Prediction of Depressive Distress in a Community Sample of Women: The Role of Sexual Orientation

Alicia K. Matthews, PhD, Tonda L. Hughes, PhD, RN, Timothy Johnson, PhD, Lisa A. Razzano, PhD, and Roberta Cassidy, MS, RN

Objectives. This study compared factors known or hypothesized to influence depressive symptomatology in a community sample of lesbians and heterosexual women.

Methods. Data were collected in a multisite survey of lesbians' physical and mental health.

Results. Findings confirmed earlier reports suggesting that traumatic life events such as physical and sexual abuse, and individual traits and coping styles are risk factors for depressive distress. However, findings of higher rates of suicidal behavior and of several risk factors for depressive distress among lesbians suggest that risk for depression may differ among lesbians and heterosexual women.

Conclusions. Sexual orientation may represent an important but poorly understood risk factor for depressive distress as well as suicidal ideation and behavior. (*Am J Public Health.* 2002;92:1131–1139)

Studies have consistently shown that rates of depression among women are twice as high as those among men.[1–5] Reported rates of lifetime risk for depression among women in the general US population range between 10% and 25%, with point prevalence rates in community samples ranging from 5% to 9%.[6–8] Risk factors for depression include genetic, biochemical, and hormonal factors[9,10]; family history[11,12]; previous depressive episodes[8]; chronic general medical conditions[13]; personality style or coping strategies[14]; negative life events associated with poverty[5]; psychosocial events or stressors[15]; and substance dependence.[8]

Numerous studies suggest that risk factors unique to women contribute substantially to sex differences in depression.[5] These factors include women's roles and status,[16] female sex role socialization,[17,18] presence of dependent children,[19] lower socioeconomic status relative to men,[20] and victimization experiences (e.g., childhood sexual abuse,[21] physical or sexual violence, battering by an intimate partner, marital and acquaintance rape, sexual harassment[22–28]). Although considerable knowledge about the sex correlates of depression in the general population has been amassed,[3,4,12] the applicability of this knowledge to lesbians is unknown.[29,30]

LESBIANS AND DEPRESSION

Despite a paucity of data on depression among lesbians, this group generally is thought to be at greater risk for depression than are heterosexual women.[30–34] In addition to risk factors shared with heterosexual women (e.g., relationship status and satisfaction, divorce or dissolution of an intimate relationship, perceived lack of or low social support from friends and family), lesbians are believed to be affected by additional, unique risk factors, including the coming out process, level of disclosure of sexual orientation, discrimination experiences, and chronic stress associated with being a member of a stigmatized minority group.[30,35–38]

The aims of the present study were to (1) compare indicators of depressive distress among lesbians and a demographically matched sample of heterosexual women and (2) examine the relationships of several hypothesized or known predictors with depressive distress in lesbians and heterosexual women. Such information is important in understanding risk factors for depression among lesbians and for identifying interventions that address these risks.

METHODS

Study Design and Data Collection

Data were collected as part of a study initiated by the Chicago Lesbian Community Cancer Project (LCCP) in 1992. The study began in Chicago and was replicated in Minneapolis–St Paul, Minn, and New York City during 1994 through 1996. The goal was to gather information on the general health status as well as behavioral and environmental health risks of lesbians. The study was designed to obtain a diverse sample of women who relate sexually or affectionally (or both) with women.

As a means of reaching the broadest possible range of women, the survey instrument was distributed in a variety of formal and informal lesbian venues (e.g., potluck dinners; discussion groups; bookstores; softball and bowling leagues; coffee houses; college social, support, therapeutic, musical, and political groups and organizations). In addition, lesbian participants were recruited through numerous informal social networks. Individual and group settings were used to collect survey data.

Each lesbian who completed the questionnaire was instructed to give a second, color-coded copy to a female friend, acquaintance, or colleague whose work role (including student, homemaker, or retiree) was as similar as possible to her own. In the Chicago survey, we did not specify that the "work-role counterpart" selected be heterosexual. Given the less-than-optimal results (a sample consisting of only about half as many heterosexual women as lesbians), instructions provided in the Minnesota and New York surveys specified that the work-role counterpart be a woman whom the lesbian knew or presumed to be heterosexual.

Unlike respondents at the other 2 sites, lesbian respondents in New York City were given a small incentive of $15 for completing the survey and for recruiting a work-role counterpart; heterosexual work-role counterparts were given $10 for completing the survey. In addition, representatives of harder-to-reach lesbian groups who agreed to act as

TABLE 1—Data Collection Sites, Study Years, and Sample Sizes

Site	Years	No. of Lesbians	No. of Heterosexual Women	Total
Chicago	1994–1995	273	134	407
Minneapolis–St Paul	1994–1995	160	67	227
New York	1995–1996	117	78	195
Total		550	279	829

distributors of the survey were paid $5 for each completed survey they returned.

