

State-Level Policies and Psychiatric Morbidity In Lesbian, Gay, and Bisexual Populations

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A longstanding area of importance in public health research is the determination of how social factors influence the distribution of adverse health outcomes.^{1–5} In particular, social policies have received attention because they represent clear targets for intervention that can lead to significant improvement in public health at a population level. For example, legislation restricting access, availability, and opportunities to use tobacco^{6–9} and alcohol^{10–12} has been shown to greatly affect the rates of use of these substances. In the area of obesity, researchers have also pointed to social policy changes that may reduce the prevalence of obesity and associated morbidities,¹³ such as altering the school food environment.¹⁴

Debates on social policies affecting lesbian, gay, and bisexual individuals have been common in recent years, including the November 2008 California election, in which voters reversed a state Supreme Court decision allowing gays and lesbians to marry. This is but one of several current social policies targeting lesbian, gay, and bisexual individuals. The failure to prohibit employer discrimination on the basis of sexual orientation and the exclusion of sexual orientation as a protected category in federal hate crimes legislation^{15,16} are additional examples of policies that do not extend protection to lesbian, gay, and bisexual individuals. Collectively, these policies represent examples of institutional discrimination, which refers to societal-level conditions that constrain individuals' opportunities, resources, and well-being.¹⁷

Despite the high prevalence of institutional discrimination against lesbian, gay, and bisexual individuals, few empirical studies have examined the extent to which this form of discrimination affects the mental health of the lesbian, gay, and bisexual community. Recent research with racial/ethnic minorities has shown that institutional discrimination, typically in the form of housing and neighborhood effects, is associated with various adverse

Objectives. We investigated the modifying effect of state-level policies on the association between lesbian, gay, or bisexual status and the prevalence of psychiatric disorders.

Methods. Data were from wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), a nationally representative study of noninstitutionalized US adults (N=34653). States were coded for policies extending protections against hate crimes and employment discrimination based on sexual orientation.

Results. Compared with living in states with policies extending protections, living in states without these policies predicted a significantly stronger association between lesbian, gay, or bisexual status and psychiatric disorders in the past 12 months, including generalized anxiety disorder ($F=3.87$; $df=2$; $P=.02$), post-traumatic stress disorder ($F=3.42$; $df=2$; $P=.04$), and dysthymia ($F=5.20$; $df=2$; $P=.02$). Living in states with policies that did not extend protections also predicted a stronger relation between lesbian, gay, or bisexual status and psychiatric comorbidity ($F=2.47$; $df=2$; $P=.04$).

Conclusions. State-level protective policies modify the effect of lesbian, gay, or bisexual status on psychiatric disorders. Policies that reduce discrimination against gays and lesbians are urgently needed to protect the health and well-being of this population. (*Am J Public Health.* 2009;99:2275–2281. doi:10.2105/AJPH.2008.153510)

health outcomes, including physical and mental health status, violence, and mortality.^{4,18–22}

This research has provided important insights, but histories and types of discrimination confronted by racial/ethnic and sexual minorities differ. Consequently, research is needed to determine whether institutional discrimination may also have deleterious consequences for the mental health of lesbian, gay, and bisexual populations.

To address this research question, we used data from wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC; N=34653), a general population study with the largest nationally representative sample of lesbian, gay, and bisexual participants to date. The study considered 2 markers of institutional discrimination in the form of state-level policies that do not confer protection to lesbian, gay, and bisexual individuals: (1) hate crimes that exclude sexual orientation as a protected category and (2) failures to ban employment discrimination

based on sexual orientation. These 2 policies were chosen in part because of recent attempts at the federal level to address hate crimes protection and employment nondiscrimination specifically related to sexual orientation (e.g., the 2007 Local Law Enforcement Hate Crimes Prevention Act,²³ which was passed by the US House of Representatives).

We hypothesized that these markers of institutional discrimination would be associated with psychiatric disorders. In particular, we anticipated that the association between lesbian, gay, and bisexual status and psychiatric disorders would be significantly greater in states without policies that protected lesbian, gay, and bisexual individuals than in states with protective policies. The large sample size, population-based sampling scheme, and detailed measurement of diagnoses according to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV)²⁴ all presented an advantageous setting in which to examine effects of institutional discrimination on

the association between lesbian, gay, and bisexual status and mental health.

