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State Legal Protections and HIV Risk Behaviors among Men who have sex with Men in the United States

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Microbiology, B.S., Brigham Young University, 2012

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Abstract

Structural-level Legal Protections and HIV Risk Behaviors among
Men who have sex with Men in the United States

By Robert Aaron Driggers III

Health-related outcomes are negatively affected by stigmatizing environments; however, due to historic homogeneity of State-level legal protections, few studies have examined the association between state legal protections and HIV related behaviors among MSM. In late 2013 to early 2014, 10,368 MSM from the United States were recruited from social and sexual networking sites to complete a cross-sectional, online survey about HIV-related practices. States were categorized by greater and weaker legal protections for marriage, adoption, employment, and hate crime protections for same sex couples. We assessed the relationship between state laws and HIV related risk factors with multivariate generalized estimating equation logistic regression models accounting for within state clustering. Greater state-level legal protections were associated with decreased odds of being diagnosed positive at last HIV test (adjusted odds ratio (aOR): 0.82, 95% confidence interval (CI): 0.68, 0.89) and increased odds of being out to a healthcare provider (aOR: 1.59; 95% CI: 1.20, 2.09), being offered an HIV test at last healthcare visit (aOR: 1.43; 95% CI: 1.23, 1.66), and having a 1-on-1 conversation about HIV prevention with casual partners (aOR: 1.15; 95% CI: 1.01, 1.31) after adjusting for potential confounders. MSM living in states with greater legal protections had greater levels of protective and health-seeking HIV-related behaviors than those living in states with fewer protections. State legal protections for sexual minorities should be evaluated and could impact HIV incidence among MSM.

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INTRODUCTION

Men who have sex with men (MSM) have been disproportionately affected by the HIV epidemic and even still are currently experiencing an increase in HIV incidence (1). In 2014, 70% of the estimated 44,000 new HIV infections in the United States were attributed to male-to-male sexual contact (2). Furthermore, MSM are the only US risk group among whom incidence of HIV has increased since the onset of the HIV epidemic in the early 1990s (3), with an estimated 12% increase in new infections between 2008 to 2010 even though MSM only compromise an estimated 4% of the U.S. male population (4).

One of the greatest obstacles to effectively addressing the HIV epidemic is overcoming HIV/AIDS related stigma (HARS). Stigma has been described as a set of undesirable characteristics or stereotypes that "mark" an individual (5). HARS embodies the negative judgments that society imposes onto persons living with, or perceived to be living with, HIV/AIDS (6). Moreover, HARS has been demonstrated to lead to several HIV-prevention related obstacles including diminished disclosure of HIV serostatus to sexual partners and increased participation in riskier sexual behaviors (7, 8). Although stigma is considered one of the primary barriers to an effective response to the HIV epidemic, stigma reduction efforts are largely reduced to the lower priorities of HIV/AIDS programs (9).

Although stigma has traditionally been conceptualized as individual-level perceived experiences with discrimination, it has been proposed that institutional practices and policies that work to disadvantage minority groups can produce stigma as well (10). Discrimination at the structural-level is believed to lead to experienced stigma

even in the absence of interpersonal prejudice, a concept that is especially important concerning minority groups such as MSM (11). State level policies may mark members of a group as less-than-equal, for example, through laws denying sexual minorities the same opportunities and protections granted to heterosexuals, such as marriage and adoption (12).

Recently, studies are beginning to provide evidence of an association between negative societal-level factors, likely the product of stigma, and poor health outcomes among MSM. Sexual minorities living in highly stigmatizing environments were estimated to have substantially elevated rates of suicide, homicide, and cardiovascular diseases ultimately resulting in a shorter life expectancy of approximately 12 years (13). Additionally, sexual minorities living in areas with greater structural stigma against sexual minorities have higher rates of psychiatric disorders and are more likely to attempt suicide than sexual minorities living in areas with low structural stigma (14-16). MSM living in highly stigmatizing environments were also found to be less likely use antiretroviral-based HIV-prevention strategies (17), an especially important HIV-intervention strategy for MSM. Increasingly, research aiming to identify and address individual- and structural-level stigma has illuminated its negative health consequences and its role in the continuation of the HIV epidemic among MSM.

