Mental Health Correlates of Perceived Discrimination Among Lesbian, Gay, and Bisexual Adults in the United States

Vickie M. Mays, PhD, MSPH, and Susan D. Cochran, PhD, MS

Objectives. Recent studies suggest that lesbians and gay men are at higher risk for stress-sensitive psychiatric disorders than are heterosexual persons. We examined the possible role of perceived discrimination in generating that risk.

Methods. The National Survey of Midlife Development in the United States, a nationally representative sample of adults aged 25 to 74 years, surveyed individuals self-identifying as homosexual or bisexual (n = 73) or heterosexual (n = 2844) about their lifetime and day-to-day experiences with discrimination. Also assessed were 1-year prevalence of depressive, anxiety, and substance dependence disorders; current psychologic distress; and self-rated mental health.

Results. Homosexual and bisexual individuals more frequently than heterosexual persons reported both lifetime and day-to-day experiences with discrimination. Approximately 42% attributed this to their sexual orientation, in whole or part. Perceived discrimination was positively associated with both harmful effects on quality of life and indicators of psychiatric morbidity in the total sample. Controlling for differences in discrimination experiences attenuated observed associations between psychiatric morbidity and sexual orientation.

Conclusions. Higher levels of discrimination may underlie recent observations of greater psychiatric morbidity risk among lesbian, gay, and bisexual individuals. (*Am J Public Health.* 2001;91:1869–1876)

Quite recently, inclusion in general population–based surveys of both screening and diagnostic assessments for common mental health disorders and direct or proxy measures of sexual orientation has led to findings of somewhat elevated prevalence of psychiatric morbidity in lesbian, gay, and bisexual respondents as compared with their heterosexual counterparts.[1–9] For example, several studies have documented greater risk for suicide attempts among adolescents and young adults who report same-sex sexual partners or a minority sexual orientation.[2,7–9] Evidence also indicates a greater risk for specific psychiatric disorders, although perhaps differentially for men and women. In the 1996 National Household Survey on Drug Abuse, men with 1-year histories of sex with other men were more likely than exclusively heterosexually active men to meet criteria for major depression and panic attacks.[1] In contrast, women in the same survey with similar same-sex sexual histories were more likely than exclusively heterosexual women to meet criteria for drug and alcohol dependence.[3]

Although the reasons for this elevated risk are unknown, anxiety, mood, and substance abuse disorders are thought to be sensitive to the effects of social factors.[10–13] A growing body of research on social inequality and mental health outcomes premises that certain social statuses, such as race/ethnicity, sex, and socioeconomic status, influence likelihood of exposure to deleterious experiences that may affect acquisition of social and personal resources, such as mastery, self-esteem, and social support.[14–19] In particular, experiences with discrimination and stigmatization have been shown to lead to greater vulnerability to depressive distress and anxiety and perhaps to higher rates of some psychiatric disorders.[13,20–22]

For lesbians and gay men, in particular, some studies have shown that they may be exposed to higher levels of unpredictable, episodic, and day-to-day social stress than are others because of the stigmatization of homosexuality in American culture.[23–31] Furthermore, evidence indicates that these experiences, when they do occur, are associated with affective distress.[32–36] But, to date, most of this work has relied on convenience-based samples, often without heterosexual control groups, resulting in some ambiguity about whether lesbians and gay men do experience discrimination more frequently than do heterosexual women and men. In addition, it is unclear whether the greater risk for discriminatory experiences, if it does exist, can account for the observed excess of psychiatric morbidity seen among lesbians and gay men.

In this study, we examined the prevalence of discriminatory experiences and their association with indicators of psychiatric morbidity among individuals of differing sexual orientations in the MacArthur Foundation National Survey of Midlife Development in the United States (MIDUS),[37] a population-based survey of Americans conducted in 1995. In doing so, we minimized problems with sampling bias and absent heterosexual control groups that tend to permeate convenience-based surveys of lesbians and gay men, in which the respondents are commonly recruited either through their participation in lesbian- or gay-identified activities or through social networks accessible to researchers.[38]

METHODS

Sample and Procedures

The MIDUS drew respondents, aged 25 to 74 years, from the noninstitutionalized English-speaking US population via a random-digit-dialed telephone sampling frame of the contiguous United States. One randomly selected eligible individual from each household was interviewed over the telephone and then mailed a questionnaire to self-administer and return. Oversampling of both men and older respondents increased representation of those individuals more difficult to reach.

A telephone interview was successfully completed in 70% of the households containing an eligible respondent (N=3485). Of those interviewed, 87% (n=3032) returned a completed questionnaire, resulting in an overall estimated response rate of 60.8%. A

single item in the questionnaire ascertained sexual orientation: "How would you describe your sexual orientation? Would you say you are heterosexual (sexually attracted only to the opposite sex), homosexual (sexually attracted only to your own sex), or bisexual (sexually attracted to both men and women)?" In the final sample, the majority labeled themselves heterosexual (n=2844) and a minority identified as homosexual (n=41) or bisexual (n=32). Those who did not answer this question (n=115) were dropped from the present study. Although the basis for their nonresponse was indeterminable, analyses of nonresponse to questions assessing possible homosexuality in the General Social Survey found that nonresponse was associated with low general cooperativeness with the survey rather than attitudes toward homosexuality.[39]

Study Measures

Perceived discrimination. In the questionnaire, respondents' experiences with discrimination were measured in 4 domains: (1) lifetime occurrences of discriminatory experiences, (2) frequency of day-to-day discrimination, (3) reasons for the discrimination, and (4) general effects of discrimination. For lifetime occurrences, 11 types of possible experiences were listed, and respondents were asked to indicate for each how many times they had been discriminated against "because of such things as your race, ethnicity, gender, age, religion, physical appearance, sexual orientation, or other characteristics." These experiences included items related to school (discouraged from continuing education, denied a scholarship), work (not hired or promoted, fired), receiving financial and other services (denied a bank loan, prevented from renting or buying a home, given inferior services), and experiences with social hostility (forced out of a neighborhood, hassled by the police). We recoded reports for each type of experience into 2 categories (none vs any reported).