These strategies resulted in a more racially diverse sample and a larger proportion of heterosexual respondents in New York than at the other 2 survey sites. Lesbians and work-role counterparts were given instructions to complete and return the survey in person or by mail in a preaddressed, postage-paid envelope. As a means of preserving anonymity, no code numbers or other identifying data were included on the questionnaires. Because we wished the participants to remain anonymous, we were unable to calculate precise response rates. However, on the basis of the number of questionnaires distributed and returned at each of the sites, we estimated that the overall response rate was approximately 48%.

The data presented here were derived from the combined Chicago, New York, and Minneapolis–St Paul samples. Table 1 displays the numbers of lesbian and heterosexual respondents at each of the sites. It should be noted that the samples differed according to location of data collection on several important characteristics, including age, race, education, and income level (for a more detailed description of the sample and site differences, see Hughes et al.[39]). For example, the New York sample was older and more racially diverse, had lower levels of formal education, and had a higher median income level than the Chicago and Minnesota samples ($Ps \leq .05$).

The site differences just described constituted both a limitation and a strength of the data set. On the one hand, these differences, as well as their influence on other variables, might be obscured by combining the samples. On the other hand, the combined sample was more heterogeneous and thus more representative of lesbians and heterosexual women overall. Other advantages of combining the sample included greater variability in responses, a larger sample size, and the ability to detect smaller differences.

Measures

The study questionnaire addressed a broad range of areas that influence women's mental and physical health, including personal health history (e.g., general, menstrual, gynecologic health), health-related practices (e.g., diet, health screening, alternative health practices such as acupuncture), mental health (e.g., physical and sexual abuse, use of psychotherapeutic medications), use of legal and illegal substances, access to and use of health and mental health services, relationships and supports, and demographic characteristics. In addition, the survey instrument included questions about sexual attraction and sexual behavior, on the basis of which orientation was defined.

The definition of sexual orientation used in the present analyses was based on responses to 2 survey questions regarding (1) current sexual interest or attraction and (2) sexual behavior in the year preceding the survey. Both questions included the following response categories: "only men," "mostly men," "equally men and women," "mostly women," and "only women." The question concerning sexual behavior also included the category "I have not had sex in the past year." We created 3 categories of sexual orientation—lesbian, bisexual, and heterosexual—by summarizing the combinations of responses to these 2 questions.

Approximately two thirds of the women (n=550; 62%) were categorized as lesbians; 279 (32%) were categorized as heterosexuals, and 33 (4%) were classified as bisexuals. In the remaining cases, respondents were not classified because responses to the attraction and behavior questions were missing or inconsistent (n=19; 2%). These individuals, along with women categorized as bisexual, were omitted from the analyses presented here.

Dependent Variables

Because the study questionnaire did not include a standardized measure of depression, 4 indicators of depressive distress were explored: history of therapy for an emotional or mental health problem, history of therapy or counseling for depression or use of an antidepressant medication, suicidal ideation, and suicide attempts.

History of therapy/counseling. As a means of assessing history of mental health service use, respondents were asked whether they had "ever received therapy or counseling for an emotional or mental health problem." Respondents also were asked to indicate reasons for seeking mental health services.

Treatment for depression. Past history of depression was assessed via participants' responses to 2 questions focusing on depression as a reason for seeking counseling and past use of antidepressant medication. Responses to these questions were combined and coded (0=response of no to both questions, 1=response of yes to at least one of the questions).

Suicidal ideation. Another potential indicator of past depression or other mental health problems is suicidal thoughts. Respondents were asked to report whether they "had ever seriously considered committing suicide at some time in the past."

Suicide attempts. The final indicator of depressive distress used in the study was history of suicide attempts. Respondents were asked "Have you ever tried to kill yourself?" Those who reported having made at least 1 suicide attempt were asked how old they were when the attempt(s) occurred.

Predictors of Depressive Distress

Potential predictors of depressive distress were selected on the basis of known or hypothesized risk factors for depression and included history of physical violence and sexual abuse, level of stress, social support, and coping strategies.

Physical violence. As a means of assessing history of physical violence, participants were asked "Have you ever been the victim of nonsexual physical violence?"

Childhood sexual abuse. Rates of childhood sexual abuse were calculated via participants' responses to the question, "Has anyone ever forced you to engage in any form of sexual

activity that you didn't want?" A subsequent question asked how old the respondent was when this incident occurred. Although the more common definition of childhood sexual abuse is forced sexual activity before the age of 18 years,[40] questions included in the survey did not permit separation of women who reported that they had experienced forced sex between 15 and 19 years of age. Thus, only women who indicated that they had experienced unwanted sex before the age of 15 years were scored positively on the childhood sexual abuse measure (1=yes, 0=no).

