

Same-Sex Sexual Behavior and Psychiatric Disorders

Findings From the Netherlands Mental Health Survey and Incidence Study (NEMESIS)

Theo G. M. Sandfort, PhD; Ron de Graaf, PhD; Rob V. Bijl, PhD; Paul Schnabel, PhD

Background: It has been suggested that homosexuality is associated with psychiatric morbidity. This study examined differences between heterosexually and homosexually active subjects in 12-month and lifetime prevalence of *DSM-III-R* mood, anxiety, and substance use disorders in a representative sample of the Dutch population (N=7076; aged 18-64 years).

Methods: Data were collected in face-to-face interviews, using the Composite International Diagnostic Interview. Classification as heterosexual or homosexual was based on reported sexual behavior in the preceding year. Five thousand nine hundred ninety-eight (84.8%) of the total sample could be classified: 2.8% of 2878 men and 1.4% of 3120 women had had same-sex partners. Differences in prevalence rates were tested by logistic regression analyses, controlling for demographics.

Results: Psychiatric disorders were more prevalent among homosexually active people compared with heterosexually active people. Homosexual men had a higher 12-month prevalence of mood disorders (odds ratio

[OR]=2.93; 95% confidence interval [CI]=1.54-5.57) and anxiety disorders (OR=2.61; 95% CI=1.44-4.74) than heterosexual men. Homosexual women had a higher 12-month prevalence of substance use disorders (OR=4.05; 95% CI=1.56-10.47) than heterosexual women. Lifetime prevalence rates reflect identical differences, except for mood disorders, which were more frequently observed in homosexual than in heterosexual women (OR=2.41; 95% CI=1.26-4.63). The proportion of persons with 1 or more diagnoses differed only between homosexual and heterosexual women (lifetime OR=2.61; 95% CI=1.31-5.19). More homosexual than heterosexual persons had 2 or more disorders during their lifetimes (homosexual men: OR=2.70; 95% CI=1.66-4.41; homosexual women: OR=2.09; 95% CI=1.07-4.09).

Conclusion: The findings support the assumption that people with same-sex sexual behavior are at greater risk for psychiatric disorders.

Arch Gen Psychiatry. 2001;58:85-91

From Utrecht University (Drs Sandfort and Schnabel), the Netherlands Institute of Social Sexological Research (Dr Sandfort), and the Netherlands Institute of Mental Health and Addiction (Drs de Graaf and Bijl), Utrecht, the Netherlands; and the Social and Cultural Planning Office of the Netherlands, The Hague (Dr Schnabel).

FOR A LARGE part of the past century, homosexuality itself was seen as a mental disorder. In 1973, the American Psychiatric Association removed homosexuality from its list of mental disorders. This removal came about because of support from research findings¹⁻⁴ and as a result of a persistent plea by both professionals and activists.⁵

In response to the former psychiatric stigmatization of homosexuality and ideologically inspired by a social movement aiming to achieve greater acceptance of homosexual people, some authors subsequently stressed the equality in mental health status of homosexual and heterosexual people.^{6,7} Others suggested that the mental health status of homosexual people might be impaired owing to various stresses, either temporary or in spe-

cific subgroups.⁸ Some authors expected an upsurge in suicidal behaviors, especially in adolescence and young adulthood, as a consequence of the stresses experienced during the coming-out process.^{1,9,10} Levels of substance abuse were also expected to be higher in gay men and lesbians as compared with heterosexual people.^{11,12} Furthermore, negative health consequences such as body image dissatisfaction and eating disorders also came to be seen as related to the specific lifestyle and subculture of openly gay and lesbian people.^{8,13}

Although many studies have assessed the mental health status of homosexual men and women, the results are still inconclusive. This is predominantly due to a variety of methodological problems, characteristic of most studies done since the 1960s, such as the use of convenience

SUBJECTS AND METHODS

SUBJECTS

The data used for this study are part of the Netherlands Mental Health Survey and Incidence Study (NEMESIS), which assessed psychiatric disorders in a representative sample of the Dutch population aged 18 to 64 years. NEMESIS was conducted with the approval of the Internal Review Board of the Trimbos Institute, Utrecht, the Netherlands. A detailed description of the design of the study and the major outcomes have been previously published.^{24,25}

NEMESIS has applied a multistage, stratified, random-sampling procedure of households in the Netherlands. One respondent was randomly selected in each household. The interviewers made a minimum of 10 calls or visits to an address at different points in time and days of the week to make contact. To optimize response and to compensate for possible seasonal influences, the initial fieldwork was extended over the entire period from February through December 1996.

A total of 7076 persons were interviewed. Respondents provided verbal consent after having been informed about the aims of the study. The interviewer entered data into a computer during the interview. According to the method of assessment, the response was 64.2% (of the households eligible for interview) or 69.7% (of the persons eligible for interview). Persons who declined to take part in the full interview were asked to furnish several key pieces of data. Of these persons, 43.6% agreed to do so. The psychiatric morbidity (estimated with the General Health Questionnaire,²⁶ taking into account sex, age, and urbanicity) of these nonresponders did not significantly differ from that of the respondents.

