

Distress and Depression in Men Who Have Sex With Men: The Urban Men's Health Study

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Objective: This study estimates the prevalence of depression and describes the correlates and independent associations of distress and depression among U.S. men who have sex with men.

Method: A household-based probability sample of men who have sex with men (N=2,881) was interviewed between 1996 and 1998 in four large American cities. With cutoff points of 15 and 22 for the Center for Epidemiological Studies Depression Scale, individual correlates and predictors of distress and depression were examined, and multinomial logistic regression was performed.

Results: The 7-day prevalence of depression in men who have sex with men was 17.2%, higher than in adult U.S. men in general. Both distress and depression were associated with lack of a domestic partner; not identifying as gay, queer, or homosexual; experiencing multiple episodes of anti-

gay violence in the previous 5 years; and very high levels of community alienation. Distress was also associated with being of other than Asian/Pacific Islander ethnicity and experiencing early antigay harassment. Depression was also associated with histories of attempted suicide, child abuse, and recent sexual dysfunction. Being HIV positive was correlated with distress and depression but not significantly when demographic characteristics, developmental history, substance use, sexual behavior, and current social context were controlled by logistic regression.

Conclusions: Rates of distress and depression are high in men who have sex with men. These high rates have important public health ramifications. The predictors of distress and depression suggest prevention efforts that might be effective when aimed at men who have sex with men.

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Major depressive disorder and related mood disorders are important diagnoses, in terms of both their high prevalence and high cost. The National Health and Nutrition Examination Survey (1) estimates the lifetime prevalence of major depression in the United States at 7.0% and the current prevalence at 4.1%. The direct and indirect costs of major depression in the United States are estimated at between \$26 and \$43.7 billion per year (2), and major depression alone accounts for 11% of all years lived with disability worldwide (3). Groups in the United States with a high prevalence of depression include the chronically medically ill (4, 5), immigrants (6), and women, young adults, and people with less than a college education (7).

Accurate prevalence estimates require probability samples, a rarity in clinical research. Clinical research groups are usually convenience groups: people in treatment, either from a particular center or for a particular condition. Convenience groups are subject to selection bias, raising the question of whether similar people not in treatment, or in treatment elsewhere, would have similar characteristics. This is particularly problematic in trying to study a population defined by a nonclinical characteristic, such as men who have sex with men (Appendix 1). Hooker (8) showed that inferences based on psychoanalytic theory, derived from the treatment of men who have sex with men seeking

to change their sexual behavior, were flawed by this bias; a convenience group of men who have sex with men not seeking treatment was no different from men in general. Similarly, men who have sex with men who were selected in gay bars have been shown to have a high rate of alcoholism compared to the general population (9). It is not surprising that examination of non-bar-based convenience groups of men who have sex with men eliminated this difference (10, 11).

While probability sampling eliminates many biases, probability samples of the general population in the United States have yielded small samples of men who have sex with men (12–14). These subsamples have been too small to power statistical analysis beyond prevalence estimates. The NEMESIS study (15), with 82 men who have sex with men within a total sample of 2,878 adult men, showed that Dutch men who have sex with men were nearly three times as likely to have a DSM-III-R-defined mood disorder than heterosexual men. Generating probability samples of men who have sex with men requires extensive (and expensive) screening, so earlier probability samples have been limited to “gay ghettos” (16) in single cities in the United States (17–19). The content of these studies focused on only AIDS, sexually transmitted dis-

eases, and AIDS-related risk behaviors—not to mental health or health in general.

This article is based on data from the Urban Men's Health Study, a large (N=2,881), geographically diverse (San Francisco, New York, Los Angeles, and Chicago, including areas outside gay ghettos), household-based probability sample of men who have sex with men in the United States. This article estimates the prevalence of major depression and distress in men who have sex with men and considers independent associations of depression and distress with a wide variety of health-related variables.