In recent years, social and behavioral sciences have begun to highlight how social context can present barriers to HIV-prevention interventions (18, 19). A substantial body of evidence already exists documenting the role of social determinants on health outcomes at both the individual and community level and the success of intervening at the community level (20). Evidence extensively supports a number of structural

interventions in the United States that are outright related to HIV prevention, including comprehensive sex education (21), syringe exchange programs (22), health care coverage (23), and stable housing (24). Although the majority of current structural interventions target the immediate factors related to HIV risk, there is plausible support for interventions more distally relevant to HIV (19). Most likely other distal factors that have yet to be identified that are contributing to the HIV epidemic.

Historically, assessing how stigmatizing structural factors are related to health outcomes has been difficult due to an absence of structural-level measures, resulting in researchers being limited to assess structural stigma with individual-level measures, a poor substitute for structural-level determinants (13). This approach is unable to capture certain dimensions of stigma that exist at the structural level (11). Recent state-level changes in legal protections granted to sexual minorities allow for analyses to be conducted regarding the impacts of structural sexual identity stigma in the United States.

This paper examines the association of legal protections granted to sexual minorities at the state-level and HIV testing and sexual risk behaviors among MSM. We hypothesized that legal protections granted to MSM would be associated with willingness to be tested for HIV and HIV related conversations MSM have with healthcare providers, committed partners, and/or casual partners. To our knowledge, ours is the first study to investigate associations of state laws with HIV risk among MSM.

METHODS

Recruitment and Enrollment

We used cross-sectional data from a convenience sample of the first round of the American Men's Internet Survey (AMIS), administered between December 2013 and May 2014 across all 50 states in the United States (25). Participants were recruited from a variety of social and sexual networking websites and applications (apps) that target MSM. The most common recruitment advertisements were banner advertisements and electronic and email blast messaging to website and app members. Ads depicted male models of various races and ethnicities. Participants who clicked on an advertisement were directed to brief, additional information about the survey's purpose and contents. Interested participants completed an informed consent process including information regarding the study objective, procedures, risks, benefits, protections, and investigator contact information. Upon completing consent, interested participants completed a brief eligibility screening questionnaire. Eligible participants identified as male, were 18 years or older, reported ever having oral or anal sex with another man, and were currently residing within the United States.

Survey Administration

MSM who met the above eligibility criteria were immediately transitioned into initiating the electronic survey. Participants were asked a core set of questions administered to all participants and were also randomized into one of three different question subsets of similar length. The core and subsequent randomized sections were developed from the National HIV Behavioral Surveillance (NHBS) System. The randomization of additional questions allowed for a reduction in overall survey burden

while allowing collection of additional data on key areas of inquiry. Participants were blind to the randomization, and the randomized subset questions were interspersed with core questions. Core questions used in this analysis included demographics, sexual risk behaviors, HIV testing history, and drug and alcohol use. Subset questions used in the present analysis include disclosure of sexual identity and experienced discrimination. Additional information regarding survey methods and administration is available (25).

Human Subjects Protections

The study received ethical approval from the Emory University Institutional Review Board and was compliant with federal regulations governing protection of human subjects. Survey responses were hosted on secure servers compliant with the Health Information Portability and Accountability Act. Data access is role-based, with identifying information only provided to those with study roles requiring such information. Study data are protected under a federal certificate of confidentiality.

Measures

Demographics: Demographic information was collected from all study participants, including age, education (categorized as completing less than high school, high school or equivalent, some college or technical degree, or college degree and more), health insurance, annual household income before taxes (categorized as $0-$19,999, $20,000-$39,999, $40,000-$74,999, and $75,000 or more), sexual identity (classified gay/homosexual, heterosexual/straight, or bisexual), and racial/ethnic identity (grouped as non-Hispanic white/Caucasian, non-Hispanic Black/African American, Hispanic/Latino, Asian/Pacific Islander, Native American/Alaskan Native, and other/multiple). State of residence was ascertained by asking participants to provide a

valid residential US ZIP code. For participants who chose not to disclose their residential ZIP code, Internet protocol (IP) addresses were collected and used to assign a ZIP code to the participant.

HIV Testing History: Participants were assessed on their HIV testing history, specifically if they had ever been tested for HIV, if they were tested for HIV in the last 12 months, and the result of their most recent HIV test. Participants who had seen a primary care physician (PCP) in the last 12 months were asked if they were offered an HIV test during their last PCP visit. Respondents were also asked if they were out to their provider.