DIAGNOSES

The instrument used to determine *DSM-III-R* diagnoses was the Composite International Diagnostic Interview (CIDI),^{27,28} designed for use by trained interviewers who are not clinicians. The CIDI has acceptable interrater reliability,²⁹ acceptable test-retest reliability³⁰ and acceptable validity for practically all diagnoses, with the exception of acute psychotic presentations.³¹ The diagnoses were generated during data processing.

The following *DSM-III-R* diagnoses were recorded: mood disorders (depression, dysthymia, bipolar disorder), anxiety disorders (panic disorder, agoraphobia, social phobia, simple phobia, obsessive-compulsive disorder, generalized anxiety disorder), psychoactive substance use disorders (alcohol or other drug abuse and depen-

dence, including sedatives, hypnotics, and anxiolytics). Although eating disorders and schizophrenia and other non-affective psychotic disorders were recorded as well, these data are not presented here because of their low prevalence.

The assessment of psychiatric symptoms took place before subjects were asked about their sexual behavior, thus minimizing the chance of contamination.

The fieldwork was done by 90 interviewers, experienced in systematic data collection and extensively trained in recruiting respondents and computer-assisted interviewing.

SEXUAL BEHAVIOR

Respondents were asked verbally whether they had sexual contact in the preceding year and the gender of their partner(s). If the respondent had had sex with someone of the same gender (exclusively or not), he or she was categorized as homosexual. Other sexually active people were categorized as heterosexual. Homosexually active men and exclusively heterosexually active subjects are subsequently referred to in this article as homosexual and heterosexual persons, respectively. Sexual orientation itself was not assessed.

Of the total of 7076 persons, 30 respondents did not answer the questions regarding their sexual behavior. Of the remaining 7046, 85.2% reported having been sexually active. More men than women reported having been sexually active (87.7% vs 83.0%; $\chi^2_1=30.1$; $P<.001$). Of the 6003 sexually active respondents, 5 lacked the necessary data to classify them as heterosexual or homosexual, leaving 5998 persons for the present analysis. Of the men, 2.8% ($n=82$) had had sex with male partners (6 of these men also had sex with women in the respective period). Of the women, 1.4% ($n=43$) had had sex with female partners (6 of them also had sex with men). More men than women reported homosexual behavior ($\chi^2_1=15.9$; $P<.001$).

STATISTICAL ANALYSIS

To assess differences in prevalence rates, adjusted odds ratios (ORs) were computed separately for men and women. Age, level of education, residency, and not having a steady partner were controlled for in these analyses, given that these variables were positively related to prevalence rates in the total sample.²² Odds ratios were also calculated without controlling for relationship status, given that relationship status is more likely to be a consequence of rather than an antecedent to homosexual and heterosexual behavior.

samples, small sample sizes, lack of adequate comparison groups, failure to control for potentially confounding factors, application of nonstandardized research instruments, and questionable external validity.¹⁴⁻¹⁷

Recent studies applying a more rigorous methodology showed that there is substantial support for the existence of orientation-related differences in mental health status. In a population-based study among adolescents, suicidal intent and actual suicide attempts were related to homosexuality in males but not fe-

males.¹⁸ Young people with a homosexual or bisexual orientation were found to be at increased risk of major depression, generalized anxiety disorder, conduct disorder, substance abuse/dependence, and suicidal behaviors.¹⁹ Middle-aged men who reported ever having had male sex partners were at a higher lifetime risk for various suicidal symptoms compared with their heterosexual counterparts, even after controlling for substance abuse and depressive symptoms.²⁰ A small increased risk among homosexually active populations

in 1-year psychiatric morbidity was found in a sample of the US population, with homosexually active men more likely than other men to experience major depression and panic attack syndromes and homosexually active women more likely than other women to be classified as having alcohol or other drug dependence.²¹ However, these studies still have various limitations.^{10,14,22}

Our study aims to explore differences in the prevalence of *DSM-III-R* psychiatric disorders in relation to homosexuality and to overcome some of the limitations of the earlier studies. It does so by using a large, representative sample of the Dutch population selected without reference to sexual orientation and allowing for separate analyses for men and women. The study categorizes people as homosexual or heterosexual based on recent rather than lifetime behavior, the latter being a more diffuse categorization than the former.²³ The study uses a validated and standardized instrument to assess psychiatric disorders, applied in face-to-face interviews. By looking at both lifetime and 12-month prevalence, we were able to assess the relationship between homosexuality and mental health more precisely than most other studies.

