Original Research

Sexual Orientation and Its Relation to Mental Disorders and Suicide Attempts: Findings From a Nationally Representative Sample

Shay-Lee Bolton, MSc (PhD Candidate)[1]; Jitender Sareen, MD, FRCPC[2]

Objective: To compare the rates of all Axis I and II mental disorders and suicide attempts in sexual orientation minorities with rates in heterosexuals using a nationally representative sample.

Method: Data used were from the National Epidemiologic Survey on Alcohol and Related Conditions Wave 2 (n = 34 653, response rate = 70.2%). Cross-tabulations and multivariate logistic regression analyses were performed to determine differences in rates of mental disorders and suicide attempts by sexual orientation. All analyses were stratified by sex.

Results: Compared with their heterosexual counterparts, lesbians and bisexual women demonstrated a 3-fold increased likelihood of substance use disorders, and gay and bisexual men showed twice the rate of anxiety disorders and schizophrenia and (or) psychotic illness, even after accounting for mental disorder comorbidity. Suicide attempts were independently associated with bisexuality, with odds 3 times higher than in heterosexuals.

Conclusion: Findings from our study emphasize the fact that sexual orientation minorities are vulnerable to poor mental health outcomes, including suicide attempts. Clinicians need to be aware of these specific negative mental health consequences when assessing sexual orientation minorities.

Can J Psychiatry. 2011;56(1):35–43.

Clinical Implications

- Clinicians need to be aware of the high rates of mental disorders among sexual orientation minorities.
- Clinicians need to maintain a high index of suspicion during suicide risk assessment because suicide attempts were independently associated with sexual orientation minority status.
- Findings highlight the significance of substance use disorders in lesbians and in bisexual women even in the context of other mental health problems.

Limitations

- Sexual orientation minority status was based on self-identified sexual orientation only.
- Mental disorders were not assessed by clinicians.
- The National Epidemiologic Survey on Alcohol and Related Conditions Wave 2 was used in our study as a cross-sectional dataset, employing lifetime measures of mental disorders and suicide attempts. Therefore, we cannot be certain that mental disorders were experienced in the context of endorsing sexual orientation minority status.

Key Words: *suicide, attempts, gay, lesbian, sexual minorities, National Epidemiologic Survey on Alcohol and Related Conditions, mental disorders*

Table 2. Prevalence of lifetime mental disorders by sexual orientation among men

Variable	Heterosexual n = 14109			Gay n = 190			Bisexual n = 81			Not sure n = 101			Difference
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	
Any mood disorder	2866	19.8	18.9–20.8	77	42.3	33.7–51.5	28	36.9	25.2–50.4	23	36.4	23.6–51.6	hg, hb, hn
Any anxiety disorder	3116	21.4	20.5–22.4	89	45.8	37.2–54.6	31	40.6	29.2–53.1	24	35.1	22.5–50.2	hg, hb, hn
Any SUD	7030	50.0	48.1–51.8	113	65.0	56.9–72.4	46	55.8	42.0–68.7	30	42.0	27.8–57.8	hg
Any personality disorder	3343	23.0	21.9–24.1	70	37.8	28.6–48.1	27	34.9	23.6–48.2	32	46.1	31.3–61.6	hg, hn
Any Cluster A	1326	8.7	8.1–9.4	27	13.5	8.2–21.3	14	20.5	11.5–33.9	20	30.1	18.4–45.2	hb, hn
Any Cluster B	2246	15.4	14.5–16.3	55	30.7	22.4–40.6	20	25.7	16.2–38.3	24	40.4	26.0–56.6	hg, hn
Any Cluster C	1275	9.1	8.5–9.8	22	12.3	7.6–19.1	9	12.1	5.7–23.9	7	6.4	2.8–14.3	
Schizophrenia, psychotic illness, or episode	425	2.7	2.4–3.2	17	9.3	5.4–15.5	2	2.1	0.5–7.8	9	13.3	5.7–27.9	hg, hn
Suicide attempt	326	2.1	1.8–2.5	18	9.8	5.7–16.4	9	10.0	4.9–19.4	8	8.5	3.5–19.4	hg, hb, hn

hb = heterosexual significantly different from bisexual; hg = heterosexual significantly different from gay; hn = heterosexual significantly different from not sure

(gay man or lesbian) were men (60.3%), while most bisexuals were women (67.2%). A larger percentage of women did not answer the sexual orientation question.

