



## Editor's Choice

# Health and Access to Care among Reproductive-Age Women by Sexual Orientation and Pregnancy Status



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## A B S T R A C T

**Background:** A large body of research has documented disparities in health and access to care among sexual minority populations, but very little population-based research has focused on the health care needs among pregnant sexual minority women.

**Methods:** Data for this study came from 3,901 reproductive-age (18–44 years) women who identified as lesbian or bisexual and 63,827 reproductive-age women who identified as heterosexual in the 2014–2016 Behavioral Risk Factor Surveillance System. Logistic regression models were used to compare health care access, health outcomes, and health behaviors by sexual orientation and pregnancy status while controlling for demographic characteristics and socioeconomic status.

**Results:** Approximately 3% of reproductive-age sexual minority women were pregnant. Pregnant sexual minority women were more likely to have unmet medical care needs owing to cost, frequent mental distress, depression, poor/fair health, activity limitations, chronic conditions, and risky health behaviors compared with pregnant heterosexual women. Nonpregnant sexual minority women were more likely to report barriers to care, activity limitations, chronic conditions, smoking, and binge drinking compared with nonpregnant heterosexual women. Health outcomes were similar between pregnant and nonpregnant sexual minority women, but pregnant sexual minority women were more likely to smoke cigarettes every day compared with other women.

**Conclusions:** This study adds new population-based research to the limited body of evidence on health and access to care for pregnant sexual minority women who may face stressors, discrimination, and stigma before and during pregnancy. More research and programs should focus on perinatal care that is inclusive of diverse families and sexual orientations.

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A large body of research has documented disparities in health and access to medical care for sexual minority populations (Blosnich, Farmer, Lee, Silenzio, & Bowen, 2014; Conron, Mimiaga, & Landers, 2010; Gonzales, Przedworski, & Henning-Smith, 2016; Institute of Medicine, 2011). Lesbian, gay, bisexual (LGB), and other nonheterosexual people are more likely to report adverse health outcomes owing to minority stress, or the additional stressors associated with being a member of a marginalized minority group (Eliason, 2014; Meyer, 2003).

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Discriminatory environments and stigma against LGB populations can lead to lower self-esteem, less confidence, and increased rates of mental distress and risky health behaviors, including heavy cigarette smoking and alcohol consumption (Hatzenbuehler, Keyes, & Hasin, 2009). Meanwhile, limited access to health insurance and to culturally competent health care providers trained on LGB health issues may create barriers to regular medical care (Clift & Kirby, 2012; Gonzales & Blewett, 2014). Indeed, LGB populations are less likely to receive routine medical care, and they continue to experience challenges finding LGB-affirming providers (Dahlhamer, Galinsky, Joestl, & Ward, 2016; Hsieh & Ruther, 2017).

Very little research has focused on health and access to care for sexual minority women during pregnancy. Rather, research on pregnancy among sexual minority populations has tended to focus on sexual behaviors and risk of pregnancy. For instance,

several studies have compared the lifetime prevalence of pregnancy in sexual minority women relative to heterosexual women; these studies found that sexual minority women were less likely to ever be pregnant compared with heterosexual women (Hodson, Meads, & Bewley, 2017; Marrazzo & Stine, 2004). Some research, however, suggests that sexual minority adolescents may be more likely to engage in sexual behaviors and report greater risks of pregnancy compared with heterosexual adolescents (Charlton et al., 2018; Everett, McCabe, & Hughes, 2016; Lindley & Walsemann, 2015; Saewyc, Bearinger, Blum, & Resnick, 1999; Saewyc, Poon, Homma, & Skay, 2008). This research was important for correcting misconceptions that sexual minority women cannot or do not wish to become pregnant—beliefs that have stalled progress on research that aims to address the health care needs of pregnant sexual minority women (Estes, 2017). Our study builds on previous research and begins to fill wide gaps in knowledge on pregnant sexual minority women using data from a large, representative, and multistate health survey to compare access to care, health status, and health behaviors by sexual minority and pregnancy status.

