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Mental Health of Lesbian, Gay, Bisexual, and Heterosexual Siblings: Effects of Gender, Sexual Orientation, and Family

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Self-identified lesbian, gay male, and bisexual (LGB) individuals were recruited via convenience sampling, and they in turn recruited their siblings (79% heterosexual, 19% LGB). The resulting sample of 533 heterosexual, 558 lesbian or gay male, and 163 bisexual participants was compared on mental health variables and their use of mental health services. Multilevel modeling analyses revealed that sexual orientation predicted suicidal ideation, suicide attempts, self-injurious behavior, use of psychotherapy, and use of psychiatric medications over and above the effects of family adjustment. Sexual orientation was unrelated to current psychological distress, psychiatric hospitalizations, and self-esteem. This is the 1st study to model family effects on the mental health of LGB participants and their siblings.

Keywords: lesbian, gay, bisexual, mental health, sexual orientation

Recent research on lesbian, gay, and bisexual (LGB) mental health has used representative population-based samples for the first time, as a result of the inclusion of items about sexual orientation in some national surveys. These studies have found that people engaging in same-gender sexual behavior and/or identifying as LGB are at higher risk for mental health disorders, including depression, anxiety, substance abuse, and suicide ideation and attempts. LGBs also utilize mental health services at higher rates (cf. Cochran, 2001, for a review). Population-based samples are a major improvement in LGB research, but there are some limitations to data from national surveys. First, the number of people who identify as nonheterosexual is extremely small. For example, of the 2,917 respondents who answered a single item about sexual orientation in a recent national survey (Cochran, Sullivan, & Mays, 2003), only 41 identified their sexual orientation as lesbian or gay and 32 as bisexual. Second, researchers often combine data from gay and bisexual men and from lesbian and bisexual women in order to increase power. However, preliminary research has shown that bisexuals may be at especially high risk for mental health disorders (e.g., Jorm, Korten, Rodgers, Jacomb, & Christensen, 2001). Thus, combining groups may obscure differences between bisexual women and men's mental health and that of lesbians and gay men.

One way to locate large samples of people who self-identify as LGB is to recruit participants via LGB community events and organizations. Such methods of data collection (e.g., Morris, Waldo, & Rothblum, 2001) result in large sample sizes of LGB people but typically lack a control group because heterosexual samples cannot be located through the same sources. Moreover, LGB convenience samples have limitations in generalizability. For example, self-identified LGB individuals may be more open about their sexual orientation, and greater "outness" has been shown to relate to positive mental health (Morris et al., 2001). Yet there are some advantages to studying people who self-identify as LGB via community sources. They are eager participants in studies for which the research team is known within the community, which may help explain why national surveys obtain so few people who self-identify as LGB.

In sum, national representative studies yield small numbers of LGB respondents who are often combined into a single group to increase statistical power. Although convenience samples yield large numbers of LGB respondents, they are nonrepresentative and lack a heterosexual control group. In the present study, we sought to recruit both LGB respondents and their siblings via convenience sampling. Unlike members of other oppressed groups (e.g., African Americans, immigrants), most LGBs have siblings who are members of the dominant group (heterosexuals). Moreover, siblings are typically comparable on race, ethnicity, age, and parental socioeconomic status. Although the sibling methodology has been used among lesbians and their sisters (Rothblum & Factor, 2001), it has not been used in samples including both men and women. Thus, the role that sexual orientation plays in the mental health of siblings within families has not been evaluated adequately.

The goal of the current study was to recruit self-identified LGB individuals and their siblings (heterosexual or LGB) and then compare LGBs with heterosexuals within this sample on mental health variables and the use of mental health services, while

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controlling for sibling variance. We hypothesized that LGB individuals would report more psychological distress, suicidal ideation, suicide attempts, and use of mental health services than would their heterosexual counterparts. Given Jorm et al.'s (2001) study, we also hypothesized that bisexual women and men would report more psychological distress, suicidal ideation, and suicide attempts than lesbians and gay men. Researchers have used siblings to investigate familial aggregation of sexual orientation (e.g., Bailey, Dunne, & Martin, 2000) but rarely to investigate sexual orientation differences in mental health and other psychological variables.