Table 2 demonstrates prevalence of lifetime mental disorders by sexual orientation among men. High rates of SUDs were common across all men. Gay men were more likely than heterosexual men to have had a mental disorder or a suicide attempt in their lifetime, with the exception of Clusters A and C personality disorders. Bisexual men also had a higher lifetime prevalence of mood disorder, anxiety disorder, Cluster A personality disorders, and suicide attempts, compared with heterosexual men. There were no differences in prevalence between homosexual men and their bisexual counterparts. Prevalence of schizophrenia and psychotic illness or episode were high in gay men and men who were not sure of their sexual orientation.

Table 3 demonstrates prevalence of lifetime mental disorders by sexual orientation among women. Mood disorders, anxiety disorders, SUDs, and personality disorders (except Cluster C) were more prevalent in lesbians than in heterosexual women, as were suicide attempts. Bisexual women reported higher prevalence of all mental disorders when compared with heterosexual women. Prevalence of mood disorders, anxiety disorders, and SUDs were all above 60% in this group. One-quarter of all bisexual women have attempted suicide in their lifetime. No differences were noted between lesbians and their bisexual counterparts.

Table 4 illustrates multivariate logistic regression analyses performed to examine the relation between lifetime mental disorders and sexual orientation in both men and women. After adjusting for sociodemographic factors, models indicated a higher likelihood of all disorders except Clusters A and C personality disorders among gay men compared with heterosexual men. Bisexual men demonstrated increased odds of mood disorders, anxiety disorders, and Clusters A and B personality disorders compared with heterosexual men. The strongest relations between mental health outcomes and sexual orientation were noted for suicide attempts. Gay and bisexual men had a 4-fold increase in suicide attempts in their lifetime, even after adjustment for demographic confounds. Men who were unsure about their sexual orientation, in comparison with heterosexual men, had a higher likelihood of mood disorders, anxiety disorders, personality disorders (Clusters A and B, specifically), schizophrenia and psychotic illness or episode, and suicide attempts.

Among women, lesbians were 1.5 (for anxiety disorders) to 3.4 (for SUDs) times more likely than heterosexual women to have experienced a mental disorder in their lifetime after adjustment for sociodemographic factors. Compared with heterosexual women, bisexuality in women incurred significantly higher odds of all mental disorders and suicide attempts, with the strongest of these differences present for suicide attempts (AOR 5.89; 95% CI 3.73 to 9.29). SUDs and Cluster B personality disorders were about twice as likely in women unsure of their sexual orientation than in heterosexual women.

After further adjustment for mental disorder comorbidity (Table 5), gay men were twice as likely as heterosexual men to have had a mood (AOR 1.79) or anxiety disorder (AOR 2.24), or schizophrenia and psychotic illness or episode (AOR 1.99). Bisexual men had a higher prevalence of anxiety disorders and suicide attempts than heterosexual men. Lesbians demonstrated increased odds of SUDs (AOR 3.06), while bisexual women showed higher odds of anxiety disorders, SUDs, schizophrenia and psychotic illness or episode, and suicide attempts compared with heterosexual women. People who were not sure about their sexuality were more than twice as likely to

Table 3 Prevalence of lifetime mental disorders by sexual orientation among women

	Heterosexual n = 19489			Lesbian n = 145			Bisexual n = 161			Not sure n = 101			
Variable	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	Difference
Any mood disorder	6022	30.5	29.5–31.5	66	44.4	34.9–54.3	95	58.7	49.7–67.2	38	36.6	24.5–50.5	hl, hb
Any anxiety disorder	7101	36.3	35.1–37.6	66	48.4	38.3–58.5	103	66.2	56.7–74.5	43	40.3	28.1–53.8	hl, hb, bn
Any SUD	4588	24.3	22.8–25.7	81	60.8	50.5–70.2	96	61.9	52.6–70.4	34	34.7	22.9–48.6	hl, hb, ln, bn
Any personality disorder	4110	19.6	18.8–20.5	48	34.1	25.0–44.5	67	40.5	31.8–49.9	32	31.5	19.9–46.0	hl, hb
Any Cluster A	1951	8.9	8.3–9.4	26	21.3	13.1–32.7	38	21.9	15.0–30.8	15	15.6	7.2–30.4	hl, hb
Any Cluster B	2360	10.8	10.2–11.5	31	19.8	13.0–28.9	54	31.7	23.6–41.0	24	25.9	15.3–40.2	hl, hb, hn
Any Cluster C	1846	9.6	9.0–10.2	19	11.1	6.1–19.1	28	17.1	11.9–23.9	12	13.9	6.1–28.8	hb
Schizophrenia, psychotic illness, or episode	724	3.4	3.0–3.8	4	2.9	0.9–9.5	16	9.2	5.4–15.2	2	1.8	0.4–7.8	hb
Suicide attempt	828	4.2	3.8–4.6	21	10.9	6.5–17.8	43	24.4	17.6–32.8	8	9.9	3.3–26.1	hl, hb

bn = bisexual significantly different from not sure; hb = heterosexual significantly different from bisexual; hl = heterosexual significantly different from lesbian; hn = heterosexual significantly different from not sure; different from not sure; ln: lesbian significantly;

have Cluster B personality disorders than their heterosexual counterparts.