Respondents also were asked to indicate how frequently they experienced each of 9 types of discrimination on a day-to-day basis. These included being treated with less courtesy or respect than others; receiving poorer service than others at restaurants or stores; being called names, insulted, threatened, or harassed; or having people act afraid of the respondent or as if the respondent was dishonest, not smart, or not as good as they were. For each, respondents chose 1 of 4 descriptors ("never," "rarely," "sometimes," "often"). Because we were interested in the prevalence of relatively common experiences with discrimination and because previous research has shown that men and women tend to vary in the extent to which they use the "sometimes" and "often" adjectives with this measure,[13] we recoded the 9 items into 2 categories ("never" or "rarely" vs "sometimes" or "often").

Those who indicated any occurrence of discrimination were asked to select 1 or more of 10 possible causal reasons for the discrimination. These included age, sex, race, ethnicity or nationality, religion, height or weight, other physical appearance characteristics, physical disability, sexual orientation, or any other reason. We collapsed responses into 3 categories: due to sexual orientation alone, not due to sexual orientation, and due to a combination of sexual orientation and other reasons.

Finally, the perceived effects of discrimination were assessed by 2 questions measuring the extent to which discrimination had "interfered with having a full and productive life" and had made life "harder." Respondents could choose 1 of 4 answers ("not at all," "a little," "some," and "a lot"). We recoded responses to both questions into 2 categories: not at all vs any effect. Those who had not experienced discrimination did not answer the 2 questions and were coded as unaffected by discrimination.

Mental health indicators. The MIDUS measured 5 stress-sensitive psychiatric disorders. Three were assessed in the interview by the administration of modules from the Composite International Diagnostic Interview Short Form.[40] These modules rendered diagnoses based on *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised* criteria[41] for 1-year prevalence of major depression, generalized anxiety disorder, and panic disorder. The Composite International Diagnostic Interview Short Form, a structured diagnostic screening interview administered by trained interviewers, has been shown[42–44] to provide reliable and valid diagnostic information when used in population-based surveys such as the MIDUS.

Two other disorders, alcohol and drug dependence, were assessed in the questionnaire by responses to the 6 questions asked separately for both alcohol and drugs. All respondents answered alcohol-related questions, but only those who indicated using any of 10 categories of illicit drugs or nonprescribed medications in the prior 12 months answered the drug-related questions. The 6 symptoms were assessed with a 12-month time frame and included (1) using substances in larger amounts or for longer periods than intended, (2) being under the influence of substances or recovering from use while engaged in social obligations, (3) experiencing emotional or physical problems from substance use, (4) having an irresistible urge to use, (5) spending a great deal of time using or getting over use, and (6) developing tolerance to substance effects. Positive diagnoses were made if the respondent reported 3 or more symptoms, consistent with modified *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* criteria.[45] This diagnostic screening method has been shown elsewhere to have excellent reliability and validity for identifying individuals with substance use disorders in similar population-based surveys.[46]

We classified respondents into 2 groups: those who met criteria for any of the 5 disorders measured vs those who did not. Respondents also rated their current mental health with 1 of 5 descriptors. We recoded these responses into 2 categories ("poor or fair" vs "good, very good, or excellent"). Nonspecific current psychologic distress was assessed by 6 items in the questionnaire answered on a 5-point Likert-like scale ranging from "never" to "all of the time." Respondents indicated the frequency in the past 30 days with which they had felt "so sad nothing could cheer you up," "nervous," "restless or fidgety," "hopeless," or "worthless" or that "everything was an effort." Given that previous analyses of this measure in the MIDUS showed that the 6 items reflected a single major underlying dimension,[13] we summed the individual items. Respondents scoring at the 83rd percentile or above (equivalent to 2 SDs if the scores were normally distributed) were classified as experiencing high current psychologic distress.

Demographics. Respondents also provided demographic information, including age, level of educational attainment, race/ethnicity, personal income, and current marital or cohabitation status. The interview defined cohabitation for respondents as "living with someone in a steady, marriage-like relationship." For analytic purposes, we combined married and cohabiting respondents. In addition, respondents indicated if they had received treatment for HIV or AIDS in the prior 12 months.

Statistical Analysis

The MIDUS data set, including trimmed weights that adjust for selection probability, nonresponse, and poststratification, is publicly available. Design and data collection methods for MIDUS, as well as the weighting methodologies, are described on the MIDUS Web page (http://midmac.med.harvard.edu.research.html). We used the weighted data set, combining those individuals who reported homosexual or bisexual sexual orientations in the interest of improving power to detect statistical differences.[1,3,4,47,48] Logistic regression methods, employing the Taylor series linearization approach to estimating sampling variance,[49] were used to estimate the associations of sexual orientation and mental health indicators with perceived discrimination. Several demographic factors were treated as possible confounders of the associations between sexual orientation, perceptions of discrimination, and mental health indicators. These factors were sex, age, race/ethnicity, educational attainment, personal income, and relationship status, all of which have been shown in previous work to be variously associated with the constructs of interest.[1,3,4,50–55]

We report odds ratios (ORs) with 95% confidence intervals (CIs), adjusting for possible demographic confounding other than that due to sexual orientation. Because of the robust association between race/ethnicity and perceptions of discrimination,[13] we repeated analyses with only non-Hispanic White respondents to more closely control for this possible source of confounding. The small number of racial/ethnic minority homosexual or bisexual respondents in the MIDUS precluded exploration of possible sexual orientation effects within the racial/ethnic minority subsample. In some instances, we also report results from unadjusted comparisons by a χ^2 test between those of differing sexual orientation. All statistical significance was evaluated with .05-level 2-sided tests when appropriate. Both weighted point estimates and their SEs, in parentheses, are reported in the text.