Method

Large paid advertisements were placed in prominent national and state LGB periodicals and in periodicals for LGB people of color. In addition, announcements were sent to LGB organizations listed in the resource book *Gayellow Pages* (2001). The announcement was placed on LGB Web sites, sent to LGB electronic mailing lists, and distributed by LGB friends and colleagues. The text of ads and announcements stated: "University LGB research team is looking for volunteers to complete a survey about how the lives of adult sisters and brothers are similar or different. To participate, please contact . . . and indicate the number of siblings. You do not need to be out to your siblings to participate in this study." Thus, the ads did not indicate that the study was about mental health. When interested participants from these LGB resources contacted us, they were asked how many siblings might participate. We then mailed questionnaires and postage-paid return envelopes to the original respondents (index participants) and their siblings or, if they wished, mailed all questionnaires to the original respondents for them to mail to their siblings. In some cases, LGB participants had siblings who were themselves LGB. To cast a wide net and not exclude any siblings, we sent questionnaires to LGB siblings as well (such siblings were included in the pool of LGB participants). We did not specify that siblings had to be full biological siblings in order to participate in the study.

A total of 2,354 questionnaires were requested by index participants (those who contacted us) for themselves and their siblings; 1,274 were returned (54.1%). Of the 796 questionnaires requested by index participants for themselves, 620 (77.9%) were returned. Index participants requested questionnaires for 1,558 siblings, and 645 were returned (41.3%). However, the response rate of siblings may be an underestimation because we do not know how many siblings actually got these questionnaires. Many index participants had more than one sibling, and we received completed questionnaires from some but not all of them. Thus, even though the response rate was different, the actual number of index participants and siblings was roughly equal. Overall, questionnaires were sent out to 790 families of siblings. Of these, 421 families (53.3%) had the index participant and at least one other sibling return questionnaires. Twenty questionnaires were excluded from further analyses because participants did not indicate gender or sexual orientation or indicated that they were transgender.

Index participants were asked to list the gender, age, and relationship to them (full biological, half biological, step, foster, adopted, or other) of all of their siblings. Index participants who returned questionnaires reported having a total of 1,576 siblings (839 sisters and 737 brothers). Of these, 1,300 (82.5%) were full biological siblings, 173 (11.0%) were half siblings, and 103 (6.5%) were step-siblings, foster siblings, adopted siblings, or other. The mean number of siblings (including the index participant) per family was 3.65. On average, index men had 1.24 brothers and 1.51 sisters; index women had 1.26 brothers and 1.36 sisters. The difference in gender of siblings between index men and index women was not significant.

The number of siblings who returned questionnaires included 145 brothers and 256 sisters of index women and 78 brothers and 128 sisters of index men. An average of 2.4 participants per family (including the index participant) returned questionnaires (range = 0–12; median = 2). There was no significant age difference between index participants and their siblings.

Total participants (index participants plus siblings) included 805 (64.2%) women and 449 (35.8%) men. On the basis of self-reported sexual orientation (heterosexual, bisexual, lesbian, or gay), 533 (42.5%) identified as heterosexual, 163 (13.0%) as bisexual, and 558 (44.5%) as lesbian or gay. Among women, 348 (43.2%) identified as heterosexual, 125 (15.5%) as bisexual, and 332 (41.2%) as lesbian. Among men, 185 (41.2%) identified as heterosexual, 38 (8.5%) as bisexual, and 226 (50.3%) as gay. Although most sibling participants identified as heterosexual, 19.2% identified as LGB. The sample was overwhelmingly European American (91.7%). Participants of color included 1.1% African American, 0.5% Asian American, 2.5% Latino, 0.6% Native American, 2.6% biracial, and 0.8% who identified as other.

The questionnaire mailed to participants was entitled "Sisters and Brothers Project" and did not indicate that the study focused on sexual orientation. Instructions stated: "This survey is being distributed in order to learn how the lives of adult siblings are similar or different. There is little information about sisters and brothers and how their lives change in adulthood."