### Conceptual Framework

There are a variety of reasons why pregnant sexual minority women may be at greater risk of experiencing adverse health outcomes during pregnancy compared with heterosexual women. First, numerous studies (predominantly focusing on heterosexual women or assuming heterosexual identities) have found that some women are more likely to report anxiety and stress during pregnancy (Schetter, 2011; Schetter & Tanner, 2012; Woods, Melville, Guo, Fan, & Gavin, 2010). Elevated stress levels during pregnancy are associated with miscarriages, preterm births, and low birthweight infants (Newton & Hunt, 1984; Schetter, 2011; Schetter & Tanner, 2012) as well as risk factors (e.g., cigarette smoking) associated with these birth outcomes (Lobel et al., 2008; Weaver, Campbell, Mermelstein, & Wakschlag, 2008). Although pregnancy itself can be stressful for women, sexual minority women may also encounter structural and interpersonal discrimination directed against them—which may compound stress levels during pregnancy. Several qualitative studies have documented the care experiences of sexual minority women across the perinatal period; most of this research has focused on sexual minority women using assisted reproductive technology (ART). These studies find that female same-sex couples may experience challenges navigating the health care system—particularly when ART is not covered by medical insurance or when couples lack familial and social supports (Rank, 2010; Ross, Steele, & Epstein, 2006; Yager, Brennan, Steele, Epstein, & Ross, 2010). Meanwhile, identifying a sperm donor can raise practical, legal, and ethical challenges for some same-sex couples, such as deciding to choose a known or unknown sperm donor (Hayman, Wilkes, Halcomb, & Jackson, 2015). The issues and unique stressors surrounding the ART process may also cause some sexual minority women to experience depression and anxiety (Borneskog, Sydsjö, Lampic, Bladh, & Svanberg, 2013), especially when couples experience unsuccessful attempts or miscarriages (Chapman, Wardrop, Zappia, Watkins, & Shields, 2012; Peel, 2010). Some, but not all, sexual minority women undergoing ART experience strained relationships with their partners (Borneskog, Lampic, Sydsjö, Bladh, & Svanberg, 2014).

Numerous studies also find that pregnant sexual minority women experience prejudice and homophobia from health care

providers and medical staff during pregnancy and childbirth, including disparaging comments, lack of respect, and heteronormative language insensitive to the needs of diverse families (e.g., assuming the co-parent is a father rather than a mother) (Dahl, Margrethe Fylkesnes, Sørli, & Malterud, 2013; Hammond, 2014; Harvey, Carr, & Bernheine, 1989; Larsson & Dykes, 2009; Lee, Taylor, & Raitt, 2011). Sexual minority women also report being worried about societal-based discrimination and stigma harming their families (Gartrell et al., 1996).

Overall, these studies suggest that sexual minority women may experience greater stress and more barriers to care during pregnancy, which may translate to adverse health outcomes for the mother and the child. Indeed, early studies using convenience samples found that sexual minority women may be more likely to have perinatal depression compared with heterosexual women (Maccio & Pangburn, 2011; Ross, Steele, Goldfinger, & Strike, 2007; Ross, Siegel, Dobinson, Epstein, & Steele, 2012; Trettin, Moses-Kolko, & Wisner, 2006). One recent study using nationally representative data from the National Survey of Family Growth found that sexual minority women were more likely to have miscarriages, pregnancies ending in stillbirth, and low birthweight infants—possibly as a result of psychosocial stressors before and during pregnancy (Everett, Kominarek, Mollborn, Adkins, & Hughes, 2018). No research that we are aware of, however, has comprehensively examined access to care, health status, and health behaviors among sexual minority women during pregnancy using representative data. This study builds on previous research and is one of the first to use population-based data to compare an array of health outcomes between pregnant sexual minority women and pregnant heterosexual women.

### Methods

#### Data Source

This study uses data from the 2014–2016 Behavioral Risk Factor Surveillance System (BRFSS), a cross-sectional and nationally representative telephone survey of the civilian, noninstitutionalized population aged 18 years and older. The BRFSS is conducted annually by the Centers for Disease Control and Prevention in conjunction with state health departments in all 50 states and the District of Columbia. Approximately 450,000 adults are randomly selected for the survey every year and asked a core set of questions, including information about demographic and socioeconomic characteristics, health conditions, health care access, and health services use. Additionally, states have the option to add BRFSS-supported modules on specific topics, or states can develop and include their own questions in their statewide BRFSS. The median state-level response rate was 47.1% in 2016 (ranging from 30.7% in Louisiana to 65.0% in Wyoming) (Centers for Disease Control and Prevention, 2017).

#### Study Sample

Currently, the BRFSS core questionnaire does not ascertain sexual orientation, but several states have independently added sexual orientation questions to their specific BRFSS surveys in previous years (Conron et al., 2010; Dilley, Simmons, Boysun, Pizacani, & Stark, 2010; Sell & Holliday, 2014). State-added questions are not submitted to the Centers for Disease Control and Prevention, so analyzing BRFSS data on sexual minority populations across state borders previously required permission

from each individual state (Blosnich et al., 2014). Starting in 2014, the BRFSS offered states an optional and unified sexual orientation module, and the following 31 states and Guam added a sexual orientation question to their statewide BRFSS surveys in 2014, 2015, and/or 2016: California, Colorado, Connecticut, Delaware, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nevada, New York, Ohio, Pennsylvania, Rhode Island, Texas, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