RESULTS

Demographic Characteristics and Mental Health Indicators

Overall, 2.5% (SE=0.3) of the sample reported a homosexual or bisexual sexual orientation, including 2.9% (SE=0.5) of the men and 2.2% (SE=0.5) of the women. Homosexual and bisexual respondents were significantly younger than heterosexual individuals ($\chi^2_2=13.94$, $P<.01$) and less likely to be married or cohabiting ($\chi^2_1=9.39$, $P<.01$) but did not differ significantly in their racial/ethnic backgrounds, level of education, or personal income (Table 1). Approximately 7.0% (SE=4.0) of the homosexual and bisexual men reported being treated for HIV or AIDS in the year before interviews, but this did not differ significantly from the rate in heterosexual men (0.4%, SE=0.2). No homosexual or bisexual women reported HIV or AIDS treatment.

Across measures, homosexual and bisexual individuals showed some elevation in psychiatric morbidity compared with heterosexual respondents, although differences in 2 instances fell short of statistical significance (see Table 1). Homosexual and bisexual respondents were significantly more likely than heterosexual respondents to have at least 1 of the 5 psychiatric disorders assessed in the

TABLE 1—Characteristics of the MIDUS Sample, by Sexual Orientation

	Homosexual or Bisexual (Weighted n = 73) % (SE)	Heterosexual (Weighted n = 2844) % (SE)
Female	49.9 (6.7)	56.4 (1.0)
Age, y*		
25–34	43.9 (6.8)	26.0 (1.0)
35–44	33.6 (6.5)	27.7 (1.0)
45–74	22.6 (4.7)	46.3 (1.0)
Non-Hispanic White	86.4 (5.4)	82.7 (0.9)
Education		
Some high school	20.7 (5.8)	14.3 (0.8)
High school	25.9 (6.6)	36.5 (1.1)
Some college	28.7 (5.8)	25.7 (0.9)
College degree	24.7 (5.1)	23.5 (0.8)
Personal income, $		
0–18 999	42.5 (6.8)	52.0 (1.1)
19 000–34 999	39.3 (6.6)	25.5 (0.9)
≥35 000	18.1 (4.6)	22.5 (0.8)
Married or cohabiting*	54.0 (6.6)	75.2 (0.9)
Treated for HIV or AIDS in past y	3.5 (2.0)	0.3 (0.1)
Mental health indicators		
Any psychiatric disorder[a] in past y*	41.8 (6.6)	21.2 (0.9)
Rates own mental health as "fair" or "poor"	17.3 (4.8)	9.6 (0.7)
High current psychologic distress[b]	26.0 (5.6)	16.8 (0.8)

Note. Actual sample size is 32 lesbian or bisexual women, 41 gay or bisexual men, 1462 heterosexual women, and 1382 heterosexual men. Weighted estimates shown. MIDUS = MacArthur Foundation National Survey of Midlife Development in the United States.
[a]Includes major depression, generalized anxiety disorder, panic disorder, alcohol dependence, and drug dependence.
[b]Level of psychologic distress at 83rd percentile or above for the total sample.
*$P<.05$.

MIDUS interview after adjustment for possible demographic confounding (adjusted OR=2.18; 95% CI=1.24, 3.84, *P*=.007). Furthermore, the trend (*P*=.07) was toward a greater odds for them to report a "poor" or "fair" current state of mental health in comparison with heterosexual women and men (adjusted OR=1.90; 95% CI=0.96, 3.79). But no statistically significant difference was found between the 2 groups in the prevalence of high levels of current psychologic distress (adjusted OR=1.56; 95% CI=0.84, 2.86, *P*=.15).

Prevalence of Perceived Discrimination

After standardization to the age and racial/ethnic structure of the MIDUS sample, approximately 76% (SE=5.6) of the homosexual and bisexual individuals reported any personal experience of discrimination. In comparison, 65% (SE=1.0) of the heterosexual women and men indicated that they had experienced discrimination (adjusted OR=2.00; 95% CI=1.04, 3.83). Perceived reasons for the occurrence of this discrimination varied between the 2 groups. Among homosexual and bisexual respondents who had experienced discrimination, 25% (SE=5.5) reported that sexual orientation alone had been the basis for their being discriminated against. An additional 17% (SE=5.5) reported a mixture of sexual orientation and other status-based reasons, whereas 58% (SE=7.0) attributed their lifetime experiences with discrimination to causes other than sexual orientation. In contrast, 98% (SE=0.5) of the heterosexual women and men who experienced discrimination attributed it to causes other than sexual orientation. Overall, homosexual and bisexual respondents were significantly more likely than heterosexual respondents to report sexual orientation as a reason for discrimination, whether singly or in conjunction with other factors (adjusted OR=33.33; 95% CI=14.28, 100.00).