Relationship types and Sexual Behaviors: Types of relationships participants had during the last 12 months were determined and categorized as only main partner(s), only casual partner(s), or both main and casual partners. Main partners were defined as someone the participant felt committed to above anyone else, while casual partners were defined as someone the participant did not feel committed to or did not know very well. Sexual behaviors in the last 12 months was assessed, including any condomless anal intercourse (CAI), either receptive and/or insertive. Any CAI report was classified as having engaged in CAI in the last 12 months. Participants were further asked whether they engaged in CAI with a male partner of unknown or serodiscordant HIV status, the number of male sexual partners, and whether they had conversations about HIV prevention with either their main and/or casual partners in the last 12 months.

Perceived Discrimination: A randomized subset of participants was asked if at any time during the last 12 months they were discriminated against because someone knew or assumed they were attracted to men. They were asked if they were called names

or insulted, received poorer commercial services, treated unfairly at work or school, denied or given lower quality healthcare, and/or physically attacked or injured.

State-level Legal Protections: State-level legal protections were identified for each state (and District of Columbia, hereafter not distinguished separately) with laws considered in effect prior to the start of the survey process, December 2013 (26). State-level laws of interest were identified based on previous literature and included the following four protections: marriage, parenting, employment non-discrimination, and hate crime protections. A state was considered to have marriage protections if they issued marriage licenses to same-sex couples or provided the equivalent of state-level spousal rights to same-sex couples within the state. Parenting protections were defined as states that allowed same-sex couples to petition to adopt the child of his or her partner, often called second-parent or stepparent adoptions. States were considered to have protections covering employment discrimination if the state prohibited discrimination of both public and private employees based on either sexual orientation and gender identity or solely sexual orientation protections. Laws that addressed hate or bias crimes based on sexual orientation and gender identity or solely based on sexual orientation were considered to have legal hate crime protection. These four laws were summed resulting in 18 states with none, 11 states with one, 0 states with two, 8 states with three, and 14 states with four of the possible four legal protections. In order to best understand the impact of legal protection, we dichotomized state's legal protections by having three or four protections compared to zero or one legal protection.

Statistical Analysis

Descriptive statistics were calculated for demographic, HIV status, partnership types, and health insurance coverage for the total sample of participants as well as by legal protections. Chi-square and Fisher's exact assessments of significance were used to assess demographic differences between the two legal groups. Logistic generalized estimating equation (GEE) regression was used to assess the association between legal protections and dependent variables with GEE used to account for within-state clustering. Analysis modeled state-level legal protections dichotomously. Due to non-convergence when using a compound symmetric correlation matrix of almost half of the models, an unstructured correlation matrix was used to provide reported estimated effects. Sensitivity analysis was conducted when possible by comparing the estimates produced by both correlation structures when models converged. Estimates obtained from both models consistently gave almost identical point estimates and confidence interval widths further justifying use of an unstructured correlation matrix. Ten models were run separately, one for each dependent variable relating to a different health outcome. We looked at HIV testing (*e.g.* HIV diagnosis at last test, being tested for HIV in last 12 months, being offered an HIV test at last visit with PCP, and told healthcare worker about having sex with other men), sexual risk behaviors (*e.g.* CAI in last 12 months, CAI with partner of unknown or discordant HIV status), and partnership characteristics possibly associated with HIV risk (*e.g.* number of male partners in last 12 months, having had a main partner in last 12 months, and having a 1-on-1 conversation with either a main or casual partner in last 12 months). Additional adjusted multivariable logistic regression models were also used to control for potential confounders identified from the literature including age, HIV status, race/ethnicity, education, income, health insurance, and

partnership types. The model assessing having received an HIV test in the last 12 months excluded HIV positive persons who tested positive for the first time longer than 12 months ago. The racial/ethnic groups Asian/Pacific Islander and Native American/Alaskan Native were combined with the other/multiple racial group due to sparse data within these categories causing non-convergence of the logistic models. The model assessing whether an HIV test was offered at the last PCP visit was restricted to those who reported having seen a PCP in the last 12 months. Models assessing having had a 1-on-1 conversation with a main partner in the last 12 months were restricted to those who reported having only main partner(s) or having both casual and main partners. Similarly, the model assessing having had a 1-on-1 conversation with a casual partner in the last 12 months was restricted to those who reported having only casual partner(s) or having both casual and main partners. Adjusted models were assessed for multicollinearity and problem confounders were removed from the model if needed. Due to non-convergence of GEE logistic models assessing discrimination, logistic regression without accounting for clustering was used for the discrimination analysis. Statistical significance was determined at $p<0.05$. All analyses were conducted in SAS 9.4, Cary, NC.