In the sexual orientation module, respondents were asked which of the following categories best represents how they identify themselves: straight, lesbian or gay, or bisexual. Although the BRFSS does include information on transgender status, we chose to focus this analysis on differences by sexual orientation among cisgender women. Our final sample included 3,901 reproductive-age cisgender women between 18 and 44 years of age who identified as lesbian or bisexual and 63,827 reproductive-age cisgender women between 18 and 44 years of age who identified as heterosexual. Our analysis excluded reproductive-age women indicating their sexual orientation as something else ( $n = 311$ ), respondents who did not know the answer ( $n = 678$ ), and respondents who refused to answer ( $n = 896$ ) the sexual orientation question. Previous research on nonresponse to a related sexual orientation question found higher nonresponse rates among racial and ethnic minorities (Kim & Fredriksen-Goldsen, 2013), but nonresponse to sexual orientation was similar to other sensitive questions, such as body weight (VanKim, Padilla, Lee, & Goldstein, 2010). All analyses were examined by sexual minority status and pregnancy status, which was identified when the respondent said yes to the following question: “To your knowledge, are you now pregnant?” Unfortunately, data on pregnancy intention, reproductive history, and contraception use were not available in the main BRFSS questionnaire at the time of this study (Boulet et al., 2016).

#### *Health Care Access Outcomes*

We examined outcomes that represent the wide spectrum of health, access to care, and health risk factors that impact adverse pregnancy outcomes. First, we examined differences in five dimensions of health care access and health services use ascertained in the BRFSS questionnaire. No health insurance was indicated when the participant said they did not have health care coverage at the time of the survey, including health insurance, prepaid plans such as health maintenance organizations, or governmental plans such as Medicare, Medicaid, TRICARE, or Indian Health Service. No usual source of care was indicated when a participant stated they currently did not have one specific person they think of as their personal doctor or health care provider. Unmet medical care need owing to cost was indicated when the participant recalled a time in the past 12 months when they needed to see a doctor but could not afford to because of cost. No routine checkup and no flu shot were assigned when the participant stated that it had been more than 1 year since they last visited a doctor for a routine checkup or received a flu vaccine.

#### *Health Status and Health Behavior Outcomes*

The next set of outcomes measured different dimensions of health, which included frequent mental distress (i.e., mental

health—which includes stress, depression, and problems with emotions—was “not good” 14 days or more in the previous 30 days) and diagnosed depression (i.e., the respondent was ever told they had depression, major depression, dysthymia, or minor depression). Three measures of physical and functional health were also measured: self-rated poor/fair health (vs. excellent, very good, or good health), poor physical health days (i.e., physical health—which includes physical illness and injury—was “not good” 14 days or more in the previous 30 days), and activity limitations owing to health problems (i.e., the respondent was limited in any way because of physical, mental, or emotional problems). We also considered whether the respondent was ever told by a physician, nurse, or other health professional that they had any of the following health conditions: cardiovascular disease (including angina, coronary heart disease, heart attack, and stroke), cancer (including skin cancer), arthritis (including rheumatoid arthritis, gout, lupus, or fibromyalgia), asthma, and/or diabetes (not including gestational diabetes). Finally, we compared the prevalence of different risk factors for adverse pregnancy outcomes: cigarette smoking (i.e., currently smoking cigarettes some days or every day), consumption of any alcoholic beverages in the previous 30 days, and binge drinking in the previous 30 days (i.e., drinking four or more drinks for women on one occasion).

#### *Statistical Analysis*

We used descriptive statistics to characterize the study sample, and we estimated the prevalence of each outcome by sexual minority status and pregnancy status. Next, we estimated multivariable logistic regression models to compare the odds of each outcome between sexual minority women and their heterosexual peers by pregnancy status while controlling for demographic and socioeconomic characteristics. Then, we repeated logistic regression analyses to compare each outcome between pregnant and nonpregnant women by sexual minority status. Finally, we estimated logistic regression models using the complete sample and included interactions between pregnancy status and sexual minority status to determine whether any differences were wider or narrower for pregnant sexual minority women compared with other women. All logistic regression models controlled for age in years (18–24, 25–29, 30–34, 35–39, and 40–44), race and ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, other/multiple races), relationship status (married or living with a partner; divorced, separated, or widowed; never married), the presence of children in the household, educational attainment (less than high school, high school graduate, some college, and college graduate), household income in dollars (0–9,999, 10,000–19,999, 20,000–34,999, 35,000–49,999, 50,000–74,999, and  $\geq 75,000$ ), language of interview (English vs. non-English), state of residence, and survey year. We included indicators when data were missing for each covariate. Results from the logistic regression models are presented as adjusted odds ratios (ORs) with 95% CIs. We conducted all analyses in Stata version 14 using survey weights and the `svy` command to adjust standard errors for the complex survey design of the BRFSS (StataCorp, 2015). This study was deemed exempt from review by the Vanderbilt University Institutional Review Board because data were obtained from de-identified, publicly available, and secondary sources.