Perceived level of stress. Level of current stress was assessed on the basis of responses to a 4-point Likert scale item (0=no stress, 3=high stress). Percentage agreement scores were calculated.

Global stress index. A composite stress index was created through summing responses to 18 different potential sources of stress (e.g., money, work, family) and the perceived intensity ratings (0=none, 3=extreme) associated with each source. The resultant global stress index (GSI) was a continuous variable ranging from 0 to 54 (α=0.83). Higher scores on the index reflected a greater number as well as a greater severity of stressors.

Lack of social support. Participants were asked to indicate "significant" sources of social support. Those who indicated no sources of such support were assigned a code of 0; all others were assigned a code of 1, indicating that they perceived themselves as having at least 1 source of social support.

Coping strategies. Studies suggest that use of a combination of emotion-focused and problem-focused coping strategies in response to stress is associated with improved psychological adjustment.[41,42] As a means of exploring the relationship between the use of several coping responses and depressive distress, respondents were asked to rate their use of the following positive coping strategies on a 4-point Likert scale (0=never, 3=often): talking about a problem, doing something fun, confronting the problem, and exercising.

A continuous measure ranging from 0 to 12 (mean=3.4, SD=1.9; α=0.51) was created through summing responses to the 4 coping strategies. Higher scores were associated with more frequent use of positive coping strategies in response to stressful life events. Finally, respondents were asked how often they become "overly emotional" in response to stress. Responses to the 4-point Likert scale (0=never, 3=often) were calculated as a percentage agreement score.

Data Analyses

Univariate statistical techniques were used to generate frequency distributions (measures of central tendency and dispersion); *t* tests were used to test for differences between continuous variables. Chi-square analyses and Pearson product–moment correlation coefficients revealed simple bivariate associations between indicators of depressive distress and selected predictor variables. A series of logistic regression analyses was conducted to explore the unique associations of the independent variables with the 4 indicators of depressive distress. In logistic regression models, history of therapy, history of treatment for depression, history of suicidal ideation, and history of suicide attempts measures were coded 1 to indicate a positive response and 0 to indicate the absence of such a response.

With the exception of 2 variables, all predictors included in the regression analyses were coded as either continuous or dummy variables. Perceived levels of current stress and emotionality during stress were measured with 4-point Likert-type scales. Analyses were conducted initially with the ordinally scaled measures and then with sets of dummy coded variables. The second set of analyses produced monotonic trends across the dummy variables, suggesting that the findings were consistent with the first set of analyses. Therefore, to conserve degrees of freedom and reduce the number of odds ratios (ORs) reported, we included these 2 variables in the analyses as ordinal measures. All significant differences reported exceeded the .05 probability level.

RESULTS

Sample

Table 2 presents demographic characteristics of the 829 (550 lesbian and 279 heterosexual) respondents included in the analyses. The average age of participants was 43 years (SD=10.8). The majority of the women taking part were White (74%), were married or involved in a committed relationship (66%), had more than a high school education (84%), and were employed full time for pay (73%). The median household income range for both lesbians and heterosexual women was $36 000 to $50 999.

TABLE 2—Respondent Demographic and Socioeconomic Characteristics

	Lesbians (n = 550), No. (%)	Heterosexuals (n = 279), No. (%)
Age, y		
<30	53 (10)	44 (16)
31–40	187 (34)	89 (32)
41–50	186 (34)	82 (30)
51–60	88 (16)	36 (13)
>60	31 (6)	25 (9)
Education		
High school or less	79 (15)	46 (17)
Some college	263 (48)	132 (48)
Advanced degree	204 (37)	98 (36)
Annual income, $		
<10 000	35 (6)	20 (7)
10 000–20 999	77 (14)	27 (10)
30 000–35 999	160 (29)	72 (26)
36 000–50 999	121 (22)	55 (20)
51 000–75 999	89 (16)	47 (17)
>76 000	66 (12)	56 (20)
Ethnicity		
African American	75 (14)	42 (15)
Caucasian	418 (76)	200 (72)
Other	57 (10)	29 (10)
Relationship status		
Single	102 (24)	55 (25)
In a committed relationship	280 (66)	39 (18)
Married	37 (9)	118 (53)
Employment status		
Full time	409 (75)	202 (72)
Part time	88 (16)	46 (17)
Unemployed	37 (7)	16 (6)
Retired	14 (3)	8 (3)
Disabled	11 (2)	4 (1)

Note. Numbers on which percentages were based vary because of missing data on some variables.