RESULTS

CHARACTERISTICS OF THE SAMPLE

Homosexual and heterosexual respondents differed on education and relationship status (**Table 1**). Both homosexual men and women had a relatively higher educational level than heterosexual men and women. Both homosexual men and women less frequently reported being currently in a steady relationship than heterosexual men and women. Homosexual and heterosexual men differed on residency status. Homosexual men were more likely than heterosexual men to live in urban areas.

MEN

Compared with heterosexual men, homosexual men had significantly higher 12-month and lifetime rates of mood and anxiety disorders (**Table 2** and **Table 3**). Inspection of the specific mood disorders revealed that compared with heterosexual men, homosexual men had a much larger chance of having had 12-month and lifetime bipolar disorders and a higher chance of having had lifetime major depression but no significant differences were seen regarding dysthymia. Regarding the specific anxiety disorders, the lifetime prevalence was significantly higher in homosexual men than in heterosexual men for all but generalized anxiety disorder. The biggest differences were found in obsessive-compulsive disorder and agoraphobia. The 12-month prevalences of agoraphobia, simple phobia, and obsessive-compulsive disorder were higher in homosexual men than in heterosexual men. Regarding substance use disorders, the only significant difference was found in lifetime alcohol abuse. This is the only disorder more frequently observed in heterosexual men than in homosexual men. Ho-

Table 1. Demographic Characteristics by Sexual Behavior in Preceding Year

	Men		Women	
	Heterosexual (n = 2796)	Homosexual (n = 82)	Heterosexual (n = 3077)	Homosexual (n = 43)
Mean age, y	40.0	39.2	40.0	38.6
	F ₁ = 2.61; P = NS*		F ₁ = 0.68; P = NS*	
Education, %				
Primary, basic vocational	26.0	12.2	28.7	17.5
Lower secondary	35.6	28.0	39.7	37.5
Higher secondary	6.7	7.3	8.2	2.5
Higher professional, university	31.7	52.4	23.4	42.5
	χ ₃ ² = 17.9; P < .001		χ ₃ ² = 9.5; P < .05	
Urbanicity, %				
Rural	17.0	6.1	17.5	14.0
Urban	83.0	93.9	82.5	86.0
	χ ₁ ² = 6.8; P < .01		χ ₁ ² = 0.4; P = NS*	
Relationship status, %				
No steady partner	12.0	48.8	9.1	32.6
Steady partner	88.0	51.2	90.9	67.4
	χ ₁ ² = 95.2; P < .001		χ ₁ ² = 27.4; P < .001	

*NS indicates not significant.

mosexual men were not more likely than heterosexual men to report 1 or more 12-month and lifetime disorders. More homosexual men than heterosexual men had 2 or more disorders, both lifetime and in the preceding year.

Not controlling for relationship status resulted in an increase in the various ORs (data not shown). Furthermore, some differences in 12-month and lifetime prevalence became statistically significant. If relationship status was not controlled for, the lifetime and 12-month prevalence rates of 1 or more disorders were higher in homosexual men than in heterosexual men (OR = 1.72, 95% confidence interval [CI] = 1.10-2.70 and OR = 1.99, 95% CI = 1.23-3.20, respectively).

WOMEN

There were no significant differences between homosexual and heterosexual women in the 12-month prevalence of mood and anxiety disorders. On a lifetime basis, homosexual women had a significantly higher prevalence of general mood disorders and major depression than did heterosexual women. The lifetime prevalence of anxiety disorders did not differ between homosexual and heterosexual women. Regarding the preceding year, homosexual women reported a substantially higher rate of substance use disorders than did heterosexual women, although differences in the specific substance use disorders were not significant. Lifetime prevalence of both alcohol and other drug dependence was also significantly higher in homosexual women than in heterosexual women. Although more homosexual women than heterosexual women reported 1 or more *DSM-III-R* diagnoses, lifetime and in the preceding year, only the former difference was significant. Homosexual women were more

Table 2. Twelve-Month Prevalence of *DSM-III-R* Disorders by Sexual Behavior in Preceding Year

