Disability Among Lesbian, Gay, and Bisexual Adults: Disparities in Prevalence and Risk

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Disability is a critical and growing public health issue that must be addressed as part of this nation's blueprint to improve health.[1] Public health data reveal that the number of adults living with disabilities continues to increase.[2] Nearly 50 million American adults aged 18 years and older are affected by disabilities,[3] with more than 10 million persons living with physical or mental disabilities necessitating ongoing assistance with day-to-day or other instrumental activities.[4] Costs exceed more than $300 billion annually as a result of medical care and lost productivity related to disabilities.[3] Although disabilities can have a major impact on health, quality of life, and full participation in society, people with disabilities remain one of the most underserved populations in the United States.[5]

The Centers for Disease Control and Prevention's (CDC's) *Health Disparities and Inequalities Report—United States, 2011* identifies disparities related to disability and sexual orientation as the 2 main gaps in current health disparities research.[6] To date, existing research has not comprehensively examined the prevalence and covariates of disability among lesbian, gay, and bisexual (LGB) adults. Multiple health-related behaviors such as smoking, lack of exercise, obesity, health conditions (including arthritis and asthma), and mental distress have been found to be associated with limitations in physical functioning and disabilities among the general population.[7-12] Previous studies have also consistently found that LGB adults experience disparities in smoking.[13,14] Furthermore, higher rates of asthma, arthritis, and obesity among lesbians and bisexual women and frequent mental distress among LGB adults are of concern.[14-19] A few studies examining correlates of poor health among LGB adults have documented that, compared with their heterosexual counterparts, these groups may be more likely to experience some physical limitations.[16,17] Although such findings suggest that LGB adults may be at an elevated risk for disability, the prevalence and covariates of disability within

Objectives. We used population-based data to comprehensively examine disability among lesbian, gay, and bisexual adults.

Methods. We estimated prevalence of disability and its covariates and compared by sexual orientation by utilizing data from the Washington State Behavioral Risk Factor Surveillance System (n=82 531) collected in 2003, 2005, 2007, and 2009. We used multivariate logistic regression to examine the relationship between disability and sexual orientation, after we controlled for covariates of disability.

Results. Findings indicated that the prevalence of disability is higher among lesbian, gay, and bisexual adults compared with their heterosexual counterparts; lesbian, gay, and bisexual adults with disabilities are significantly younger than heterosexual adults with disabilities. Higher disability prevalence among lesbians and among bisexual women and men remained significant after we controlled for covariates of disability.

Conclusions. Higher rates of disability among lesbian, gay, and bisexual adults are of major concern. Efforts are needed to prevent, delay, and reduce disabilities as well as to improve the quality of life for lesbian, gay, and bisexual adults with disabilities. Future prevention and intervention efforts need to address the unique concerns of these groups. (*Am J Public Health.* 2012;102: e16–e21. doi:10.2105/AJPH.2011.300379)

these groups have not been comprehensively examined with population-based data.

Adults living with disabilities are also at risk for health disparities because they tend to receive fewer preventive health services and have poorer health than do those without disabilities.[2] Because LGB adults are a health-disparate population[1] and those living with disabilities often do not have access to adequate health care services, LGB adults with disabilities may face multiple and serious health risks. The early detection and identification of the most at-risk groups will enable public health initiatives to expand the reach of strategies and interventions to prevent the progression to disability as well as to tailor disability management programs to meet the unique needs of such diverse populations.

We analyzed disability among LGB adults by utilizing standardized measures developed by the CDC and assessed in the Behavioral Risk Factor Surveillance System (BRFSS). We disaggregated data (n=82 531) from the Washington State BRFSS by gender and examined patterns of disability by sexual orientation.

Based on this population-based sample, we examined the following: (1) prevalence of disability by sexual orientation; (2) the age-adjusted relationship between sexual orientation and covariates of disability, including chronic health conditions, health risk behaviors, and physical and mental health status; and (3) the relationship between disability and sexual orientation after we controlled for covariates of disability.

METHODS

We analyzed BRFSS data based on respondents aged 18 years and older residing in Washington State. The data are collected annually via a telephone interview survey of randomly selected noninstitutionalized adults who speak English or Spanish. The CDC designed BRFSS to investigate health conditions and behaviors of US adult residents. (See http://www.cdc.gov/brfss for more information.)