RESULTS

Selected baseline characteristics of the study participants are summarized in Table 1. Out of 10,368 participants, most identified as white, non-Hispanic (79%). Participants had a median age of 38 years (interquartile range (IQR) 25-51 years). A majority of respondents had at least a college degree (57%) and earned more than $40,000 before

taxes (63%). Most respondents had health insurance coverage (89%), identified as gay/homosexual (84%) or bisexual (15%), and received a negative HIV result from their most recent HIV test (75%). Respondents residing in states with greater legal protections were more educated and had higher incomes than respondents who lived in states with less legal protections.

Associations between selected state legal protections with HIV and partner behaviors are presented in Table 2. Accessing HIV preventative care was associated with residing in a state with greater legal protections for MSM. Participants living in states with greater legal protections had 18% lower odds of having received a positive HIV diagnosis at time of last HIV test [adjusted odds ratio (aOR): 0.82; 95% confidence interval (CI): 0.68-0.99]. Those living in a state with greater legal protections for same sex couples had increased odds of being out to their health care provider (aOR: 1.59; 95% CI: 1.20, 2.09) and of having been offered an HIV test at the last visit with a primary care physician (aOR: 1.43; 95% CI: 1.23, 1.66). Additionally, living in a state with greater legal protections had slightly increased odds of reporting a main partner in the last 12 months (unadjusted OR: 1.10; 95% CI 1.00, 1.20) and of a 1-on-1 conversation about HIV prevention with casual partner(s) (aOR: 1.15; 95% CI 1.01, 1.31). No associations were found for number of male partners or having had a 1-on-1 conversation about HIV prevention with a main partner. Additionally, no association was observed of having tested for HIV or having CAI in the last 12 months.

Associations of state-level legal protections for same sex couples and experienced discrimination during the last 12 months are presented in Table 3. Greater State-level legal protections for same sex couples was associated with decreased odds of having

experienced discrimination in the last 12 months. Residing in states with greater legal protections was associated with being less likely to have been denied or given lower quality health care in the last 12 months (aOR: 0.58; 95% CI 0.36, 0.94). Participants residing in a state with greater legal protections had lower odds of having received worse services from a business (aOR: 0.76; 95% CI 0.62, 0.94), verbal assault (aOR: 0.80; 95% CI: 0.69, 0.93), and unfair treatment at work or school (aOR: 0.80; 95% CI: 0.69, 0.93). No association was observed regarding physical attack or injury, although there was a non-significant trend in the expected direction.

Table 1. Selected characteristics of survey respondents from the cross-sectional American Men's Internet Survey, United States, 2014.

	Total (n=10,368)		Complete Legal Protections (n=5,059)		Incomplete Legal Protections (n=5,309)		P-value[b]
Characteristic	**No.[a]**	**%**	**No.**	**%**	**No.**	**%**	
Age, years							
18-19	383	4	191	4	192	4	0.02
20-24	1,594	15	715	14	879	17	
25-34	2,621	25	1,316	26	1,305	25	
35-44	1,632	16	795	16	837	16	
45-54	2,323	22	1,133	22	1,190	22	
55+	1,815	18	909	18	906	17	
Race/Ethnicity							
White/Caucasian	8,073	79	3,879	78	4,194	80	<0.0001
Black/African American	354	3	141	3	213	4	
Hispanic/Latino	1,078	11	576	12	502	10	
Asian/Pacific Islander	236	2	164	3	72	1	
Native American/Alaska Native	63	1	20	0	43	1	
Other/Multiple	376	4	177	4	199	4	
Education							
Less than High School diploma	113	1	52	1	61	1	<0.0001
High School diploma or equivalent	944	9	401	8	543	10	
Some college or technical degree	3,328	32	1,470	29	1,858	35	
College degree or postgraduate education	5,926	57	3,104	62	2,822	53	
Income							
$0-19,999	1,449	15	627	13	822	17	<0.0001
$20,000-39,999	2,030	21	898	19	1,132	23	
$40,000-74,999	2,629	27	1,185	25	1,444	29	
$75,000 or more	3,488	36	1,959	42	1,529	31	
Health Insurance							
None	1,065	11	424	9	641	13	<0.0001
Private only	7,138	72	3,558	73	3,580	70	
Public only	968	10	515	11	453	9	
Other/Multiple	809	8	396	8	413	8	
Sexual orientation							
Gay/homosexual	8,621	84	4,314	86	4,307	82	<0.0001
Bisexual	1,508	15	639	13	869	17	
Heterosexual	94	1	50	1	44	1	
Other	71	1	25	0	46	1	
Most recent HIV test result							
Negative	7,642	75	3,835	77	3,807	73	<0.0001
Positive	1,113	11	498	10	615	12	
Never tested/Indeterminate	1,431	14	647	13	784	15	
Relationship types in past 12 months							
Only main partner(s)	2,810	27	1,360	27	1,450	28	0.05
Only casual partner(s)	3,467	34	1,638	33	1,829	35	
Both main and casual partner(s)	4,002	39	2,014	40	1,988	38	

