Sexual Orientation Disparities in Pregnancy Risk Behaviors and Pregnancy Among Sexually Active Teenage Girls: Updates from the Youth Risk Behavior Survey

Bethany G. Everett, PhD,¹ Blair Turner, MPH,² Tonda L. Hughes, PhD,^{3,4} Cindy B. Veldhuis, PhD,³ Margaret Paschen-Wolff, DrPH,⁴ and Gregory Phillips II, PhD^{2,5}

Abstract

Purpose: The purpose of this study was to determine the extent to which sexual identity and/or sexual behaviors were associated with pregnancy risk factors (condom use, alcohol or other drug use before sex, and World Health Organization [WHO] Tier 1 [i.e., intrauterine device, implant] or Tier 2 [i.e., injectable, pill, patch, or ring] contraception use) and teen pregnancy among female high school students who reported having a sexual relationship with a male partner.

Methods: Data were from the Youth Risk Behavior Survey (YRBS; 2005–2015) ($n = 63,313$). Logistic regression was used to analyze sexual identity and behavior disparities in pregnancy risk behaviors and teen pregnancy. Interactions between sexual identity and behavior were also tested. All models adjusted for the YRBS complex sampling frame.

Results: Girls who reported being unsure of their sexual identity were less likely to use condoms or a WHO Tier 1 or Tier 2 contraceptive method at last sex, and more likely to report alcohol or other drug use at last sex than heterosexual girls. Girls who identified as lesbian were also less likely to use a condom at last sex, and girls who reported both male and female sexual partners were more likely to report alcohol or other drug use and less likely to use condoms at last sex. Girls who identified as bisexual were more likely to report pregnancy during teenage years than girls who identified as heterosexual.

Conclusion: Our results support the need to assess both sexual identity and sexual behavior in research on teen pregnancy and pregnancy risk. Furthermore, the finding that girls who were unsure of their sexual identity showed heightened risk highlights the need for additional research that includes this group.

Keywords: adolescent pregnancy, health risk behaviors, sexual minority health, women's health

Introduction

A GROWING BODY OF WORK has demonstrated that sexual minority adolescent girls (those who identify as lesbian or bisexual or who report a history of same-sex sexual behavior [referred to as sexual minority girls from here]) are more likely than their sexual majority peers to report teen pregnancies.^{1–4} Although this finding may appear counterintuitive, it has emerged across multiple settings and samples. Risk of pregnancy among sexual minority girls has been attributed, in part, to increased exposure to victimization in childhood,² and to attempts to avoid stigmatization by engaging in intimate relationships with boys.⁵ However, several important

questions remain about sexual minority girls' heightened risk. In particular, it is unclear whether minority identity or behavior is most strongly associated with teen pregnancy. In addition, little is known about the mechanisms underlying increased risk of pregnancy among sexual minority girls.

Multiple studies have documented elevated risk of both teen pregnancy and sexual risk behaviors among sexual minority girls and young women compared with sexual majority girls and young women.^{1,3,4,6–12} However, the measurement of sexual minority status varies across studies, making it difficult to discern which sexual minority groups and which dimensions of sexual orientation (i.e., identity vs. behavior) are most closely associated with pregnancy

¹Department of Sociology, University of Utah, Salt Lake City, Utah.

²Department of Medical Social Sciences, Feinberg School of Medicine, Northwestern University, Chicago, Illinois.

³School of Nursing, Columbia University, New York, New York.

⁴Department of Psychiatry, New York State Psychiatric Institute, Columbia University Irving Medical Center, New York, New York.