Reports of lifetime experiences with discrimination-based events also varied by sexual orientation. Overall, homosexual and bisexual women and men were significantly more likely than heterosexual respondents to report the occurrence of at least 1 of the 11 types of discriminatory experiences measured in the MIDUS (see Table 2). Although significantly more homosexual and bisexual respondents reported being fired unfairly from a job because of discrimination than did heterosexual respondents, the greater frequency of reporting any discriminatory event appeared to reflect the summary effect of small, non–statistically significant increases in risk across much of the spectrum assessed. Restricting comparisons to only White respondents did not appreciably change the findings. Homosexual and bisexual individuals were still more likely than heterosexual respondents to report at least 1 lifetime discriminatory event (adjusted OR=2.20; 95% CI=1.23, 3.94).

Day-to-day experiences with discrimination also varied by sexual orientation (see Table 3). Across a wide range of behaviors indicating discriminatory treatment, homosexual and bisexual women and men were significantly more likely than heterosexual respondents to report their relatively frequent occurrence. These differences between the 2 groups changed little when different cutpoints for classification of occurrence of discrimination were used (e.g., never vs any). Furthermore, restricting comparisons to only White respondents had no appreciable effect on study findings. White homosexual and bisexual respondents were still more likely than

TABLE 2—Lifetime Experiences of Discrimination, by Sexual Orientation and Sex: Age- and Race/Ethnicity-Adjusted Prevalences and Partial Results of Multivariate Logistic Regression Analyses Examining Effects of Sexual Orientation

	Homosexual or Bisexual		Heterosexual		
Type of Discrimination	Women (Weighted n = 37) % (SE)	Men (Weighted n = 37) % (SE)	Women (Weighted n = 1604) % (SE)	Men (Weighted n = 1239) % (SE)	Sexual Orientation Effect[a] OR (95% CI)
Not hired for a job	38.8 (9.0)	22.5 (7.0)	16.5 (1.1)	18.5 (1.2)	1.43 (0.73, 2.82)
Not given a job promotion	33.7 (8.7)	16.9 (7.2)	14.1 (1.0)	13.4 (1.1)	1.54 (0.74, 3.19)
Fired from job	17.2 (7.8)	19.5 (6.8)	5.5 (0.7)	5.9 (0.8)	4.30* (1.98, 9.36)
Discouraged by teacher from continuing education	15.7 (6.7)	3.8 (2.7)	10.9 (0.9)	6.6 (0.7)	0.92 (0.40, 2.11)
Denied a scholarship	5.8 (3.9)	7.2 (3.2)	3.2 (0.5)	3.7 (0.6)	2.62 (0.78, 8.77)
Prevented from renting or buying a home	0.0 (0.0)	6.6 (4.0)	3.8 (0.6)	5.2 (0.7)	0.68 (0.19, 2.34)
Denied a bank loan	8.0 (4.8)	0.0 (0.0)	6.4 (0.7)	8.9 (0.9)	0.62 (0.13, 2.95)
Forced out from neighborhood by neighbors	0.0 (0.0)	6.6 (3.6)	2.2 (0.4)	2.1 (0.4)	1.88 (0.54, 6.47)
Denied or given inferior medical care	7.0 (5.5)	3.1 (2.2)	3.3 (0.5)	3.7 (0.6)	1.82 (0.45, 7.35)
Denied or given inferior services (e.g., by plumber, mechanic)	14.4 (7.4)	4.1 (2.9)	12.6 (1.0)	6.3 (0.8)	0.72 (0.22, 2.32)
Hassled by the police	4.7 (4.4)	17.9 (5.3)	3.1 (0.5)	11.8 (1.0)	2.01 (0.83, 4.86)
Any of the above	58.0 (8.6)	50.8 (8.7)	36.2 (1.4)	33.6 (1.4)	1.82* (1.05, 3.16)

[a]Odds ratios (ORs) and 95% confidence intervals (CIs) after adjustment for the effects of age, race/ethnicity, sex, educational attainment, income, and marital or cohabiting status.
*$P < .05$.

TABLE 3—Perceived Day-to-Day Discrimination Experienced "Sometimes" or "Often," by Sexual Orientation and Sex: Age- and Race/Ethnicity-Adjusted Prevalences and Partial Results of Multivariate Logistic Regression Analyses

	Homosexual or Bisexual		Heterosexual		
Discriminatory Behaviors	Women (Weighted n = 37) % (SE)	Men (Weighted n = 37) % (SE)	Women (Weighted n = 1604) % (SE)	Men (Weighted n = 1239) % (SE)	Sexual Orientation Effect[a] OR (95% CI)
People act as if they think you are not as good as they are	38.1 (8.6)	23.3 (5.5)	16.6 (1.1)	15.9 (1.1)	3.65* (2.01, 6.60)
People act as if they think you are not smart	24.7 (6.6)	5.5 (3.2)	14.6 (1.0)	12.9 (1.0)	1.37 (0.64, 2.92)
Treated with less respect than other people	29.3 (8.3)	21.2 (6.7)	14.4 (1.0)	13.1 (1.1)	2.54* (1.28, 5.06)
Treated with less courtesy than other people	27.8 (8.2)	30.1 (7.2)	13.7 (1.0)	13.6 (1.1)	2.90* (1.51, 5.55)
People act as if they are afraid of you	22.2 (7.6)	23.2 (6.5)	7.0 (0.8)	16.0 (1.1)	2.65* (1.28, 5.48)
Get poorer service than others do at restaurants or stores	27.0 (8.0)	4.7 (2.7)	10.7 (0.9)	9.4 (0.9)	2.18* (1.02, 4.65)
People act as if they think you are dishonest	0.0 (0.0)	12.9 (5.7)	5.3 (0.7)	10.9 (1.0)	0.89 (0.28, 2.91)
You are called names or insulted	20.1 (7.9)	16.1 (5.0)	5.9 (0.7)	5.7 (0.8)	3.58* (1.70, 7.56)
You are threatened or harassed	15.3 (7.5)	10.7 (4.8)	3.1 (0.5)	3.8 (0.7)	3.43* (1.28, 9.21)
Any of the above	42.1 (9.1)	44.0 (8.1)	30.1 (1.3)	29.0 (1.3)	2.42* (1.37, 4.26)

[a]Odds ratios (ORs) and 95% confidence intervals (CIs) adjusted for age, race/ethnicity, sex, educational attainment, income, and marital or cohabiting status.
*$P < .05$.