	Men			Women		
	Heterosexual, % (n = 2796)	Homosexual, % (n = 82)	Adjusted OR (95% CI)*	Heterosexual, % (n = 3077)	Homosexual, % (n = 43)	Adjusted OR (95% CI)*
Mood disorders	5.2	17.1	2.93 (1.54-5.57)	9.3	14.0	1.02 (0.40-2.59)
Major depression	3.9	9.8	1.96 (0.88-4.37)	7.3	11.6	1.03 (0.38-2.80)
Dysthymia	1.3	3.7	2.72 (0.75-9.86)	3.0	2.3	0.75 (0.10-5.70)
Bipolar disorder	0.8	4.9	5.02 (1.50-16.84)	1.1	2.3	1.80 (0.23-14.24)
Anxiety disorders	7.6	19.5	2.61 (1.44-4.74)	16.4	16.3	0.98 (0.42-2.29)
Panic disorders	0.9	3.7	2.70 (0.73-9.91)	3.2	2.3	0.65 (0.09-4.90)
Agoraphobia (without panic)	0.8	4.9	6.32 (1.99-20.08)	2.0	4.7	1.85 (0.41-8.27)
Simple phobia	3.6	11.0	3.75 (1.73-8.14)	10.2	9.3	0.95 (0.33-2.78)
Social phobia	3.0	7.3	1.98 (0.80-4.89)	5.8	7.0	0.99 (0.29-3.36)
Generalized anxiety disorder	0.8	1.2	1.43 (0.18-11.55)	1.4	0.0	...†
Obsessive-compulsive disorder	0.4	3.7	7.18 (1.75-29.53)	0.5	0.0	...†
Substance use disorders total	12.7	17.1	0.92 (0.49-1.72)	2.9	14.0	4.05 (1.56-10.47)
Alcohol abuse	6.5	6.1	0.63 (0.24-1.63)	1.5	4.7	3.52 (0.79-15.70)
Alcohol dependence	5.5	11.0	1.41 (0.67-3.01)	1.0	7.0	3.72 (0.98-14.05)
Drug abuse	0.6	1.2	1.12 (0.13-9.38)	0.3	0.0	...†
Drug dependence	0.9	0.0	...†	0.4	2.3	4.44 (0.50-39.60)
One or more <i>DSM-III-R</i> diagnoses	21.1	35.4	1.52 (0.93-2.49)	22.4	34.9	1.68 (0.85-3.32)
Two or more <i>DSM-III-R</i> diagnoses	5.5	17.1	2.77 (1.46-5.27)	9.8	7.0	0.46 (0.14-1.59)

*OR indicates odds ratio; CI, confidence interval. The OR is corrected for age, level of education, urbanicity, and relationship status.
†Could not be computed owing to a prevalence of 0 in 1 group.

Table 3. Lifetime Prevalence of *DSM-III-R* Disorders by Sexual Behavior in Preceding Year

	Men			Women		
	Heterosexual, % (n = 2796)	Homosexual, % (n = 82)	Adjusted OR (95% CI)*	Heterosexual, % (n = 3077)	Homosexual, % (n = 43)	Adjusted OR (95% CI)*
Mood disorders	13.3	39.0	3.11 (1.91-5.05)	24.3	48.8	2.41 (1.26-4.63)
Major depression	10.9	29.3	2.35 (1.39-3.97)	20.0	44.2	2.44 (1.26-4.72)
Dysthymia	3.5	7.3	2.33 (0.94-5.75)	8.5	14.0	1.62 (0.65-4.02)
Bipolar disorder	1.2	8.5	7.27 (2.85-18.52)	2.1	2.3	0.92 (0.12-6.97)
Anxiety disorders	13.2	31.7	2.67 (1.62-4.41)	25.1	25.6	0.96 (0.46-1.97)
Panic disorder	1.7	7.3	4.21 (1.65-10.77)	5.9	4.7	0.75 (0.18-3.20)
Agoraphobia (without panic)	1.8	7.3	4.54 (1.79-11.53)	4.9	7.0	1.36 (0.41-4.56)
Simple phobia	6.0	18.3	3.61 (1.94-6.74)	13.8	16.3	1.27 (0.51-2.97)
Social phobia	5.5	14.6	2.29 (1.17-4.50)	9.5	18.6	1.81 (0.79-4.14)
Generalized anxiety disorder	1.5	3.7	2.88 (0.82-10.18)	2.9	2.3	0.84 (0.11-6.28)
Obsessive-compulsive disorder	0.7	6.1	6.20 (2.03-18.90)	0.9	0.0	...†
Substance use disorders total	29.0	30.5	0.79 (0.48-1.32)	7.1	25.6	3.43 (1.60-7.33)
Alcohol abuse	19.2	12.2	0.48 (0.24-0.95)	3.8	7.0	2.01 (0.60-6.79)
Alcohol dependence	8.4	13.4	1.23 (0.62-2.44)	1.8	11.6	3.59 (1.16-11.18)
Drug abuse	2.0	4.9	1.34 (0.45-4.01)	1.1	2.3	1.88 (0.23-15.33)
Drug dependence	1.8	4.9	2.47 (0.82-7.45)	1.2	9.3	8.04 (2.49-25.91)
One or more <i>DSM-III-R</i> diagnoses	41.4	56.1	1.35 (0.85-2.15)	39.1	67.4	2.61 (1.31-5.19)
Two or more <i>DSM-III-R</i> diagnoses	14.4	37.8	2.70 (1.66-4.41)	21.3	39.5	2.09 (1.07-4.09)

*OR indicates odds ratio; CI, confidence interval. The OR is corrected for age, level of education, urbanicity, and relationship status.
†Could not be computed owing to a prevalence of 0 in 1 group.

likely than heterosexual women to have had 2 or more disorders during their lifetime but not in the preceding year.

