

# Health Behavior, Status, and Outcomes Among a Community-Based Sample of Lesbian and Bisexual Women

Wendy B. Bostwick, PhD, MPH,<sup>1</sup> Tonda L. Hughes, PhD, RN, FAAN,<sup>2</sup> and Bethany Everett, PhD<sup>3</sup>

## Abstract

**Purpose:** To compare health behaviors, and physical and mental health outcomes in a community-based sample of bisexual and lesbian women.

**Methods:** The Chicago Health and Life Experiences of Women (CHLEW) study is a longitudinal study of sexual minority women's health. Wave 3 of the CHLEW used a modified version of respondent-driven sampling to recruit a supplemental sample of bisexual-identified women into the study, with an additional focus on younger women, and Black and Latina women. Face-to-face interviews were conducted and data were captured using computer-assisted interviews. Data from the supplemental Wave 3 sample are reported here.

**Results:** Bisexual ( $n = 139$ ) and lesbian women ( $n = 227$ ) did not differ on most health outcomes, either in terms of prevalence or adjusted odds. Bisexual women were at higher risk of ever being diagnosed with a sexually transmitted infection (STI) (AOR = 3.01) and scoring 10 or more on the Center for Epidemiologic Studies Depression Scale (CES-D) (AOR = 1.73) compared to lesbian women.

**Conclusion:** In contrast to the prevailing view of bisexual women as being at higher risk for many/most negative health outcomes, we found relatively few differences between bisexual and lesbian women in the current study. Additional research is needed to better understand risk and resilience factors among bisexual women specifically, and sexual minority women more broadly.

**Key words:** bisexual, health disparities, health status, lesbian, sexual minority women, sexual orientation.

## Introduction

TWO INSTITUTE OF MEDICINE REPORTS, written more than a decade apart, have emphasized the need for more research devoted specifically to the health of bisexual populations.<sup>1,2</sup> In the field of lesbian, gay, bisexual, and transgender (LGBT) health, non-HIV related health research with bisexual-identified groups has been comparatively rare.<sup>3</sup> However, as numerous probability-based studies have incorporated measures of sexual orientation into their battery of demographic questions (e.g., National Survey of Family Growth, National Epidemiologic Survey of Alcohol and Related Conditions, Behavioral Risk Factor Surveillance System [BRFSS]), increasingly more research has analyzed the health outcomes of bisexual and lesbian/gay populations separately. In turn, there is accumulating evidence that in many health domains, it is bisexual groups that experience the highest prevalence of poor health

outcomes, relative to both heterosexuals, and gay and lesbian groups. These disparities tend to be more pronounced and consistent between bisexual and lesbian women than bisexual and gay men, and have been found in studies of mood and anxiety disorders,<sup>4,5</sup> substance use behaviors,<sup>6,7</sup> smoking,<sup>8</sup> fair/poor self-assessed mental health,<sup>9,10</sup> fair/poor self-assessed physical health,<sup>11</sup> and somatic complaints.<sup>12</sup>

While such studies have offered insight into heightened prevalence of numerous health disparities among bisexual women, and correspondingly heightened odds in comparison to heterosexual women, there are few studies that directly compare bisexual and lesbian women in higher order models. That is, in multivariate analyses that control for income and age differences across the groups, heterosexual women typically serve as the comparison group for both lesbian and bisexual women, with few studies conducting within group comparisons across sexual minority women subgroups. The

<sup>1</sup>Public Health and Health Education Programs, Department of Nursing and Health Studies, Northern Illinois University, DeKalb, Illinois.

<sup>2</sup>Department of Health Systems Sciences, University of Illinois at Chicago, College of Nursing, Chicago, Illinois.