⁵Institute for Sexual and Gender Minority Health and Wellbeing, Northwestern University, Chicago, Illinois.

risk behaviors.¹³ Specifically, some studies of teen pregnancy and pregnancy risk have combined bisexual- and lesbian-identified girls and girls who engage in same-sex behavior (but who may identify as heterosexual) into a single sexual minority category,^{6,7,10,14,15} whereas other studies have excluded girls who identify as lesbian¹¹ or girls who chose “other” or “unsure” when asked about their sexual identity.^{1,3,7,9,10}

Using Youth Risk Behavior Survey (YRBS) data from 2005 to 2007, Rosario et al. showed that sexual minority girls (using a single measure that combined identity and behavior) were more likely than sexual majority girls to have used drugs and less likely to have used a condom at last sex.¹⁰ Using the same data set, Riskind et al. also found that compared with heterosexual-identified girls, both bisexual- and lesbian-identified girls were more likely to report alcohol or other drug use during sex, and less likely to use condoms during their most recent sexual experience.⁹ These risk factors were more common among girls who reported both male and female sexual partners than among those who reported only male partners.⁹ Increased odds of reporting sexual risk behaviors among bisexual-identified and bisexual-behaving girls using the 2007 Massachusetts YRBS,¹¹ and decreased odds of condom use among lesbian girls have also been documented in other data.^{8,12}

Extant research on condom use among sexual minority girls, however, is complicated by the fact that sexual activities and gender of partners are often not clearly defined in surveys. It may be that lesbian-identified girls are less likely to engage in sexually transmitted infection and pregnancy-prevention behaviors during sexual intercourse with male partners. Alternatively, lesbian-identified girls who use barrier methods with female partners, such as dental dams, may be less likely to report using “condoms” at last sex on surveys if they do not perceive the question and survey response options as being relevant to their sexual lives.

Some inconsistent findings have also emerged in the literature on sexual minority girls’ pregnancy risk. Findings from studies using New York City YRBS⁶ and other data,¹⁵ in which lesbian and bisexual girls have been combined, suggest that both groups are more likely than their heterosexual counterparts to report a teen pregnancy. However, studies that separate lesbian and bisexual girls in analyses have found that bisexual-identified or bisexual-behaving girls are more likely than heterosexual girls to report a pregnancy^{1,3,9} or a pregnancy termination,¹⁶ whereas for lesbian-identified girls, there is either no difference^{1,9,16} or lower risk³ of teen pregnancy.

In many of these studies, girls who reported being “unsure” about their sexual identity were excluded from analyses, including in studies that have previously used YRBS data.^{9–11} Although adolescent girls in some of these studies may eventually identify as heterosexual, girls who report being unsure about their sexual identity during adolescence may differ from heterosexual-identified teens in terms of their sexual behavior or sexual attraction. Furthermore, girls who are unsure of their orientation comprise 3% of the YRBS sample—a larger proportion than those who identify as gay or lesbian (2%).¹⁷

In sum, it is unclear which dimensions of sexual orientation are most strongly associated with sexual risk behavior and pregnancy among teenage girls. Furthermore, research

among young adult women has shown that sexual identity and sexual behavior interact in ways that uniquely shape sexual health risk profiles.¹⁸ To address these gaps, we used pooled multijurisdictional data from the YRBS (2005–2015) to examine associations between sexual identity and sexual behavior, and pregnancy risk factors (condom use at last sex, alcohol or other drug use at last sex, and contraception use at last sex) and teen pregnancy.

Methods

Data source

The YRBS is a biennial national survey of students in grades 9–12 conducted by the Centers for Disease Control and Prevention (CDC) since 1991.¹⁹ The YRBS monitors priority health-related behaviors among youth, such as alcohol and other drug use, experiences of violence, suicidal ideation, sexual behaviors, and eating habits, among others.¹⁷ For this study, we used data from local versions of the YRBS, which were administered on a state level, large urban school district level, or county level by departments of education or health. In this implementation, jurisdictions used a two-stage cluster sample designed to identify a sample of students.¹⁹ In the first stage, schools were selected with a probability proportional to their enrollment; in the second stage, classes of a required subject or during a required period were randomly selected, and all students within these classes were eligible to participate. A new sample was selected in this manner each year that the survey was administered—the same students were not followed over time. Because this study uses deidentified secondary data, it was deemed to be exempt by the Institutional Review Boards of the University of Utah and Northwestern University.