White heterosexual individuals to report at least 1 discriminatory behavior, occurring at least sometimes on a day-to-day basis (adjusted OR=2.66; 95% CI=1.52, 4.65).

Correlates of Perceived Discrimination

In general, many respondents in the MIDUS viewed discrimination as having had harmful effects on their lives, although homosexual and bisexual respondents reported this more frequently than did others. Specifically, homosexual and bisexual individuals (62.5%, SE=9.2, of women; 41.0%, SE=6.1, of men) were more likely than heterosexual respondents (23.1%, SE=1.2, of women; 20.6%, SE=1.1, of men) to report that discrimination had made life harder (adjusted OR=5.50; 95% CI=3.08, 9.81). Furthermore, homosexual and bisexual respondents (55.2%, SE=9.4, of women; 34.3%, SE=6.0, of men) were more likely than heterosexual individuals (20.5%, SE=1.2, of women; 18.2%, SE=1.1, of men) to indicate that discrimination had interfered with having a full and productive life (adjusted OR=5.13; 95% CI=2.91, 9.05). These differences remained even after comparisons were restricted to White respondents for reports of both making life harder (adjusted OR=5.64; 95% CI=3.17, 10.03) and interfering with life (adjusted OR=4.92; 95% CI=2.77, 8.73).

Without considering the possible influence of sexual orientation, we found that positive reports of both experiencing any lifetime discriminatory event and experiencing any day-to-day discriminatory behavior increased the odds that an individual would indicate that discrimination had interfered with his or her life (event occurrence: adjusted OR=7.57; 95% CI=5.82, 9.86; day-to-day discrimination: adjusted OR=8.01; 95% CI=6.23, 10.30) when effects were estimated separately. Both experiencing discriminatory events and experiencing day-to-day behaviors were also associated with perceptions that discrimination had made life harder (adjusted OR=8.71; 95% CI=6.78, 11.18; adjusted OR=8.50; 95% CI=6.67, 10.84, respectively). Restricting analyses to homosexual and bisexual women and men resulted in essentially identical findings, with reports of lifetime events or day-to-day discrimination increasing the odds of reporting that discrimination had interfered with life (event occurrence: adjusted OR=6.98; 95% CI=1.83, 26.65; day-to-day discrimination: OR=16.43; 95% CI=3.91, 69.04) or had made life harder (adjusted OR=5.57; 95% CI=1.52, 20.46; adjusted OR=7.46; 95% CI=1.69, 33.04, respectively).

Perceived discrimination also was positively associated with the 3 indices of mental health status. The odds of having any psychiatric disorder were significantly increased in individuals reporting any lifetime discriminatory event (adjusted OR=1.60; 95% CI=1.29, 1.99) or any day-to-day experiences with discrimination (adjusted OR=2.13; 95% CI=1.69, 2.68), after adjustment for possible demographic confounding other than that due to sexual orientation. Similarly, self-rated "fair" or "poor" current mental health was positively associated with reporting any lifetime discriminatory event (adjusted OR=1.81; 95% CI=1.34, 2.45) or any day-to-day experiences with discrimination (adjusted OR=1.87; 95% CI=1.34, 2.59), after adjustment for demographic confounding other than that due to sexual orientation. Finally, the odds of having high current psychologic distress were related to positive reports of experiencing any lifetime events (adjusted OR=1.78; 95% CI=1.40, 2.26) or any day-to-day behaviors (adjusted OR=2.46; 95% CI=1.91, 3.17). In all 3 instances, the relation between sexual orientation and each mental health indicator was attenuated by including the possible moderating effects of lifetime events and day-to-day behaviors in the logistic regression model. This included the presence of any psychiatric disorder (reduced from adjusted OR=2.18 to adjusted OR=1.83; 95% CI=0.97, 3.42, P=.06), negative ratings of cur-

rent mental health (reduced from adjusted OR=1.90 to adjusted OR=1.30; 95% CI=0.59, 2.86, *P*=.51), or high levels of psychologic distress (reduced from adjusted OR=1.56 to adjusted OR=1.25; 95% CI=0.64, 2.43, *P*=.51).

DISCUSSION

Although the experience of discrimination in America is relatively common,[13] our findings and those of others[56–58] clearly indicate that lesbian, gay, and bisexual persons are still more likely than heterosexual individuals to report experiencing discrimination across several domains, whether discrimination is measured in discrete lifetime events, such as being fired from a job, or in day-to-day interactions with others who treat them poorly. Indeed, more than three quarters of the lesbian, gay, and bisexual women and men reported having experienced discrimination, after adjustment for other known demographic correlates such as age, race/ethnicity, education, marital status, and income. Sexual orientation itself was commonly, but not invariably, perceived as the basis for this discrimination. As with other Americans, lesbian, gay, and bisexual individuals believed that discrimination has had negative consequences for their quality of life. Perhaps because of the greater burden of perceived discrimination, lesbian, gay, and bisexual persons were more likely than heterosexual women and men to report that discrimination had made life more difficult for them and had interfered with their leading a full and productive life.