<sup>3</sup>Department of Sociology, University of Illinois at Chicago, Chicago, Illinois.

absence of multivariate models that directly compare bisexual and lesbian women limits our ability to understand the extent to which these two groups actually differ.<sup>9</sup>

In two studies that included direct comparisons of bisexual and lesbian women, results were not consistent. In a study using data from the Washington State BRFSS survey, the authors found that even after adjusting for demographic differences, including age and living in poverty, bisexual women had significantly higher odds of frequent mental distress and poor general health than lesbian women.<sup>9</sup> Another, more recent study, which relied on a pooled sample of 2010 BRFSS surveys from 10 states, directly compared bisexual and lesbian women on a wide range of health behaviors and outcomes in addition to comparisons to heterosexual women.<sup>13</sup> Once age, race, education and income were controlled, bisexual and lesbian women no longer differed significantly in regard to fair/poor health status, current smoking, HIV risk, or screening behaviors. The most notable finding was that bisexual women were significantly less likely to seek health care owing to cost compared to lesbian women (AOR = 2.04, 95% CI = 1.03–4.03).

In the current paper, we propose to further examine the extent of health disparities between sexual minority women, by directly comparing bisexual and lesbian women on a number of health behaviors and outcomes.

## Methods

The Chicago Health and Life Experiences of Women (CHLEW) study is a longitudinal, community-based study of risk and protective factors associated with alcohol use among sexual minority women. To date, three waves of data have been collected: Wave 1 in 2000–2001, Wave 2 in 2004–2005, and Wave 3 in 2010–2012. In Wave 3, we added a supplemental sample of bisexual-identified women as well as younger (18–25 years) bisexual/lesbian women, and African American and Latina bisexual/lesbian women (of any age). The analyses reported here include only this new cohort of women (for more information about the Wave 1 sample and sampling methods, see Hughes and colleagues).<sup>14</sup>

The Wave 3, supplemental sample was recruited using a modified version of respondent-driven sampling (RDS). RDS is a refinement of chain-referral sampling developed by Heckathorn.<sup>15,16</sup> In this method, initial participants, or “seeds” who meet study criteria, and who have a sufficient number of people in their social network who also meet study criteria, are deliberately selected to initiate sampling chains. Seeds for the new, supplemental sample were identified through: conversations with key community stakeholders; communication with the original Wave 1 CHLEW sample; and outreach on Chicago-area lesbian/queer websites. Seeds were given a maximum of three numbered recruitment coupons that described the purpose, eligibility criteria, and telephone number to call to be screened or to obtain additional information about the study.

Eligible participants were, then, contacted by a trained interviewer to schedule their interview at a place of their choosing. Interviewers obtained consent in their face-to-face meeting with participants. Data were collected using computer-assisted interviews. In turn, each of the new participants were given three coupons after their interview and invited to recruit others into the study. Participants received

\$20 for each eligible woman they recruited, with the limit of three coupons serving as a safeguard against over-recruitment of those from a particular social network. Participants were paid the recruitment incentive after their referral was interviewed. This study was approved by University of Illinois at Chicago’s institutional review board.

## Measures

**Sexual orientation identity.** Sexual orientation identity was measured using an item that asked participants, “Recognizing that sexual identity is only one part of your identity, how do you define your sexual identity? Would you say that you are: ‘only lesbian/gay,’ ‘mostly lesbian/gay,’ ‘bisexual,’ ‘mostly heterosexual,’ ‘only heterosexual/straight,’ or ‘other?’ ” A dummy variable was created that captures whether participants identify as only or “mostly lesbian/gay” (0) or “bisexual” (1). All others were excluded from analyses.

**Health behaviors.** We assessed a variety of health behaviors, including: current smoking status, lifetime and past year marijuana use, lifetime and past year cocaine use, and hazardous drinking. Current smoking indicates whether participants reported that they “currently smoke cigarettes” (1) or not (0). Lifetime and past year drug use was assessed with questions that asked participants if they had ever used marijuana/cocaine and, if “yes,” if they had used marijuana/cocaine in the past 12 months. Responses to these questions were coded as dichotomous outcomes that captured whether participants reported yes (1) to an item or no (0).