If relationship status was not controlled for, ORs increased and the differences in 12-month alcohol dependence and lifetime social phobia were also significant. Both 12-month and lifetime prevalences of 1 or more disorders were higher in homosexual women than in heterosexual women (OR=2.09, 95% CI=1.08-4.05 and OR=3.16, 95% CI=1.61-6.18, respectively).

COMMENT

This study found a higher prevalence of various psychiatric disorders in homosexual people compared with heterosexual people, both regarding the preceding 12 months as well as on a lifetime basis. These differences seem to be gender specific with a higher prevalence of substance use disorders in homosexual women and a higher prevalence of mood and anxiety disorders in ho-

homosexual men, both compared with their heterosexual counterparts.

The interpretation of these findings requires consideration of some potential limitations, which could have cumulatively either inflated or deflated actual differences in prevalence rates.²⁵ Among those people contacted, there could have been a nonresponse related to homosexual behavior. Although nonresponse to specific questions was negligible owing to the computer-assisted interviewing, subjects might have differed in their reporting behavior. Compared with heterosexual men, homosexual men might have been less reluctant to admit specific complaints. Although some demographics were statistically controlled for, the possibility remains that at least part of the observed differences are accounted for by some other uncontrolled confounding variables. Finally, the study might underestimate the differences between homosexual and heterosexual people owing to the limited number of homosexual subjects and the consequently broad CIs of the ORs.

When compared with other studies of sexual orientation and mental health, ours has several strengths. We used a large representative sample rather than a convenience sample and selected without reference to sexual orientation. The sample size allowed for separate analyses for men and women. The importance of this is shown by our findings. Furthermore, the outcome variables studied were assessed with a reliable and standardized diagnostic instrument, and sexual behavior was assessed only after questions regarding psychiatric disorders were answered. This study not only looked at lifetime prevalence of psychiatric disorders but prevalence in the preceding year as well, testing the relationship with homosexuality more critically. In doing this, the findings suggest that homosexuality is not only associated with mental health problems during adolescence and early adulthood, as has been suggested,²⁰ but also in later life. Finally, this study did not group people together based on lifetime experiences, a common practice to make up for small numbers, but looked at subjects' recent sexual behavior. Although various studies have demonstrated discrepancies between homosexual behavior and homosexual orientation or homosexual self-labeling,^{23,32,33} we think that recent homosexual behavior is a better indicator of homosexual self-labeling than any lifetime homosexual involvement.

It is unclear to what extent findings from this Dutch study can be generalized to other cultures or nations. Compared with other Western countries, the Dutch social climate toward homosexuality has long been and remains considerably more tolerant.³⁴⁻³⁶ To the extent that the level of social acceptance of homosexuality induces differences in mental health status in relation to homosexuality, the observed differences might be greater in other Western countries than in the Netherlands.

The strategy to control for demographic variables in assessing differences between heterosexual and homosexual people could be debated. Some of these demographic differences, which were found in other representative studies as well and seem to be structural,^{23,33,37} could be considered a consequence of and not an antecedent to people's homosexuality. The larger propor-

tion of homosexual men in urban regions compared with rural areas is usually understood as a consequence of a tendency to migrate from places with high levels of social control to more congenial social environments.^{23,38} The finding that homosexual people are less often involved in steady relationships than heterosexual people is seen as resulting from the limited opportunities homosexual people have to find an intimate partner, lesser legal and social support for developing and maintaining homosexual relationships compared with that for heterosexual relationships, and differing norms and values regarding sexuality and personal relationships.³⁹⁻⁴² It could be argued that not controlling for these demographic variables, which results in more significant differences in prevalence rates of specific disorders and in higher ORs, provides a more accurate estimate of the actual differences in prevalence rates between homosexual and heterosexual people.

Because of the study's cross-sectional design, it is not possible to adequately address the question of the causes of the observed differences. Differences observed in the preceding year might be a consequence of earlier differences, since ever having had a specific disorder might predispose people to subsequent disorders.⁴³

Because the acquired immunodeficiency syndrome can have an important effect on homosexual men and their mental health status,⁴⁴ we asked all respondents about their human immunodeficiency virus (HIV) serostatus. Only one person, a heterosexual woman, reported a positive HIV status. This result reflects the very low prevalence of HIV infection and acquired immunodeficiency syndrome in the general population as well as among homosexual men in the Netherlands.⁴⁵ Given that no homosexual man reported being infected with HIV, we do not believe that HIV infection can account for the observed mental health differences in this study.