Growing evidence[13,15,59] suggests that the experience of discrimination can result in negative psychologic and physiologic changes, underscoring its possible role as a morbidity risk factor. Our findings are consistent with this view; we found a relatively robust association between experiences of discrimination and indicators of psychiatric morbidity. Is it possible that widespread and pernicious experiences with discrimination lie at the heart of the somewhat greater prevalence of psychiatric morbidity among lesbians and gay men found in recent studies[1–9,60–62]? This possibility has long been suspected,[32,37,63,64] but to date, there has been little direct empiric evidence for this view apart from surveys of individuals sampled with unknown selection probability from the visible lesbian and gay community. In this regard, results from the current population-based study show that controlling for differences in levels of discrimination experiences between lesbian, gay, and bisexual persons and heterosexual individuals greatly attenuates the association between sexual orientation and prevalence of stress-sensitive psychiatric disorders and other indicators of mental health difficulties. These findings support the perspective that discrimination has harmful mental health effects for sexual minorities.

The current study, understandably, was unable to answer some questions about the association between mental health, perceived discrimination, and the minority status of sexual orientation because of several study limitations. An important issue is the lack of power resulting from the very small numbers of sexual minorities identified in the survey, which limits precision of study estimates. Other factors, such as response bias,[3] including the possible confounding of propensity to disclose sexual orientation with a lower threshold for disclosing both psychiatric symptoms and negative discrimination experiences, may have influenced our findings in unpredictable ways. For example, the lesbian, gay, and bisexual individuals in the study who did not disclose this status may differ in their experiences of discrimination from those who did. Finally, the cross-sectional nature of the MIDUS precludes drawing causal inferences. Psychiatric morbidity may, in fact, generate a tendency to perceive higher levels of discrimination or may disrupt social functioning, resulting in more negative experiences.[65]

Nevertheless, our findings support the perspective that social stigma of homosexuality may have important mental health consequences. Further research identifying the mediating or moderating role of discrimination and stress in negative mental health outcomes is clearly needed. On the one hand, multiple social statuses, such as sex, age, race/ethnicity, education, and income, may influence additively or synergistically specific psychiatric vulnerabilities among sexual minorities in ways that are not yet understood. For example, increasing evidence indicates that adolescence and young adulthood are times of excessive risk for suicide attempts among lesbian, gay, and bisexual youths.[1,7–9] On the other hand, recent population-based studies[1–6] investigating the mental health status of adult gay men, lesbians, and bisexual persons typically find that most do not have any of the psychiatric disorders assessed in the protocols, despite presumably high rates of experiencing social discrimination, as documented here. The set of conditions that function protectively to generate resiliency in the face of this is not known. Gay men and lesbians may vary in their exposure to discrimination because of several factors, including voluntary disclosure or participation in gay and lesbian culture, or other reasons over which they have less personal control, such as stereotypically gay appearance or employment. The mechanisms by which exposure occurs may have implications for mental health consequences.

As with race/ethnicity, the discrimination and stigma accompanying sexual orientation are rooted in political, economic, and ideologic structures.[15,31,56–58,66] Public health efforts to improve the mental health of lesbian, gay, and bisexual women and men may profit from consideration of both social and individual risk factors in attempts to understand the basis for an increasingly apparent excess risk for psychiatric morbidity in this population. Furthermore, to the extent that social factors, such as discrimination against gay individuals, function as important risk factors for psychiatric morbidity, interventions to either prevent or treat stress-sensitive disorders may need to be differentially tailored to this population.[37] ■

About the Authors

Vickie M. Mays is with the Department of Psychology, University of California, Los Angeles. Susan D. Cochran is with the Department of Epidemiology, University of California, Los Angeles, School of Public Health.

Requests for reprints should be sent to Vickie M. Mays, PhD, MSPH, Department of Psychology, UCLA, Box 951563, Los Angeles, CA 90095-1563 (e-mail: mays@ucla.edu).

This article was accepted June 29, 2001.

Contributors

V.M. Mays conceived the study. V.M. Mays and S.D. Cochran jointly designed the study, interpreted the study findings, and wrote the paper. S.D. Cochran conducted the data analysis.

Acknowledgments

This work was supported by the National Institute of Allergy and Infectious Diseases (AI 38216) and the National Institute of Mental Health (MH 61774).

This work received institutional review board approval by the UCLA Office for Protection of Risk to Subjects.

References

1. Cochran SD, Mays VM. Relation between psychiatric syndromes and behaviorally defined sexual orientation in a sample of the US population. *Am J Epidemiol.* 2000;151:516–523.

2. Cochran SD, Mays VM. Lifetime prevalence of suicidal symptoms and affective disorders among men reporting same-sex sexual partners: results from the NHANES III. *Am J Public Health.* 2000;90:573–578.

3. Cochran SD, Keenan C, Schober C, Mays VM. Estimates of alcohol use and clinical treatment needs among homosexually active men and women in the US population. *J Consult Clin Psychol.* 2000;68: 1062–1071.

4. Gilman SE, Cochran SD, Mays VM, Hughes M, Ostrow D, Kessler RC. Risk of psychiatric disorders among individuals reporting same-sex sexual partners in the National Comorbidity Survey. *Am J Public Health.* 2001;91:933–939.

5. Cochran SD, Sullivan JG, Mays VM. Prevalence of psychiatric disorders, psychological distress, and treatment utilization among lesbian, gay, and bisexual individuals in a sample of the US population. *J Consult Clin Psychol.* In press.

6. Sandfort TGM, de Graaf R, Bijl RV, Schnabel P. Same-sex sexual behavior and psychiatric disorders: findings from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Arch Gen Psychiatry.* 2001;58:85–91.