Analytic sample

Local YRBS data were pooled across multiple jurisdictions (city and state) and years (biennially from 2005 to 2015). The entire data set consists of 47 jurisdictions across six time points, and 541,410 students. There was a total of 98 jurisdiction-years (distinct surveys administered by a particular jurisdiction in a specific year) that assessed sexual identity and sexual behavior (358,126 students). In the analyses presented here, we used 2005–2015 data from female students who reported having had sexual intercourse with a male partner. Given our focus on pregnancy risk, students were excluded if they were male ($n = 194,788$), never had sexual intercourse ($n = 117,425$), or had only female sexual partners ($n = 2783$). We also excluded respondents who had missing data on any of the major demographic variables of interest (sexual identity, 3.57%; sexual behavior, 6.38%; race/ethnicity, 2.22%; or grade, 2.05%), resulting in a sample of 63,313 female students between ages 12 and 18 years. Specific analytic sample sizes vary by outcome and range from 57,845 to 60,667 students, with the exception of the pregnancy outcome, which had an analytic sample size of 13,728 students, because pregnancy was assessed in only 23 jurisdiction-years.

Measures

Condom use. This was coded as a binary variable. Students were asked, “The last time you had sexual intercourse,

did you or your partner use a condom?" (1=yes, 0=no). Sexual intercourse was not defined for respondents.

Alcohol or other drug use before sex. Students were asked, "Did you drink alcohol or use drugs before you had sexual intercourse the last time?" Response options were, "I have never had sexual intercourse," "Yes," or "No."

World Health Organization Tier 1 and Tier 2 contraception methods. Students were asked, "The last time you had sexual intercourse, what one method did you or your partner use to prevent pregnancy? (Select only one response.)" Response options were, "I have never had sexual intercourse," "no method was used to prevent pregnancy," "birth control pills," "condoms," "Depo-Provera (injectable birth control)," "withdrawal," "some other method," or "not sure." Beginning in 2011, "any IUD," "NuvaRing (or any birth control ring)," or "Implanon (or any implant)" were response options as well. Using World Health Organization (WHO) efficacy classifications,²⁰ we coded respondents who selected a Tier 1 (i.e., Intrauterine Device [IUD] or implant) or Tier 2 contraceptive method (i.e., injectable, pill, patch, or ring) as having used contraception at last sex (1=yes) and those who did not select one of these methods as not using contraception at last sex (0=no). We focus on these methods both because of their efficacy and because they require an interaction with a clinician, which can be a barrier to lesbian and bisexual girls accessing and receiving medically accurate sexual and reproductive health care.^{18,21–23}

Pregnancy. Students were asked, "How many times have you been pregnant or gotten someone pregnant?" Response options were "0 times," "1 time," "2 or more times," and "not sure." Responses were coded as "0 times" and "1 or more times," and not sure responses were set as missing.

Sexual identity. Sexual identity was assessed by a question asking, "Which of the following best describes you?" Response options were "heterosexual (straight)," "gay or lesbian," "bisexual," and "not sure."

Sexual behavior. Sexual behavior was measured by the question, "During your life, with whom have you had sexual contact?" Students could respond "I have never had sexual contact," "females," "males," or "females and males." This variable was coded by combining responses with the students' reported sex. Students who reported only having sexual contact with males were coded as "male sexual partners." Students who indicated having sexual contact with both males and females were coded as "male and female sexual partners."

Race/ethnicity. Participants were asked whether they identified as Hispanic or Latino. In addition, participants were asked to select all races that applied from the following list: "American Indian or Alaska Native," "Asian," "Black or African American," "Native Hawaiian or Other Pacific Islander," and "White." Responses from these two questions were combined into the following racial/ethnic groups: (1) "White," (2) "Black or African American," (3) "Hispanic/Latino," (4) "Asian," (5) "Native Hawai-

ian/Other Pacific Islander or American Indian or Alaska Native," and (6) "multiple—non-Hispanic."

Grade. Participants were asked, "In what grade are you?" Response options were "9th grade," "10th grade," "11th grade," "12th grade," and "ungraded or other grade." Students who selected "ungraded or other grade" ($n=202$) were excluded from the analyses.

Year (date of data collection) was measured using a continuous variable ranging from 2005 to 2015.