Method

Sample Design

A complete description of the construction of the sampling frame and overall sample demographics are described elsewhere (20). To summarize, a household-based probability sample of 2,881 men who have sex with men was obtained by identifying geographic areas for sampling (21) and then applying disproportionate and adaptive sampling methods (22, 23) to those areas. These strategies had been previously suggested for generating representative samples of hard-to-reach populations for AIDS studies (24). All data presented here have been weighted to reflect the probability of selection, adjustment for noncoverage and non-response, and maintenance of proportionality between cities based on each city's estimated total population of men who have sex with men. Potential respondents could verify the nature of the study through local, national, and university contact names and telephone numbers. Telephone interviews started in late 1996 and continued until early 1998. In total, 63,783 households were screened; 3,700 households (5.8%) were found to contain at least one man who has sex with men; and 2,881 interviews (78% of eligible households) were completed. Interviews were conducted in Spanish (N=17) or in English at a time of the respondent's choosing and lasted an average of 75 minutes. The Committee on Human Research of the University of California, San Francisco, provided human subject review and oversight, and consent procedures consistent with telephone interviewing techniques were applied.

Dependent Variables

Distress and depression were measured with the Center for Epidemiological Studies Depression Scale (CES-D Scale) (25). The CES-D Scale is a 20-item questionnaire asking the frequency of various depressive symptoms in the previous week and was originally developed in 1977 as a survey instrument measuring depression. The original cut point of 15 or greater has been shown to be inadequate as a screening examination for current major depressive disorder (26, 27). The National Institute for Occupational Safety and Health and the Centers for Disease Control and Prevention use the CES-D Scale with a cutoff of 22 to define "major depression" in their surveillance (28). Sensitivity and specificity for major depressive disorder are greater than 85% with cutoff points of 21 and 23, respectively (29, 30). Because the CES-D Scale does not request time course data, it is impossible to differentiate major depressive disorders from either dysthymic disorder or a depressive episode of bipolar disorder. Those two disorders are probably a large proportion of the false positives found by using this scale.

What characterized the respondents with CES-D Scale scores from 16 to 21? Many psychiatric disorders other than mood disorders (and some normal conditions, such as bereavement) have significant dysphoric elements, at least episodically. Anxiety dis-

orders have been noted to confound CES-D Scale scores of 16 or greater (31). Other confounding conditions may include—but are not limited to—alcohol and drug withdrawal and adjustment disorders. Since a broad range of conditions are likely to have CES-D Scale scores in this range, this study categorizes respondents with CES-D Scale scores in the range of 16 to 21 as "distressed" rather than as having a particular diagnosis. Together with the depressed respondents, they represent much of the group at risk for needing voluntary mental health care.

A total of 2,678 (93%) of the 2,881 respondents completed the CES-D Scale. A three-category version of CES-D Scale scores was used as the dependent variable: euthymic (i.e., of normal mood), scores of 15 and below; distressed, scores from 16 to 21; and depressed, with scores of 22 and above.

Independent Variables

Six types of independent variables were chosen: demographics, developmental issues, substance use, sexual behavior, HIV experience, and current social context variables.

The demographic variables examined were age, race or ethnicity (white, African American, Hispanic, Asian/Pacific Islander, or Native American/other), educational level (not having a college degree, having an undergraduate degree, or postgraduate studies), area of residence (gay ghetto [32] or other), and city of residence (San Francisco, New York, Los Angeles, or Chicago).

Developmental issue variables included age at first sexual experience; history of parental substance abuse (including alcohol) or attempted suicide (both categorized "yes" or "no"); number of incidents of child abuse (defined as being "beaten up" by a parent or adult in charge), anti-gay harassment before the age of 16, and witnessing a number of incidents of domestic violence between parents (0, 1, or ≥ 2); lifetime number of incidents of forced sex (0, 1–5, or ≥ 6), and, if applicable, age at first forced sex and age at first suicide attempt.

Substance use was measured by frequent heavy alcohol use (weekly ingestion of at least five cocktail equivalents at one sitting or other), multiple drug use (use of at least three categories of drugs of abuse or other), three or more alcohol-related problems ("yes," "no," or "missing"), and frequent drug use (at least one drug of abuse at least once a week or other). Because of a technical problem, a high proportion (N=229) of the 2,881 respondents were missing data related to the number of alcohol-related problems. Therefore, a "marker" variable was created—"missing alcohol-related problems" ("yes" or "no"), and this variable was entered in the logistical model just before the substance use block to control for the missing data (33).