METHODS

All data were drawn from wave 2 of the NESARC, a longitudinal, population-based epidemiologic survey of civilian, noninstitutionalized, US adults aged 18 years and older. Wave 1 was conducted in 2001 through 2002, with a follow-up in 2004 through 2005. Young adults, Hispanics, and Blacks were oversampled in the wave 1 sample, and the study achieved an overall response rate of 81%. Of the 43 093 wave 1 participants, 34 653 participated in face-to-face re-interviews at wave 2. The wave 2 response rate of eligible participants was 86.7% (ineligible respondents were deceased, $n=1403$; deported or mentally or physically impaired, $n=781$; or on active duty in the armed forces, $n=950$). The cumulative response rate at wave 2, the product of the wave 2 and wave 1 response rates, was 70.2%. Sample weights for wave 2 respondents were calculated to ensure that the weighted wave 2 sample represented survivors of the original sample who remained in the noninstitutionalized US population.

Wave 2 data were collected face-to-face by approximately 1800 trained lay interviewers from the US Bureau of the Census; interviewers administered the interview instrument by means of laptop-computer-assisted software with logic and consistency checks. Interviewers had, on average, 5 years of experience and had completed 10-day training programs. The interview instrument (described in detail below) was designed to last 1 hour, on average.

Further information on the study design, training and data collection procedures, and study implementation is found elsewhere.²⁵ The research protocol, including informed consent procedures, received full ethical review and approval from the US Census Bureau and the US Office of Management and Budget.

Sexual Orientation Classification

Participants were classified as lesbian, gay, or bisexual on the basis of self-identification. Participants were asked, "Which of the categories best describes you?" and were given 4 categories: heterosexual (straight), gay or lesbian, bisexual, and not sure. Of the total

NESARC sample, 577 respondents (1.67%; men: 1.86%; women: 1.52%) self-identified themselves as gay, lesbian, or bisexual (the sample size was unweighted).

State-Level Policies

We examined 2 aspects of state-level policies regarding sexual orientation: (1) states that had hate crime laws that specify sexual orientation as a protected category and (2) state policies banning sexual orientation employment discrimination in both public and private settings. States were coded for each of these variables according to policies and legislation that were in place in 2005,¹⁶ when the wave 2 NESARC data collection was completed. We considered including a measure indicating which states had some form of recognized same-sex unions, including marriage, civil unions, or domestic partnerships. However, all states recognizing such same-sex partnerships also had either hate crime statutes covering sexual orientation or protection from employment discrimination, so a partnership variable would have been redundant.

A dichotomous variable was created, comparing those states with at least one policy extending protection to lesbian, gay, and bisexual individuals (31 states) versus those with no protective policies. The following states had policies that did not extend protection to lesbian, gay, and bisexual individuals in 2005: Alabama, Alaska, Arkansas, Georgia, Idaho, Indiana, Michigan, Mississippi, Montana, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Utah, Virginia, West Virginia, and Wyoming.

Mood and Anxiety Disorders

Mood disorders in the past 12 months as defined by DSM-IV²⁴ and as assessed by the Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV Version (AUDADIS-IV)²⁶ were major depression, dysthymia (a DSM-IV depression diagnosis that is generally less severe but by definition more chronic than major depression), mania, and hypomania. Anxiety disorders included generalized anxiety disorder, panic disorder with or without agoraphobia, social phobia, and post-traumatic stress disorder. Substance-induced disorders, those due to somatic illnesses, or (in the case of major depression) bereavement were ruled out (as per DSM-IV definition). Diagnoses all met the

DSM-IV²⁴ criterion requiring distress or social or occupational dysfunction. The reliability and validity (including psychiatrist reappraisal) of diagnosis of mood and anxiety disorders and symptom items ranged from fair (κ for specific phobia diagnosis=0.42) to excellent (κ for post-traumatic stress disorder diagnosis=0.77).²⁷⁻³⁰ Diagnoses were further validated by using the Medical Outcomes Study Short Form Health Survey version 2 (SF-12v2), a mental disability score, in controlled linear regressions.³¹⁻³³

