	15	58	
Sexual identity					15.44***
Gay	86	24	13	63	
Other (e.g., Bisexual)	14	17	7	76	
Comfort with sexual orientation					14.80**
Very	60	25	13	62	
Comfortable	25	19	14	67	
Less than comfortable	15	19	9	72	
Political affiliation					12.40
Democrat	74	24	13	63	
Republican	11	18	8	74	
Independent	6	19	12	70	
Don't/can't vote	7	19	10	70	
Other	2	23	15	63	
Accepting state					10.68*
Very/somewhat hostile	27	20	10	70	
Neither	15	21	15	65	
Somewhat/very accepting	58	25	13	62	
Long-term relationship					5.26
No	71	21	13	66	
Yes	29	26	12	62	
UAI (past three months)					48.08***
0	63	19	12	69	
1	13	20	14	66	
2+	23	35	13	52	
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	
Responsibility <sup>b</sup>					16.96 <sup>c</sup> ***
1 = SA to 7 = SD	1.81 (1.27)	2.31 (1.50)	1.90 (1.19)	1.61 (1.14)	

<sup>a</sup>Three participants refused to answer the question.

<sup>b</sup>Defined as: "I feel responsible for protecting my online sexual partners from HIV or other sexually transmitted diseases" (Likert scale from 1 = Strongly agree to 7 = Strongly disagree).

<sup>c</sup>One-way ANOVA.

\**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001.

accepting or gay hostile they believe people are in their state (Likert scale from 1 = Very Hostile to 5 = Very Accepting).

Participants reported separately the number of sexual partners they met online, in a bar, and at any other venue with whom they engaged in unprotected anal intercourse (UAI) in the past three months, which then was used to calculate the total number of UAI partners. In addition, men were asked if they were in a long-term relationship and, for those men who were, whether they had engaged in UAI in the past three months with that partner. Finally, men were asked to state the degree to which they agreed with the following statement, "I feel responsible for protecting my online sexual partners from HIV or other sexually transmitted diseases (STDs)" (Likert scale from 1 = Strongly Agree to 7 = Strongly Disagree).

### Analyses

Statistical analyses were performed using STATA 9.2. A variable was created reflecting whether participants resided in a state with HIV-specific laws (or laws that increase penalty based on HIV status) or no HIV-specific law from an existing database (American Civil Liberties Union, 2008). Demographic, psychosocial, and behavioral group differences were examined with chi-square and Fisher's exact tests. Factors significantly associated with the main outcome in the bivariate analyses were entered into a multivariate ordinal logistic regression to examine which factors were significantly associated with believing it should be illegal for an HIV-positive person who knows his or her status to have unprotected sex without telling the other person of their HIV-status. The proportional odds assumption was met for all predictor variables. Statistical significance was set a priori at  $p < 0.05$ .

## Results

### Sample characteristics

Sample characteristics of respondents are shown in Table 1. Sixty-five percent of participants were between the ages of 21 and 40, 76% identified as white, and 52% obtained a college degree. While 77% ( $n = 1319$ ) of participants reported that their most recent HIV test was HIV-negative, 14% ( $n = 241$ ) reported being HIV-positive, and 9% ( $n = 149$ ) had never been tested. Of note, 34% of MSM between the ages of 18 and 21 had never been tested, compared to between 6 and 8% of men in the other age categories (not shown,  $\chi^2[3, N = 1707] = 214.66$ ,  $p < 0.001$ ). A minority of participants (29%) was in a long-term relationship and most participants (63%) reported no acts of UAI

in the past three months with men they met online, in a bar, or at other venues in the past three months.

### Attitudes toward unprotected sex by HIV-positive individuals without disclosure

Sixty-five percent of respondents believed that it should be illegal for an HIV-positive person who knows his or her status to have unprotected sex without telling the other person of their HIV-status, 23% believed that it should not be illegal, and 12% did not know. Believing that it should be illegal for an HIV-positive person who knows his or her status to have unprotected sex without telling the other person of their HIV-status was associated with younger age, HIV-negative or unknown status, less education, non-gay sexual identification, being less comfortable with their sexual orientation, residing in a state in which they perceived residents were somewhat or very hostile, engaging in two or more acts of UAI in the past three months, and feeling more responsible for protecting online sexual partners from HIV and other STDs (see Table 1).

### State law, attitude, and sexual risk behavior

Table 2 shows the frequency and percentage of the overall sample and of HIV-positive MSM who endorsed the main outcome variable, UAI partners in the past three months, and UAI with a long-term partner by whether state-level criminal statutes on HIV transmission existed or not. For the overall sample and HIV-positive MSM, attitudes did not vary according to the existence of criminal statutes on HIV transmission. Likewise, the percentage of participants reporting no, one, or two or more UAI partners or UAI with a long-term partner in the past three months did not differ by state law.