The variables for sexual behavior examined were any sexual dysfunction in the previous year ("yes" or "no"), number of sex partners in the previous year, and unsafe sex in the previous year, defined as anal or vaginal intercourse with a partner of different or unknown HIV serostatus ("yes" or "no").

HIV exposure was assessed by self-reported—but internally validated (34)—HIV status (HIV positive or other); any care of a person with AIDS in the previous year ("yes" or "no"); responses to "Being [your serostatus] has made you feel like an outsider in the gay community," and "You find it hard to tell other gay men [your serostatus]" (scored from 1 for "strongly disagree" to 4 for "strongly agree"); and numbers of HIV-related deaths of intimates (lovers, former lovers, close friends, or family members) and of current HIV-positive intimates. Of those who took care of any people with AIDS in the prior year, further variables studied were currently caring for a current or ex-domestic partner ("yes" or "no"), the number of people with AIDS cared for in the previous year, and the number of current care-giving relationships with persons with AIDS.

Current social context variables were being in a domestic partnership (living with a man in a committed relationship, regardless

TABLE 1. Prevalence of Depression and Distress in the Urban Men's Health Study Versus Other Probability Samples of U.S. Men

Depression and Distress Study	Instrument	Number of Men	Prevalence (%)	Comparison With Urban Men's Health Study			
				χ^2	df	p	N
Major depression							
Urban Men's Health Study ^a	CES-D (Center for Epidemiological Studies Depression) Scale (25) (score ≥ 22)	2,678	17.2	—			
National Comorbidity Sample (7) ^b	Composite International Diagnostic Interview (39)	4,009	3.8	347.4	1	<0.000001	6,687
Midlife Development in the United States (40) ^c	Composite International Diagnostic Interview Short Form (41)	2,155	10.0	51.3	1	<0.000001	4,833
National Health and Nutrition Examination Survey (1) ^d	National Institute of Mental Health Diagnostic Interview Schedule (42)	3,473	2.3	385.6	1	<0.000001	5,096
Distress and major depression							
Urban Men's Health Study ^a	CES-D Scale (score ≥ 16)	2,678	29.2				
Health and Nutrition Examination Survey (1) ^a	CES-D Scale (score ≥ 16)	1,253	10.8	162.1	1	<0.000001	3,931

^a Seven-day prevalence rate.

^b Thirty-day prevalence rate; the sample comprised men age 15 to 54 years.

^c One-year prevalence rate.

^d "Current" prevalence rate; no precise time frame specified. The sample comprised men age 17 to 39 years. Men in the Urban Men's Health Study subsample (N=1,623) were age 18–39 years; a prevalence of 17.4% was used for comparison.

of its legal status) ("yes" or "no"), self-defined sexual identity (dichotomized as gay, queer, homosexual, or other), outness, community cohesion, and community alienation (all defined elsewhere [32]). Current variables were also numbers of incidents of anti-gay violence or threat of violence in the previous 5 years, of incidents of domestic violence in the prior 5 years, of gay-identified community organizations in which the respondent was involved, and of non-gay-identified community organizations in which the respondent was involved. Domestic partnership status and self-defined sexual identity were included in this block rather than as demographic characteristics because a respondent's answer could easily be changed with no apparent change in behavior.

Data Analysis

Initially, t tests were used to test statistical comparisons of continuous independent variables for significance; statistical comparisons of categorical independent variables used chi-square analysis. Subsequent simultaneous comparisons of the three CES-D Scale categories by demographic, developmental, substance use, sexual behavior, HIV experience, and social context variables used multinomial logistic regression rather than ordinal logistic regression because the proportional odds assumption could not be made, given the diagnostic heterogeneity of the distressed subjects. For this regression, continuous variables were converted to categorical variables based on quartile values of the items in question, except age (categorized as 18–29, 30–39, 40–49, 50–59, 60–69, and ≥ 70 years), incidents of anti-gay violence or threat of violence in the previous year, incidents of domestic violence in the prior 5 years, and incidents of non-gay-identified community organization (all recoded as 0, 1, and ≥ 2). Histories of child abuse and early anti-gay harassment were dichotomized (as present or not). Two skewed 4-point Likert-scale variables were divided into two categories: responses to "Being [your serostatus] has made you feel like an outsider in the gay community," was categorized as "agree" or "disagree," and, "You find it hard to tell other gay men [your serostatus]" was recoded as "strongly disagree" or "less than strongly disagree". Independent variables with $p < 0.05$ in the preliminary comparisons were entered into the multivariate model in blocks in the following order: demographic characteristics, developmental issues, missing alcohol-related problems, substance use, sexual behavior, experience with the HIV epidemic, and current social context. Variables were elimi-