Indicators of Depressive Distress

Past use of therapy or counseling. The majority of lesbians (78%) reported that they

TABLE 3—Study Predictor Variables, by Sexual Orientation

	Lesbians (n = 550)	Heterosexuals (n = 279)
Dependent variable, No. (%)		
Ever received therapy	429 (78)**	157 (56)
Ever treated for depression	284 (58)	109 (52)
Suicidal ideation	280 (51)**	104 (38)
Suicide attempts	91 (22)*	22 (13)
Predictor variable		
Childhood sexual abuse, No. (%)	165 (30)**	45 (16)
Physical abuse, No. (%)	246 (45)	114 (41)
Moderate or extreme stress level, No. (%)	461 (85)	229 (83)
Emotionality in response to stress (sometimes or often), No. (%)	367 (68%)	207 (75%)
Global stress index, mean (SD)	16 (6.8)	17 (7.0)
Positive coping strategies, mean (SD)	3.3 (1.8)	3.5 (1.9)

Note. Numbers on which percentages were based vary because of missing data on some variables. Scores on the GSI range from 0–54, with higher scores reflecting both greater number and severity of life stressors. Positive coping strategies scores range from 0–12, with higher scores representing more frequent use of a variety of positive coping strategies in response to stress.
*$P \leq .01$; **$P \leq .001$.

had "received therapy or counseling for an emotional or mental health problem" at some point in their life (Table 3). This rate was significantly higher than that among heterosexual women (56%; $\chi^2_1 = 43.3$, $P \leq .001$). However, rates of current therapy or counseling did not differ for lesbians (38%) and heterosexual women (30%; $\chi^2_1 = 2.98$, not significant).

Treatment for depression. Similar percentages of lesbians (56%) and heterosexual women (49%) reported that they had sought therapy or counseling for depression. Twenty-six percent of lesbians and 20% of heterosexual women reported that they had been prescribed medication for a mental or emotional problem. Among those who had received medication, 68% of lesbians and 75% of heterosexual women reported taking an antidepressant medication at some point. The majority of women who reported seeking help for sadness or depression (83%) also reported receiving antidepressants. More than half of the total sample of lesbians (58%) and heterosexual women (52%) reported at least one of these 2 indicators of past treatment for depression.

Suicidal ideation and suicide attempts. Significant differences were found between lesbians and heterosexual women in regard to reports of whether they had seriously considered committing suicide and whether they had actually attempted suicide in the past. Fifty-one percent of lesbians and 38% of heterosexual women reported seriously considering suicide at some point in the past ($P \leq .001$). Most suicide attempts among women in this study occurred between the ages of 15 and 29 years. More than twice as many lesbians as heterosexual women in this age group reported suicide attempts ($P \leq .01$).

Predictors of Depressive Distress

Physical and sexual abuse. Although lesbians and heterosexual women were equally likely to report that they had been victims of nonsexual physical violence (45% and 41%, respectively), significantly more lesbians (30%) than heterosexual women (16%) reported experiencing childhood sexual abuse ($P \leq .001$). Because our analyses included only women who had experienced forced sex before the age of 15 years (rates were 45% and 41%, respectively, of all lesbians and heterosexual women who reported any unwanted sex), these rates probably underestimate the number of lesbians and heterosexual women who actually experienced childhood sexual abuse.

Global stress. Overall mean scores on the global stress index were in the lower range and did not differ according to sexual orientation. Mean stress index scores were 17 (SD = 7.0) for heterosexual women and 16 (SD = 6.8) for lesbians ($t_{823} = 0.573$, NS).

Perceived stress. No differences were found between the lesbians and heterosexual women in terms of level of perceived stress. The majority of lesbians (85%) and heterosexual women (83%) reported moderate to extreme levels of perceived stress ($\chi^2_3 = 1.1$, NS). The only statistically significant differences in sources of stress for lesbians and heterosexual women involved children ($\chi^2_4 = 58$, $P < .001$) and sexual identity ($\chi^2_4 = 72$, $P < .001$); more heterosexual women rated children as moderately or extremely stressful, and more lesbians rated sexual identity as moderately or extremely stressful.

Perceived support. Differences were observed between lesbians and heterosexual women in terms of perceived lack of support. More heterosexual women (6%) than lesbians (3%) reported an absence of social support ($\chi^2_1 = 5.5$, $P \leq .01$).

Coping strategies and response to stress. Overall, use of positive coping strategies was low among both lesbians and heterosexual women (mean of 3.4 on the 12-point measure, SD = 1.9). Whereas similar (and relatively low) percentages of lesbians (7%) and heterosexual women (6%) reported talking or reasoning out feelings during times of stress, lesbians were more likely to report never using talking as a coping strategy (46% vs 37%; $\chi^2_3 = 9.6$, $P < .05$).