7. Remafedi G, French S, Story M, Resnick MD, Blum R. The relationship between suicide risk and sexual orientation: results of a population-based study. *Am J Public Health.* 1998;88:57–60.

8. Garofalo R, Wolf RC, Wissow LS, Woods ER, Goodman E. Sexual orientation and risk of suicide attempts among a representative sample of youth. *Arch Pediatr Adolesc Med.* 1999;153:487–493.

9. Faulkner AH, Cranston K. Correlates of same-sex sexual behavior in a random sample of Massachusetts high school students. *Am J Public Health.* 1998;88: 262–266.

10. Dohrenwend BP. The role of adversity and stress in psychopathology: some evidence and its implications for theory and research. *Health Soc Behav.* 2000;41: 1–19.

11. Kendler KS, Kessler RC, Walters EE, et al. Stressful life events, genetic liability, and onset of an episode of major depression in women. *Am J Psychiatry.* 1995; 152:833–842.

12. Mazure CM, ed. *Does Stress Cause Psychiatric Illness?* Washington, DC: American Psychiatric Press, Inc; 1995.

13. Kessler RC, Mickelson KD, Williams DR. The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. *J Health Soc Behav.* 1999;40:208–230.

14. Finch BK, Kolody B, Vega WA. Perceived discrimination and depression among Mexican-origin adults in California. *J Health Soc Behav.* 2000;41:295–313.

15. Krieger N, Sidney S. Racial discrimination and blood pressure: the CARDIA Study of young Black and White adults. *Am J Public Health.* 1996;86: 1370–1378.

16. Turner RJ, Lloyd DA. The stress process and the social distribution of depression. *J Health Soc Behav.* 1999;40:374–404.

17. Pearlin LI. The sociological study of stress. *J Health Soc Behav.* 1989;30:241–256.

18. Aneshensel CS. Social stress: theory and research. *Annu Rev Sociol.* 1992;18:15–38.

19. Aneshensel CS, Rutter CM, Lachenbruch PA. Social structure, stress, and mental health: competing conceptual and analytic models. *Am Sociol Rev.* 1991;56: 166–178.

20. Fife BL, Wright ER. The dimensionality of stigma: a comparison of its impact on the self of persons with HIV/AIDS and cancer. *J Health Soc Behav.* 2000;41: 50–67.

21. Wright ER, Gronfein WP, Owens TJ. Deinstitutionalization, social rejection, and the self-esteem of former mental patients. *J Health Soc Behav.* 2000;41: 68–90.

22. Markowitz FE. The effects of stigma on the psychological well-being and life satisfaction of persons with mental illness. *J Health Soc Behav.* 1998;39: 335–347.

23. Levine MP, Leonard R. Discrimination against lesbians in the work force. *Signs.* 1984;9:700–710.

24. Mays VM, Cochran SD, Rhue S. The impact of perceived discrimination on the intimate relationships of black lesbians. *J Homosex.* 1993;25(4):1–14.

25. D'Augelli AR, Hershberger SL, Pilkington NW. Lesbian, gay, and bisexual youth and their families: disclosure of sexual orientation and its consequences. *Am J Orthopsychiatry.* 1998;68:361–371.

26. Waldo CR, Hesson-McInnis MS, D'Augelli AR. Antecedents and consequences of victimization of lesbian, gay, and bisexual young people: a structural model comparing rural university and urban samples. *Am J Community Psychol.* 1998;26:307–334.

27. Pilkington NW, D'Augelli AR. Victimization of lesbian, gay, and bisexual youth in community settings. *Am J Community Psychol.* 1995;23:34–56.

28. Brogan DJ, Frank E, Elon L, Sivanesan P, O'Hanlan KA. Harassment of lesbians as medical students and physicians. *JAMA.* 1999;282:1290, 1292.

29. Croteau JM, Von Destinon M. A national survey of job search experiences of lesbian, gay, and bisexual student affairs professionals. *J Coll Student Dev.* 1994; 35(1):40–45.

30. Jones DA. Discrimination against same-sex couples in hotel reservation policies. *J Homosex.* 1996; 31(1–2):153–159.

31. Krieger N, Sidney S. Prevalence and health implications of anti-gay discrimination: a study of black and white women and men in the CARDIA cohort. *Int J Health Serv.* 1997;27:157–176.

32. Meyer IH. Minority stress and mental health in gay men. *J Health Soc Behav.* 1995;36:38–56.

33. Otis MD, Skinner WF. The prevalence of victimization and its effect on mental well-being among lesbian and gay people. *J Homosex.* 1996;30(3):93–121.

34. Herek GM, Gillis JR, Cogan JC. Psychological sequelae of hate-crime victimization among lesbian, gay, and bisexual adults. *J Consult Clin Psychol.* 1999;67: 945–951.

35. Hershberger SL, D'Augelli AR. The impact of victimization on the mental health and suicidality of lesbian, gay, and bisexual youths. *Dev Psychol.* 1995;31: 65–74.

36. Lock J, Steiner H. Gay, lesbian, and bisexual youth risks for emotional, physical, and social problems: results from a community-based survey. *J Am Acad Child Adolesc Psychiatry.* 1999;38:297–304.

37. Brim OG, Baltes PB, Bumpass LL, et al. *National Survey of Midlife Development in the United States (MIDUS), 1995-1996* [computer file]. Boston, Mass: Dept of Health Care Policy, Harvard Medical School; 1996. Available at: http://midmac.med.harvard.edu.research.html. Accessed August 4, 2000.