nated stepwise within each block when $p \geq 0.05$. Conditional odds ratios were calculated for the final model by STATA, using the "svylog" procedure (35, 36). The value of the goodness of fit test was calculated by first running separate binomial logistical models through LOGITSE, an SAS macro (37), with a weighted version of the preferred Hosmer-Lemeshow decile goodness of fit test on each pair of two values of the dependent variable (i.e., euthymic versus distressed, euthymic versus depressed, and distressed versus depressed). P values for goodness of fit obtained in these regressions were corrected by a reversed Bonferroni procedure to obtain an overall goodness of fit (38).

Results

While this analysis was not designed as a meta-analysis, and comparing studies using different instruments to measure a single phenomenon should not be undertaken lightly, a comparison of the prevalence of distress and/or depression in other probability samples of adult U.S. men provides a context that is necessary to understand these findings. Table 1 makes the comparisons.

In the Urban Men's Health Study sample, 17% of the men who have sex with men were depressed, 12% were distressed, and 71% were euthymic. Table 2 describes the demographic characteristics and HIV status of the sample by CES-D Scale category. Geographical variables of city and area of residence were not significant.

Table 3 describes the outcome of the multinomial logistic regression. Goodness of fit was excellent ($p = 0.42$). Of note are some of the variables that are not in the model. Neither the number of sexual partners nor the history of unsafe sex in the prior year was associated with distress or depression. Not self-identifying as gay, queer, or homosexual was significant in predicting distress and depression, regardless of the level of "outness" (i.e., how publicly that identity is expressed). The only HIV experience variable (including HIV status) that remained in the model was being an outsider due to HIV status, whether positive or negative.

TABLE 2. Demographic Characteristics and HIV Status in Relation to Affective State in Men Who Have Sex With Men^a

Characteristic	Affective State ^b						Analysis			
	Euthymic (N=1,904, 71%)		Distressed (N=326, 12%)		Depressed (N=461, 17%)		χ^2	df	p	N
	N	%	N	%	N	%				
Age (years)							18.46	10	<0.05	2,689
18–29 (N=553)	383	69	83	15	88	16				
30–39 (N=1,038)	727	70	125	12	186	18				
40–49 (N=680)	490	72	75	11	115	18				
50–59 (N=272)	190	70	35	13	47	17				
60–69 (N=125)	98	78	6	5	21	17				
≥70 (N=41)	36	88	3	7	2	5				
Race or ethnicity							23.76	8	0.003	2,678
White (N=2,138)	1,518	71	278	13	342	16				
African American (N=117)	82	70	11	9	24	21				
Hispanic (N=245)	172	70	24	10	49	20				
Asian or Pacific Islander (N=102)	78	77	4	4	20	21				
Native American or other (N=76)	41	54	15	20	20	26				
Education							13.80	4	0.008	2,685
Less than college degree	554	69	112	14	137	20				
College degree	868	72	145	12	192	17				
Beyond college	496	74	74	11	100	15				
Sexual orientation							21.63	2	0.00002	2,641
Gay, queer, or homosexual	1,620	72	270	12	360	16				
Other	261	61	64	15	103	24				
HIV status, adjusted (34)							8.80	2	0.02	2,691
HIV positive	278	61	68	15	109	19				
Other	1,545	72	245	11	433	17				

^a Percents may not total 100% because of rounding.

^b Based on Center for Epidemiological Studies Depression Scale. Euthymic: score ≤15; distressed: score=16–21; depressed: score ≥22.