Discussion

Our study has numerous key strengths. First, it comprehensively examines Axis I and II mental disorders and suicide attempts among a large population-based sample of sexual orientation minorities. To our knowledge, this methodology has never been undertaken in this body of literature. Second, this is the first study to examine personality disorders and psychotic disorders in relation to sexual orientation. Third, our study uses a nationally representative population-based sample of sexual orientation minorities in the United States. This large sample size allowed examination of gay men, lesbians, and bisexual men and women separately, a feature that has been noted as a significant methodological limitation in past work.

First, we examined the prevalence of mental disorders and suicide in gay men and lesbians compared with heterosexual men and women, respectively. In models adjusted for sociodemographic differences, gay men had a higher prevalence of mood disorders, anxiety disorders, SUDs, and personality disorders, as well as an increased likelihood of schizophrenia and psychotic illness or episode and suicide attempts. Lesbians showed parallel results (with the exception of schizophrenia and psychotic illness or episode, which could not be evaluated owing to small cell size). Second, we looked at the prevalence of mental disorders and suicide attempts in bisexuals compared with their homosexual and heterosexual counterparts. Bisexual women demonstrated a 2- to 6-fold increased likelihood of all lifetime mental disorders and suicide attempts. Bisexual men displayed higher prevalence of mood disorders, anxiety disorders, Clusters A and B personality disorders, and suicide attempts. Other studies[2,6,17] have also noted bisexual identity, rather than homosexual identity, to be most strongly associated with a heightened risk for poorer mental health outcomes. Finally, we explored the relation between sexual orientation and prevalence of mental disorders after taking into account the effect of mental disorder comorbidity, particularly personality disorders and schizophrenia and psychotic illness or episode—known risk factors for poor mental health outcomes.[22–27] We found evidence of increased odds of specific disorders in sexual orientation minorities over and above the effect of comorbidity. Previous work[2,4–6,9,13,48] exploring mental disorders in this population have failed to consider comorbidity and thus have been unable to indicate a specific disorder or set of disorders that may be particularly associated with negative outcomes in sexual minorities.

Accumulating evidence denotes high rates of alcohol and drug use disorders in lesbians and bisexual women.[6,18,19,49–51] Our study echoes these findings, indicating a 3-fold increase in prevalence of SUDs for lesbians and bisexual women compared with their heterosexual counterparts. A recent study[6] stressed the importance of exploring associations between sexual orientation and SUDs after controlling for other psychopathology, as high prevalence of comorbidity between SUDs and mood and anxiety disorders have been noted previously.[52] Our study showed that SUDs in lesbians and bisexual women are important over and above the effect of comorbid mood, anxiety, and personality disorders and thus could be an important target for intervention. This holds true for lesbians in particular, wherein SUD was the only mental disorder that remained associated with sexual orientation after taking into account comorbidity. However, it is important to put these increased rates in to context. The high prevalence found in lesbians and bisexual women in our study (60% to 62%) are quite comparable with the prevalence

Table 4 Logistic regression analyses exploring the relation between lifetime mental disorders and sexual orientation among men and women