Demographic information included sex, race/ethnicity, age, and educational level. Sexual orientation was assessed by asking participants to self-report whether they identified as heterosexual, bisexual, lesbian, or gay.

Psychological distress was measured by using the Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982), a 53-item self-report scale designed to measure a wide range of symptoms associated with psychopathology. The BSI contains an overall score, the Global Severity Index (GSI), consisting of nine subscales (Somatization, Obsessive–Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism). Each item on the BSI represents one symptom. Participants rate how much discomfort they have felt as a result of that symptom over the past week on a 5-point Likert scale. Responses range from 0 (*not at all*) to 4 (*extremely*). The GSI, the most sensitive measure of psychopathology, had an alpha of .96 in the present data set.

Suicidal Ideation, Suicide Attempts, and Self-Injurious Behavior

Questions assessing suicidal ideation and suicide attempts, both before and since the age of 18, were included. Additionally, participants were asked if they ever engaged in intentional self-injurious behaviors without the intention of committing suicide.

Therapy, Psychiatric Hospitalization, and Use of Psychiatric Medications

Participants were asked (a) whether they had ever been in counseling or therapy, (b) whether they were hospitalized for mental health problems before age 18, and (c) whether they were hospitalized for mental health problems since age 18. They were also asked if they had ever been prescribed psychiatric medications.

Rosenberg Self-Esteem Scale

Self-esteem was assessed by using the Rosenberg Self-Esteem Scale (Rosenberg, 1965), which includes 10 items that assess self-acceptance and self-worth. Items phrased negatively were reverse-scored for a total score. This measure has been used frequently in research and had an alpha of .89 in the present data set.

Satisfaction With Life Scale

Life satisfaction was assessed by using the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), a 5-item measure designed to

assess global aspects of life satisfaction. The Satisfaction With Life Scale correlates with other well-established measures of subjective well-being and had an alpha of .91 in the present data set.

Results

We first examined whether LGBs who were index participants differed from LGBs recruited from siblings. A series of *t* tests comparing the two groups found no significant difference on any dependent measure.

Descriptive statistics for all measures are presented by sex and sexual orientation in Table 1. Because participants were nested within families, all data were analyzed by using multilevel modeling, conducted in HLM Version 5.05 (Raudenbush, Bryk, Cheong, & Congdon, 2000). For each outcome measure, two-level random intercepts models were constructed. Sexual orientation effects were modeled at Level 1. Because age, sex, and education could account for variance in the outcome measures, we used a forward-stepping procedure to determine which of these variables, if any, also belonged in Level 1 models. This involved testing age, sex, and education effects separately, before adding sexual orientation predictors. Age, sex, and education were retained in the full multilevel models only if they provided significant prediction when tested in isolation ($p < .01$). Sexual orientation effects were assessed by constructing orthogonal contrast codes comparing (a) heterosexuals (2) versus both gay men and lesbians (−1) and bisexuals (−1), and (b) gay men and lesbians (−1) versus bisexuals (1). In the latter contrast, heterosexuals were coded as 0. These nested contrasts enabled us to evaluate the independent effects of belonging to a sexual minority group and of subgroup differences within sexual minority groups. The orthogonal contrast vectors were entered as Level 1 fixed effects. The significance of these contrasts was indicated by differences in slopes at Level 2. To account for possible differential sex effects across sexual orientation groups, we also included two Sex × Sexual Orientation interaction terms included at Level 1, one for heterosexuals versus LGBs and the other for gay men and lesbians versus bisexuals. In each case, the sex and sexual orientation vectors outlined above were multiplied by one another to create the interaction term. All Level 1 predictors were uncentered.