Discussion

Because this data was based on a survey of men who have sex with men, there is no direct control group for the purposes of proving a difference in the rates of depression and distress between men who have sex with men and men who do not have sex with men. Nonetheless, the Urban Men's Health Study data on men who have sex with men and the data based on other probability samples of men in general are strikingly and consistently disparate. When we compared the entire at-risk group of distressed and depressed men with the same instrument as this study, men who have sex with men are 2.7 times as likely to be in the at-risk group than a general population of men (with a probability of less than one in a million). This is consistent with an odds ratio of 2.9 for all mood disorders in men who have sex with men over other men in the Dutch NEMESIS study (15). Different instruments and different authors define "current" as a time period of from 7 to 30 days (or decline to define it at all), further limiting the ability to make direct comparisons between studies. Even so, using each author's definition of "current," the "current" prevalence of depression in men who have sex with men appears to be 4.5 to 7.6 times more likely, and the differences appear significant at the level of less than one in a million. Presumably by using a scale with a short definition of "current," such as the CES-D Scale, makes for a conservative estimate of the difference in prevalence. Even when comparing major depression in a sample that includes women (who are known to have higher rates of depression) (1), men who have sex with men have 2.6 times higher current rates of depression than the life-

time rates in the general population ($\chi^2=239.2$, $df=1$, $p<0.000001$, $N=10,267$). All these comparisons are all the more remarkable because the probability samples of the men in general included an unknown number of men who have sex with men. Although statistical proof is not possible here, the differences among these disparate studies makes it clear that further study of mental health in men should include measures of sexual orientation and behavior to more fully test these hypothetical differences.

Variables associated with both distress and depression are not having a domestic partner; a recent history of anti-gay threats or violence; not identifying as gay, queer, or homosexual; and feeling highly alienated from the gay community. Not being married was associated with multiple psychiatric conditions. The other three variables may reflect homophobia—internal or external. Multivariate analysis can establish association, not causality, but these variables imply hypotheses to test causality by measuring the effectiveness of community-based interventions in improving the mental health of men who have sex with men as a group. Does the enactment of statutes legalizing marriage or domestic partnership or punishing hate crimes based on sexual orientation lead to a lower prevalence of distress and depression in men who have sex with men? Natural experiments concerning both these hypotheses are occurring as local and state governments around the United States establish these laws. Would programs developed to encourage men who have sex with men to self-identify as gay, queer, or homosexual decrease levels of depression and distress? Might programs designed to promote the notion of a community of gay men decrease

TABLE 3. Tests of Independent Associations With Distress and Depression in 2,678 Men Who Have Sex With Men