The observed differences may result both from biological and social factors and an interaction between them. Biological and genetic factors in the causes and development of homosexuality⁴⁶⁻⁵⁰ might also predispose homosexual people to developing psychiatric disorders. This is in line with the higher prevalence of bipolar disorder we found in homosexual men compared with heterosexual men, which is generally considered to be largely congenital.⁵¹ The effects of social factors on the mental health status of homosexual men and women have been well documented in studies, which found a relationship between experiences of stigma, prejudice, and discrimination and mental health status.⁵²⁻⁶¹ Furthermore, controlling for psychological predictors of present distress seems to eliminate differences in mental health status between heterosexual and homosexual adolescents.⁶² The mediating role of relationship status suggests that higher prevalence rates of some disorders in homosexual people compared with heterosexual people could also be caused by loneliness.

The differential pattern of differences for men and women can also be interpreted in various ways. First, an effect of sexual orientation in women might be more difficult to demonstrate since women already show higher levels of mood and anxiety disorders than men

regardless of sexual preference.²⁴ Homosexual women could also be less exposed to social stressors than homosexual men, given that attitudes toward homosexual men are generally more negative than attitudes toward homosexual women.⁶³ The fact that homosexual men showed higher prevalence rates of disorders that are characteristic for women in general, whereas homosexual women showed higher prevalence rates of disorders that are characteristic for men in general, is in line with the theory that sex-atypical levels of prenatal androgens play a major role in the causes and development of homosexuality.¹⁴

In conclusion, this study offers evidence that homosexuality is associated with a higher prevalence of psychiatric disorders. The outcomes are in line with findings from earlier studies in which less rigorous designs have been employed. The processes underlying the established differences need further study. Research into these processes should be able to disentangle the potential interplay of various factors—social, attitudinal, behavioral, and biological—instead of testing one specific factor. The most promising design for such a study requires a large sample of both men and women, and is longitudinal and cross-cultural.

Accepted for publication July 20, 2000.

NEMESIS is conducted by the Netherlands Institute of Mental Health and Addiction (Trimbos Institute), Utrecht, the Netherlands. Financial support has been received from the Netherlands Ministry of Health, Welfare and Sports, The Hague; the Medical Sciences Department of the Netherlands Organization for Scientific Research, The Hague; and the National Institute for Public Health and Environment, Utrecht.

Data from this article were presented at the Twenty-Fifth Annual Meeting of the International Academy of Sex Research, Stony Brook, NY, June 24, 1999.

We thank Henny Bos for her help in preparing this study and Jeffrey Weiss, PhD, and Daniel Weishut for their comments on previous versions.

Corresponding author: Theo G. M. Sandfort, PhD, Department of Clinical Psychology, Utrecht University, PO Box 80140, 3508 TC Utrecht, the Netherlands (e-mail: t.sandfort@fss.uu.nl).