38. Cochran SD. Emerging issues in research on lesbians' and gay men's mental health: does sexual orientation really matter? *Am Psychol.* In press.

39. Smith TW. A methodological analysis of the sexual behavior questions on the General Social Surveys. *J Off Stat.* 1992;8:309–326.

40. Kessler RC, Andrews G, Mroczek D, Ustun B, Wittchen H. The World Health Organization Composite International Diagnostic Interview Short-Form (CIDI-SF). *Int J Methods Psychiatr Res.* 1998;7:171–185.

41. *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised.* Washington, DC: American Psychiatric Association; 1987.

42. Wittchen H-U, Kessler RC, Zhao S, Abelson J. Reliability and clinical validity of UM-CIDI DSM-III-R generalized anxiety disorder. *J Psychiatr Res.* 1995;29: 95–110.

43. Wittchen H-U, Zhao S, Kessler RC, Eaton WW. DSM-III-R generalized anxiety disorder in the National Comorbidity Survey. *Arch Gen Psychiatry.* 1994;51: 355–364.

44. Blazer DG, Kessler RC, McGonagle KA, Swartz MS. The prevalence and distribution of major depression in a national community sample: the National Comorbidity Survey. *Am J Psychiatry.* 1994;151:979–986.

45. *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition.* Washington, DC: American Psychiatric Association; 1994.

46. Epstein J, Gfroerer JC. Estimating substance abuse treatment need from a national household survey. Paper presented at: 37th International Congress on Alcohol and Drug Dependence; August 20–25, 1995; San Diego, Calif.

47. Safren SA, Heimberg RG. Depression, hopelessness, suicidality, and related factors in sexual minority and heterosexual adolescents. *J Consult Clin Psychol.* 1999;67:859–866.

48. Saewyc EM, Bearinger LH, Heinz PA, Blum RW, Resnick MD. Gender differences in health and risk behaviors among bisexual and homosexual adolescents. *J Adolesc Health.* 1998;23:181–188.

49. Shah B, Barnwell BG, Bieler GS. *SUDAAN User's Manual, Version 6.40.* 2nd ed. Research Triangle Park, NC: Research Triangle Institute; 1996.

50. Wilsnack R, Wilsnack S, eds. *Gender and Alcohol: Individual and Social Perspectives.* New Brunswick, NJ: Rutgers Center on Alcohol Studies; 1997.

51. Kessler RC, McGonagle KA, Zhao S, et al. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. *Arch Gen Psychiatry.* 1994;51:8–19.

52. Kandel D, Chen K, Warner LA, Kessler RC, Grant B. Prevalence and demographic correlates of symptoms of last year dependence on alcohol, nicotine, marijuana and cocaine in the US population. *Drug Alcohol Depend.* 1997;44:11–29.

53. Regier DA, Farmer ME, Rae DS, et al. One-month prevalence of mental disorders in the United States and sociodemographic characteristics: the Epidemiologic Catchment Area study. *Acta Psychiatr Scand.* 1993;88: 35–47.

54. Kessler RC, McGonagle KA, Swartz M, Blazer DG, Nelson CB. Sex and depression in the National Comorbidity Survey, I: lifetime prevalence, chronicity and recurrence. *J Affect Disord.* 1993;29(2–3):85–96.

55. Marks NF, Lambert JD. Marital status continuity and change among young and midlife adults. *J Fam Issues.* 1998;19:652–686.

56. Klawitter MM, Flatt V. The effects of state and local antidiscrimination policies on earnings for gays and lesbians. *J Policy Analysis Manage.* 1998;17:658–686.

57. Badgett MVL. *Vulnerability in the Workplace: Evidence of Anti-Gay Discrimination.* Washington, DC: Institute for Gay and Lesbian Strategic Studies; 1997. Available at: http://www.iglss.net/accessible/html/angles/angles2-1_p1.html. Accessed October 25, 2000.

58. Badgett MVL. Employment and sexual orientation: disclosure and discrimination in the workplace. In: Ellis AL, Riggle EDB, eds. *Sexual Identity on the Job: Issues and Services.* New York, NY: Haworth Press; 1996:29–52.

59. Clark R, Anderson NB, Clark VR, Williams DR. Racism as a stressor for African Americans: a biopsychosocial model. *Am Psychol.* 1999;54:805–816.

60. Cochran SD, Mays VM. Depressive distress among homosexually active African American men and women. *Am J Psychiatry.* 1994;151:524–529.

61. Herrell R, Goldberg J, True WR, et al. Sexual orientation and suicidality: a co-twin control study in adult men. *Arch Gen Psychiatry.* 1999;56:867–874.

62. Fergusson DM, Horwood LJ, Beautrais AL. Is sexual orientation related to mental health problems and suicidality in young people? *Arch Gen Psychiatry.* 1999; 56:876–880.

63. O'Hanlan KA. Lesbian health and homophobia: perspectives for the treating obstetrician/gynecologist. *Curr Probl Obstet Gynecol Fertil.* 1995;18:93–136.

64. D'Augelli AR. Developmental implications of victimization of lesbian, gay, and bisexual youths. In: Herek GM, ed. *Stigma and Sexual Orientation: Understanding Prejudice Against Lesbians, Gay Men, and Bisexuals.* Thousand Oaks, Calif: Sage Publications; 1998: 187–210.

65. Bosc M. Assessment of social functioning in depression. *Compr Psychiatry.* 2000;41:63–69.

66. Krieger N, Sidney S, Coakley E. Racial discrimination and skin color in the CARDIA study: implications for public health research. Coronary Artery Risk Development in Young Adults. *Am J Public Health.* 1998;88: 1308–1313.