Substance Use Disorders

The AUDADIS-IV²⁶ uses over 40 items to assess the criteria for past 12-month DSM-IV²⁴ substance abuse and dependence for alcohol as well as 10 different classes of drugs, including sedatives, tranquilizers, opiates (other than heroin or methadone), stimulants, hallucinogens, cannabis, cocaine (including crack cocaine), inhalants or solvents, heroin, and other drugs. The substance use disorder diagnoses showed excellent reliability in clinical and general population studies in the United States and internationally, with alcohol diagnoses having a minimum κ of 0.74 and drug diagnoses having a minimum reliability of 0.79.^{28-30,34} The validity of these diagnoses has been documented in numerous studies,^{35,36} including psychiatrist reappraisal.³⁰

Statistical Analysis

The analytic strategy was multiphased. First, we tested for a difference in disorder prevalence between lesbian, gay, and bisexual respondents and respondents who were not lesbian, gay, or bisexual by using basic descriptive cross-tabulations. Then, we tested whether differences in disorder prevalence were modified by the presence of state-level protective policies by using multivariable logistic regression. We did this in 2 ways. First, we estimated the odds ratio (OR) in each state group to descriptively determine whether the effects differed qualitatively between groups. We then examined whether the interaction between lesbian, gay, and bisexual status and state-level policy was significant. The interaction directly tested whether the association between lesbian, gay, and bisexual status and psychiatric disorders differed across state-level policy.

Control variables included gender, age, race/ethnicity, income, education, and marital

status (legally married or living with someone as if married). All analyses were derived from logistic regressions with SUDAAN software version 9.1,³⁷ which provides weighted estimates and standard errors that are adjusted for the complex sample design. Statistical significance was evaluated by using 2-sided 0.05-level tests.

RESULTS

The sociodemographic characteristics of the lesbian, gay, and bisexual respondents are shown in Table 1. As shown, there was an equal distribution of men and women, with the largest number of respondents aged 26–45 years. Similar to the heterosexual sample, the lesbian, gay, and bisexual sample was predominantly White, although it included a substantial representation of racial/ethnic minorities (27.8%). Lesbian, gay, and bisexual respondents tended to have obtained higher education than their heterosexual peers, but no significant differences in income between the 2 groups emerged.

Analyses (not shown) revealed that there were no sociodemographic differences between the lesbian, gay, and bisexual respondents in states with policies extending protections compared with those respondents in states without these policies: for sex, $\chi^2_1=3.5$ ($P=.07$); for race/ethnicity, $\chi^2_4=0.9$ ($P=.50$); and for income, $\chi^2_3=1.6$ ($P=.21$). Two exceptions were age ($\chi^2_3=3.3$; $P=.02$) and education ($\chi^2_2=4.1$; $P=.01$). Individuals with less than a high school education were significantly more likely to live in states that did not have policies extending protection to lesbian, gay, and bisexual individuals, whereas individuals living in states with protective policies tended to be younger. Consequently, all sociodemographic variables were controlled for in the analyses.

The overall associations between lesbian, gay, and bisexual status and prevalence of past 12-month psychiatric disorders are shown in Table 2. Similar to previous studies, after control for sociodemographic characteristics, lesbian, gay, and bisexual individuals were found to have higher rates of psychiatric disorders across the diagnostic spectrum, including any mood (OR=1.96; 95% confidence interval [CI]=1.47, 2.36), anxiety (OR=2.05; 95% CI=1.64, 2.56), and substance use disorder (OR=2.09; 95% CI=1.69, 2.59).

TABLE 1—Demographic Characteristics of the Respondents, by Self-Reported Sexual Orientation: National Epidemiologic Survey on Alcohol and Related Conditions, United States, 2004–2005