	AOR (95% CI)[a]					
	Men[b]			Women[c]		
Variable	Gay	Bisexual	Not sure	Lesbian	Bisexual	Not sure
Any mood disorder	2.98[d] (2.11–4.20)	2.36[d] (1.44–3.88)	1.93[e] (1.04–3.59)	1.60[e] (1.05–2.44)	2.66[d] (1.83–3.89)	1.23 (0.70–2.16)
Any anxiety disorder	2.66[d] (1.78–3.97)	2.09[d] (1.20–3.64)	2.07[e] (1.06–4.03)	1.53[e] (1.01–2.32)	3.09[d] (2.04–4.68)	1.17 (0.69–1.99)
Any SUD	1.77[d] (1.25–2.51)	1.30 (0.71–2.36)	0.77 (0.41–1.45)	3.41[d] (2.13–5.44)	3.90[d] (2.64–5.75)	1.88[e] (1.01–3.49)
Any personality disorder	1.82[d] (1.19–2.77)	1.66 (0.98–2.82)	2.46[d] (1.34–4.51)	1.74[e] (1.13–2.69)	2.12[d] (1.43–3.13)	1.65 (0.87–3.15)
Any Cluster A	1.37 (0.81–2.33)	2.29[e] (1.17–4.46)	3.53[d] (1.86–6.70)	2.51[d] (1.40–4.48)	2.11[d] (1.34–3.33)	1.46 (0.58–3.67)
Any Cluster B	2.19[d] (1.41–3.39)	1.77[e] (1.01–3.09)	3.12[d] (1.65–5.88)	1.63 (0.98–2.71)	2.67[d] (1.72–4.13)	2.42[e] (1.19–4.92)
Any Cluster C	1.33 (0.76–2.27)	1.33 (0.58–3.04)	0.66 (0.27–1.62)	1.06 (0.55–2.04)	1.71[e] (1.11–2.62)	1.50 (0.60–3.76)
Schizophrenia, psychotic illness, or episode	2.85[d] (1.57–5.15)	—	3.80[d] (1.44–10.04)	—	3.18[d] (1.78–5.69)	—
Suicide attempt	4.43[d] (2.27–8.61)	4.44[d] (1.91–10.30)	3.42[e] (1.25–9.35)	3.00[d] (1.63–5.53)	5.89[d] (3.73–9.29)	2.27 (0.70–7.34)

[a] AOR adjusted for demographic factors, including age, marital status, educational attainment, household income, race or ethnicity, region of residence, and level of urbanicity

[b] Reference category for all models are heterosexual men

[c] Reference category for all models are heterosexual women

[d] $P < 0.01$

[e] $P < 0.05$

— = small cell size (<5), therefore estimate is too unstable to be calculated

of SUDs in men (42% to 65%). In fact, the prevalence in heterosexual women (24%) is one-half that of heterosexual men (50%). Although men show no difference in prevalence of SUDs by sexual orientation, these high rates in all men need to be considered.

As mentioned previously, our study is the first to examine psychotic disorders (schizophrenia and psychotic illness or episode) in sexual orientation minorities. We noted that the prevalence of schizophrenia and psychotic illness or episode in sexual orientation minorities was surprisingly high. Gay men and bisexual women, with prevalence rates of 9.3% and 9.2%, respectively, illustrated a 2-fold increase in schizophrenia and psychotic illness or episode compared with their heterosexual equivalents, even after accounting for the influence of comorbid mental disorders and demographic differences. This finding is quite novel and the reason for these differences is unclear. Sadock et al[53] describe loss of ego boundaries as a person's lack of sense of where one's own body and influence ends and where other animate or inanimate objects begin. This depersonalization and derealization, often associated with schizophrenia, can be linked to doubts about one's gender and sexual orientation.[53] Clinicians should be aware of high rates of psychotic disorders in sexual orientation minorities as they may relate to negative outcomes. Previous work has implicated personality disorders as risk factors for Axis I disorders and functional impairment in homosexual men;[54] however, our findings suggest that psychotic disorders may play that role. Replication of this finding is required.

Analyses of the relation between suicide attempts and sexual orientation revealed that bisexuals are at increased risk for attempting to take their own life. Although suicide attempts have been linked to sexual orientation minority status in previous studies,[13] our work examines this propensity with additional rigour. Our study was able to extend previous findings by taking into account the presence of both Axis I and II mental health diagnoses, including Cluster B personality traits. Mental disorder comorbidity has been shown as a strong risk factor for suicidal behaviour[5,7,9,21,48,55,56] and, as such, is important to consider when examining suicide attempts. High rates of suicide attempts reported in previous work may have been conflated by high rates of mental disorders in this population. Results indicate that, compared with heterosexually oriented people, suicide attempts are 3 times more likely in bisexual men and women. This increased likelihood is not simply an artifact of high rates of mental disorder in this group,

Table 5 Multivariate logistic regression models examining the relation between lifetime mental disorders and sexual orientation in men and women