## Results

### Sociodemographic Characteristics of the Study Sample

After applying survey weights, approximately 4.2% of reproductive-age heterosexual women and 3.4% of reproductive-age sexual minority women were pregnant in the 2014–2016 BRFSS (data not shown). Approximately 5.3% of reproductive-age women who were pregnant in the 2014–2016 BRFSS considered themselves lesbian or bisexual; 94.7% considered themselves heterosexual (data not shown). Table 1 presents the sociodemographic characteristics of reproductive-age women by pregnancy and sexual minority status. Most pregnant sexual minority women (91.3%) were bisexual, and fewer (8.7%) were lesbian. Compared with pregnant heterosexual women, pregnant sexual minority women tended to be younger (approximately 50% were 18–24 years of age), White, and with lower levels of educational attainment (only 12% had a college degree). Pregnant sexual minority women were also less likely to be married or living with a partner (42.5%) compared

with pregnant heterosexual women (67.8%), and they were less likely to have a child in the household (55.4% vs. 67.9%).

Nonpregnant sexual minority and heterosexual women shared similar patterns, with some notable exceptions. Most nonpregnant sexual minority women of reproductive age were bisexual (75.7%), but approximately one-quarter (24.3%) were lesbian. Compared with nonpregnant heterosexual women, nonpregnant sexual minority women were younger, less likely to be married or living with a partner, and less likely to have a child in the household. Patterns in race/ethnicity and educational attainment were relatively similar between nonpregnant heterosexual women and nonpregnant sexual minority women. However, nonpregnant sexual minority women were less likely to have a college degree (19.2%) compared with their heterosexual peers (29.2%).

### Health Outcomes by Pregnancy and Sexual Minority Status

Table 2 presents prevalence estimates and multivariable logistic regression results comparing health care access and health

**Table 1**  
Characteristics of Reproductive-Age Women by Pregnancy and Sexual Minority Status

	Pregnant		Nonpregnant	
	Heterosexual (n = 2,433)	Sexual Minority (n = 117)	Heterosexual (n = 61,394)	Sexual Minority (n = 3,784)
Sexual orientation				
Heterosexual	100.0	0.0	100.0	0.0
Lesbian	0.0	8.7	0.0	24.3
Bisexual	0.0	91.3	0.0	75.7
Age, years				
18–24	27.5	49.8	26.1	43.2
25–29	26.2	31.9	15.2	19.6
30–34	29.2	14.5	19.8	16.4
35–39	12.5	3.1	18.2	9.8
40–44	4.7	0.8	20.8	11.0
Race/ethnicity				
Non-Hispanic White	55.5	75.2	57.8	59.2
Non-Hispanic Black	12.1	13.4	13.6	15.0
Hispanic	23.7	6.1	18.6	14.5
Non-Hispanic other	8.2	4.4	8.9	10.3
Missing data	0.7	0.9	1.1	1.0
Relationship status				
Married or living with a partner	67.8	42.5	50.6	31.7
Separated/divorced/widowed	4.8	5.6	10.3	10.0
Never married	27.2	51.8	38.8	57.9
Missing data	0.2	0.0	0.3	0.5
Children present in the household				
No	32.0	44.7	32.7	50.1
Yes	67.9	55.4	67.0	49.6
Missing data	0.1	0.0	0.3	0.3
Educational attainment				
Less than high school	12.2	19.3	11.9	14.5
High school graduate	26.4	44.4	24.5	27.5
Some college	30.0	23.6	34.3	38.7
≥Bachelor's degree	31.3	12.3	29.2	19.2
Missing data	0.0	0.4	0.1	0.1
Household income (US\$)				
0–9,999	5.7	7.4	6.2	9.2
10,000–19,999	13.6	17.1	11.7	14.2
20,000–34,999	16.8	24.4	16.8	20.2
35,000–49,999	9.6	9.0	11.5	12.0
50,000–74,999	14.2	3.7	12.3	9.5
≥75,000	27.0	20.1	28.0	17.3
Missing data	13.1	18.5	13.4	17.6
Interview conducted in English				
Yes	91.0	97.3	92.5	97.8
No	9.0	2.7	7.5	2.2

Note. Data are from the 2014–2016 Behavioral Risk Factor Surveillance System (BRFSS), women aged 18–44 years. All estimates are weighted percentages (%).

**Table 2**  
Health Care Access and Health Risk Factors for Reproductive-Age Women by Pregnancy and Sexual Minority Status