Characteristics	Lesbian, Gay, or Bisexual (n = 577), % (SE)	Heterosexual (n = 34 076), % (SE)	AOR ^a (95% CI)
Gender			
Men	48.7 (2.5)	47.9 (0.4)	1.02 (0.82, 1.29)
Women (Ref)	51.3 (2.5)	52.1 (0.4)	1.00
Age, y			
≤25	13.5 (1.9)	9.2 (0.3)	3.92 (2.43, 6.32)
26–45	49.3 (2.5)	38.8 (0.4)	3.37 (2.26, 5.03)
46–64	31.1 (2.0)	33.5 (0.3)	2.48 (1.67, 3.70)
≥65 (Ref)	6.1 (1.1)	18.5 (0.3)	1.00
Race/ethnicity			
White	72.3 (2.5)	70.9 (1.6)	1.13 (0.81, 1.57)
Black	10.7 (1.6)	11.1 (0.7)	1.05 (0.69, 1.59)
American Indian	3.6 (1.0)	2.2 (0.2)	1.90 (0.95, 3.80)
Asian	3.1 (1.1)	4.3 (0.5)	0.70 (0.35, 1.43)
Hispanic (Ref)	10.2 (1.5)	11.6 (1.2)	1.00
Education			
<High school	5.8 (1.2)	14.1 (0.5)	0.37 (0.23, 0.60)
High school	15.4 (1.8)	23.9 (0.5)	0.54 (0.42, 0.71)
>High school (Ref)	78.9 (2.1)	61.9 (0.6)	1.00
Income			
\$0–\$19 999	37.1 (2.9)	42.3 (0.6)	1.07 (0.70, 1.63)
\$20 000–\$34 999	24.3 (2.3)	23.1 (0.4)	1.13 (0.76, 1.68)
\$35 000–\$69 999	27.2 (2.0)	24.3 (0.4)	1.06 (0.76, 1.48)
≥\$70 000 (Ref)	11.5 (1.8)	10.4 (0.4)	1.00

Note. AOR = adjusted odds ratio; CI = confidence interval. Data were from wave 2 of the survey, conducted in 2004 through 2005. Number of participants (n) is unweighted.

^aSimultaneously adjusted for gender, age, race/ethnicity, income, education, and marital status (legally married or living with someone as if married).

The relations between state-level policies and prevalence of past 12-month psychiatric disorders are summarized in Table 3. These results indicate that among those living in states with social policies that did not extend protection to lesbian, gay, and bisexual individuals, there was a substantial increase in the prevalence of multiple psychiatric disorders.

The results for interaction models testing the difference in the odds ratio for lesbian, gay, and bisexual status across levels of the state variable are shown in Table 4. The association between lesbian, gay, and bisexual status and psychiatric disorders was stronger in states with policies that did not extend protections than in those states with these protective policies; statistically significant interactions were found for dysthymia ($F=5.20$; $df=2$;

$P=.02$), generalized anxiety disorder ($F=3.87$; $df=2$; $P=.02$), and post-traumatic stress disorder ($F=3.42$; $df=2$; $P=.04$). These interactions indicated that those who were lesbian, gay, or bisexual and lived in a state with policies that did not extend protection to lesbian, gay, and bisexual individuals were more likely to exhibit these specific mood and anxiety disorders than were those who: (1) lived in a state with policies that did not extend protection to lesbian, gay, and bisexual individuals but were not lesbian, gay, or bisexual; (2) were lesbian, gay, or bisexual but lived in a state with policies extending protection to lesbian, gay, and bisexual individuals; or (3) were not lesbian, gay, or bisexual and did not live in a state with policies that did not extend protection to lesbian, gay, and bisexual individuals.

TABLE 2—Association Between Self-Reported Sexual Orientation and Psychiatric Disorders in the Past 12 Months: National Epidemiologic Survey on Alcohol and Related Conditions, United States, 2004–2005

	Lesbian, Gay, or Bisexual, % (SE)	Heterosexual, % (SE)	OR (95% CI)
Any psychiatric disorder	56.3 (2.3)	34.6 (0.5)	2.01 (1.65, 2.44)
Any mood disorder	20.4 (1.9)	10.2 (0.2)	1.96 (1.47, 2.36)
Depression	18.0 (1.9)	8.1 (0.2)	2.03 (1.55, 2.65)
Mania or hypomania	6.6 (1.3)	3.4 (0.1)	1.66 (1.09, 2.52)
Dysthymia	2.1 (0.7)	1.2 (0.1)	1.54 (0.74, 3.18)
Any anxiety disorder	30.1 (2.2)	16.1 (0.3)	2.05 (1.64, 2.56)
GAD	8.5 (1.5)	3.7 (0.1)	2.15 (1.48, 3.13)
Social anxiety	6.6 (1.1)	2.5 (0.1)	2.15 (1.45, 3.18)
Specific phobia	13.3 (1.6)	7.4 (0.2)	1.75 (1.31, 2.35)
PTSD	13.0 (1.6)	6.4 (0.2)	2.06 (1.54, 2.75)
Panic disorder	8.2 (1.5)	2.5 (0.1)	3.15 (2.07, 4.80)
Any substance disorder	40.8 (2.4)	20.9 (0.5)	2.09 (1.69, 2.59)
Alcohol disorder	23.4 (2.4)	9.5 (0.3)	2.15 (1.62, 2.84)
Drug disorder	11.7 (1.9)	2.3 (0.1)	4.21 (2.83, 6.25)
Comorbidity, >2 disorders (vs ≤2)	20.1 (2.1)	6.4 (0.2)	2.93 (2.24, 3.84)