The measure of sexual orientation was added to the BRFSS questionnaire in Washington State

in 2003. We analyzed data collected in 2003, 2005, 2007, and 2009 because key variables of interest for this study were asked biannually. We applied sample weights provided by BRFSS for unequal probabilities of selection resulting from sample design, nonresponse, and telephone noncoverage in the analyses. Among women, the weighted percentages of heterosexual, lesbian, and bisexual women were 97.0% (n=49 092), 1.4% (n=626), and 1.6% (n=536), respectively; among men, 97.3% (n=31 509) identified as heterosexual, 1.9% (n=529) as gay, and 0.9% (n=239) as bisexual.

Measures

Disability was measured by asking respondents if they are limited in any way in any activities because of physical, mental, or emotional problems. Second, they were asked if they have any health problem that requires them to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone. Consistent with the definition of disability from *Healthy People 2010*,[20] we categorized respondents who answered positive to either question as disabled.

Sexual orientation was measured by respondents selecting from the following categories: heterosexual/straight, homosexual/gay/lesbian, bisexual, or other. We omitted "other" from our analyses.

Sociodemographic characteristics included respondents' race/ethnicity (White or non-White), age, relationship status (married or partnered, or other), household income, and education. We dichotomized household income by below versus at or above 200% of the poverty level calculated with federal income guidelines.[21-24] We dichotomized the level of

education completed by high-school graduate or less versus some college or more.

Health conditions included lifetime asthma measured by asking respondents whether they had ever been told by a health professional that they had asthma; arthritis, measured by whether respondents had ever been told by a health professional that they had some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia; and obesity based on self-reported weight and height as calculated by body mass index (defined as weight in kilograms divided by the square of height in meters) greater than or equal to 30.

Health risk behaviors were current smoking defined as having ever smoked 100 or more cigarettes and currently smoking "every day" or "some days" and lack of exercise defined as not having been involved in any physical activities or exercise except regular job duties during the past month.

The number of days of poor physical health was measured by asking, "For how many days during the past 30 days was your physical health, including physical illness and injury, not good?" For poor mental health the following question was asked, "For how many days during the past 30 days was your mental health, including stress, depression, and problems with emotion, not good?" We dichotomized both variables by the 14-day cut-off point, as recommended by the CDC and other health research.[25,26] More detailed information about the cut-off point has been addressed elsewhere.[27]

Statistical Analysis

We conducted all the analyses separately by gender using Stata version 11.0 (StataCorp LP, College Stations, TX). First, we examined the

means and percentages of the sociodemographic characteristics of the respondents by sexual orientation and utilized either linear or logistic regression, as appropriate, to further examine the relationship between sexual orientation and background characteristics. Second, we estimated the prevalence of disability and covariates of disability by sexual orientation. We conducted age-adjusted logistic regression to examine whether distributions of disability and health-related covariates of disability varied by sexual orientation, with heterosexual participants as the reference group. To assess whether sexual orientation is independently associated with disability, regardless of sociodemographic characteristics and health-related covariates, we conducted multivariate logistic regression analyses. Because the relationship between sexual orientation and disability may be explained by health-related covariates, we included the covariates that were significantly associated with disability in the model.

RESULTS

Table 1 shows the sociodemographic characteristics of LGB adults compared with their heterosexual counterparts. Lesbians (b=−3.61; *P*<.001) and bisexual women (b=−13.81; *P*<.001) were significantly younger than were heterosexual women. The likelihood of being married or partnered for lesbians (odds ratio [OR]=0.55; *P*<.001) and bisexual women (OR=0.44; *P*<.001) was lower than that for heterosexual women. Bisexual women were significantly more likely to be below 200% of the poverty level (OR=1.85; *P*<.001) compared with heterosexual women, and lesbians were more highly

TABLE 1—Sociodemographic Characteristics by Gender and Sexual Orientation: Washington State BRFSS, 2003, 2005, 2007, 2009

Characteristic	Lesbians Mean (SE) or %	*P*	Bisexual Women Mean (SE) or %	*P*	Heterosexual Women, Mean (SE) or %	Gay Men Mean (SE) or %	*P*	Bisexual Men Mean (SE) or %	*P*	Heterosexual Men, Mean (SE) or %
Age, y	42.94 (0.81)	<.001	32.74 (0.85)	<.001	46.55 (0.12)	42.55 (0.81)	.01	37.67 (1.33)	<.001	44.69 (0.14)
White race	85.42	.435	78.19	.085	83.68	85.04	.303	79.88	.454	82.60
Education ≤ high school	14.72	<.001	35.06	.29	31.39	22.89	.002	44.06	.01	31.97
Income <200% poverty level	33.18	.61	46.21	<.001	31.73	22.84	.092	41.01	.003	27.60
Married or partnered	51.63	<.001	46.04	<.001	66.19	41.37	<.001	41.01	<.001	69.36

Notes. BRFSS = Behavioral Risk Factor Surveillance System. We conducted significance tests by utilizing linear regression or logistic regression with heterosexual participants as the reference group.

educated than were heterosexual women (OR=0.38; P<.001).