Characteristic	Contrast of Affective States ^a					
	Distressed Versus Euthymic		Depressed Versus Euthymic		Depressed Versus Distressed	
	Conditional Odds Ratio	95% CI	Conditional Odds Ratio	95% CI	Conditional Odds Ratio	95% CI
Age (years)						
18–29	2.6	0.6–11.0	4.4 ^b	0.8–23.0	1.7	0.2–14.0
30–39	2.1	0.5–8.9	4.5 ^b	0.9–23.0	2.1	0.3–16.0
40–49	1.8	0.4–7.6	4.9 ^b	0.9–26.0	2.7	0.4–21.0
50–59	2.5	0.6–11.0	3.8	0.7–20.0	1.5	0.2–12.0
60–69	0.8	0.1–5.4	3.4	0.6–20.0	4.2	0.4–46.0
≥70	Referent		Referent		Referent	
Race or ethnicity						
White	Referent		Referent		Referent	
African American	0.5 ^b	0.2–1.1	1.0	0.6–2.0	2.1	0.9–4.9
Hispanic	0.7	0.4–1.2	1.1	0.7–1.8	1.7	0.9–3.3
Asian or Pacific Islander	0.3 ^c	0.1–0.8 ^c	1.0	0.4–2.2	3.4 ^c	1.1–11.0 ^c
Other	1.3	0.6–3.0	1.3	0.6–3.0	1.0	0.4–2.6
Education						
Less than college degree	1.1	0.7–1.8	1.0	0.7–1.5	0.9	0.5–1.5
College degree	1.0	0.7–1.5	1.1	0.8–1.6	1.0	0.7–1.7
Beyond college	Referent		Referent		Referent	
Age at first sex (years)						
≤12	1.3	0.8–2.1	1.4	0.9–2.1	1.1	0.6–1.9
13–15	1.1	0.7–1.8	1.0	0.6–1.5	0.9	0.5–1.6
16–18	1.4	0.9–2.2	1.2	0.8–1.7	0.8	0.5–1.4
≥19	Referent		Referent		Referent	
History of attempted suicide	1.6 ^b	1.0–2.4	3.0 ^c	2.1–4.3 ^c	1.9 ^c	1.2–3.1 ^c
History of child abuse	1.0	0.7–1.4	1.6 ^c	1.2–2.2 ^c	1.7 ^c	1.1–2.5 ^c
History of anti-gay harassment before age 16	1.8 ^c	1.2–2.6 ^c	1.0	0.7–1.4	0.6 ^c	0.3–0.9 ^c
Episodes of forced sex						
0	Referent		Referent		Referent	
1–5	1.3	0.9–1.8	1.2	0.9–1.6	0.9	0.6–1.3
≥6	1.3	0.7–2.8	0.7	0.4–1.4	0.5	0.3–1.2
Marker for missing alcohol data ^d	1.2	0.6–2.3	1.0	0.6–1.5	0.8	0.4–1.7
Use of multiple (≥3) drugs	1.1	0.7–1.7	1.1	0.8–1.5	1.0	0.6–1.6
≥3 Alcohol problems	1.5 ^b	1.0–2.4	1.5 ^b	1.0–2.2	1.0	0.6–1.6
Sexual dysfunction in last year	1.2	0.9–1.8	2.3 ^c	1.8–3.1 ^c	1.9 ^c	1.3–2.8 ^c
Agreement with “Being [your serostatus] has made you feel like an outsider in the gay community”	1.4 ^b	1.0–2.2	1.4 ^b	1.0–1.9	1.0	0.6–1.5
Not having a domestic partner	2.0 ^c	1.4–2.8 ^c	1.7 ^c	1.2–2.4 ^c	0.9	0.6–1.4
Not identifying self as gay, queer, or homosexual	1.5 ^c	1.0–2.4 ^c	1.7 ^c	1.2–2.5 ^c	1.1	0.7–1.8
Episodes of anti-gay threat or violence in the previous 5 years						
0	Referent		Referent		Referent	
1	1.3	0.9–1.9	1.1	0.8–1.5	0.9	0.5–1.3
≥2	1.7 ^c	1.1–2.6 ^c	1.7 ^c	1.1–2.5 ^c	1.0	0.6–1.6
Community alienation						
Very low	Referent		Referent		Referent	
Low	1.1	0.7–1.8	1.7 ^b	1.0–2.8	1.5	0.8–2.9
High	1.4	0.9–2.1	1.9 ^c	1.3–2.8 ^c	1.4	0.8–2.3
Very high	1.6 ^c	1.0–2.5 ^c	3.6 ^c	2.4–5.3 ^c	2.2 ^c	1.3–3.7 ^c

^a Goodness of fit test, $p=0.42$. Independent variables are listed only if they were significant in the model.

^b Based on Center for Epidemiological Studies Depression Scale. Euthymic: score ≤ 15 ; distressed: score $16-21$; depressed: score ≥ 22 .

^c Euthymic Center for Epidemiological Studies Depression Scale score $16-21$ versus ≤ 15 ; ≥ 22 versus ≤ 15 ; ≥ 22 versus $16-21$; $0.10 > p \geq 0.05$.

^d $p < 0.05$

^e See text for explanation.

levels of alienation and thereby decrease rates of distress and depression? Both of these hypotheses are testable; in some places, research infrastructure that could be used to test them is already in place in AIDS-related, community-based organizations.

Parsing distress and depression by the variables to which each is uniquely associated is more complicated. Distress, compared to euthymia, is associated with other than Asian/Pacific Islander ethnicity and a history of early anti-gay ha-

arrassment. Depression, relative to euthymia, is associated with a history of suicide attempt, child abuse, sexual dysfunction, and lower levels of community alienation. Within the overall at-risk group with CES-D Scale scores of 16 or greater, depression is associated with Asian/Pacific Islander ethnicity, a history of suicide attempt, child abuse, sexual dysfunction, and very high levels of community alienation, but it is negatively associated with a history of early anti-gay harassment.