Note. CI = confidence interval; GAD = generalized anxiety disorder; OR = odds ratio; PTSD = post-traumatic stress disorder. The sample size for lesbian, gay or bisexual was $n = 577$; for heterosexual $n = 34\,076$. Odds ratios adjusted for gender, age, race/ethnicity, education, marital status, and income. Psychiatric disorders were diagnosed according to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.

In addition, state-level policies were associated with a greater prevalence of psychiatric comorbidity, defined as having 2 or more disorders. Specifically, individuals living in a state with policies that did not extend protection to lesbian, gay, and bisexual individuals had 4.76 times the odds of a comorbid psychiatric disorder than did individuals living in a state with protective policies (odds of 2.74; Table 3). The difference in these odds ratios was found to be a statistically significant interaction (Table 4; $F = 3.27$; $df = 2$; $P = .04$).

DISCUSSION

Social policy debates regarding the lesbian, gay, and bisexual community are prominent in the public discourse. Few empirical studies, however, have examined the extent to which such policies impact the mental health of lesbian, gay, and bisexual individuals. Our results showed a significant interaction between state-level policy and lesbian, gay, and bisexual status in the prediction of psychiatric disorders in the general population, when the analysis was controlled for the demographic

characteristics of individuals within those states. In particular, a composite index of state-level policies that did not extend protection to lesbian, gay, and bisexual individuals was associated with a higher magnitude of the relationship between lesbian, gay, and bisexual status and psychiatric disorders, particularly generalized anxiety disorder and post-traumatic stress disorder, as well as dysthymia. These policies were also associated with a significantly greater prevalence of comorbid psychiatric conditions. Given the substantial impairment associated with psychiatric comorbidity,^{38–40} our results provide additional evidence that these markers of institutional discrimination may be particularly consequential for the mental health of lesbian, gay, and bisexual populations.

Members of stigmatized groups experience hypervigilance and worry,^{41,42} fears of rejection,^{43,44} and hopelessness,⁴⁵ which are characteristic features of the mood and anxiety disorders²⁴ that were elevated in states that do not extend protections to lesbian, gay, and bisexual individuals. Taken together, the results of the present study suggest that the greater prevalence of mood and anxiety disorders in lesbian, gay,

and bisexual populations⁴⁶ may in part be reactions to the threatening environments created in states without protective social policies for gays and lesbians.

One of the principle goals of *Healthy People 2010* is the elimination of such health disparities in the United States.⁴⁷ The results of the current study have important implications regarding this goal within lesbian, gay, and bisexual populations. Efforts to change prejudicial attitudes toward homosexuals are an important strategy, and have shown some efficacy with other stigmatized groups,⁴⁸ but these efforts are often protracted.⁴⁹ Our measure of protective social policies demonstrated a reduction in the association between lesbian, gay, and bisexual status and mood and anxiety disorders, lending support for current policies that seek to reduce stigma and prohibit discrimination toward lesbian, gay, and bisexual individuals. The recent Connecticut Supreme Court decision to allow same-sex marriage and the 2007 Local Law Enforcement Hate Crimes Prevention Act²³ (which passed the US House of Representatives) represent illustrative examples of such efforts. However, it is important to note that mental health disparities between lesbian, gay, and bisexual individuals and heterosexuals persisted even among states that extend protection to lesbian, gay, and bisexual individuals. Consequently, the elimination of mental health disparities must also focus on individual-level interventions that assist lesbian, gay, and bisexual individuals in coping with the stressors associated with stigma. Recent research examining psychological mechanisms linking stigma-related stressors to psychiatric morbidity in lesbian, gay, and bisexual populations⁵⁰ will facilitate the development of such interventions, which should be an important public health priority.