	AOR (95% CI)					
	Men[a]			Women[b]		
Variable	Gay	Bisexual	Not sure	Lesbian	Bisexual	Not sure
Any mood disorder[c]	1.79[d] (1.12–2.85)	1.47 (0.83–2.58)	1.18 (0.43–3.19)	1.11 (0.73–1.69)	1.44 (0.95–2.19)	0.93 (0.52–1.67)
Any anxiety disorder[c]	2.24[e] (1.57–3.21)	1.88[d] (1.00–3.52)	1.21 (0.62–2.37)	1.12 (0.69–1.82)	1.95[e] (1.25–3.02)	0.94 (0.60–1.50)
Any SUD[c]	1.37 (0.96–1.95)	1.04 (0.56–1.93)	0.52 (0.26–1.04)	3.06[e] (1.89–4.96)	2.93[e] (1.92–4.47)	1.66 (0.96–2.86)
Any Cluster A or C personality disorder[c]	0.62 (0.36–1.07)	1.35 (0.72–2.50)	1.78 (0.99–3.19)	1.28 (0.71–2.30)	0.93 (0.54–1.61)	0.91 (0.45–1.82)
Any Cluster B personality disorder[c]	1.40 (0.82–2.39)	1.90 (0.60–1.97)	2.57[e] (1.31–5.05)	0.92 (0.41–2.08)	1.39 (0.89–2.17)	2.27[e] (1.26–4.11)
Schizophrenia, psychotic illness, or episode[c]	1.99[d] (1.07–3.72)	—	2.70[d] (1.06–6.90)	—	2.15[d] (1.17–3.95)	—
Suicide attempt[f]	2.27 (0.99–5.21)	2.92[d] (1.12–7.63)	1.55 (0.51–4.68)	2.19 (0.96–4.98)	3.13[e] (1.93–5.07)	1.25 (0.39–3.95)

[a] Reference category for these AORs are male heterosexuals

[b] Reference category for these AORs are female heterosexuals

[c] Models adjusted for demographic factors (age, marital status, education, household income, race/ethnicity, region of residence, and urbanicity) and all other mental disorder categories (not including suicide attempt)

[d] $P < 0.05$

[e] $P < 0.01$

[f] Models adjusted for all mental disorder categories, including any mood, any anxiety, any substance use, any Cluster A or C personality, and any Cluster B personality disorder, and schizophrenia / psychotic illness or episode

— = small cell size (<5), therefore estimate is too unstable to be calculated

but rather occurs independent of a psychiatric diagnosis at higher rates than in heterosexuals.

Our work needs to be considered in the context of its limitations. First, although all mental disorder diagnoses were made by a reliable structured interview conducted by trained lay interviews, the diagnoses may not match the accuracy of an experienced clinician. Second, the assessment of schizophrenia and psychotic disorders was limited as it was based on a question that asked whether a health care professional had diagnosed them with schizophrenia or psychosis. Although this methodology has limitations, it is commonly used in psychiatric epidemiology studies[43] as diagnoses of psychotic disorders made by lay interviewers has shown poor reliability and validity.[57] Third, the NESARC Wave 2 was used in our study as a cross-sectional dataset, employing lifetime histories of mental disorders and suicide attempts. Therefore, we cannot be certain that mental disorders were experienced in the context of endorsing sexual orientation minority status. It is possible that the mental disorder preceded beliefs of homo- or bisexual orientation. Future studies would ideally focus on the experience of coming out and examine whether mental disorders onset prior to or following this event. Fourth, sexual orientation minority status was based on self-identified sexual orientation only. Studies that have included other measures of sexual minority status, including sexual behaviours and fantasies, have indicated differences based on these different conceptualizations of sexual orientation.[2,6] As well, some people may have not felt comfortable disclosing their sexual orientation minority status to the interviewer, creating a potential bias that could have influenced the associations found here. Fifth, it should be noted that the relations with suicide attempts are limited in that they may or may not be consistent with findings among people who die by suicide. Finally, it is possible that other factors not assessed in our study could be confounding the relation between mental disorders and sexual orientation. Previous work exploring minority stress has indicated strong relations between discrimination and various mental health outcomes.[1,19,58] Future work should explore experiences of discrimination as a possible link between sexual orientation and development of suicide attempts, over and above the effects of mental disorder comorbidity.

Conclusions

Gay men, lesbians, and bisexual men and women face a great deal of stigma in their everyday lives and as such experience considerable minority stress. The findings from our study show that they are more likely to have mental health problems and to attempt suicide. Although not specifically examined in our paper, these findings may be one manifestation of minority stress. Regardless of the etiology, sexual minorities are clearly a population vulnerable to severe and, in some cases, life-threatening mental health outcomes. Clinicians need to be aware of these negative mental

health consequences when assessing sexual orientation minorities, and need to maintain a high index of suspicion during suicide risk assessment.