[a]Missing values not included

[b]P-value from chi square test

Table 2. Associations between greater State-level legal protections for same sex couples and HIV related behaviors among MSM, United States, 2014

	Unadjusted[a]		Adjusted[b]	
Outcome	**OR (95% CI)**	**p-value[c]**	**OR (95% CI)**	**p-value[c]**
Diagnosed HIV positive at last HIV test	0.81 (0.67, 0.99)	0.04	0.82 (0.68, 0.99)	0.04
Received an HIV test in the last 12 months	1.09 (0.96, 1.23)	0.18	1.13 (0.97, 1.30)	0.12
Told health care provider that has sex with men	1.61 (1.23, 2.10)	0.0005	1.59 (1.20, 2.09)	0.001
Offered an HIV test at last visit with primary physician	1.34 (1.14, 1.59)	0.0006	1.43 (1.23, 1.66)	<0.0001
Condomless anal intercourse in last 12 months	0.92 (0.82, 1.04)	0.18	0.91 (0.81, 1.01)	0.08
Condomless anal intercourse with male partner of discordant or unknown status in last 12 months	0.96 (0.81, 1.13)	0.60	0.98 (0.84, 1.14)	0.77
Number of male partners in last 12 months[d]	1.07 (0.95, 1.20)	0.28	1.08 (0.98, 1.19)	0.14
Having a main partner in the past 12 months	1.10 (1.00, 1.20)	0.05	DNC	
1-on-1 conversation about HIV prevention with main partner(s)	1.03 (0.88, 1.20)	0.74	1.07 (0.92, 1.26)	0.34
1-on-1 conversation about HIV prevention with casual partner(s)	1.14 (0.98, 1.32)	0.08	1.15 (1.01, 1.31)	0.04

CI, confidence interval; OR, odds ratio; DNC, model did not converge.

[a]Logistic generalized estimating equation

[b]Multivariable logistic generalized estimating equation adjusting for age, HIV status (except HIV test outcome), race/ethnicity, education, income, insurance coverage, sexual identity, and relationship status (except having a main partner and 1-on-1 conversations with main or casual partner)

[c]Wald Chi-square

[d]Dichotomized at total sample median of 4

Table 3. Associations between state-level legal protections for same sex couples and experiencing descrimination in the past 12 months among MSM, United States, 2014 (n=3,392)

	Unadjusted		Adjusted[c]	
Outcome	**OR (95% CI)**	**P-value[a]**	**OR (95% CI)**	**P-value[b]**
Denied or given lower quality health care	0.53 (0.34, 0.83)	0.006	0.58 (0.36, 0.94)	0.03
Given poorer commercial services	0.77 (0.63, 0.93)	0.008	0.76 (0.62, 0.94)	0.01
Received verbal assault	0.77 (0.67, 0.90)	0.0005	0.80 (0.69, 0.93)	0.003
Treated unfairly at work or school	0.84 (0.69, 1.03)	0.09	0.80 (0.69, 0.93)	0.003
Physically attacked or injured	0.87 (0.60, 1.29)	0.50	0.73 (0.47, 1.14)	0.16

[a]Logistic equation

[b]Multivariable logistic equation adjusting for age, HIV status (except HIV test outcome), race/ethnicity, education, income, insurance coverage, sexual identity, and relationship status (except having a main partner and 1-on-1 conversations with main or casual partner)

[a]Fisher's Exact Test

[b]Wald Chi-Square

DISCUSSION

The results of this study suggest that MSM living in states with greater legal protections for same-sex couples are more likely to receive a better standard of healthcare, including better communication with healthcare workers and appropriate HIV test recommendation. State-level legal protections remained associated after accounting for within state clustering of participants and also controlling for multiple established risk factors at the individual level, namely age, HIV status, race/ethnicity, household income, education, relationship types, and insurance coverage. Additionally, greater legal protections were also found to be associated with decreased odds of being diagnosed HIV positive at last HIV test. This association could be due to the pool of at-risk MSM who seek testing in states with fewer legal protections.