Several limitations of our study warrant consideration. This study was cross-sectional; accordingly, causal inferences cannot be made. Even though a significant methodologic strength of our study was that the outcome (i.e., psychiatric disorders) cannot cause state-level discrimination (i.e., endogeneity), an unmeasured common factor may nevertheless be responsible for the associations. Prospective studies that examine the prevalence of psychiatric disorders after changes in state policies affecting lesbian, gay, and bisexual individuals are needed to establish causality.

TABLE 3—Association Between Self-Reported Sexual Orientation and Psychiatric Disorders in the Past 12 Months by State-Level Policies: National Epidemiologic Survey on Alcohol and Related Conditions, United States, 2004–2005

	Individuals Living in States With No Protective Policies, OR (95% CI)	Individuals Living in States With ≥ 1 Protective Policy, OR (95% CI)
Any mood disorder	2.42 (1.49, 4.09)	1.67 (1.27, 2.18)
Depression	3.01 (1.80, 5.04)	1.74 (1.27, 2.39)
Mania or hypomania	1.58 (0.68, 3.63)	1.54 (0.95, 2.51)
Dysthymia	2.42 (0.89, 6.60)	0.93 (0.34, 2.59)
Any anxiety disorder	2.57 (1.65, 3.98)	1.87 (1.44, 2.42)
GAD	3.34 (1.88, 5.93)	1.86 (0.93, 3.02)
Social phobia	3.81 (1.93, 7.52)	1.73 (1.09, 2.75)
Specific phobia	2.36 (1.30, 4.29)	1.55 (1.11, 2.17)
PTSD	3.64 (1.97, 6.35)	1.83 (0.96, 2.34)
Panic disorder	3.89 (1.85, 8.32)	2.83 (1.71, 4.72)
Any substance disorder	1.64 (1.00, 2.68)	2.12 (1.67, 2.69)
Alcohol disorder	2.64 (1.49, 4.83)	2.01 (1.47, 2.76)
Drug disorder	2.19 (1.07, 4.51)	4.56 (2.94, 7.09)
Comorbidity, > 2 disorders (vs ≤ 2)	4.76 (2.91, 7.79)	2.37 (1.73, 3.25)

Note. CI=confidence interval; GAD=generalized anxiety disorder; OR=odds ratio; PTSD=post-traumatic stress disorder. The sample size for individuals living in states with no protective policies was $n=9768$; for individuals living in states with at least 1 protective policy was $n=24885$. Odds ratios adjusted for gender, age, race/ethnicity, income, education, and marital status. Psychiatric disorders were diagnosed according to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.

Second, although the policies examined in this study represent 2 markers of institutional discrimination, other forms of institutional discrimination are currently impacting the lesbian, gay, and bisexual community. Indeed, policies that extend protections to lesbian, gay, and bisexual individuals (e.g., employment nondiscrimination) differ in substantive ways from laws that deprive lesbian, gay, and bisexual individuals of certain rights (e.g., constitutional amendments banning same-sex marriage). These differences may have important consequences for the mental health of lesbian, gay, and bisexual populations. Future studies are therefore needed to determine whether the results of the current study are generalizable to other forms of institutional discrimination. Third, an alternative explanation for the higher rates of psychiatric disorders and comorbidity in states without protective policies is that the healthier lesbian, gay, and bisexual respondents were able to leave these states. However, research on mobility patterns among lesbian, gay, and bisexual individuals is mixed.⁵¹ Nevertheless, we cannot rule out the potential impact of differential mobility on our results, an issue that warrants further study.