### Multivariate analysis of predictors of believing that unprotected sex by HIV-positive individuals without disclosure should be illegal

Results of the multivariate analysis are shown in Table 3. Participants who were HIV-positive (versus HIV-negative/unknown; OR = 0.33) and held a college or graduate degree (versus less education; ORs = 0.42–0.64) were less likely to believe that it should be illegal for an HIV-positive person who knows his or her status to have unprotected sex without telling the other person of their HIV-status. Conversely, men who had a non-gay sexual orientation were more likely than men with a gay orientation to believe it should be illegal (OR = 1.54). Compared to men who perceived people in their state to be somewhat or very hostile toward homosexuality, those who rated their

Table 2. Group differences in attitudes toward unprotected sex by HIV-positive individuals without disclosure and unprotected anal intercourse partners in the past 3 months by state criminal statute on HIV transmission.

	Attitude toward unprotected sex by HIV-positive individuals without disclosure				UAI partners in past 3 month				UAI with long-term partner in past 3 month		p-value
	No n (%) <sup>a</sup>	Don't know n (%) <sup>a</sup>	Yes n (%) <sup>a</sup>	$\chi^2$	0 n (%) <sup>a</sup>	1 n (%) <sup>a</sup>	2 or more n (%) <sup>a</sup>	$\chi^2$	No n (%) <sup>a</sup>	Yes n (%) <sup>a</sup>	
Overall				5.79				2.47			0.52 <sup>b</sup>
No HIV criminal statute	242 (25)	120 (12)	607 (63)		617 (64)	138 (14)	214 (22)		43 (19)	186 (81)	
Existing HIV criminal statute	151 (20)	91 (12)	505 (68)		469 (63)	94 (13)	187 (25)		39 (21)	144 (79)	
HIV-positive				0.38				0.21			0.30 <sup>c</sup>
No HIV criminal statute	63 (50)	18 (14)	45 (36)		55 (44)	13 (10)	58 (46)		2 (9)	20 (91)	
Existing HIV criminal statute	52 (46)	17 (15)	44 (39)		47 (41)	13 (11)	55 (48)		9 (22)	32 (78)	

<sup>a</sup>Row percent.

<sup>b</sup>p-value for Pearson  $\chi^2$  test, where  $\chi^2 = 0.41$ .

<sup>c</sup>p-value for Fisher's exact test.

state residents to be somewhat or very accepting were less likely to believe it should be illegal (OR = 0.75). With respect to sexual behavior, the odds of believing it should be illegal was significantly less for men who reported engaging in UAI with two or more sexual partners in the past three months (OR = 0.72) compared to men who self-reported having no UAI partners. Finally, feeling less responsible for protecting online sexual partners from HIV or other STDs was associated with decreased odds for believing that it should be illegal (OR = 0.75).

**Discussion**

Most men in this study believed it should be illegal for an HIV-positive person who knows his or her status to have unprotected sex without disclosing it to their sex partners. Believing that it should be illegal was associated with HIV-negative or unknown status, less education, having a non-gay sexual orientation, living in a state that they perceive as hostile toward GLBT persons, reporting fewer UAI partners in the past 3 months, and feel greater responsibility toward protecting their online partners from HIV and other STDs. Similar to prior studies (Burriss et al., 2007), residing in a state with existing statutes on HIV transmission was not associated with differences in attitudes about the main outcome variable or with decreased sexual risk behaviors in this sample of MSM.

Attitudes varied markedly by HIV status. Although nearly half of MSM living with HIV believed it should not be illegal, most HIV-negative participants and those who had never been tested for HIV were in support. Prior studies show that HIV-negative individuals living in the UK overall were critical of laws that criminalize the transmission of HIV (Dodds & Keogh, 2006). These differences most likely reflect a shift in orientation toward criminal statutes on HIV transmission following seroconversion. Specifically, those who know or believe they are HIV-negative are primarily concerned with protecting themselves from HIV and support the implementation of laws that would appear to reduce their risk of encountering an HIV-positive sexual partner who fails to explicitly disclose his status. Following seroconversion, HIV-positive individuals are likely to fear the potential for such laws to be used to prosecute them for cases that involve their HIV status.

Although age was insignificant in the multivariate model, the finding that fewer older MSM believed that it should be illegal for someone who is HIV-positive to have unprotected sex without disclosure than younger MSM may be, in part, attributed to the high proportion (34%) of 18–20 year old MSM who had never been tested for HIV. As noted by others (Dodds et al.,

Table 3. Multivariate analysis for believing that it should be illegal for HIV-positive person to have unprotected sex without disclosure.<sup>a</sup>