Hazardous drinking was coded as a dichotomous variable that captured whether participants report two or more indicators of hazardous drinking in the past 12 months. Hazardous drinking was assessed based on: heavy episodic drinking, intoxication, adverse drinking consequences, and symptoms of potential alcohol dependence. We first summed and dichotomized responses to questions related to each indicator (any/none in past 12 months), producing an index ranging from 0 to 4. Because 12-month intoxication was reported by a large proportion of the sample, we used a cut-off of 2 or more of the four indicators as our definition of hazardous drinking.<sup>17</sup>

**Physical health outcomes.** Self-assessed physical health was measured using an item that asked participants, “In general, how has your physical health been over the last 12 months?” “Very poor,” “poor,” and “fair” were collapsed and recoded as 1, while “good,” “very good,” and “excellent” health were collapsed and recoded as 0. Participants were also asked if they had ever been diagnosed with hypertension, diabetes, cancer, heart disease, or a sexually transmitted infection. Responses were coded as “yes/no” (1 or 0).

**Mental health outcomes.** We assessed lifetime depression, lifetime and past-year anxiety, lifetime suicidal thoughts, lifetime suicide attempts, CES-D 10 scores, and self-assessed mental health.

Lifetime depression was measured using the diagnostic interview schedule (DIS), which approximates a DSM-IV diagnosis of major depressive disorder.<sup>18</sup> Questions assessed a variety of symptoms (e.g., trouble sleeping, changes in appetite, loss of pleasure in things one usually cares about). Persistence of three or more symptoms for at least two weeks, accompanied by feeling sad, blue or depressed, was defined

as a depressive episode. Those who experienced at least one episode in their lifetime were coded as 1 (yes, lifetime depression) and those who had not as 0 (no lifetime depression).

Lifetime and past year anxiety were measured using the item, "How much has nervousness or anxiety interfered with your everyday life activities?" separately assessing lifetime and during the last 12 months. Possible answers ranged from "not at all" to "a great deal." Responses were dichotomized as "any/none."

Lifetime suicidal thoughts and attempts were assessed using two items that asked, "Have you ever felt so low you thought of committing suicide?" and if respondents "had ever attempted suicide." "Yes" responses were coded as 1, and "no" as 0.

Past week depressive symptomatology was assessed with the Center for Epidemiology Studies Short Depression Scale (CES-D 10).<sup>19</sup> Participants were asked how often in the previous week they: (1) felt depressed, (2) felt that everything was an effort, (3) had restless sleep, (4) felt happy, (5) felt lonely, (6) felt people were unfriendly, (7) felt they enjoyed life, (8) felt sad, (9) felt people disliked them, or (10) felt they could not "get going." Response options were "rarely or none of the time," "some or little of the time," "a moderate amount of the time," "most or all of the time." Items 4 and 7 were reversed scored and then an overall CES-D "score" was calculated. Consistent with the literature,<sup>19</sup> scores were dichotomized as 10  $\geq$  or below 10, with a score of 10 or above indicating a possible depressive illness.

Finally, participants were asked in general, how their emotional/mental health had been over the last 12 months. Options ranged from excellent (6), to very poor (1). "Very poor," "poor," and "fair" were collapsed and recoded as 1, while "good," "very good," and "excellent" were collapsed and recoded as 0.

**Covariates.** Age was coded as a continuous variable (range: 18 to 69). Race/ethnicity was coded as a series of dummy variables with non-Hispanic white as the referent. Education was coded as series of dichotomous variables that capture whether participants reported having a high school education, some college, or a college degree (referent). Income was derived from an item that asked participants, "For the last tax year, which of these income groups represents your total household income from all your sources?" Participants were then offered 26 income categories to select from. Responses were collapsed into five categories: <\$5,000 a year;  $\geq$ \$5,000 and <\$15,000;  $\geq$ \$15,000 and <\$40,000 (referent);  $\geq$ \$40,000; or missing.