Additionally, MSM residing in states with greater protections were more likely to have had a main partner in the last 12 months. This suggests that MSM residing in states with greater legal protections are more likely to seek out having a main partnership, which has health implications of having a main partner extends beyond HIV/AIDS related outcomes. Married and cohabitating people have been shown to have better physical and psychological health than single people (27). Recognition of same sex relationships by the state likely leads to an increase in the stability of same sex relationships (28).

State-level structural discrimination may be causing participants to be less likely to have important conversations regarding HIV prevention for fear of being stigmatized. MSM living in states with weaker legal protections were less likely to be out to their healthcare provider, a necessary task in order for providers to know the necessity of

regularly offering an HIV test and discussing HIV-related behaviors with patients. This subsequently lowers the likelihood of an MSM being offered an HIV test at last visit as well as having important HIV prevention related conversations with healthcare workers. Nondisclosure of sexual orientation to a healthcare provider has be shown to be negatively associated with prior HIV testing (29, 30). Previous studies suggest that experiencing legal discrimination as a result of sexual orientation or practice was associated with fear of seeking healthcare services (31, 32). This effect may also be compounded by there likely being fewer LGBT-friendly healthcare providers in states with high levels of stigma and prejudice (17).

Although research examining how structural stigma and MSM is fairly new, several studies have recently assessed the association of community stigma with HIV risk behaviors. One study comparing neighborhood level stigma in Detroit found that community acceptance was positively associated with having ever tested for HIV (33). Another study developed a state-level stigma score in an attempt to capture the social environment of each state towards MSM (17). This score consisted of legal protections for LGBT, density of same-sex couples per 1000 households in the state, proportion of public high schools with Gay-Straight Alliances (GSAs) per state, and public opinion toward homosexuality and citizenship rights for same-sex couples as assessed through 41 national opinion polls. They found that among 4,098 HIV-uninfected MSM, lower state-level structural stigma was associated with decreased HIV risk behaviors. These same methods were also applied to European countries and similar associations were found (34). Although our study did not find a significant trend of decreased CAI associated with greater protection, the estimate was borderline significant in the expected direction.

Our results suggest that structural-level discrimination may impact HIV-related risk behaviors by contributing to experienced stigma among sexual minorities. It may not be that the legal protections themselves are the direct cause of risk behaviors, but instead capture state attitudes and prejudices that are impacting decisions of MSM. State environments with weaker legal protections likely reduces willingness of MSM to discuss HIV-related behaviors for fear of being discriminated against. Further study will be necessary to estimate the direct effect of state laws on HIV risk behaviors and other mediating structural factors.

Several limitations to our study must be considered. First, the study population was recruited from convenience sampling from online social and sexual networking websites, which potentially impacts the generalizability of study findings, although it has been shown that online samples of MSM can be similar to venue-based samples (35). Additionally, black/African American MSM respondents were also sunder-represented in the sample, which is common amongst internet based studies. It is also necessary to consider that the survey used self-reported behaviors, although the anonymous nature of the survey would likely diminish the effect of social desirability bias. Additionally, it is possible that selection bias occurred by healthier or better-off survey participants who lived in states with weaker legal protections for same sex couples prior to participation had moved to states with greater legal protections and a less stigmatizing environment; however, previous studies have shown that among sexual minorities, health outcomes are not related to mobility (13).

This study advances the existing literature on structural level associations with HIV risk outcomes by being the first to perform analysis of state-level legal protections

across all 50 states. Until recently this was not possible in that legal protections regarding MSM in the United States were largely lacking. Our findings of an association between legal policies and HIV testing behaviors adds to the body of evidence on the importance of reducing structural stigma and discrimination. These and previous findings emphasize the importance of advancing legal protections for sexual minorities.

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