At Level 2, we were interested in examining family effects on the Level 1 intercepts, which represented within-family functioning on each dependent variable. In addition, mean familial adjustment (averaged GSI scores within families) was included as a Level 2 covariate to both assess and control for the influence of family mental health on the outcome measures. The only Level 1 parameter that was allowed to vary at Level 2 was the intercept

Table 1
Sample Descriptive Statistics by Sexual Orientation and Sex

	Male						Female					
	Heterosexual		Bisexual		Gay		Heterosexual		Bisexual		Lesbian	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Continuous variables												
Age	35.8	10.9	35.2	10.3	39.3	11.7	36.8	11.4	31.6	10.3	36.8	11.1
Education[a]	4.04	1.4	3.82	1.3	4.53	1.4	4.00	1.3	4.52	1.3	4.69	1.2
Number of siblings	3.27	2.1	2.74	1.8	2.77	1.7	3.00	1.7	2.37	1.7	2.75	1.8
Global Severity Index[b]	0.45	0.44	0.70	0.63	0.53	0.44	0.52	0.48	0.64	0.56	0.55	0.45
Somatization	0.26	0.39	0.52	0.62	0.37	0.51	0.43	0.52	0.49	0.57	0.45	0.50
Obsessive–Compulsive	0.68	0.63	1.05	0.82	0.80	0.59	0.87	0.71	0.98	0.76	0.88	0.63
Interpersonal Sensitivity	0.52	0.67	0.76	0.89	0.74	0.73	0.71	0.74	0.85	0.84	0.78	0.80
Depression	0.50	0.64	0.80	0.77	0.68	0.69	0.55	0.67	0.81	0.86	0.64	0.73
Anxiety	0.39	0.53	0.73	0.76	0.53	0.55	0.52	0.60	0.73	0.70	0.59	0.60
Hostility	0.56	0.59	0.66	0.66	0.44	0.49	0.55	0.59	0.60	0.72	0.48	0.51
Phobic Anxiety	0.16	0.32	0.35	0.57	0.25	0.44	0.21	0.46	0.24	0.46	0.27	0.48
Paranoid Ideation	0.62	0.73	0.76	0.84	0.57	0.68	0.51	0.66	0.49	0.72	0.48	0.58
Psychoticism	0.37	0.55	0.62	0.76	0.42	0.51	0.36	0.53	0.47	0.55	0.39	0.50
Rosenberg Self-Esteem	33.5	4.7	31.6	5.4	32.9	4.9	32.2	5.1	31.1	5.5	32.4	5.3
Life satisfaction	21.8	3.1	20.4	3.3	21.4	3.2	22.0	3.1	21.2	3.3	21.9	3.2
Dichotomous variables												
Self-injurious behavior (%)	12.6		34.3		15.5		13.2		40.2		24.5	
Suicide ideation < 18 years (%)	14.8		42.9		40.5		20.5		41.8		33.8	
Suicide attempt < 18 years (%)	3.3		17.1		10.5		6.2		17.4		7.0	
Suicide ideation ≥ 18 years (%)	18.0		31.4		41.1		19.7		39.3		38.4	
Suicide attempt ≥ 18 years (%)	3.3		11.4		10.5		4.4		10.7		7.9	
History of therapy (%)	43.8		69.4		72.4		54.8		85.2		82.9	
Psychiatric hosp. < 18 years (%)	6.9		2.9		1.8		0.0		3.3		1.8	
Psychiatric hosp. ≥ 18 years (%)	2.2		5.7		6.8		3.8		6.6		5.5	
Psychiatric med. history (%)	17.5		36.1		35.5		28.1		44.3		39.9	

Note. hosp. = hospitalization; med. = medication.
[a] 1 = some or no high school; 2 = high school degree; 3 = some college; 4 = college degree; 5 = some graduate or professional school; 6 = graduate or professional degree. [b] The Global Severity Index and the nine subscales below it are from the Brief Symptom Inventory.

term. This approach was taken because the random slope parameters were not reliable in some of the more complex models. Thus, all Level 1 slopes were fixed, creating random intercepts models (see Raudenbush & Bryk, 2002). In cases of binary outcome measures (e.g., presence vs. absence of suicide attempts), nonlinear Bernoulli models were specified. For all analyses, there were 1,235 participants nested within 639 families. Participants who were missing data on any variable ($n = 19$) were excluded from analyses.[1]

Results from the HLM analyses appear in Table 2. Because of the large number of comparisons and the large sample size, only effects with p values less than or equal to .01 are interpreted. Because Level 1 analyses of the BSI subscales uncovered no sexual orientation effects or Sex × Sexual Orientation interactions, these findings are not reported. Among the remaining variables, several sexual orientation effects emerged. These are summarized in turn below.