### Analytic Approach

We first present descriptive statistics stratified by sexual orientation identity. T-tests were conducted to test for significant differences between bisexual and lesbian women. Second, we present the odds ratios and 95% confidence intervals from adjusted logistic regression models. All models controlled for age, race/ethnicity, education, and income.

### Results

The total sample included 366 women, of which 139 identified as bisexual and 227 identified as only/mostly lesbian. The "only" and "mostly" groups did not differ from one another

on outcomes of interest and, thus, were combined into a single category (data not shown). The bisexual and lesbian groups did not differ with respect to age or income, although lesbian women were significantly more likely to identify as Black and to report at least some college education (Table 1).

Health behaviors generally did not differ between the groups. Bisexual women were marginally more likely to report lifetime cocaine use (37.4% v. 28.9%,  $P < .10$ ), whereas bisexual and lesbian women reported nearly identical levels

TABLE 1. DEMOGRAPHICS AND FREQUENCIES OF HEALTH BEHAVIORS AND OUTCOMES, CHICAGO HEALTH AND LIFE EXPERIENCES OF WOMEN STUDY

	Bisexual (n = 139)	Lesbian (n = 227)
<b>Age</b>		
18 to 25	38.1%	38.8%
26 to 35	28.1%	26.4%
36 to 44	19.4%	13.7%
45 and older	14.4%	21.2%
<b>Education</b>		
High school	36.7%	28.9%
Some college*	31.7%	44.4%
College grad	31.0%	26.3%
<b>Race/Ethnicity</b>		
Non-Hispanic white*	36.0%	18.1%
Non-Hispanic black*	34.5%	50.7%
Hispanic	29.5%	31.3%
<b>Income</b>		
<\$5,000	11.5%	15.9%
$\geq$ \$5,000 and <\$15,000	30.2%	21.6%
$\geq$ \$15,000 and <\$40,000	27.3%	23.4%
$\geq$ \$40,000	20.1%	30.4%
Missing	10.8%	8.81%
<b>Health Behaviors</b>		
Current smoker	46.0%	40.9%
Any lifetime marijuana use	82.0%	81.9%
Any past year marijuana use	53.5%	52.1%
Any lifetime cocaine use+	37.4%	28.9%
Any past year cocaine use	36.5%	28.4%
Past year hazardous drinking	64.6%	60.4%
<b>Physical Health</b>		
Fair/poor/very poor self-assessed health status	26.6%	30.5%
STI diagnosis, ever***	37.4%	20.3%
Any cancer	3.59%	5.29%
Hypertension	15.8%	19.0%
Diabetes	6.47%	6.57%
Heart disease	4.30%	1.72%
<b>Mental Health</b>		
CES-D 10 (Meets cut-off score of 10 $\geq$ )*	38.1%	25.1%
Lifetime depression (DIS)	47.5%	47.4%
Lifetime anxiety <sup>+</sup>	84.2%	73.9%
Past year anxiety*	81.3%	67.7%
Suicidal thoughts, lifetime	46.8%	43.5%
Suicide attempts, lifetime <sup>+</sup>	20.9%	28.4%
Fair/poor/very poor self-assessed mental health	41.0%	32.7%

+ =  $P < .10$ ; \* $P < .05$ ; \*\*\* $P < .001$ .

STI, sexually transmitted infection; CES-D, Center for Epidemiologic Studies Depression Scale; DIS, Diagnostic Interview Schedule.

TABLE 2. ADJUSTED ODDS RATIOS OF HEALTH BEHAVIORS AND OUTCOMES, BISEXUAL VERSUS LESBIAN WOMEN, CHICAGO HEALTH AND LIFE EXPERIENCES OF WOMEN STUDY