	Pregnant				Nonpregnant			
	Heterosexual, %	Sexual Minority, %	Adjusted OR (95% CI)	p Value	Heterosexual, %	Sexual Minority, %	Adjusted OR (95% CI)	p Value
<b>Health care access and use</b>								
No current health insurance	8.2	9.5	0.81 (0.29–2.22)	.68	14.4	15.3	1.10 (0.92–1.31)	.32
Unmet medical care needs owing to cost in prior year	15.8	26.8	2.56 (1.26–5.21)	.01	16.9	26.0	1.70 (1.46–1.97)	<.001
No current usual source of care	26.5	32.2	1.36 (0.73–2.52)	.34	29.5	35.5	1.18 (1.04–1.34)	.008
No routine checkup in prior year	28.4	33.9	1.21 (0.63–2.32)	.57	32.4	36.8	1.21 (1.07–1.37)	.003
No flu shot in prior year	55.8	77.1	2.11 (1.12–3.97)	.02	65.2	70.5	1.27 (1.00–1.28)	.06
<b>Mental health</b>								
Frequent mental distress, past 30 days	9.4	28.2	3.13 (1.45–6.75)	.004	14.3	29.2	2.06 (1.80–2.36)	<.001
Depression diagnosis, in lifetime	16.4	44.8	2.85 (1.47–5.52)	.002	20.9	45.7	3.02 (2.67–3.42)	<.001
<b>Physical health</b>								
Poor/fair health	7.2	20.3	3.50 (1.46–8.43)	.005	11.9	19.1	1.76 (1.49–2.08)	<.001
Poor physical health days, past 30 days	6.6	19.8	3.59 (1.51–8.49)	.004	8.2	13.4	1.65 (1.36–2.00)	<.001
Current activity limitations	10.5	38.8	5.92 (2.82–12.44)	<.001	12.6	24.8	2.17 (1.84–2.57)	<.001
Any chronic conditions, in lifetime	16.0	29.5	2.09 (1.11–3.93)	.02	23.8	34.6	1.71 (1.50–1.94)	<.001
<b>Health risks</b>								
Currently smokes every day	4.6	27.5	5.63 (2.49–12.72)	<.001	11.9	21.2	1.82 (1.55–2.14)	<.001
Currently smokes some days	3.7	12.8	3.20 (1.05–9.75)	.04	4.6	8.7	1.74 (1.43–2.12)	<.001
Any alcohol consumption, past 30 days	9.6	21.6	2.93 (1.34–6.41)	.007	54.5	63.9	1.63 (1.43–1.86)	<.001
Binge drinking, past 30 days	2.7	9.6	3.48 (1.13–10.73)	.03	17.7	29.0	1.69 (1.47–1.93)	<.001

Note. Data are from the 2014–2016 Behavioral Risk Factor Surveillance System (BRFSS), women aged 18–44 years. Adjusted odds ratios are from logistic regression models controlling for age, race/ethnicity, educational attainment, presence of children in the household, household income, language of interview, state, and survey year.

risk factors for reproductive-age women by pregnancy and sexual minority status. Approximately 10% of pregnant sexual minority women were uninsured, and nearly one-third had unmet medical care needs owing to cost (26.8%), no usual source of care (32.2%), and no routine checkup (33.9%). Less than one-tenth of pregnant heterosexual women were uninsured (8.2%), and less than one-third had unmet medical care needs owing to cost (15.8%), no usual source of care (26.5%), and no routine checkup (28.4%). After controlling for sociodemographic characteristics, there were no differences in uninsurance, no usual source of care, and no routine checkup between pregnant sexual minority women and pregnant heterosexual women, but pregnant sexual minority women were more likely to report unmet medical care needs owing to cost (OR, 2.56; 95% CI, 1.26–5.21) and no flu shot in the prior year (OR, 2.11; 95% CI, 1.12–3.97) compared with pregnant heterosexual women. Meanwhile, nonpregnant sexual minority women were more likely to have unmet medical care needs owing to cost, no usual source of care, and no routine checkup in the prior year compared with nonpregnant heterosexual women.

Table 2 also presents comparisons for health status and health risks by pregnancy and sexual minority status. More than one-quarter of pregnant sexual minority women (28.2%) were currently living with frequent mental distress, and nearly one-half (44.8%) indicated they were diagnosed with depression at some point in the past. After controlling for sociodemographic factors, pregnant sexual minority women were more likely to report frequent mental distress (OR, 3.13; 95% CI, 1.45–6.75), a depression diagnosis (OR, 2.85; 95% CI, 1.47–5.52), poor/fair health (OR, 3.50; 95% CI, 1.46–8.43), poor physical health days (OR, 3.59; 95% CI, 1.51–8.49), activity limitations (OR, 5.92; 95% CI, 2.82–12.44), and at least one chronic health condition (OR, 2.09; 95% CI, 1.11–3.93) compared with pregnant heterosexual

women. Pregnant sexual minority women were also more likely to report smoking every (OR, 5.63; 95% CI, 2.49–12.72) or some days (OR, 3.20; 95% CI, 1.05–9.75), any alcohol consumption (OR, 2.93; 95% CI, 1.34–6.41), and binge drinking (OR, 3.48; 95% CI, 1.13–10.73) in the prior 30 days compared with pregnant heterosexual women after controlling for sociodemographic characteristics. Adverse health outcomes and health behaviors were also prevalent in nonpregnant sexual minority women. Compared with nonpregnant heterosexual women, nonpregnant sexual minority women were more likely to report frequent mental distress, depression, poor/fair health, poor physical health days, activity limitations, chronic conditions, cigarette smoking, and recent episodes of binge drinking.