Both gay (b=−2.14; P=.01) and bisexual (b=−7.02; P<.001) men were significantly younger than were heterosexual men. Gay men were better educated than were heterosexual men (OR=0.63; P=.002), but the educational achievement level for bisexual men was significantly lower than that for heterosexual men (OR=1.68; P=.01). In addition, bisexual men were more likely to be below 200% of the poverty level compared with heterosexual men (OR=1.82; P=.003). Both gay (OR=0.31; P<.001) and bisexual (OR=0.31; P<.001) men were less likely to be married or partnered.

Disability and Sexual Orientation

Lesbian, gay, and bisexual adults showed higher prevalence of disability than did their heterosexual counterparts (Table 2). About 25% of heterosexual women, 36% of lesbians, and 36% of bisexual women were disabled. When we conducted age-adjusted logistic regression, we found that both lesbians and bisexual women were more likely than were heterosexual women to be disabled. About 22% of heterosexual men, 26% of gay men, and 40% of bisexual men were disabled. The likelihoods of being disabled for gay men and bisexual men were significantly higher than that for heterosexual men even after we controlled for age. Among LGB adults, 36% of women and 30% of men were disabled. The

result of age-adjusted logistic regression indicated that women were significantly more likely to be disabled than were men (AOR = 1.08; P = .001).

Among those who were disabled, the mean (SD) ages of heterosexual women, lesbians, and bisexual women were 54.10 (21.44), 43.70 (15.93), and 34.47 (12.60) years, respectively; and compared with heterosexual women, lesbians (b=−10.40; P<.001) and bisexual women (b=−19.63; P<.001) were significantly younger. When we estimated the prevalence of disability among young adults aged 18 to 30 years, lesbians (39.36%; OR=4.76; P<.001) and bisexual women (30.22%; OR=3.18; P<.001) were more likely than were heterosexual women (12.15%) to be disabled. Gay men with disabilities (mean age=46.58 years; SD=12.83; b=−5.35; P=.002) and bisexual men with disabilities (mean age=40.04 years; SD=11.28; b=−11.89; P<.001) were also significantly younger than heterosexual men with disabilities (mean age=51.94 years; SD= 16.94). Among those aged 18 to 30 years, bisexual men (28.90%; OR=2.80; P=.006) were more likely than were heterosexual men (12.72%) to be disabled.

Covariates of Disability of Gender and Sexual Orientation

Table 2 reports weighted estimates of covariates of disability, including chronic health conditions, risk health behaviors, and physical and mental health status by sexual orientation.

Age-adjusted logistic regression analyses indicated that significant associations exist between sexual orientation and covariates of disability. The age-adjusted likelihoods of current smoking, arthritis, and frequent mental distress for both lesbians and bisexual women were significantly higher than were those for heterosexual women. Lesbians were more likely to be obese than were heterosexual women, and bisexual women were more likely to report lifetime asthma and frequent poor physical health, even after we considered age. Age-adjusted analyses also indicated that, compared with heterosexual men, both gay and bisexual men were more likely to be current smokers and to experience frequent poor physical health and mental distress; gay men were less likely to be obese than were heterosexual men.

Sexual Orientation as an Indicator of Disability

We conducted multivariate logistic regression analyses to examine whether adjusting for sociodemographic characteristics as well as the health-related covariates of disability would reduce the association between sexual orientation and disability. Among women, the odds of lesbians and bisexual women being disabled were about 1.9 and 2.7 times higher, respectively, than were those of heterosexual women when we adjusted for sociodemographic characteristics (model 1; Table 3). Next, we added the health-related covariates of disability to

TABLE 2—The Weighted Percentages of Disability and Covariates of Disability by Gender and Sexual Orientation: Washington State BRFSS, 2003, 2005, 2007, 2009