This odd configuration of associations may be due, in part, to the heterogeneity of the “distressed” category. Some unknown portion of the distressed respondents likely has mood disorders that are not severe enough to attain high CES-D Scale scores. This could account for two variables that are associated with depression when compared to distress and that tend to be significant when we compared distress and euthymia: history of suicide attempt and high levels of community alienation. Sexual dysfunction may be associated with depression severe enough to attain high CES-D Scale scores but not with less severe variants. Cultural inhibitions in Asian/Pacific Islander respondents in which depressive symptoms are minimized until they are so problematic as to be undeniable (43, 44) could explain why, within the entire population of men who have sex with men, being of Asian/Pacific Islander extraction is protective for low-scoring mood disorders (and, hence, distress) as well as positively associated with depression in an at-risk population of men who have sex with men. The CES-D Scale may also have some cultural bias regarding U.S. Asians and Pacific Islanders. Cultural bias also may be evident in the finding that not being African American approaches significance as a predictor of distress over euthymia.

Interpretation of the pattern of associations of histories of child abuse and early anti-gay harassment is perplexing. History of child abuse is associated with depression when compared with both distress and euthymia. To the extent that child abuse is associated with dissociative defense mechanisms, men who have sex with men with this history may be less dysphoric (45), and hence it might not correlate with higher CES-D Scale scores unless particularly toxic stressors (e.g., intrusive recollection and unsupported breach of denial) are present. History of anti-gay harassment before the age of 16 is positively associated with distress (compared with euthymia), but it is protective against depression (compared with distress). Perhaps early anti-gay harassment is more likely to produce anxiety disorders or adjustment disorders. It may also produce external objects (e.g., homophobes or gay bashers) at which anger, which otherwise might be self-directed (leading to depression), might be outwardly directed, reducing the propensity toward depression. More study is needed to better explicate the relationship of these variables to distress and depression in men who have sex with men.

The power of the overall analysis may be reduced by using three categories of CES-D Scale scores and multinomial logistic regression analysis. Therefore, several additional variables with *p* values between 0.05 and 0.10 should be addressed. These include age of less than 50 for depression and outsider status due to HIV status and three or more alcohol-related problems for both depression and distress. Youth is a known risk factor for depression (7). Outsider status in HIV-negative men who have sex with men has been discussed elsewhere (46), as has alcohol use and abuse in the Urban Men's Health Study survey (47).

Conspicuous by its absence is any further association between other HIV experiences and being distressed or depressed. The relationship of HIV infection and the risk for major depression has been difficult to demonstrate: finding that association required a meta-analysis of 10 studies (with a total *N* of 2,596), and a meta-analysis of five of those same studies (*N*=1,117) was unable to locate an association between depression and the presence of symptomatic HIV disease (48), presumably the most severe type of HIV-related stressor. The advent of protease inhibitors in 1996 and the perception of HIV disorders moving from inexorably fatal to chronic may mean that its mental health impact has diminished for both HIV-infected men who have sex with men as well as their caretakers.

This study has several limitations. As noted, because it is based on a survey of men who have sex with men, there is no direct heterosexual control group. Because the Urban Men's Health Study was not focused on depression alone and required lengthy phone interviewing, it was not possible to cover the full gamut of issues that might be related to depression in men who have sex with men, including religiosity, early severe loss, divorce, or family history of depression or suicidality. Further research could explore these issues. Threat of violence and actual violence were not distinguished in this study; while either predicted distress or depression, actual violence may be a stronger predictor of distress and depression. Up to 15% of the depressed group may be false positives and false negatives (29, 30).