Acknowledgements

Preparation of this article was supported by a Canadian Institutes of Health Research (CIHR) Fredrick Banting and Charles Best Canada Graduate Scholarship—Doctoral Award to Ms Bolton, a CIHR New Investigator Grant (#152348) awarded to Dr Sareen, and a Manitoba Health Research Council Chair Award to Dr Sareen. The NESARC research protocol, including informed-consent procedures, received full ethical review and approval from the US Census Bureau and the US Office of Management and Budget.

References

1. Mays VM, Cochran SD. Mental health correlates of perceived discrimination among lesbian, gay, and bisexual adults in the United States. Am J Public Health. 2001;91(11):1869–1876.
2. Bostwick WB, Boyd CJ, Hughes TL, et al. Dimensions of sexual orientation and the prevalence of mood and anxiety disorders in the United States. Am J Public Health. 2010;100(3):468–475.
3. Lewis NM. Mental health in sexual minorities: recent indicators, trends, and their relationships to place in North America and Europe. Health Place. 2009;15(4):1029–1045.
4. Sandfort TG, Bakker F, Schellevis FG, et al. Sexual orientation and mental and physical health status: findings from a Dutch population survey. Am J Public Health. 2006;96(6):1119–1125.
5. Fergusson DM, Horwood LJ, Beautrais AL. Is sexual orientation related to mental health problems and suicidality in young people? Arch Gen Psychiatry. 1999;56(10):876–880.
6. McCabe SE, Hughes TL, Bostwick WB, et al. Sexual orientation, substance use behaviors and substance dependence in the United States. Addiction. 2009;104:1333–1345.
7. Silenzio VMB, Pena JB, Duberstein PR, et al. Sexual orientation and risk factors for suicidal ideation and suicide attempts among adolescents and young adults. Am J Public Health. 2007;97(11):2017–2019.
8. Cochran SD, Mays VM. Burden of psychiatric morbidity among lesbian, gay, and bisexual individuals in the California Quality of Life Survey. J Abnorm Psychol. 2009;118(3):647–658.
9. Herrell R, Goldberg J, True WR, et al. Sexual orientation and suicidality: a co-twin control study in adult men. Arch Gen Psychiatry. 1999;56(10):867–874.
10. Warner J, McKeown E, Griffin M, et al. Rates and predictors of mental illness in gay men, lesbians and bisexual men and women: results from a survey based in England and Wales. Br J Psychiatry. 2004;185:479–485.
11. 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(5):516–523.
12. Cochran SD, Mays VM. Lifetime prevalence of suicide symptoms and affective disorders among men reporting same-sex sexual partners: results from NHANES III. Am J Public Health. 2000;90(4):573–578.
13. King M, Semlyen J, Tai SS, et al. A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. BMC Psychiatry. 2008;8:70.
14. Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. Psychol Bull. 2003;129(5):674–697.
15. Cochran SD. Emerging issues in research on lesbians' and gay men's mental health: does sexual orientation really matter? Am Psychol. 2001;56(11):931–947.
16. Balsam KF, Beauchaine TP, Mickey RM, et al. Mental health of lesbian, gay, bisexual, and heterosexual siblings: effects of gender, sexual orientation, and family. J Abnorm Psychol. 2005;114(3):471–476.
17. Jorm AF, Korten AE, Rodgers B, et al. Sexual orientation and mental health: results from a community survey of young and middle-aged adults. Br J Psychiatry. 2002;180:423–427.
18. Cochran SD, Mays VM, Sullivan JG. Prevalence of mental disorders, psychological distress, and mental health services use among lesbian, gay, and bisexual adults in the United States. J Consult Clin Psychol. 2003;71(1):53–61.
19. Cochran SD, Mays VM, Alegria M, et al. Mental health and substance use disorders among Latino and Asian American lesbian, gay, and bisexual adults. J Consult Clin Psychol. 2007;75(5):785–794.
20. Sandfort TG, de Graaf R, Bijl RV, et al. Same-sex sexual behavior and psychiatric disorders: findings from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). Arch Gen Psychiatry. 2001;58(1):85–91.
21. Kessler RC, Borges G, Walters EE. Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. Arch Gen Psychiatry. 1999;56(7):617–626.
22. Palmer BA, Pankratz VS, Bostwick JM. The lifetime risk of suicide in schizophrenia: a reexamination. Arch Gen Psychiatry. 2005;62(3):247–253.
23. Soloff PH, Lynch KG, Kelly TM, et al. Characteristics of suicide attempts of patients with major depressive episode and borderline personality disorder: a comparative study. Am J Psychiatry. 2000;157(4):601–608.
24. Frankenburg FR, Zanarini MC. Personality disorders and medical comorbidity. Curr Opin Psychiatry. 2006;19(4):428–431.
25. Yen S, Shea MT, Pagano M, et al. Axis I and axis II disorders as predictors of prospective suicide attempts: findings from the collaborative longitudinal personality disorders study. J Abnorm Psychol. 2003;112(3):375–381.
26. McGirr A, Paris J, Lesage A, et al. Risk factors for suicide completion in borderline personality disorder: a case-control study of cluster B comorbidity and impulsive aggression. J Clin Psychiatry. 2007;68(5):721–729.
27. Alaraisanen A, Miettunen J, Rasanen P, et al. Suicide rate in schizophrenia in the northern Finland 1966 birth cohort. Soc Psychiatry Psychiatr Epidemiol. 2009;44(12):1107–1110.
28. Kessler RC, Chiu WT, Demler O, et al. Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry. 2005;62(6):617–627.
29. Grant BF, Kaplan KD. Source and accuracy statement for the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). Rockville (MD): National Institue on Alcohol Abuse and Alcoholism; 2005.
30. Ruan WJ, Goldstein RB, Chou SP, et al. The alcohol use disorder and associated disabilities interview schedule-IV (AUDADIS-IV): reliability of new psychiatric diagnostic modules and risk factors in a general population sample. Drug Alcohol Depend. 2008;92(1–3):27–36.
31. Kessler RC, McGonagle KA, Zhao S, et al. Lifetime and 12-month prevalence of psychiatric disorders in the United States: results from the National Comorbidity Survey. Arch Gen Psychiatry. 1994;51:8–19.
32. Agerbo E, Nordentoft M, Mortensen PB. Familial, psychiatric, and socioeconomic risk factors for suicide in young people: nested case–control study. BMJ. 2002;325(7355):74.
33. Kessler RC, Foster CL, Saunders WB, et al. Social consequences of psychiatric disorders, I: educational attainment. Am J Psychiatry. 1995;152(7):1026–1032.
34. American Psychiatric Association. Diagnostic and statistical manual for mental disorders (DSM). Washington (DC): APA; 2000.
35. Grant BF, Dawson DA, Stinson FS, et al. The Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV (AUDADIS-IV): reliab iatric diagnostic modules in a general population sample. Drug Alcohol Depend. 2003;71(1):7–16.
36. Grant BF, Harford TC, Dawson DA, et al. The Alcohol Use Disorder and Associated Disabilities Interview schedule (AUDADIS): reliability of alcohol and drug modules in a general population sample. Drug Alcohol Depend. 1995;39(1):37–44.