Men Compared With Women

As Table 2 indicates, only two sex effects were found. Women of all sexual orientation groups were more likely to report that they had been in therapy than their male counterparts, and men were more likely to have experienced a psychiatric hospitalization before age 18. This latter effect was qualified by a Sex × Sexual Orientation interaction, described below.

Heterosexuals Compared With Sexual Minorities

As also indicated in Table 2, sexual minority status was predictive of both suicidal ideation and attempts, before and after age 18. Significant sexual orientation effects were also found for self-injurious behavior, histories of psychotherapy, and psychiatric medications. In each case, sexual minorities scored higher than did heterosexuals.

Lesbians and Gay Men Compared With Bisexuals

The only contrast comparing lesbians and gay men with bisexuals that was significant was for self-injurious behavior. Bisexuals were more likely to report histories of self-injury than were gays or lesbians.

Sex × Sexual Orientation Interaction Effects

Only one significant effect was found by using the Sex × Heterosexual versus LGB interaction term or the Sex × Lesbians and Gay Men versus Bisexual interaction term. Here, the latter interaction term indicated that heterosexual males were more likely than any other group to report a psychiatric hospitalization before age 18.

Sibling Variance

As indicated by the significant Level 2 effects of family adjustment, averaged sibling functioning as assessed by GSI scores significantly predicted all of the psychiatric variables reported in Table 2.

Discussion

We hypothesized that LGB individuals would report greater psychological distress, suicidal ideation, suicide attempts, and use of mental health services than would their heterosexual counterparts, even when controlling for sibling variance. This hypothesis was only partially supported. Sexual orientation significantly predicted suicidal ideation, suicide attempts, self-injurious behavior, and use of mental health services, but not psychological distress as indexed by the BSI subscales.

In general, our hypothesis that bisexuals would show greater psychological distress than lesbians and gay men was not supported in the current study, although bisexuals did report engaging in more self-injurious behavior. Their rates of suicidal ideation and suicide attempts, however, were not higher than the other groups. Thus, it may be that researchers can feasibly combine samples of sexual minority participants in comparisons with heterosexuals. On the other hand, this result must be interpreted with caution, given the relatively small number of bisexuals in the current sample. Furthermore, the recruitment method of this study may have yielded a relatively psychologically healthy sample of bisexual men and women who are self-identified and active within bisexual organizations. This may not be reflective of bisexual men and women in the general population, who experience relatively greater invisibility and lack the within-group community support that lesbians and gay men have begun to enjoy in recent years.

Whereas previous studies have compared LGB adults with unrelated heterosexuals and found small but significant differences in mental health, the current study is the first to model family effects of a sample of lesbian, gay male, bisexual, and heterosexual siblings. Results indicate that families vary in mental health, such that siblings, even those who differ in sexual orientation, are comparable in general psychological distress, self-esteem, and life satisfaction. Nevertheless, LGBs still use mental health services more and are at higher risk for suicidal ideation, suicide attempts, and self-injurious behavior than are heterosexual siblings. One potential explanation is that although familial factors impact mental health for all siblings in a family, LGB siblings must also contend with "minority stress" associated with their sexual orientation (Meyer, 2003). Future research with LGBs and their siblings might examine how other within-family processes, such as victimization and social support, might impact mental health differently according to sexual orientation. Additionally, the possibility that cultural factors might impact self-reports of mental health problems should be explored. Savin-Williams (2001) suggested that LGB youth may overreport suicide attempts in response to a cultural script that says that being LGB is associated with distress and being suicidal; this may have played a role in the retrospective reports of the LGB participants in the current study. On the other hand, such cultural factors may influence actual suicidal behaviors as well.