REFERENCES

- Gonsiorek JC. The empirical bases for the demise of the illness model of homosexuality. In: Gonsiorek JC, Weinrich JD, eds. *Homosexuality: Research Implications for Public Policy*. Newbury Park, Calif: Sage Publications; 1991:115-136.
- Hooker E. The adjustment of the male overt homosexual. *J Projective Techniques*. 1951;21:18-31.
- Siegelman M. Adjustment of male homosexuals and heterosexuals. *Arch Sex Behav*. 1972;2:9-25.
- Thompson NL, McCandless BR, Strickland B. Personal adjustment of male and female homosexuals and heterosexuals. *J Abnorm Psychol*. 1971;78:237-240.
- Bayer R. *Homosexuality and American Psychiatry*. New York, NY: Basic Books; 1981.
- Comer RJ. *Abnormal Psychology*. 2nd ed. New York, NY: WH Freeman; 1995.
- Feldman RS. *Understanding Psychology*. New York, NY: McGraw-Hill; 1990.
- Siever MD. Sexual orientation and gender as factors in socioculturally acquired vulnerability to body dissatisfaction and eating disorders. *J Consult Clin Psychol*. 1994;62:252-260.
- Troiden RR. The formation of homosexual identities. *J Homosex*. 1989;17:43-73.
- Remafedi G. Suicide and sexual orientation: nearing the end of controversy? *Arch Gen Psychiatry*. 1999;56:885-886.
- Bux DA Jr. The epidemiology of problem drinking in gay men and lesbians: a critical review. *Clin Psychol Rev*. 1996;16:277-298.
- Mosbacher D. Lesbian alcohol and substance abuse. *Psychiatr Ann*. 1988;18:47-50.
- Striegel-Moore R, Tucker N, Hsu J. Body image dissatisfaction and disordered eating in lesbian college students. *Int J Eat Disord*. 1990;9:493-500.
- Bailey M. Homosexuality and mental illness. *Arch Gen Psychiatry*. 1999;56:883-884.
- Costin F, Draguns JG. *Abnormal Psychology: Patterns, Issues, Interventions*. New York, NY: John Wiley & Sons; 1989.
- Herek GM. Gay people and government security clearances: a social perspective. *Am Psychol*. 1990;43:886-891.
- Muehrer P. Suicide and sexual orientation: a critical summary of recent research and directions for future research. *Suicide Life Threat Behav*. 1995;25 (suppl):72-81.
- Remafedi G, French S, Story M, Resnick MD, Blum R. The relationship between suicide risk and sexual orientation: results of a population-based study. *Am J Public Health*. 1998;88:57-60.
- Fergusson DM, Horwood LJ, Beautrais AL. Is sexual orientation related to mental health problems and suicidality in young people? *Arch Gen Psychiatry*. 1999;56:876-880.
- Herrell R, Goldberg J, True WR, Ramakrishnan V, Lyons M, Eisen S, Tsuang MT. Sexual orientation and suicidality: a co-twin control study in adult men. *Arch Gen Psychiatry*. 1999;56:867-874.
- Cochran SD, Mays VM. Relation between psychiatric syndromes and behaviorally defined sexual orientation in a sample of the US population. *Am J Epidemiol*. 2000;151:516-523.
- Friedman RC. Homosexuality, psychopathology, and suicidality. *Arch Gen Psychiatry*. 1999;56:887-888.
- Laumann EO, Gagnon JH, Michael RT, Michaels S. *The Social Organization of Sexuality: Sexual Practices in the United States*. Chicago, Ill: University of Chicago Press; 1994.
- Bijl RV, Ravelli A, van Zessen G. Prevalence of psychiatric disorder in the general population: results of the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Soc Psychiatry Psychiatr Epidemiol*. 1998;33:587-595.
- Bijl RV, van Zessen G, Ravelli A, de Rijk C, Langendoen Y. The Netherlands Mental Health Survey and Incidence Study (NEMESIS): objectives and design. *Soc Psychiatry Psychiatr Epidemiol*. 1998;33:581-586.
- Goldberg DP, Williams P. *A Users Guide to the General Health Questionnaire*. Windsor, Ontario: Nelson; 1998.
- World Health Organization. *Composite International Diagnostic Interview (CIDI)*. Version 1.0. Geneva, Switzerland: World Health Organization; 1990.
- Robins LN, Wing J, Wittchen H-U, Helzer JE, Babor TF, Burke J, Farmer A, Jablenski A, Pickens R, Regier DA, Satorius N, Towle LH. The Composite International Diagnostic Interview: an epidemiologic instrument suitable for use in conjunction with different diagnostic systems and in different cultures. *Arch Gen Psychiatry*. 1988;45:1069-1077.
- Cottler LB, Robins LN, Grant BF, Blaine J, Towle LH, Wittchen H-U, Sartorius N, and participants in the WHO/ADAMHA Field Trials. The CIDI-core substance abuse and dependence questions: cross-cultural and nosological issues. *Br J Psychiatry*. 1991;159:653-658.
- Semler G, Von Cranach M, Wittchen H-U, eds. *Comparison Between the Composite International Diagnostic Interview and the Present State Examination: Report to the WHO/ADAMHA Task Force on Instrument Development*. Geneva, Switzerland: World Health Organization; 1987.
- Wittchen H-U. Reliability and validity studies of the WHO-Composite International Diagnostic Interview (CIDI): a critical review. *J Psychiatr Res*. 1994;28:57-84.
- Doll LS, Petersen LR, White CR, Johnson ES, Ward JW, the Blood Donor Study Group. Homosexually and nonhomosexually identified men who have sex with men: a behavioral comparison. *J Sex Res*. 1992;29:1-14.
- Sandfort ThGM. Homosexual and bisexual behaviour in European countries. In: Hubert MC, Bajos N, Sandfort TGM, eds. *Sexual Behaviour and HIV/AIDS in Europe*. London, England: UCL Press; 1998:68-105.
- Sociaal Cultureel Rapport*. The Hague, the Netherlands: SCP/Vuga; 1996.
- Van den Akker P, Halman L, De Moor R. Primary relations in Western societies. In: Ester P, Halman L, De Moor R, eds. *The Individualizing Society: Value Change in Europe and North America*. Tilburg, the Netherlands: Tilburg University Press; 1994:97-127.
- Widmer ED, Treas J, Newcomb R. Attitudes toward nonmarital sex in 24 countries. *J Sex Res*. 1998;35:349-358.
- Sandfort TGM, De Vroome EMM. Homoseksualiteit in Nederland: een vergelijk-