Variable	Lesbians			Bisexual Women			Heterosexual Women, %	Gay Men			Bisexual Men			Heterosexual Men, %
	%	AOR	P	%	AOR	P		%	AOR	P	%	AOR	P	
Disability	35.51	1.97	<.001	36.17	2.83	<.001	24.85	26.16	1.36	.022	40.11	3.13	<.001	22.47
Asthma	19.92	1.23	.137	31.88	2.17	<.001	16.53	14.04	1.15	.413	17.25	1.41	.164	12.21
Arthritis	33.67	1.55	<.001	22.57	1.54	.002	30.72	20.90	1.12	.417	14.99	0.91	.639	22.11
Obesity	32.80	1.60	<.001	27.06	1.27	.086	23.66	17.25	0.63	.001	24.17	1.00	.997	24.99
Smoking	27.29	1.96	<.001	34.62	2.30	<.001	15.44	26.95	1.65	<.001	35.41	2.24	<.001	17.85
Lack of exercise	18.79	1.07	.63	15.51	0.96	.817	18.61	17.60	1.13	.458	18.89	1.30	.358	16.24
Frequent poor physical health	12.74	1.22	.205	18.80	2.41	<.001	11.60	12.44	1.54	.01	13.39	1.86	.028	9.10
Frequent mental distress	15.03	1.40	.023	25.03	2.36	<.001	10.91	13.35	1.80	.001	23.15	3.39	<.001	7.78

Note. AOR = adjusted odds ratio; BRFSS = Behavioral Risk Factor Surveillance System. We conducted age-adjusted logistic regression analyses to examine the relationship of sexual orientation with each indicator of disability, with heterosexual participants as the reference group.

model 1. Health conditions (asthma, obesity, and arthritis), health risk behaviors (smoking and lack of exercise), and frequent poor physical health and mental distress significantly and independently increased the odds of disability. Still, sexual orientation remained a significant indicator of disability even after we added the health-related covariates of disability, and the odds ratios for lesbians and bisexual women versus heterosexual women only reduced slightly to 1.7 and 2.2.

The odds of gay and bisexual men being disabled remained significantly higher than those of heterosexual men when we controlled for sociodemographic characteristics (model 1, Table 3). In model 2, we added the health-related covariates of disability. Although the covariates were significantly associated with disability as observed with women, the adjusted odds ratio for gay men versus heterosexual men was no longer significant. The adjusted odds of bisexual men being disabled was approximately 2.8 times higher than that of heterosexual men in model 1, and the adjusted odds ratio for bisexual men versus heterosexual men was only reduced slightly to 2.7 when we added covariates of disability to the model. Furthermore, the adjusted odds of disability for bisexual women and men were relatively higher than those for lesbians and gay men.

DISCUSSION

The CDC has recently identified disparities related to disability and sexual orientation as the 2 main gaps in current health disparities research.[6] Although previous studies have found that sexual minority groups experience disparities in physical and mental health, existing research has not comprehensively examined disability prevalence among LGB adults, and disability has not been identified as a priority health issue for LGB adults.[28] To our knowledge this is the first study to utilize population-based data to examine disability prevalence rates and their covariates among these populations.

The findings reported here indicate that the prevalence of disability is significantly higher in these populations. Furthermore, for lesbians and bisexual women and men, this disparity remained significant even after we controlled for sociodemographic characteristics, chronic health conditions, health behaviors, and physical and mental health. In this study, LGB adults demonstrated higher odds of disability than did their heterosexual counterparts of comparable ages, even among those who were relatively young (18–30 years), suggesting that the age of onset of disability may be lower in these groups.

Understanding the mechanisms through which LGB adults have an increased risk of

disability is important in targeting prevention efforts. The results in this study suggest that disparities in chronic health conditions, health risk behaviors, and poor physical and mental health among LGB adults may contribute to the heightened prevalence of disability. As consistent with previous studies,[15,16,18] higher rates of chronic diseases such as lifetime asthma, arthritis, and obesity are of major concern especially among lesbians and bisexual women. Higher mental distress prevalence among all of the groups and higher poor physical health among gay men and bisexual women and men are also significant indicators of disability.

Research on disability has identified both nonmodifiable risk factors such as age, gender, and genetics, and modifiable risk factors such as age-related diseases, impairments, functional limitations, poor coping strategies, sedentary lifestyles, and other risk behaviors in addition to social and environmental obstacles. It is important to recognize that some of the covariates of disability in these communities are related to modifiable health behaviors, including smoking among all the groups as well as weight control among lesbians. Understanding the mechanisms through which LGB adults have an increased risk of disability is important in developing and targeting prevention efforts tailored to the specific risks they face.

Although we are limited because of the cross-sectional nature of this study in our ability to disentangle the temporal relationship between health condition and risk and disability, the elevated rates of smoking among LGB adults is a primary health risk in these populations that should be addressed. Targeted health promotion efforts to reduce smoking among these groups might highlight the general health benefits as well as the impact that quitting smoking might have on reducing the risk of disability or preventing further adverse health effects. For lesbians in particular, addressing obesity and frequent mental distress through exercise and nutrition support may lead to decreased disability as well as improved quality of life. In addition to increased smoking, both bisexual women and men shared elevated reports of frequent poor physical health and mental distress, which are worthy of further research to better understand the most appropriate prevention opportunities for these groups.