Statistical analysis

All data cleaning and recoding was conducted in SAS Version 9.4 (SAS Institute Inc., Cary, NC). Analyses were carried out using SAS-Callable SUDAAN Version 11.0.1 (RTI International, Research Triangle Park, NC) to weight estimates appropriately and to account for the complex sampling design of the YRBS. The YRBS data weights adjust for student nonresponse and distribution of students by grade, sex, and race/ethnicity in each jurisdiction.¹⁹

First, descriptive statistics were calculated for demographic and outcome variables. Next, three multivariable logistic models were used to estimate odds for each of four outcomes of interest: condom use, alcohol or other drug use before sex, contraception use, and pregnancy. For each outcome variable, two models were tested: Model 1 included sexual identity and sexual behavior and Model 2 added the other demographic variables. For the pregnancy outcome, we included an additional model (Model 3) that adjusted for the other three outcomes: condom use, alcohol or other drug use before sex, and WHO Tier 1 or Tier 2 contraceptive use. As stated before, studies suggest that sexual minority girls are more likely to report these pregnancy risk factors than their heterosexual peers.^{8–12} Adjusting for these factors, therefore, allows us to explore whether any observed sexual orientation disparities in teenage pregnancy can be attributed to increased odds of engagement in these risk behaviors. For all outcomes, we tested interactions between sexual identity and sexual behavior to determine whether pregnancy risk behaviors and pregnancy varied at the intersection of identity and behavior (Model 4). We discuss these results, but only include significant interactions in our tables.

Results

Descriptive statistics

Twelve percent of the sample identified as bisexual, 1% identified as lesbian, and 3% were unsure of their sexual identity (Table 1). The sample was 50% White, 17% Black, 26% Latina, 3% Asian, and 2% American Indian, Alaska Native, Native Hawaiian, or Other Pacific Islander. Four percent of the sample reported two or more racial identities. Regarding pregnancy risk behaviors, 42% of the sample reported that they did not use a condom at last sex, 16% used alcohol or other drugs at last sex, and just 27% of girls reported using a WHO Tier 1 or Tier 2 contraceptive method at last sex. Eight percent of the sample reported at least one pregnancy.

As shown in Table 2, among heterosexual-identified girls, 96% reported having had only male sexual partners and 4% reported having had both male and female sexual partners.

TABLE 1. SAMPLE CHARACTERISTICS

	n	%
Sexual identity		
Heterosexual	52,579	83.55
Lesbian	712	1.05
Bisexual	8119	12.22
Not sure	1903	3.18
Sexual behavior		
Both male and female sexual partners	8746	13.81
Male sexual partners only	54,567	86.19
Race/ethnicity		
White	27,182	49.23
Black or African American	11,913	16.72
Hispanic/Latino	17,010	25.86
Asian	2075	2.98
Native Hawaiian/Other Pacific Islander or American Indian/Alaska Native	1907	1.72
Multiple—non-Hispanic	3226	3.5
Grade		
9th	9652	14.06
10th	14,643	21.44
11th	18,941	29.75
12th	20,077	34.75
Condom use at last sex		
Yes	34,719	58.07
No	23,581	41.9
Alcohol or other drug use at last sex		
Yes	9573	16.13
No	48,322	83.87
WHO Tier 1 or Tier 2 contraception use at last sex		
No	40,390	73.21
Yes	15,196	26.79
Pregnancy		
Yes	1321	7.68
No	12,407	92.32

Source: Youth Risk Behavior Survey, 2005–2015.
WHO, World Health Organization.

Among bisexual-identified girls, 62% reported both male and female sexual partners and 38% reported only male sexual partners. Among lesbian-identified girls, 22% reported having only male sexual partners and 78% reported both male and female sexual partners. The majority (62%) of girls who reported being unsure of their sexual identity reported only male sexual partners; however, this group reported a much

higher prevalence of both male and female sexual partners (38%) compared with heterosexual-identified girls.