Moreover, fewer lesbians (19%) than heterosexual women (25%) reported doing something fun when they were stressed ($\chi^2_3 = 7.4$, $P = .06$) or using exercise as a coping strategy (36% vs 43%). Only 7% of lesbians and 8% of heterosexuals reported confronting situations directly. A higher percentage of heterosexual women (75%) than lesbians (68%) reported becoming overly emotional in response to stress, but this difference was not statistically significant ($\chi^2_3 = 4.6$, $P > .05$).

Multivariate Predictor Models of Depressive Distress

Only variables significantly related to at least 1 of the indicators of depressive distress in the bivariate analyses were included in the multivariate analyses. Demographic characteristics retained included education level (0 =

TABLE 4—Pooled Logistic Regression Analyses: Correlates of Depressive Distress

	Ever Received Therapy (n = 795)		Treated for Depression (n = 778)		Suicidal Ideation (n = 775)		Suicide Attempts (n = 778)	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Education level	2.05	1.05, 2.09***	1.41	1.11, 1.79**	1.00	0.708, 1.14	0.622	0.447, 0.866*
Race	1.41	1.13, 1.75**	1.83	1.42, 2.38***	0.810	0.596, 1.10	0.900	0.708, 1.14
Sexual orientation	2.93	2.04, 4.21***	1.74	1.24, 2.45***	1.78	1.27, 2.50***	2.15	1.25, 3.69**
Childhood sexual abuse	1.87	1.18, 2.98**	1.52	1.04, 2.22*	2.48	1.71, 3.61***	2.41	1.52, 3.84***
Physical abuse	1.89	1.30, 2.75**	1.65	1.19, 2.29**	2.52	1.83, 3.47***	2.60	1.61, 4.19***
Global stress index	1.05	1.02, 1.08**	1.07	1.04, 1.09*	1.05	1.02, 1.08***	1.00	0.969, 1.04
Current stress	1.48	1.05, 2.09*	1.49	1.08, 2.05*	1.11	0.820, 1.52	0.995	0.653, 1.51
Positive coping skills	1.06	0.98, 1.15**	1.04	0.987, 1.10	0.996	0.940, 1.05	0.952	0.877, 1.03
Emotionality	0.58	0.48, 0.74***	1.70	1.36, 2.14***	1.38	1.11, 1.71**	1.52	1.11, 2.09**

Note. OR = odds ratio; CI = confidence interval.
*P < .05; **P < .01; ***P < .001.

high school or less, 1=some college or bachelor's degree, 2=professional or advanced degree), ethnicity (0=non-White, 1=White), and sexual orientation (0=heterosexual, 1=lesbian). Other variables retained were history of physical and sexual abuse (0=no, 1=yes), global stress index score (0–54), emotionality during stress (0=never, 3=often), perceived level of current stress (0=none, 3=extreme), and use of positive coping strategies (12-point measure).

Table 4 presents the odds ratios and corresponding confidence intervals for each of the independent predictors of the 4 indicators of depressive distress. The first model tested the relationship between history of therapy or counseling for a mental health problem and the 9 predictor variables. An evaluation of the overall model against a constant-only model produced a statistically reliable result (χ^2_9=173.70, P<.001). As a set, the predictors reliably distinguished between women who had participated in counseling for a mental health problem and those who had not (log-likelihood=–784.52, df=9).

Overall prediction rates were modest (75%); the model successfully identified more of the women who had participated in counseling for a mental health problem than of those who had not. Significant independent predictors of lifetime use of therapy or counseling were higher education level, White race/ethnicity, lesbian sexual orientation, higher global stress index score, history of childhood sexual abuse or physical abuse, high current stress levels, greater use of positive coping strategies, and more frequent emotionality during stress.

The second model tested the relationship between the treatment for depression measure and our study predictors. An evaluation of the overall depression model with all 9 predictors against a constant-only model produced a statistically reliable result (χ^2_9=154.35, P≤.001). As a set, the predictors reliably distinguished between women who had received treatment for depression and those who had not (log-likelihood=–921.46, df=9).

Although overall prediction rates were modest (69%), the model successfully identified more of the women who had received treatment for depression than of those who had not. Significant independent predictors of having received treatment for depression were higher education level, White race/ethnicity, lesbian sexual orientation, higher global stress index score, history of childhood sexual abuse or physical abuse, high current stress levels, and more frequent emotionality during stress.

The next model tested the overall goodness of fit between the predictor variables and history of suicidal ideation. As a set, the predictors reliably distinguished between women with and without histories of suicidal ideation (χ^2_9=141.59, P≤.001; log-likelihood=–928.28, df=9). Again, overall prediction rates for this model were modest (69%). On the basis of the 9 predictor variables, success rates were 61% for identifying women with a history of suicidal ideation and 75% for identifying women with no such history. Lesbian sexual orientation, history of physical violence or of childhood sexual abuse, higher global stress index score, and more frequent emotionality in response to stress were the strongest predictors of suicidal ideation.