	<i>Adjusted Odds Ratio (AOR)</i>	<i>95% CI</i>
<b>Health Behaviors</b>		
Current smoker	1.11	(0.67, 1.83)
Lifetime marijuana use	0.91	(0.51, 1.63)
Past year marijuana use	0.92	(0.54, 1.57)
Lifetime cocaine use	1.05	(0.63, 1.74)
Past year cocaine use	1.29	(0.52, 3.19)
Hazardous drinking	1.05	(0.63, 1.76)
<b>Physical Health</b>		
Self-assessed health status	0.86	(0.51, 1.44)
STI diagnosis, ever	3.01	(1.77, 5.09)
Cancer	0.73	(0.24, 2.27)
Hypertension	1.06	(0.54, 2.09)
Diabetes	0.98	(0.38, 2.50)
Heart disease	4.95	(0.07, 23.91)
<b>Mental Health</b>		
CES-D 10 Score $\geq 10$	1.73	(1.05, 2.83)
Lifetime depression (DIS)	0.81	(0.51, 1.29)
Lifetime anxiety	1.62	(0.90, 2.90)
Past year anxiety	1.71	(0.98, 2.98)
Suicidal thought, lifetime	1.04	(0.66, 1.64)
Suicide attempts, lifetime	0.63	(0.37, 1.08)
Self-assessed mental health	1.22	(0.77, 1.94)

Models adjust for age, education, race/ethnicity, and income.

of lifetime and past year marijuana use. Physical health outcomes also did not differ significantly between women in the current study, with the exception of ever receiving an STI diagnosis. Among bisexual women, 37.4% endorsed this, whereas only 20.3% of lesbian women did ( $P < .001$ ).

Finally, mental health outcomes differed in regard to CES-D scores, and past year anxiety. Bisexual women were more likely to report a CES-D 10 score of 10 or higher (38.1% v. 25.1%,  $P < .05$ ), and experiencing past year anxiety (81.3% v. 67.8%,  $P < .05$ ).

Among the adjusted multivariate models (Table 2), the only statistically significant differences were lifetime STI diagnosis and CES-D score. Bisexual women had three-fold higher odds of receiving any lifetime STI diagnosis as compared to lesbian women (AOR = 3.01), and were more likely to report CES-D 10 scores of 10 or higher (AOR = 1.73).

## Discussion

There were few significant differences between bisexual and lesbian women's health behaviors and outcomes in the current study—either in terms of their prevalence or their adjusted odds. Although this is consistent with Blosnich and colleagues' recent findings of few differences in bisexual and lesbian women's odds of poor health outcomes,<sup>13</sup> there are a number of issues to consider when interpreting these findings.

This is a convenience sample, which relied upon a modified version of respondent-driven sampling. Respondent-driven sampling is a methodology that explicitly relies upon networked individuals as "seeds" or hubs of recruitment.<sup>15</sup> Therefore, most participants in the current study

were necessarily part of a network of like individuals. This seems especially relevant vis-à-vis mental health given the preponderance of findings demonstrating large mental health inequities among bisexual women. Those probability-based studies that have found significant differences in the prevalence or odds of mental health disorders between bisexual and lesbian women have often posited that a lack of an identifiable bisexual community may contribute to findings of mental health disparities among bisexual women.<sup>4,9</sup> Although we cannot speak to whether or not women in the current study explicitly felt they were part of any specific community, bisexual or otherwise, in order to be recruited into the study all women had to have some connection with other bisexual and/or lesbian women. Given the well-established relationship between social networks and health,<sup>20</sup> particularly the positive benefits of social connectedness and social ties,<sup>21</sup> perhaps the fact that both groups of women were by definition "networked," attenuated differences in health outcomes that may have otherwise existed.

Another salient consideration, particularly for future research, is that the women in our sample did not differ significantly in terms of age or income. Given the explicit sampling parameters for this wave of data collection, (i.e., women 18–25 were deliberately over-sampled), the comparability in terms of age makes sense. That said, probability-based studies have quite frequently found that bisexual women differ significantly from lesbian and heterosexual women in terms of age and income, with bisexual women being significantly younger and more likely to be living in poverty.<sup>8,9,13,22</sup> Research on patterns of poverty within lesbian, gay, and bisexual populations also shows bisexual adults experience the highest rates of poverty, and in some cases, a higher propensity to receive public assistance.<sup>23</sup> The correlation between poverty and bisexual identity is an area in need of further investigation, as the health consequences of living in poverty very likely drive many of the disparities typically seen among bisexual women.