Pregnancy risk factors

Table 3 presents results of the logistic regressions that tested the association between pregnancy risk behaviors and sexual identity and sexual behavior. Results from Panel A show that girls who identified as lesbian (odds ratio [OR]=0.37, 95% confidence interval [CI]=0.22–0.64), girls who were unsure of their identity (OR=0.50, 95% CI=0.30–0.82), and girls who reported both male and female sexual partners (OR=0.72, 95% CI=0.59–0.88) had lower odds of using condoms at last sex than girls who identified as heterosexual and girls who reported only male sexual partners, respectively. In Model 2, after the inclusion of demographic characteristics, measures of sexual identity were associated with condom use at last sex: lesbian girls (adjusted OR [AOR]=0.36, 95% CI=0.21–0.63) and girls who were unsure of their sexual identity (AOR=0.46, 95% CI=0.27–0.80) had lower odds of using condoms at last sex compared with heterosexual-identified girls. Girls who had both male and female partners also had lower odds of condom use at last sex (OR=0.71, 95% CI=0.57, 0.89) than girls with only male partners. Interactions between sexual identity and sexual behavior were not significant, suggesting that sexual identity-related risks did not vary depending on the sex of sexual partners.

Panel B shows that girls who reported both male and female sexual partners had higher odds than girls with only male sexual partners of reporting alcohol or other drug use at last sex, a relationship that persisted when controlling for demographic characteristics in Model 2 (AOR=1.45, 95% CI=1.08–1.93). Girls who were unsure of their identity were more likely to report alcohol or other drug use at last sex (AOR=2.07, 95% CI=1.05–4.10) than heterosexual girls, and we found a marginal, but insignificant association between bisexual sexual identity and alcohol or other drug use at last sex (AOR=1.39, 95% CI=0.99–1.96). Similar to the results for condom use at last sex, the relationship between sexual identity and drug or alcohol use at last sex did not vary by the sex of sexual partner.

The results for WHO Tier 1 or Tier 2 contraception use at last sex (Panel C) show that girls who were unsure of their sexual identity had lower odds of using contraception at last sex in both Model 1 (OR=0.44, 95% CI=0.26–0.76) and Model 2 (AOR=0.55, 95% CI=0.34–0.90) compared with heterosexual-identified girls. Similar to the results for condom use and alcohol or other drug use at last sex, interactions between sexual identity and sexual behaviors were not significant for this outcome.

Pregnancy

Table 4 presents results for logistic regression models examining the relationship between sexual orientation and teen pregnancy. Model 1 shows that bisexual-identified girls (OR=1.65, 95% CI=1.12–2.43) had higher odds of reporting teen pregnancy than heterosexual-identified girls, a relationship that persisted after the inclusion of demographic characteristics (AOR=1.72, 95% CI=1.15–2.58). When we adjusted for pregnancy risk behaviors in Model 3, bisexual identity continued to be associated with higher odds of

TABLE 2. SEXUAL IDENTITY BY SEXUAL BEHAVIOR

	Sexual identity			
	Heterosexual	Bisexual	Lesbian	Not sure
Sexual behavior				
Only male sexual partners	95.77	38.09	22.3	62.03
Both male and female sexual partners	4.23	61.91	77.7	37.97

Source: Youth Risk Behavior Survey, 2005–2015.

TABLE 3. RESULTS FROM LOGISTIC REGRESSIONS EXAMINING THE RELATIONSHIP BETWEEN SEXUAL ORIENTATION AND PREGNANCY RISK BEHAVIORS

	<i>Model 1</i>		<i>Model 2</i>	
	<i>OR</i>	<i>95% CI</i>	<i>OR</i>	<i>95% CI</i>
<i>Panel A: Condom use at last sex</i>				
Sexual identity				
Heterosexual (reference)				
Lesbian	0.37	0.22–0.64	0.36	0.21–0.63
Bisexual	0.91	0.74–1.13	0.92	0.72–1.17
Not sure	0.5	0.30–0.82	0.46	0.27–0.80
Sexual behavior				
Only male (reference)				
Both male and female	0.72	0.59–0.88	0.71	0.57–0.89
<i>Panel B: Alcohol or other drug use at last sex</i>				
Sexual identity				
Heterosexual (reference)				
Lesbian	1.46	0.82–2.58	1.49	0.83–2.68
Bisexual	1.36	0.98–1.88	<i>1.39</i>	<i>0.99–1.96</i>
Not sure	2.05	1.01–4.14	2.07	1.05–4.10
Sexual behavior				
Only male (reference)				
Both male and female	1.52	1.13–2.05	1.45	1.08–1.93
<i>Panel C: WHO Tier 1 or Tier 2 contraception use at last sex</i>				
Sexual identity				
Heterosexual (reference)				
Lesbian	0.75	0.27–2.09	0.75	0.27–2.11
Bisexual	0.81	0.61–1.08	0.93	0.67–1.31
Not sure	0.44	0.26–0.76	0.55	0.34–0.90
Sexual behavior				
Only male (reference)				
Both male and female	1.07	0.88–1.30	0.96	0.76–1.20