The final model tested predictors of history of suicide attempts. A test of the full model was statistically reliable (χ^2_9=82.05, P≤.001), indicating that the predictors, as a set, reliably distinguished between women with a history of suicide attempts and those without such a history (log-likelihood=–526.19, df=9). Prediction was better for nonattempters (99%); only 10% of attempters were correctly predicted, resulting in an overall success rate of 88%. As can be seen in Table 4, lower education level, lesbian sexual orientation, history of physical violence or of childhood sexual abuse, and more frequent emotionality in response to stress were independent predictors of past suicide attempts.

To investigate the possibility that one or more of the variables may have confounded or otherwise influenced the association between sexual orientation and our measures of depressive distress, we conducted additional logistic regression analyses using block entry of variables. The first block included sexual orientation; the second block included education level and ethnicity; the third block included perceptions of high current stress, history of physical violence or of childhood

TABLE 5—Logistic Regression Analyses: Separate Models for Lesbians and Heterosexual Women

	Ever Received Therapy				Treated for Depression				Suicidal Ideation				Suicide Attempts			
	Lesbians (n = 528)		Heterosexuals (n = 267)		Lesbians (n = 528)		Heterosexuals (n = 267)		Lesbians (n = 528)		Heterosexuals (n = 267)		Lesbians (n = 525)		Heterosexuals (n = 267)	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Education	2.0	1.4, 2.8***	2.1	1.4, 3.3***	1.3	1.0, 1.7*	1.7	1.1, 2.6**	0.92	0.69, 1.2	1.3	0.87, 1.9	0.67	0.46, 0.99*	0.55	0.28, 1.0
Race	1.7	1.3, 2.3***	1.0	0.77, 1.5	1.4	1.1, 1.9**	1.2	0.86, 1.7	0.82	0.63, 1.0	0.95	0.67, 1.3	0.80	0.59, 1.0	1.0	0.60, 1.9
Childhood sexual abuse	2.3	1.2, 4.2**	1.1	0.51, 2.5	1.4	0.94, 2.2	1.7	0.84, 3.8	2.5	1.6, 3.8***	2.5	1.2, 5.4**	2.4	1.4, 4.1***	1.9	0.66, 5.7
Physical abuse	2.3	1.4, 3.9***	1.3	0.76, 2.4	1.7	1.1, 2.5**	1.3	0.77, 2.4	2.1	1.4, 3.1***	3.5	1.9, 6.2***	2.9	1.7, 5.1***	2.0	0.75, 5.6
Global stress index	1.1	1.0, 1.1**	1.0	1.0, 1.1*	1.0	1.0, 1.1***	1.1	1.0, 1.1***	1.0	1.0, 1.1**	1.0	1.0, 1.1**	1.0	0.96, 1.0	0.98	0.92, 1.0
Current stress	1.0	0.69, 1.6	2.5	1.4, 4.5***	1.3	0.94, 2.0	1.8	1.0, 3.2*	1.2	0.86, 1.8	0.88	0.51, 1.5	0.96	0.59, 1.5	1.5	0.64, 3.8
Positive coping	1.0	0.93, 1.1	1.1	1.0, 1.2*	1.0	0.95, 1.1	0.98	0.87, 1.1	1.0	0.92, 1.1	0.90	0.79, 1.0	0.89	0.80, 1.0	0.97	0.79, 1.1
Emotionality	0.61	0.44, 0.81***	0.53	0.35, 0.79**	0.54	0.41, 0.70***	0.72	0.48, 1.0	0.65	0.50, 0.85***	0.95	0.63, 1.4	0.59	0.42, 0.85**	1.1	0.57, 2.2

Note. OR = Odds ratio; CI = confidence interval.
*P < .05; **P < .01; ***P < .001.

sexual abuse, and global stress index score; and the final block included coping responses and emotionality in response to stress. Blocks 2, 3, and 4 represented potential confounders, mediators, and moderators, respectively. Inclusion of covariates had no impact on the direction or magnitude of the main effects of sexual orientation on any of the dependent variables (data not shown). Given these results, we used simultaneous entry of predictor variables in all subsequent analyses.

To determine the relative influence of each of the predictor variables on the indicators of depressive distress for lesbians in comparison with heterosexual women, we conducted separate regression analyses for the 2 groups. Predictor variables were entered simultaneously for each of the models. As shown in Table 5, similar patterns were found for the predictors in our pooled analyses and in the analyses run separately by sexual orientation. However, significant independent predictors and the strength of the association between the predictors and the dependent variables differed in the lesbian and heterosexual models.