Table 3 presents the ORs comparing health care access and health risk factors between pregnant and nonpregnant women by sexual minority status. Pregnant heterosexual women generally reported lower odds of adverse health outcomes compared with nonpregnant heterosexual women. After controlling for sociodemographic characteristics, pregnant heterosexual women were less likely to report no health insurance, no usual source of care, no routine checkup, no flu shot, mental distress, depression, poor/fair health, chronic conditions, smoking every day, and alcohol consumption compared with nonpregnant heterosexual women. Differences between pregnant and nonpregnant women were not significant for most outcomes examined among sexual minority women. However, after controlling for sociodemographic covariates, pregnant sexual minority women were marginally more likely to report activity limitations (OR, 2.19; 95% CI, 0.91–5.24) and less likely to report any drinking (OR, 0.16; 95% CI, 0.08–0.34) and binge drinking (OR, 0.28; 95% CI, 0.10–0.79) in the past 30 days compared with nonpregnant sexual minority women.

**Table 3**  
Odds Ratios Comparing Health Care Access and Health Risk Factors Between Pregnant and Nonpregnant Women by Sexual Minority Status

	Heterosexual Women		Sexual Minority Women	
	Pregnant vs Nonpregnant		Pregnant vs Nonpregnant	
	Adjusted OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value
<b>Health care access and use</b>				
No current health insurance	0.37 (0.27–0.50)	<.001	0.44 (0.16–1.21)	.11
Unmet medical care needs owing to cost in prior year	0.90 (0.72–1.12)	.34	1.07 (0.56–2.05)	.84
No current usual source of care	0.74 (0.62–0.87)	<.001	0.89 (0.48–1.66)	.72
No routine checkup in prior year	0.76 (0.65–0.90)	.001	0.80 (0.44–1.48)	.48
No flu shot in prior year	0.68 (0.59–0.79)	<.001	1.28 (0.67–2.42)	.45
<b>Mental health</b>				
Frequent mental distress, past 30 days	0.67 (0.52–0.86)	.001	0.83 (0.43–1.60)	.59
Depression diagnosis, in lifetime	0.81 (0.67–0.99)	.04	0.84 (0.46–1.51)	.56
<b>Physical health</b>				
Poor/fair health	0.65 (0.47–0.90)	.01	1.15 (0.53–2.51)	.72
Poor physical health days, past 30 days	0.95 (0.71–1.27)	.73	1.98 (0.86–4.53)	.11
Current activity limitations	1.01 (0.80–1.27)	.96	2.19 (0.91–5.24)	.08
Any chronic conditions, in lifetime	0.74 (0.62–0.89)	.001	0.86 (0.43–1.72)	.68
<b>Health risks</b>				
Currently smokes every day	0.38 (0.27–0.52)	<.001	1.24 (0.64–2.42)	.52
Currently smokes some days	0.86 (0.61–1.22)	.4	1.54 (0.57–4.17)	.40
Any alcohol consumption, past 30 days	0.07 (0.05–0.09)	<.001	0.16 (0.08–0.34)	<.001
Binge drinking, past 30 days	0.12 (0.08–0.19)	<.001	0.28 (0.10–0.79)	.02

Note. Data are from the 2014–2016 Behavioral Risk Factor Surveillance System (BRFSS), women aged 18–44 years. Adjusted odds ratios are from logistic regression models controlling for age, race/ethnicity, educational attainment, presence of children in the household, household income, language of interview, state, and survey year.

Table 4 presents logistic regression results on health care access and health risk factors for reproductive-age women with an interaction between sexual minority status and pregnancy status. Results in Table 4 (column A) suggest substantial disparities in health care access, mental health, physical health, and health risks for sexual minorities compared with heterosexuals. Compared with nonpregnant women, pregnant women (Table 4, column B)

generally report fewer barriers to care, better mental health and self-rated health, and fewer health risks. The interactions presented in Table 4 (column A × B) indicate that pregnant sexual minority women may be more likely to have no flu shot (OR, 1.99; 95% CI, 1.04–3.81) and be current every day smokers (OR, 3.00; 95% CI, 1.41–6.39) compared with other subgroups of women after controlling for sociodemographic characteristics.

**Table 4**  
Logistic Regression Results on Health Care Access and Health Risk Factors for Reproductive-Age Women with an Interaction between Sexual Minority Status and Pregnancy Status