37. Conway KP, Compton W, Stinson FS, et al. Lifetime comorbidity of DSM-IV mood and anxiety disorders and specific drug use disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. J Clin Psychiatry. 2006;67(2):247–257.
38. Grant BF, Goldstein RB, Chou SP, et al. Sociodemographic and psychopathologic predictors of first incidence of DSM-IV substance use, mood and anxiety disorders: results from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions. Mol Psychiatry. 2009;14(11):1051–1066.
39. Grant BF, Hasin DS, Stinson FS, et al. Prevalence, correlates, and disability of personality disorders in the United States: results from the National Epidemiologic Survey on Alcohol and Related Conditions. J Clin Psychiatry. 2004;65(7):948–958.
40. Isometsa ET, Henriksson MM, Heikkinen ME, et al. Suicide among subjects with personality disorders. Am J Psychiatry. 1996;153(5):667–673.
41. Leverich GS, Altshuler LL, Frye MA, et al. Factors associated with suicide attempts in 648 patients with bipolar disorder in the Stanley Foundation Bipolar Network. J Clin Psychiatry. 2003;64(5):506–515.
42. Sher L. Risk and protective factors for suicide in patients with alcoholism. ScientificWorldJournal. 2006;6:1405–1411.
43. McMillan KA, Enns MW, Cox BJ, et al. Comorbidity of Axis I and II mental disorders with schizophrenia and psychotic disorders: findings from the National Epidemiologic Survey on Alcohol and Related Conditions.
Can J Psychiatry. 2009;54(7):477–486.
44. Kessler RC, Berglund P, Demler O, et al. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry. 2005;62(6):593–602.
45. Baca-Garcia E, Perez-Rodriguez MM, Keyes KM, et al. Suicidal ideation and suicide attempts in the United States: 1991–1992 and 2001–2002. Mol Psychiatry. 2010;15(3):250–259.
46. RTI International. Software for the statistical analysis of correlated data (SUDAAN), release 10.0.0 [computer program]. Research Triangle Park (NC): RTI International; 2008.
47. Wilson VanVoorhis CR, Morgan BL. Understanding power and rules of thumb for determining sample sizes. Tut Quant Meth Psychol. 2007;3:43–50.
48. Meyer IH, Dietrich J, Schwartz S. Lifetime prevalence of mental disorders and suicide attempts in diverse lesbian, gay, and bisexual populations. Am J Public Health. 2008;98(6):1004–1006.
49. Fergusson DM, Horwood LJ, Ridder EM, et al. Sexual orientation and mental health in a birth cohort of young adults. Psychol Med. 2005;35(7):971–981.
50. Drabble L, Midanik LT, Trocki K. Reports of alcohol consumption and alcohol-related problems among homosexual, bisexual and heterosexual respondents: results from the 2000 National Alcohol Survey. J Stud Alcohol. 2005;66(1):111–120.
51. Drabble L, Trocki K. Alcohol consumption, alcohol-related problems, and other substance use among lesbian and bisexual women. J Lesbian Stud. 2005;9(3):19–30.
52. Grant BF, Stinson FS, Dawson DA, et al. Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. Arch Gen Psychiatry. 2004;61(8):807–816.
53. Sadock BJ, Kaplan HI, Sadock VA. Synopsis of psychiatry. 10th ed. Philadelphia (PA): Lippincott Williams & Wilkins; 2007.
54. Johnson JG, Williams JB, Goetz RR, et al. Personality disorders predict onset of Axis I disorders and impaired functioning among homosexual men with and at risk of HIV infection. Arch Gen Psychiatry. 1996;53(4):350–357.
55. Mann JJ. A current perspective of suicide and attempted suicide. Ann Intern Med. 2002;136:302–311.
56. Mann JJ. Neurobiology of suicidal behaviour. Nat Rev Neurosci. 2003;4:819–828.
57. Kendler KS, Gallagher TJ, Abelson JM, et al. Lifetime prevalence, demographic risk factors, and diagnostic validity of nonaffective psychosis as assessed in a US community sample. The National Comorbidity Survey. Arch Gen Psychiatry. 1996;53(11):1022–1031.
58. Kessler RC, Mickelson KD, Williams DR. The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. J Health Soc Behav. 1999;40(3):208–230.