The model predicting suicide attempts showed the greatest variability. Consistent with the pooled model shown in Table 4, lower education level, history of childhood sexual abuse or of physical abuse, and more frequent emotionality in response to stress were all significant predictors of suicide attempts among lesbians. However, none of the independent variables tested were significant predictors of suicidal attempts among heterosexual women ($\chi^2_8 = 10.0$, NS).

Finally, we estimated interaction effects using the pooled data for each of our 4 models of depressive distress. Only the interaction between ethnicity and sexual orientation predicting lifetime use of therapy or counseling was significant: White lesbians were more likely to have ever participated in therapy (OR = 0.42, $P < .05$). In addition, an interaction was observed between perceived stress level and sexual orientation, indicating that perception of stress is a stronger predictor of lifetime use of therapy or counseling for heterosexual women than for lesbians (OR = 1.6, $P < .05$).

DISCUSSION

Studies of lesbians' mental health have historically been characterized by methodological limitations such as small, homogeneous samples; inconsistent or absent definitions of sexual orientation; and lack of comparison groups of heterosexual women. The present study addressed several of these limitations by collecting data from lesbians in 3 geographic locations and by asking lesbian participants to assist in the recruitment of a heterosexual comparison group. These methods produced a large and relatively diverse group of lesbians as well as a heterosexual comparison group that was demographically very similar to the lesbians.

Obtaining large probability samples of lesbians that can be compared with women from the general population is both difficult and expensive. In the absence of such samples, the method used in this study provides the most rigorous comparison because it "controlled" for many of the demographic and life experiences—other than sexual orientation—that might have influenced the dependent variables.[43] As a result, differences found between lesbians and heterosexual women in this study can more confidently be attributed to sexual orientation.

The differences in rates of suicidal ideation and in suicide attempts between lesbians and heterosexual women are particularly striking. Among our respondents, 51% of lesbians, in comparison with 38% of heterosexual women, reported that they had seriously considering committing suicide at some time in the past. Almost all of the suicide attempts occurred between the ages of 15 and 29 years, and lesbians in this age group were twice as likely as heterosexual women to have attempted suicide. Similar findings were reported in the National Lesbian Health Care Survey.[31]

Earlier analyses of the multisite data described here[39] revealed that although the majority of both lesbians and heterosexual women who had sought therapy or counseling had done so in their 20s or 30s, more of the lesbians than of the heterosexual women had sought therapy or counseling during

these years ($P \leq .001$). There were no differences between lesbians and heterosexual women in terms of therapy use rates during their 40s, 50s, and 60s. Furthermore, lesbians were significantly more likely than heterosexual women to report problems related to sexual identity, suicidal feelings, sexual abuse, and alcohol and other drugs as reasons for seeking therapy or counseling.[39]

Younger lesbians may be at increased risk for using alcohol and other drugs to self-medicate against the anxiety and depression associated with accepting a stigmatized identity. In addition, because many lesbians begin to question their sexual identity or "come out" in their teens or 20s,[44] these age groups may be at a particularly high risk for depression, suicide, or both.

Women who have experienced sexual or physical violence are more likely than women who have not been abused to suffer from psychological problems, including suicide attempts, major depression, dissociative disorders, and alcohol and other drug abuse.[45–47] Epidemiological studies have shown that 15% to 33% of adult women report childhood sexual abuse.[47,48] Rates of childhood sexual abuse in our combined sample reached the upper limits of rates reported in one of these studies.[48]

The rates of childhood sexual abuse among lesbians found in our study were significantly higher than those found among heterosexual women and about the same as rates reported for women in the general population. Suicidal ideation and suicide attempts (as well as the depression measure included in the study) were strongly associated with childhood sexual and physical abuse. Women with histories of sexual or physical abuse were 2 to 3 times more likely to have had thoughts of killing themselves and to have acted on these thoughts. Past traumatic experiences, such as sexual or physical abuse, may add to the vulnerability of young lesbians, who may be grappling with issues related to coming out, and may increase the risk of suicide.

Because this was a convenience sample, the high rates of childhood sexual abuse may reflect sample bias. The lesbians who chose to participate in our study may have been more likely to have had difficult or traumatic experiences, including childhood sexual abuse, or may have been more likely to report such experiences. The higher rates of childhood sexual abuse among lesbians may also be attributable to lesbians' greater willingness to acknowledge and report this experience.

Studies have consistently shown that a majority of lesbians report past use of therapy or counseling.[31,49,50] Therapy experiences may increase lesbians' comfort with acknowledging both their sexual identity and other stigmatized statuses or experiences such as childhood sexual abuse (T.L. Hughes, T. Johnson, and S.C. Wilsnack, unpublished data, 2002). Nevertheless, the high rates observed of childhood sexual abuse, suicidal ideation, and suicide attempts have important implications for clinicians who treat lesbians, particularly younger lesbians and those in the early stages of coming out.