LGB participants were more likely to be consumers of mental health services than were heterosexuals. Although few studies of LGB mental health include measures of utilization, those that do

[1] There were 9 participants for whom family identification code was missing or unclear. We included these participants and treated them as individual respondents with a family size of one. When we reran all analyses excluding these 9 participants, the overall pattern of results was identical.

Table 2
Multilevel Modeling Analyses of Sexual Orientation and Family Adjustment Effects on Mental Health

	Level 1 fixed effects												Level 2 family effects	
	Age		Education		Sex		Heterosexual vs. LGB		Gay/lesbian vs. bisexual		Sex × Heterosexual vs. LGB		Family adjustment[a]	
Variable	Coeff.	*SE*	Coeff.	*SE*	Coeff.	*SE*	Coeff.	*SE*	Coeff.	*SE*	Coeff.	*SE*	Coeff.	*SE*
Self-injurious behavior	−.046	.007**	—		—		.030	.084**	.513	.178*	−.040	.104	.866	.196**
Suicide ideation < 18 years	−.021	.006**	—		—		−.468	.090**	−.044	.156	.209	.107	.960	.193**
Suicide attempt < 18 years		—	—		—		−.449	.140*	.225	.219	.265	.164	1.19	.223**
Suicide ideation ≥ 18 years	.018	.006*	—		—		−.304	.084**	−.156	.153	−.018	.099	1.24	.204**
Suicide attempt ≥ 18 years	.031	.009**	—		—		−.415	.158*	−.025	.228	.157	.195	1.63	.259**
History of therapy	.015	.005*	.149	.052*	.654	.167**	−.037	.076**	−.041	.189	−.108	.098	1.01	.232**
Psychiatric hosp. < 18 years		—	−.625	.155**	−1.57	.348**	.294	.165	.064	.419	−1.86	.198**	1.07	.318**
Psychiatric hosp. ≥ 18 years		—	—		—		−.381	.168	−.031	.252	.258	.204	1.38	.257**
Psychiatric med. history	.024	.006**	—		—		−.364	.081**	.303	.153	.156	.095	1.07	.185**
Rosenberg Self-Esteem	.042	.012**	—		—		.357	.154	−.590	.320	−.383	.184	−5.82	.423**
Life satisfaction		—	—		—		.067	.106	.056	.230	.049	.125	−2.92	.251**

Note. Dashes indicate variables that were omitted from the final multilevel modeling equation because they were nonsignificant when tested during forward stepping. The Sex × Lesbians and Gay Men versus Bisexual interaction term was not included in the table because no significant effects were found for this variable. LGB = lesbian, gay male, and bisexual; Coeff. = coefficient; hosp. = hospitalization; med. = medication.

[a] Averaged within-family Global Severity Index score.

* $p \leq .01$. ** $p \leq .001$.

consistently find that LGB individuals are high utilizers of psychotherapy. In the current study, this difference appeared with psychiatric medications as well. High use of mental health services has usually been interpreted as a sign of psychological distress (e.g., Cochran, 2001), but Morgan (1992) found that norms within the LGB community make mental health services more acceptable. In the present study, use of mental health services among heterosexuals was also high (though significantly lower than that of LGBs). This may indicate a "contagion effect," in which LGBs describe their use of such services in positive terms to their siblings, with the result that these heterosexuals, too, make use of mental health services. For example, Morgan found that 28% of her sample of heterosexual women (who were unrelated to the lesbians in her study) had ever been in therapy, whereas Rothblum and Factor's (2001) study of sisters found that over half of heterosexual sisters of lesbians had been in therapy.

The current method of recruiting siblings from LGB index participants raises several issues regarding sampling. On the positive side, it is an easy way of obtaining heterosexuals for comparison purposes, which has been a challenge in prior LGB research. Even though the questionnaire return rate of LGB index participants was higher than that of siblings, many participants had more than one sibling who was heterosexual, yielding roughly equal numbers of heterosexuals and LGBs.