Manuscript received May 2010, revised, and accepted August 2010.
Paper presented at the American Association of Suicidology Annual Conference, Orlando, Florida, April 21–24, 2010.

[1] Student, Department of Community Health Sciences and Research Associate, Department of Psychiatry, University of Manitoba, Winnipeg, Manitoba.
[2] Professor, Departments of Psychiatry, Community Health Sciences, and Psychology, University of Manitoba, Winnipeg, Manitoba.
Address for correspondence: Ms S Bolton, PZ430—771 Bannatyne Avenue, Winnipeg, MB R3E 3N4; sbelik@hsc.mb.ca

Résumé : L'orientation sexuelle et sa relation aux troubles mentaux et aux tentatives de suicide : résultats d'un échantillon national représentatif

Objectif : Comparer les taux de tous les troubles mentaux des axes I et II et des tentatives de suicide chez les patients d'orientation sexuelle minoritaire avec les taux chez les hétérosexuels, à l'aide d'un échantillon national représentatif.

Méthode : Les données utilisées ont été tirées de l'enquête américaine *National Epidemiologic Survey on Alcohol and Related Conditions*, cycle 2 (n = 34 653, taux de réponse = 70,2 %). Des tableaux croisés et des analyses de régression logistique multivariée ont été effectués pour déterminer les différences des taux de troubles mentaux et de tentatives de suicide par orientation sexuelle. Toutes les analyses ont été stratifiées selon le sexe.

Résultats : Comparativement à leurs homologues hétérosexuels, les femmes lesbiennes et bisexuelles ont démontré une probabilité 3 fois plus élevée de troubles liés à l'utilisation d'une substance, et les hommes gais et bisexuels présentaient 2 fois le taux de troubles anxieux et de schizophrénie et (ou) de maladie psychotique, même après avoir tenu compte de la comorbidité des troubles mentaux. Les tentatives de suicide étaient indépendamment associées à la bisexualité, les probabilités étant 3 fois supérieures à celles des hétérosexuels.

Conclusion : Les résultats de notre étude soulignent le fait que les minorités sexuelles sont vulnérables à de mauvais états de santé mentale, dont les tentatives de suicide. Les cliniciens doivent être conscients de ces conséquences négatives spécifiques sur la santé mentale lorsqu'ils évaluent des patients d'orientation sexuelle minoritaire.