Model 2 adjusts for age, race/ethnicity, and school grade.
 Bolded values = $p < 0.05$.
 Italicized values = $p < 0.10$.
 CI, confidence interval; OR, odds ratio.

reporting a teen pregnancy (AOR=1.64, 95% CI=1.02–2.64), suggesting that increased risk of pregnancy among bisexual-identified girls is not explained by pregnancy risk behaviors. Condom use was associated with lower pregnancy risk (AOR=0.38, 95% CI=0.28–0.51), whereas alcohol or other drug use before sex was associated with greater pregnancy risk (AOR=1.78, 95% CI=1.29–2.45). We included an interaction between sexual identity and sexual behavior in Model 4, however, it was not significant, suggesting that the relationship between a bisexual identity and pregnancy risk did not vary by sex of sexual partners.

Discussion

Our results add to the growing literature on sexual minority teen pregnancy by using updated YRBS data, incorporating indicators of both sexual identity and behavior, and examining multiple risk factors for teen pregnancy and their impact on reports of teen pregnancy. Our results show that girls who identified as lesbian and girls who reported

being unsure of their sexual identity were less likely than heterosexual-identified girls to use condoms at last sex. We also found girls who had both male and female partners were less likely to use condoms at last sex compared to girls who only had male partners. These results differ from that of White Hughto et al.¹¹ who found that bisexual-identified girls and girls who reported sex with both males and females were less likely to use condoms. Our finding of lower condom use at last sex among lesbian-identified girls may be due to the fact that in same-sex relationships, girls have limited knowledge regarding the need to use barrier protection^{24,25} and frequently do not use barrier methods during sex.²⁶

Although we restricted our sample to girls who reported at least one male sexual partner, it is possible that the last sexual partner they had was female, and condom use at last sex may have been interpreted as referring to male condoms.²⁷ Alternatively, given that other work has found increased risk of pregnancy among lesbian-identified girls, this result may indicate a lower frequency of condom use during sex

TABLE 4. RESULTS FROM LOGISTIC REGRESSION EXAMINING SEXUAL ORIENTATION DISPARITIES IN ADOLESCENT PREGNANCY

	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3 (n = 8115)</i>		<i>Model 4 (n = 8115)</i>	
	<i>OR</i>	<i>95% CI</i>	<i>OR</i>	<i>95% CI</i>	<i>OR</i>	<i>95% CI</i>	<i>OR</i>	<i>95% CI</i>
Sexual identity								
Heterosexual (reference)								
Lesbian	2.33	0.93–5.80	2.26	0.87–5.87	2.46	0.82–7.35	1.11	0.16–7.98
Bisexual	1.65	1.12–2.43	1.72	1.15–2.58	1.64	1.02–2.64	1.98	1.15–3.39
Not sure	1.22	0.64–2.35	1.24	0.63–2.45	0.85	0.40–1.80	0.75	0.31–1.77
Sexual behavior								
Only male (reference)								
Both male and female	1.33	0.92–1.92	1.38	0.95–2.03	1.1	0.72–1.68	1.21	0.66–2.23
Interactions								
Lesbian × male and female							2.2	0.22–22.53
Bisexual × male and female							0.7	0.31–1.61
Not sure × male and female							1.3	0.25–6.75
Condom use at last sex								
No (reference)								
Yes					0.38	0.28–0.51	0.38	0.28–0.52
Alcohol or other drug use at last sex								
No (reference)								
Yes					1.78	1.29–2.45	1.78	1.30–2.45
WHO Tier 1 or Tier 2 contraception use at last sex								
No (reference)								
Yes					1.27	0.88–1.85	1.29	0.88–1.87

Models 2–4 adjust for age, race/ethnicity, and school grade.
 Bolded values = $p < 0.05$.

with male partners. Survey items that ask about multiple forms of barrier methods during sex with male and with female partners are needed to better understand both sexual health risk and protective behaviors among sexual minority girls.