	(A)		(B)		(A × B)	
	Sexual Minority		Pregnant		Sexual Minority	
	vs. Heterosexual		vs. Nonpregnant		× Pregnant	
	Adjusted OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value
<b>Health care access and use</b>						
No current health insurance	1.09 (0.91–1.31)	.33	0.37 (0.27–0.51)	<.001	1.32 (0.46–3.81)	.61
Unmet medical care needs owing to cost in prior year	1.69 (1.46–1.97)	<.001	0.90 (0.72–1.12)	.33	1.14 (0.58–2.25)	.70
No current usual source of care	1.18 (1.05–1.34)	.01	0.73 (0.62–0.87)	<.001	1.16 (0.61–2.21)	.65
No routine checkup in prior year	1.21 (1.07–1.37)	.003	0.76 (0.65–0.89)	.001	1.04 (0.56–1.94)	.90
No flu shot in prior year	1.13 (0.99–1.28)	.06	0.68 (0.59–0.79)	<.001	1.99 (1.04–3.81)	.04
<b>Mental health</b>						
Frequent mental distress, past 30 days	2.06 (1.80–2.36)	<.001	0.66 (0.52–0.85)	.001	1.36 (0.67–2.72)	.39
Depression diagnosis, in lifetime	3.00 (2.66–3.40)	<.001	0.81 (0.67–0.99)	.04	1.09 (0.58–2.04)	.80
<b>Physical health</b>						
Poor/fair health	1.76 (1.49–2.07)	<.001	0.65 (0.46–0.90)	.01	1.79 (0.76–4.19)	.18
Poor physical health days, past 30 days	1.65 (1.36–2.00)	<.001	0.95 (0.71–1.27)	.71	1.87 (0.79–4.42)	.15
Current activity limitations	2.17 (1.84–2.56)	<.001	1.00 (0.79–1.25)	.98	2.24 (0.97–5.18)	.06
Any chronic conditions, in lifetime	1.71 (1.51–1.94)	<.001	0.74 (0.62–0.89)	.001	1.16 (0.59–2.29)	.67
<b>Health risks</b>						
Currently smokes every day	1.81 (1.55–2.13)	<.001	0.38 (0.28–0.52)	<.001	3.00 (1.41–6.39)	.004
Currently smokes some days	1.74 (1.43–2.12)	<.001	0.85 (0.60–1.21)	.37	1.80 (0.63–5.13)	.27
Any alcohol consumption, past 30 days	1.63 (1.43–1.85)	<.001	0.07 (0.05–0.09)	<.001	2.09 (0.92–4.78)	.08
Binge drinking, past 30 days	1.69 (1.47–1.93)	<.001	0.12 (0.08–0.19)	<.001	1.99 (0.61–6.57)	.26

Note. Data are from the 2014–2016 Behavioral Risk Factor Surveillance System (BRFSS), women aged 18–44 years. Adjusted odds ratios are from logistic regression models controlling for age, race/ethnicity, educational attainment, presence of children in the household, household income, language of interview, state, and survey year.

## Discussion

Health issues related to pregnancy among sexual minority women have been understudied despite sexual minority women's increased risk for adverse health outcomes and experiences during pregnancy. Not only can pregnancy be a stressful life event, but sexual minority women may also experience discrimination and stigma that heighten stress levels during pregnancy. This analysis offers one of the first examinations of health care access, mental and physical health, and health behaviors by sexual minority and pregnancy status among a representative sample of reproductive-age women in 31 states. Given the large body of research that has documented health disparities in sexual minorities (Blosnich et al., 2014; Conron et al., 2010; Gonzales & Henning-Smith, 2017; Gonzales et al., 2016; Institute of Medicine, 2011), it is unsurprising that we found a higher prevalence of health problems among reproductive-age sexual minority women compared with heterosexual women, which may have translated into a higher prevalence of these problems among pregnant sexual minority women.

## Implications for Policy and/or Practice

Nearly 4 million women give birth in the United States each year (Martin, Hamilton, Osterman, Driscoll, & Drake, 2018). If 5.3% are sexual minority women (i.e., lesbian or bisexual), this translates into more than 210,000 births to sexual minority women annually. This study suggests that sexual minority women are a population that may have enhanced health care needs before, during, and after pregnancy. Our study found that nonpregnant sexual minority women reported poorer access to care among several dimensions compared with nonpregnant heterosexual women, but there were fewer differences in access to care for sexual minorities among pregnant women. This finding may be partly due to higher income eligibility thresholds for Medicaid during pregnancy in many states (The Henry J. Kaiser Family Foundation, 2018). Pregnant women—including sexual minorities—who are able to obtain Medicaid coverage may have better access to medical care. Additionally, the vast majority of women do seek prenatal care during pregnancy (Martin et al., 2018), making it more likely that this group would report a usual source of care and a routine checkup. However, pregnant sexual minority women still reported substantially higher rates of cost-related barriers to needed medical care compared with pregnant heterosexual women. Addressing high health care costs may help to narrow these financial-related gaps in health care access.

Meanwhile, the higher prevalence of poor mental health among sexual minority women is of concern. There has been increasing recognition that mental health issues—such as depression—that manifest before and during pregnancy can have negative effects on the mother and fetus (Field, Diego, & Hernandez-Reif, 2006). Additionally, women who experience mental health problems during pregnancy are more likely to have miscarriages, preterm births, and low birthweight infants (Schetter, 2011; Schetter & Tanner, 2012) and to experience postpartum mood disorders (Howard et al., 2014). Despite efforts to improve care for such disorders, access to clinicians equipped to care for women with mood disorders in the peripartum period remains a challenge (Howard et al., 2014). Future research and public health initiatives should identify best practices, ranging from culturally competent clinical interventions to community-

based programs providing psychosocial resources, for addressing mental health among reproductive-age sexual minority women.