	Odds ratio	Lower Limit	Upper Limit	<i>p</i> -value
Age				
18–20	Ref.			
21–30	0.80	0.48	1.32	0.379
31–40	0.62	0.37	1.05	0.074
41–70	0.61	0.36	1.03	0.065
HIV-status				
Negative	Ref.			
Positive	0.33	0.24	0.44	0.000
Never tested	1.72	0.48	1.08	0.112
Education				
H.S. or less	Ref.			
Technical/some college	0.64	0.44	0.95	0.028
College degree	0.53	0.35	0.78	0.002
Grad degree	0.42	0.27	0.64	0.000
Sexual identity				
Gay	Ref.			
Other	1.54	1.08	2.20	0.018
Comfort with sexual orientation				
Very	Ref.			
Comfortable	1.11	0.86	1.42	0.419
Less than comfortable	1.21	0.87	1.70	0.254
Accepting state				
Very/somewhat hostile	Ref.			
Neither	0.84	0.60	1.18	0.316
Somewhat/very accepting	0.75	0.59	0.96	0.023
UAI (past three months)				
0	Ref.			
1	1.00	0.73	1.37	0.997
2+	0.72	0.56	0.93	0.013
Responsibility <sup>b</sup>	0.75	0.69	0.81	0.000

<sup>a</sup>Defined as “Should it be illegal for an HIV-positive person who knows his or her status to have unprotected anal sex without telling the other person of their HIV-status?” (Response options: 0 = No, 1 = Don’t know, 2 = Yes).

<sup>b</sup>Defined as: “I feel responsible for protecting my online sexual partners from HIV or other sexually transmitted diseases” (Likert scale from 1 = Strongly agree to 7 = Strongly disagree).

2009; Galletly & Pinkerton, 2006), MSM who have not been tested for HIV may adopt a HIV disclosure-based risk reduction strategy (i.e., one that relies on the disclosure by the HIV-positive partner) that gains credibility by HIV transmission laws. Sexual exchanges are complex and often rely on non-verbal cues to inform safer sex practices (Adam, Husbands, Murray, & Maxwell, 2008; Horvath, Nygaard, & Rosser, in press; Horvath, Oakes, & Rosser, 2008). Evidence suggests an increasing shift toward non-disclosure in the MSM community (Sheon & Crosby, 2004) and, therefore, relying on a disclosure-based risk reduction strategy appears inherently precarious.

The recent sexual risk behavior of MSM in this study was similar to that of other online studies using similar methodology. Thirty-seven percent of MSM in the current study reported one or more UAI partners

in the past three months, compared to 31% of MSM in a prior study (Rosser, Oakes, et al., 2009). Men who had more UAI partners and endorsed lower responsibility to protect their online sexual partners from HIV and other STDs were less likely to believe that it should be illegal for someone who has HIV to have unprotected sex without disclosure. Prior studies show that greater personal beliefs in responsibility for protecting partners from HIV and other infections is associated with decreased transmission risk (O’Leary & Wolitski, 2009). However, as noted above, no significant association was found between the existence of state statutes on HIV transmission and UAI partnerships among the total sample or specifically among HIV-positive MSM. Overall, these results suggest that state laws on HIV transmission are not a deterrent to sexual risk taking among MSM, and that prevention

resources may be more effective if allocated toward addressing empirically supported individual risk factors (e.g., increasing personal responsibility beliefs).

### Study limitations

The results of this study are limited in several ways. First, the cross-sectional design prohibits causal inferences about the impact of independent variables on outcomes. In addition, we cannot determine whether the non-significant association between state law and UAI partnerships is attributable to a lack of awareness of the existence of such laws or whether such information is simply not used in MSM's sexual decision-making. Participant knowledge of the existence of HIV-specific state laws should be considered in future research. Second, while a strength of the study was that participants were geographically diverse, the findings may not generalize to non-Internet-using MSM. Moreover, participants were not randomly selected and, therefore, the extent to which they represent MSM is unknown. Finally, although precautions were taken to detect and eliminate deception, the study relied on self-reported data that may be prone to error.

### Implications

Law has been used to address a number of public health domains (Moulton et al., 2008), including HIV (Gable, Gostin, & Hodge, 2009). However, a number of experts have rejected the establishment of HIV-specific criminal statutes as means to deter HIV transmission (Burris & Cameron, 2008; Burris, Cameron, & Clayton, 2008; Galletly & Pinkerton, 2006; Lowbury & Kinghorn, 2006; Wait, 2007). The results of this study support these claims, as we found no evidence that states with and without such laws differed in HIV risk behavior reported by HIV-positive MSM or MSM in general. Even if the existence of such laws deters a small number of HIV-positive persons from engaging in high risk behavior, there is rising concern about the proper enforcement of such laws. A review of cases involving convictions or prosecutions of HIV-positive persons in England from 2005 to 2008 revealed improper enforcement by police of HIV-specific laws as a result of misunderstandings of such laws, a poor understanding of the complexities of HIV transmission, and what actually constitutes scientific evidence in such cases (Terrence-Higgins Trust, 2009). In conclusion, the results of this and other (Burris et al., 2007) studies fail to provide evidence that criminalization is an effective deterrent to engaging in high risk sexual behavior, while more investigation into the full range of possible effects of such laws is needed.

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