Although some of those false positives might be people with other mood disorders, such as a depressive episode of bipolar disorder or severe dysthymic disorder, their diagnosis is not of a major depressive disorder per se. Men who have sex with men who do not identify themselves as gay, queer, or homosexual may have been more likely to deny homosexual behavior and hence not to participate in the survey. Nonetheless, 16% of the men who have sex with men who were interviewed self-identified as bisexual, heterosexual, or other (20). Given that this study was cross-sectional in nature, any imputation of causality is ill-advised; proof of causality would require a cohort study. The sample frame excluded some men who have sex with men who live in urban areas with a low proportion of men who have sex with men, as well as those residing in small cities, in suburbs, or in rural areas. As probability sampling of these areas for men who have sex with men is prohibitively expensive, network sampling (49, 50) may be the sampling method of choice—albeit with significant limitations—to study these populations. Men who have sex with men of color are underrepresented in this study due to in-migration (20), and men who have sex with men of color may also be less likely to disclose sexual orientation or preferentially live in areas of the cities not sampled (32). The sample excluded a priori adolescent men who have sex with men and the 5% of the households in these cities that do not have telephones (51, 52). Convenience samples may be the only way to reach some subgroups of the very poor, such as

those who are homeless; interviewing adolescents requires complicated (and probably biasing) parental consent.

The prevalence of depression in men who have sex with men is comparable to the prevalence of HIV seropositivity in men who have sex with men (20), and, like HIV disease, depression is chronic and enormously expensive in terms of lost wages, disability, cost of treatment, and decrease in life expectancy. In addition to treating individual men who have sex with men with depression or distress, public health efforts to prevent these conditions might also be attempted at the level of structural interventions designed to change the social environment in which men who have sex with men live. The relationships described in this article suggest that communities of men who have sex with men might experience lowered rates of distress and depression if efforts were made to encourage acknowledg-

ment of sexual orientation or enhance community building to decrease the sense of alienation from the gay community for some men who have sex with men. Furthermore, the relationships described herein also suggest that encouragement of long-term intimate relationships between men who have sex with men (such as domestic partnership laws) and effective hate crime legislation might also reduce rates of distress and depression in men who have sex with men. There exist opportunities to measure how social policy changes might yield important health outcomes at the level of the individual. Efforts to take advantage of natural experiments that are created as changes in social policy about men who have sex with men and their central relationships may well yield important understandings in how to support health and social functioning in other marginalized populations.

APPENDIX 1. Glossary of Nonstandard Terms and Internally Developed Scales

These terms are defined for clarity. Although they are nonstandard, they have all been used in other publications from this study.

1. Coerced sex: events over a lifetime described as having "been forced or frightened by someone into doing something sexually that [the respondent] did not want to." No specific sexual acts were prompted or specified for this particular item.
2. Community alienation: the sum of the scores on three items. Each item scored from 1 for "strongly disagree" to 4 for "strongly agree." Typical item: "Older men are less welcome than younger men in [your city]'s gay community" (Cronbach's $\alpha=0.58$).
3. Community cohesion: the sum of the scores on seven items. Each item scored from 1 for "strongly disagree" to 4 for "strongly agree." Typical item: "You are proud of [your city]'s gay community" (Cronbach's $\alpha=0.78$).
4. Domestic partnership: sharing a domicile with a man with whom the respondent has a committed relationship. There is no implied legal status of the relationship.
5. Gay ghetto: the contiguous five-digit zip codes within a city with the highest concentration of households with at least one man who has sex with men. Starting with the zip code with the highest concentration, zip codes are added in a stepwise fashion until a decrease of concentration of more than 30% from the last added zip code. In all four cities, the gay ghetto consisted of two zip codes.
6. Men who have sex with men: men who have had same-gender sexual activity since the age of 14. This behavioral definition is in distinct contrast to those who self-identify as gay, queer, or homosexual. Nine percent of the sample was identified as bisexual, 3% as heterosexual, and 5% as "undetermined sexual orientation" (who report sex with another man since the age of 14 but no sex with any other person in the 5 years before being interviewed).
7. Outness: the level of expression of a social identity that includes open acknowledgment of being gay, queer, homosexual, or bisexual, as measured by the sum of the percentages of family members, friends, co-workers, and employers to the respondent expresses that identity (Cronbach's $\alpha=0.85$).
8. Unsafe sex: insertive or receptive anal or vaginal intercourse without a condom with a partner of unknown or discordant HIV status.

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