TABLE 3—The Results of Multivariate Regression Analyses of Disability on Sexual Orientation and Covariates by Gender: Washington State BRFSS, 2003, 2005, 2007, and 2009

Variable	Model 1 Women AOR	Model 1 Women P	Model 2 Women AOR	Model 2 Women P	Model 1 Men AOR	Model 1 Men P	Model 2 Men AOR	Model 2 Men P
Sexual orientation								
Heterosexual (Ref)	1.00		1.00		1.00		1.00	
Gay or lesbian	1.92	<.001	1.71	<.001	1.42	.008	1.20	.216
Bisexual	2.74	<.001	2.24	<.001	2.82	<.001	2.72	<.001
Asthma	. . .	. . .	1.90	<.001	. . .	. . .	1.52	<.001
Obesity	. . .	. . .	1.65	<.001	. . .	. . .	1.53	<.001
Arthritis	. . .	. . .	3.39	<.001	. . .	. . .	2.82	<.001
Smoking	. . .	. . .	1.31	<.001	. . .	. . .	1.50	<.001
Lack of exercise	. . .	. . .	1.40	<.001	. . .	. . .	1.46	<.001
Frequent poor physical health	. . .	. . .	6.28	<.001	. . .	. . .	6.45	<.001
Frequent mental distress	. . .	. . .	2.16	<.001	. . .	. . .	2.61	<.001

Notes. AOR = adjusted odds ratio; BRFSS = Behavioral Risk Factor Surveillance System. The multivariate logistic regression models controlled for age, education, and income. Ellipses indicates a variable not included in the adjusted model.

The findings of this study underscore the importance of disaggregating subgroups of these populations to better understand their unique health care needs.[27] Although LGB adults in general were at increased risk of disability, they showed some disparate patterns in health risk behaviors and chronic conditions associated with disability. These disparate patterns may be important to understand more fully to effectively develop and target prevention efforts. For example, adjusting for health-related covariates decreased to nonsignificance the odds ratio for disability among gay men compared with heterosexual men. This finding may suggest that disparities in disability for gay men are mediated through differences in the prevalence of those health-related conditions (smoking and frequent poor physical health and mental distress) indicating that prevention efforts should focus on ameliorating the disparities in prevalence and health effects of these conditions.

Among bisexual men, however, adjusting for these health conditions did not appreciably reduce the disparity in disability compared with heterosexual men. Similarly, controlling for the disparate health-related conditions for lesbians (smoking, arthritis, obesity, and frequent mental distress) and bisexual women (smoking, arthritis, asthma, and frequent poor physical health and mental distress) only slightly reduced the disparity in disabilities compared with heterosexual women. These findings indicate that although prevention efforts for lesbians and bisexual women and men should focus on reducing the disparities in the disability-associated health conditions, unexplained elevated disability may remain for lesbians and bisexual women and men, which warrants further exploration. In addition, further research is needed to better understand other risk factors that may account for the higher prevalence of disability among LGB adults. To better understand the social context of disability among these groups, in future research it will be important to assess the interplay of other key factors such as stress and stigma[29] as they impact health in these communities.

One limitation of the BRFSS data is that information on some potentially important covariates of disability (e.g., HIV) and other potential confounders (e.g., discrimination)

were not available. Because body mass index was calculated with self-reported weight and height, the validity could be debatable.[30] Our findings are subject to further limitations with respect to self-identification of sexual orientation and response rates as previously described.[14,27] Furthermore, the cross-sectional nature of the BRFSS data does not allow us to explore the temporal relationships between disability and associated risk factors, and therefore we are limited in our ability to examine relationships over time. Further work is also needed to better understand the complex nature of the relationships between predictors of disability among distinct groups. As more robust and larger samples become available it will be important to further investigate several factors including differences between congenital and acquired disabilities in these communities, the impact of relationship status, living arrangement, and race/ethnicity on disability and how environmental factors may impact both the identification and response to disabilities among LGB adults.

As the population ages and the prevalence of disability increases, the public health care cost associated with disability will continue to rise.[31] To respond to this growing public health challenge it is important to identify groups at risk for disparities in disability and other secondary conditions. This population-based study is one of the first to document that disability prevalence rates of LGB adults are significantly higher than those of their heterosexual counterparts. The findings from this study provide insight to guide the development of tailored interventions to prevent, delay, and reduce disability as well as to improve the quality of life for LGB adults with disabilities. These findings are a first step in what needs to be ongoing work to better understand the social context and predictors of disability and to develop prevention strategies that address the unique health needs of LGB adults. ∎

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