The regression analyses conducted in this study showed a clear, direct, and independent association of sexual orientation with the 4 indicators of depressive distress. However, with the exception of suicide attempts, the pattern of associations between predictor variables and depressive distress did not vary by sexual orientation. These findings suggest that although the models tested included factors that are indeed associated with depressive distress, other factors not included in our models may also in part account for the association between sexual orientation and depressive distress. For example, self-esteem, internalized homophobia, level of social support, and religious attitudes and beliefs may be important variables that moderate or mediate the relationship between sexual orientation and depressive distress.

Sexual orientation appears to be an important potential risk factor in women's experiences of depressive distress. However, whether this risk is conferred through the long-term or chronic stress associated with membership in a stigmatized minority group or through more time-limited stressful life circumstances, such as those associated with coming out as lesbian, is not yet clear. More research is needed if there is to be a better understanding of risk factors for depression among lesbians. It is also important to examine factors unique to lesbians that may be protective, such as higher levels of education[51] and use of therapy.[31,50] Lesbians in this study, as has been true of those in a number of other investigations, reported high rates of therapy and counseling. Use of mental health services may moderate the psychological consequences of coming out as a member of a stigmatized minority group or the consequences of other traumatic life events such as childhood sexual abuse.

Limitations

This study addressed some of the limitations of previous research on lesbians' mental health by exploring the role of sexual orientation in depressive distress, more systematically defining sexual orientation, and including a more appropriate heterosexual comparison group.[43] Despite these strengths, several important limitations must be noted.

First, because the findings were derived from a nonrandom, convenience sample, their generalizability is limited. In addition, although efforts were made to increase minority participation in the study, only limited success was achieved in recruiting women of color. Provision of monetary incentives for completing the survey and participation of African American and Hispanic lesbians in assisting with recruitment substantially improved the representation of these groups at the New York site, suggesting that such methods are important for increasing the participation of racial/ethnic minorities in other studies of lesbian health.

Second, the indicators of depressive distress included in this study did not assess duration or intensity of symptoms. History of therapy or counseling as an indicator of psychological distress may be confounded by issues related to access to mental health services and may underestimate actual rates of depressive distress among the women in our study. This may be especially true among African Americans, a group showing a consistent pattern of underuse of formal mental health services.[52,53]

In previous analyses of data from the African American lesbians in the present sample, we found rates of suicidal ideation and suicide attempts that were similar to those reported for lesbians in the overall sample, but somewhat lower rates of therapy or counseling (T.L. Hughes, A. Matthews, L. Razzano, F. Aranda, and A. Haas, unpublished data,

2002). Larger studies involving standard definitions and sufficient numbers of racial/ethnic minority women are needed to more fully explore depressive distress among lesbians.

Finally, because data for this study were collected at one point in time, we were unable to assess the temporal order of the dependent and independent variables. Longitudinal studies are needed to more accurately identify the particular variables that predict depressive distress.

Conclusions

The findings of this study support earlier reports suggesting that traumatic life events, such as physical and sexual abuse, and life stress are risk factors for depressive distress in women. In addition, our findings suggest that sexual orientation may represent an important but poorly understood risk factor for depressive distress, especially suicidal behavior. Consistent with recent recommendations of the Institute of Medicine,[54] findings presented here contribute to a better understanding of the full range of female experience and to greater knowledge about associations between sexual orientation and mental health outcomes. Such information is important if treatment planning and service provision for women are to be effective. ■

About the Authors

Alicia K. Matthews is with the Department of Psychiatry, University of Chicago, Chicago, Ill. Tonda L. Hughes and Roberta Cassidy are with the Department of Public Health, Mental Health and Administrative Nursing, University of Illinois at Chicago. Timothy Johnson is with the Survey Research Laboratory, University of Illinois at Chicago. Lisa A. Razzano is with the Mental Health Services Research Program, University of Illinois at Chicago.

Requests for reprints should be sent to Alicia K. Matthews, PhD, University of Chicago, Department of Psychiatry, 5841 S Maryland Ave (MC3077), Chicago, IL 60637 (e-mail: Amatthew@yoda.bsd.uchicago.edu).

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Contributors

Each of the authors provided substantial contributions to the article, including conceptualization and design of the analyses (A.K. Matthews, T.L. Hughes, T. Johnson, L.A. Razzano), data analysis and interpretation (A.K. Matthews, L.A. Razzano, T.L. Hughes, T. Johnson), literature review and write-up (A.K. Matthews and R. Cassidy), and drafting and revision of the article.

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