- ing tussen aselechte groepen homoseksuele en heteroseksuele mannen. *Tijdschr Seksuol.* 1996;20:232-245.
38. Pollak M. Male homosexuality: or happiness in the ghetto. In Ariès P, Béjin A, eds. *Western Sexuality: Practice and Precept in Past and Present Times.* Oxford, England: Basil Blackwell; 1985:40-61.
 39. Blasband D, Peplau LA. Sexual exclusivity versus openness in gay male couples. *Arch Sex Behav.* 1985;14:395-412.
 40. Kurdek LA. Sexuality in homosexual and heterosexual couples. In: McKinney K, Sprecher S, eds. *Sexuality in Close Relationships.* Hillsdale, NJ: LEA Publishers; 1991:177-191.
 41. Meyer J. Guess who's coming to dinner this time? a study of gay intimate relationships and the support for those relationships. *Marriage Fam Rev.* 1989;14:59-82.
 42. Peplau LA, Cochran SD. A relationship perspective on homosexuality. In: McWhirter DP, Sanders SA, Machover Reinisch J, eds. *Homosexuality/Heterosexuality: Concepts of Sexual Orientation.* New York, NY: Oxford University Press; 1990:321-349.
 43. Kessler RC, Nelson CB, McGonagle KA, Liu J, Swartz M, Blazer DG. Comorbidity of *DSM-III-R* major depressive disorder in the general population: results from the US National Comorbidity Survey. *Br J Psychol.* 1996;168(suppl 30):17-30.
 44. Kalichman SC, Sikkema KJ. Psychological sequelae of HIV infection and AIDS: review of empirical findings. *Clin Psychol Rev.* 1994;14:611-632.
 45. Sandfort TGM. Pragmatism and consensus: the Dutch response to HIV. In: Sandfort TGM, ed. *The Dutch Response to HIV: Pragmatism and Consensus.* London, England: UCL Press; 1998:3-16.
 46. Bailey JM, Pillard RC, Dawood K, Miller MB, Farrer LA, Trivedi S, Murphy RL. A family history study of male sexual orientation using three independent samples. *Behav Genet.* 1999;29:79-86.
 47. Hamer DH, Hu S, Magnuson V, Hu N, Pattatucci AML. A linkage between DNA markers on the X chromosome and male sexual orientation. *Science.* 1993;261:321-327.
 48. Levay SA. A difference in hypothalamic structure between heterosexual and homosexual men. *Science.* 1991;253:1034-1037.
 49. Whitman FL, Diamond M, Martin J. Homosexual orientation in twins: a report on 61 pairs and three triplet sets. *Arch Sex Behav.* 1993;22:187-206.
 50. Williams TA, Pepitone ME, Christensen SE, Cooke BM, Huberman AD, Breedlove NJ, Breedlove TJ, Jordan CL, Breedlove SM. Finger-length ratios and sexual orientation. *Nature.* 2000;404:455-456.
 51. Gershon ES. Genetics. In: Goodwin FK, Jamison KR, eds. *Manic-Depressive Illness.* New York, NY: Oxford University Press; 1990:373-401.
 52. Brooks V. *Minority Stress and Lesbian Women.* Lexington, Mass: DC Heath; 1981.
 53. Meyer IF. Minority stress and mental health in gay men. *J Health Soc Behav.* 1995;36:38-56.
 54. Bradford J, Ryan C, Rothblum ED. National Lesbian Health Care Survey: implications for mental health care. *J Consult Clin Psychol.* 1994;62:228-242.
 55. Frable DE, Wortman C, Joseph J. Predicting self-esteem, well-being, and distress in a cohort of gay men: the importance of cultural stigma, personal visibility, community networks, and positive identity. *J Pers.* 1997;65:599-624.
 56. Herek GM, Gillis JR, Cogan JC. Psychological sequelae of hate-crime victimization among lesbian, gay and bisexual adults. *J Consult Clin Psychol.* 1999;67:945-951.
 57. Meyer IH, Dean L. Internalized homophobia, intimacy, and sexual behavior among gay and bisexual men. In: Herek GM, ed. *Stigma and Sexual Orientation: Understanding Prejudice Against Lesbians, Gay Men, and Bisexuals.* Thousand Oaks, Calif: Sage Publications; 1998:160-186.
 58. Herek GM, Gillis JR, Cogan JC, Glunt EK. Hate crime victimization among lesbian, gay, and bisexual adults. *J Interpersonal Violence.* 1997;12:195-215.
 59. Otis MD, Skinner WF. The prevalence of victimization and its effect on mental well-being among lesbian and gay people. *J Homosex.* 1996;30:93-121.
 60. Ross MW. The relationship between life events and mental health in homosexual men. *J Clin Psychol.* 1990;46:402-411.
 61. Rotheram-Borus MJ, Hunter J, Rosario M. Suicidal behavior and gay-related stress among gay and bisexual male adolescents. *J Adolesc Res.* 1994;9:498-508.
 62. Safen SA, Heimberg RG. Depression, hopelessness, suicidality, and related factors in sexual minority and heterosexual adolescents. *J Consult Clin Psychol.* 1999;67:859-866.
 63. Kite ME, Whitley BE. Do heterosexual women and men differ in their attitudes toward homosexuality? In: Herek GM, ed. *Stigma and Sexual Orientation: Understanding Prejudice Against Lesbians, Gay Men and Bisexuals.* Thousand Oaks, Calif: Sage Publications; 1998:39-61.