Finally, the overall lack of differences may reflect shifts in bisexual women's experiences of their identity. Previous studies have pointed to the unique types of stigma experiences that bisexual women contend with, such as bisexual-specific microaggressions<sup>24</sup> and exclusion from LGBT communities.<sup>25</sup> Perhaps the women in our study were less likely to encounter such experiences, either by virtue of real historical shifts in attitudes toward bisexuality, their urbanicity (i.e., living in a major metropolitan area), and/or their connection to like others. These factors may contribute to similar outcomes among bisexual and lesbian women in the CHLEW study. Much more research is needed to determine if such hypotheses are valid.

Though there were few differences between bisexual and lesbian women in the current study, the differences found should not be overlooked: Bisexual women were much more likely to report a diagnosis of a sexually transmitted infection, and score 10 or higher on the CES-D 10, which captures past week depressive symptomology. Both of these findings have implications for prevention programming, as well as long-term physical health.

Previous research has suggested that bisexual women are more likely to report a variety of STI-risk behaviors<sup>26–28</sup> and, consequently, are more likely to report having been diagnosed with an STI compared to both heterosexual and lesbian women.<sup>28,29</sup> The most consistent risk factor across

studies is the repeated finding that bisexual women report more *male* sexual partners than either lesbian or heterosexual women,<sup>27–29</sup> and that they report less consistent condom use during vaginal sex.<sup>28</sup> Such findings suggest that bisexual women have more sexual interactions during which an STI could be acquired, and that these interactions are more likely to be associated with increased STI risk.

Finally, although sexual minority women in our sample did not differ from one another on most outcomes, certain health behaviors and outcomes reported by both bisexual and lesbian women in the current study are substantially higher than those reported in studies of the general population. For example, the 2011 BRFSS data for Cook County, the county in which Chicago is situated, and where the majority of participants in the current study resided, indicated that among women, 19.9% were current smokers.<sup>30</sup> This compares to 46% and 41% of bisexual and lesbian women, respectively, in the CHLEW study who reported current smoking. Also of note, and consistent with findings from other studies,<sup>6,8</sup> both lesbian and bisexual women in our sample reported higher levels of illicit drug use, compared to heterosexual women in the general population. Particularly alarming, over 40% of both groups of women in CHLEW reported suicidal thoughts in their lifetime, and 21% (bisexual women) and 28% (lesbian women) reported a suicide attempt in their lifetime. The latter numbers compare to a lifetime prevalence of suicide attempt of 4.2% among heterosexual women in a nationally representative sample.<sup>31</sup>

Despite few significant differences *between* sexual minority women reported here, the larger issue of sexual orientation-related health disparities is starkly apparent in our sample, and should not be overlooked.

Limitations of the current study include its reliance on a volunteer sample, which limits the generalizability of our findings to other sexual minority women. In addition, the lack of diagnostic instruments to assess anxiety or drug use disorders makes comparisons to other studies difficult.

## Conclusion

We found few differences between bisexual and lesbian women in the current study. Nevertheless, the differences that did emerge—past week depressive symptomology and STI diagnosis—highlight two important areas that require continued investigation. Each of these indicators, if untreated, has important implications for long-term health outcomes, including cardiovascular disease, cancer, or infertility. Additional inquiry into specific risk and protective factors among bisexual and lesbian women is needed.

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## Author Disclosure Statement

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Address correspondence to:  
 Wendy B. Bostwick, PhD, MPH  
 Public Health and Health Education Programs  
 Department of Nursing and Health Studies  
 Northern Illinois University  
 Lincoln Highway  
 Wirtz Hall  
 DeKalb, IL 60115

*E-mail:* wbstwick@niu.edu