The identification of our lesbian, gay, and bisexual sample also warrants discussion. First, the prevalence of self-identified lesbian, gay, and bisexual respondents in the NESARC (1.67%) was slightly lower than that found in other nationally representative studies of US adults (e.g., National Survey of Midlife Development in the United States [MIDUS]; 2.5%).⁵² The lower prevalence in the NESARC could have been due to differential attrition among lesbian, gay, and bisexual respondents; however, because sexual orientation was not assessed in the wave 1 sample, we cannot examine this hypothesis. Importantly, the questions on lesbian, gay, and bisexual status were self-administered in the MIDUS, but were interviewer-administered in the NESARC. It may be that respondents felt more comfortable disclosing their sexual orientation in the MIDUS, leading to the slightly higher prevalence of self-identified lesbian, gay, and bisexual individuals in that sample. Despite this potential limitation, the larger sample size of lesbian, gay, and bisexual respondents in the NESARC compared with most other studies examining lesbian, gay, and bisexual mental health provided a rare opportunity to address the

important research question that motivated the current study.

Second, there are multiple operationalizations of sexual orientation, including attraction, sexual behavior, and self-identification. These different measures are highly correlated^{53,54}; however, they have also been shown to relate differentially to health outcomes.^{55,56} In the current study, analyses were restricted to individuals who self-identified themselves as gay, lesbian, or bisexual. This approach was chosen because we believed that institutional discrimination would be most salient (and therefore health relevant) to those who self-identify as members of the lesbian, gay, and bisexual community. Although the NESARC assessed multiple dimensions of sexual orientation, it did not include a category for transgendered individuals, who confront profound discrimination in the United States.⁵⁷ This remains an important subgroup to study in future research. Finally, to increase power, the current study combined individuals with same-sex and both-sex orientations as well as men and women. This approach has been used in other representative studies,^{52,58} but it may have obscured important subgroup differences. Future within-group studies with larger samples of lesbian, gay, and bisexual individuals are needed to address this potential limitation.

The current study represents an important contribution to the literature on social determinants of mental health outcomes among lesbian, gay, and bisexual populations. Most notably, previous studies of discrimination against lesbian, gay, and bisexual individuals have focused almost exclusively on individual-level discrimination,⁵⁹ thereby overlooking the potentially important impact of institutional-level discrimination on mental health.^{17,60} In contrast, the current study explicitly measured existing markers of institutional discrimination and documented that the relationship between lesbian, gay, and bisexual status and psychiatric disorders was significantly weaker among those living in states with policies extending protection to lesbian, gay, and bisexual individuals.

Despite a few recent advances in the fight for lesbian, gay, and bisexual equality, prejudicial attitudes toward gays and lesbians remain ubiquitous,⁶¹ and significant discrimination and violence continues to be perpetrated against this community.⁶² The stronger associations between

TABLE 4—Interaction Effects Between Psychiatric Disorders in the Past 12 Months and State-Level Policies: National Epidemiologic Survey on Alcohol and Related Conditions, United States, 2004–2005

Psychiatric disorder	F ^a	P
Any mood disorder	0.88	.42
Depression	1.44	.24
Mania or hypomania	1.01	.99
Dysthymia	5.20	.02
Any anxiety disorder	1.02	.37
GAD	3.87	.02
Social phobia	2.41	.09
Specific phobia	1.76	.18
PTSD	3.42	.04
Panic disorder	0.41	.67
Any substance disorder	0.84	.44
Alcohol disorder	3.09	.06
Drug disorder	2.84	.07
Comorbidity, >2 disorders (vs ≤2)	2.47	.04

Note. GAD = generalized anxiety disorder; PTSD = post-traumatic stress disorder. Psychiatric disorders were diagnosed according to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.
^adf = 2.

lesbian, gay, and bisexual status and psychiatric disorders in states with institutional forms of discrimination evidenced in the current study highlight the urgent need for a multipronged approach to address this important public health issue. Creating partnerships between the mental health community and social policy-makers¹⁵ can help to facilitate efforts to reduce and ultimately eliminate the institutional forms of discrimination that continue to constrain the rights, health, and well-being of lesbian, gay, and bisexual populations. ■

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Contributors

M.L. Hatzenbuehler originated the study, assisted in the analyses, and wrote the initial draft of the article. K.M. Keyes completed the analyses and D.S. Hasin supervised the analyses. All authors interpreted the findings and edited drafts of the article. M.L. Hatzenbuehler had full access to all data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Human Participant Protection

The research protocol, including informed consent procedures, received full ethical review and approval from the US Census Bureau and the US Office of Management and Budget.

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