There were more lesbian than gay male respondents in the study, and sisters were more likely to respond than brothers, reflecting the fact that women are more likely to volunteer for research than men. A major limitation is the lack of ethnic and racial diversity. The goal of this study was to include a diverse sample, and strong efforts were made to recruit potential participants of color. Nevertheless, only 8.3% of the sample were members of an ethnic minority group, making this study comparable to the majority of studies on LGB populations. The requirement of the participation of a sibling may have served as a barrier to diversity. Although participants were assured that they could give a survey to a heterosexual sibling without outing themselves, people of color, who may be more skeptical of research in general and less out to their families, may have been even less likely to participate (cf. Greene, 1994).

Another sampling issue to consider is whether the yoked sibling design (i.e., index participants answering an ad and then recruiting their siblings) confounded the study results in any way. One possibility is that index participants, who actively volunteered, may have been psychologically healthier than their siblings (who were more passive volunteers), thereby biasing the sexual orientation differences toward the null. Conversely, it could be argued that the yoked sibling method biases sexual orientation differences away from the null, if index participants are more psychologically minded than their siblings and therefore more likely to report mental health symptoms. Although the impact of sampling method should be further examined in future research, it is important to note that initial comparisons of the LGB index participants with LGB siblings showed no differences on any dependent measure in the study, indicating that the yoked design may not have confounded results.

Mental health measures were self-report checklists of symptoms. Future studies of within-family sexual orientation differences should include diagnostic interviews to determine whether these sibling patterns are also true when examining mental health disorders, both lifetime and current. A final limitation is the use of relatively general questions about suicidal ideation and attempts. Following Savin-Williams's (2001) example, future research on sexual orientation should ask more specific, behaviorally anchored suicidality questions to more accurately assess risk among LGB adults.

References

Bailey, J. M., Dunne, M. P., & Martin, N. G. (2000). Genetic and environmental influences on sexual orientation and its correlates in an Australian twin sample. *Journal of Personality and Social Psychology, 78,* 524–536.

Cochran, S. D. (2001). Emerging issues in research on lesbians and gay men's mental health: Does sexual orientation really matter? *American Psychologist, 56,* 931–947.

Cochran, S. D., Sullivan, J. G., & Mays, V. M. (2003). Prevalence of mental disorders, psychological distress, and mental health services use among lesbian, gay, and bisexual adults in the United States. *Journal of Consulting and Clinical Psychology, 71,* 53–61.

Derogatis, L. R., & Spencer, P. M. (1982). *Brief symptom inventory (BSI): Administration, scoring, & procedures manual—I.* Baltimore: Author.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment, 49,* 71–75.

Gayellow pages. (2001). New York: Renaissance House.

Greene, B. (1994). Lesbian women of color: Triple jeopardy. In L. Comas-Diaz & B. Greene (Eds.), *Women of color: Integrating ethnic and gender identities in psychotherapy* (pp. 389–427). New York: Guilford Press.

Jorm, A. F., Korten, A. E., Rodgers, B., Jacomb, P. A., & Christensen, H. (2001). Sexual orientation and mental health: Results from a community survey of young and middle-aged adults. *British Journal of Psychiatry, 180,* 423–427.

Meyer, I. M. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin, 129,* 674–697.

Morgan, K. S. (1992). Caucasian lesbians' use of psychotherapy. *Psychology of Women Quarterly, 16,* 127–130.

Morris, J. F., Waldo, C. R., & Rothblum, E. D. (2001). A model of predictors and outcomes of outness among lesbian and bisexual women. *American Journal of Orthopsychiatry, 71,* 61–71.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.

Raudenbush, S. W., Bryk, A. S., Cheong, Y. F., & Congdon, R. (2000). *HLM5: Hierarchical linear and nonlinear modeling*. Lincolnwood, IL: Scientific Software International.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Rothblum, E. D., & Factor, R. (2001). Lesbians and their sisters as a control group: Demographic and mental health factors. *Psychological Science, 12,* 63–69.

Savin-Williams, R. C. (2001). Suicide attempts among sexual-minority youths: Population and measurement issues. *Journal of Consulting and Clinical Psychology, 69,* 983–991.

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