This analysis also found that health behaviors associated with adverse outcomes during pregnancy were much more common among pregnant sexual minority women compared with pregnant heterosexual women. Pregnant sexual minority women had greater odds of alcohol consumption, binge drinking, and cigarette smoking compared with pregnant heterosexual women. Alcohol consumption during pregnancy is associated with a number of negative outcomes for the fetus, collectively termed fetal alcohol spectrum disorders (Sokol, Delaney-Black, & Nordstrom, 2003). Smoking during pregnancy is associated with well-documented risks for both the woman and the fetus. For women, it increases the risks of deep vein thrombosis and pulmonary embolism, as well as other serious conditions (Roelands, Jamison, Lyster, & James, 2009). Among other risks, babies born to women who smoked during pregnancy are more likely to be born preterm and at low birthweight, and to experience sudden infant death syndrome (American College of Obstetricians and Gynecologists, 2017; Dietz et al., 2010).

Finally, previous research suggests that some sexual minority women may be at risk for unintended pregnancy (Everett et al., 2016; Hartnett, Lindley, & Walsemann, 2017). If pregnancies among sexual minority women are more likely to be unintended, it is possible that part of the increased risk for alcohol use and smoking could be explained by later pregnancy recognition and persistence of these behaviors into early pregnancy (Dott, Rasmussen, Hogue, & Reefhuis, 2010; Joyce, Kaestner, & Korenman, 2002). It is also possible that clinicians are less likely to ask sexual minority women about plans for becoming pregnant and to discuss health behaviors that may be harmful during pregnancy—either owing to assumptions about whether sexual minority women will become pregnant or owing to limited health care access for nonpregnant sexual minority women. Moreover, current strategies and interventions to encourage tobacco and alcohol cessation during pregnancy may not meet the needs of sexual minority women, particularly among women who know that they are pregnant and have initiated prenatal care. Much more research and programs are needed to ensure that perinatal care is inclusive of diverse families and sexual orientations.

## Limitations

There were several limitations to using the 2014–2016 BRFSS for this study. First, all responses to the BRFSS were self-reported, which can lead to recall and response bias when describing health conditions and sociodemographic characteristics. Additionally, reporting sexual orientation may suffer from selection bias. Our sample of sexual minority adults only includes reproductive-age women who were comfortable disclosing their sexual orientation to BRFSS interviewers. Thus, our study may be missing sexual minorities from vulnerable subgroups not comfortable disclosing their sexual orientation. Also missing from this study were LGB adults in the states not choosing to ascertain sexual orientation. Therefore, our results may not be generalizable to all sexual minority women, because our study only included data from 31 states. States in the southeastern United States were especially underrepresented. We hope that questions on sexual orientation will be added to the core BRFSS questionnaire in the near future.

This study would have benefited from additional data missing in the BRFSS. For example, the BRFSS does not measure other dimensions of sexual orientation, including sexual behavior or sexual attraction. Thus, our study does not consider individuals who are sexually active with or attracted to people of the same sex but do not identify as lesbian, gay, or bisexual. Health outcomes may vary for women whose sexual orientation identities and attractions are not congruent (Hartnett et al., 2017). Furthermore, the sample size of sexual minority women identified in the survey was also relatively small. Thus, although there may be important differences between subgroups (e.g., lesbian vs. bisexual women), we did not have sufficient sample size to analyze these distinctions. The BRFSS main questionnaire also does not contain information on pregnancy intention, reproductive history, or conception date, which can be related to the timing of pregnancy recognition as well as risk behaviors. There is also a lack of information on the gestational age of the pregnancy at the time of the interview, which would be helpful information in interpreting some of the outcomes. For example, women in early pregnancy may have consumed alcohol in the last 30 days, but not since discovering the pregnancy.

Finally, the BRFSS is a cross-sectional survey and cannot definitively establish the causal pathways for the observed associations between sexual orientation and health, because cross-sectional studies are prone to omitted variable bias. Missing and unmeasured variables—such as exposure to discrimination or nondisclosure of sexual orientation to family, friends, and providers—may provide alternative explanations for the relationship between sexual orientation and health risk factors during pregnancy. Future research should continue to explore the underlying causes of adverse health and health behaviors during the perinatal period for sexual minority women. Ongoing surveillance systems, such as the Pregnancy Risk Assessment Monitoring System, should incorporate sexual orientation data collection into ongoing assessments. Having more data will facilitate broader and more thorough research on this vulnerable population.

## Conclusions

This study is one of the first to examine the health of reproductive-age women by sexual minority and pregnancy status using population-based data. We found substantial disparities in health, access to care, and health behaviors for reproductive-age sexual minority women. This research highlights the need for more targeted programs and clinical interventions to improve health in sexual minority women before, during, and after pregnancy. Ongoing assessments should identify best practices that are culturally competent and effective at improving behavioral risk factors in sexual minority women. Additionally, providers should create welcoming environments that encourage regular and routine checkups for sexual minority women, especially during pregnancy. Our study provides important baseline data for monitoring progress toward achieving health equity for sexual minority populations.

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