Our results also suggest the need to include girls who report being unsure of their sexual identity in research. These girls are often left out of studies that examine sexual orientation and sexual health. Our findings point to the importance of including them in studies of sexual risk. In a large probability study of adults, younger women, women with male partners, and those who reported poorer mental health functioning were most likely to select “other” or “don’t know” identity categories.²⁸ More research is needed to understand who is selecting “don’t know” in response to the sexual identity question and why they choose this option. It may be due to limited options of identity on surveys. For example, individuals who identify as transgender, genderqueer, or gender fluid appear more likely to select an “other” sexual identity category.²⁹ Given the increasing number of young persons who identify using genderqueer, queer, and pansexual identity labels,^{30,31} studies such as the YRBS would benefit from the inclusion of a gender identity survey item as well as expanded sexual identity response options that include the label “queer” or “pansexual.” Alternatively, individuals who mark “don’t know” on surveys may be in a period of exploration of their sexual identity or in the process of an identity transition. Studies have shown that sexual identity transitions are associated with depression and substance use.^{32–34} Supporting adolescents during this period, therefore, may be crucial to improving their sexual and reproductive health.

Consistent with previous work on alcohol or other drug use among bisexual teens^{8,9,11} and risk of teen pregnancy,^{1,3,9} we found that girls who reported both male and female sexual partners were more likely to report alcohol or other drug use at last sex than girls with only male sexual partners, and that bisexual-identified girls were more likely to report teen pregnancy than heterosexual-identified girls. These findings highlight the importance of disaggregating bisexual- and lesbian-identified girls and including sexual orientation measures other than sexual identity. Whereas combined data suggest that both lesbian and bisexual girls appear to be at elevated risk of teen pregnancy, our disaggregated data suggest that this risk is primarily concentrated among bisexual girls. Targeted prevention programs may be most effective by focusing efforts on these groups, as well as addressing issues surrounding drug and alcohol use during adolescence.

Limitations

Although our study is bolstered by a large geographically diverse sample, several important sociodemographic characteristics were not assessed, including socioeconomic status. In addition, YRBS does not include a measure of sexual attraction, a dimension of sexual orientation that may be important, particularly in adolescents given that this age group is often reluctant to commit to a specific identity.³⁵ YRBS also does not include an option of “mostly heterosexual” identity, which has been linked to multiple risk behaviors.^{36,37} We were also unable to assess the sex/gender of their most recent sexual partner. The measure that assessed

contraceptive methods only allowed for respondents to select one form of contraception, thus it is possible that some respondents who selected “condom” were also using a WHO Tier 1 or Tier 2 method, but would not be captured in our study measure. It is also important to note that there are several other factors that can contribute to sexual risk behaviors among sexual minority girls, such as victimization. We conducted additional tests including victimization measures in our models; however, the inclusion of these measures did not impact our results. To keep the article focused on more proximate causes of teen pregnancy (sexual risk behaviors), we did not include them in this study. Future research should continue to explore these as contributing factors to sexual and reproductive health disparities. Finally, the prevalence of teen pregnancy reported by girls in this sample was slightly higher than in national estimates; however, this is likely driven by the fact that our sample was restricted to girls who had at least one sexual relationship with a male.

Conclusion

In line with previous research, our results highlight the importance of including indicators of both identity and behavior in analyses, as well as exploring the intersection of these indicators.¹⁸ Specifically in the case of sexual and reproductive health, our results show that relying solely on identity measures obscures important information, such as the role of sex of sexual partners, that influences pregnancy risk and the perceived need for condom and contraception use. Same-sex sexual behavior, however, does not capture the unique social dimension of an identity, particularly as it relates to stigma.³⁸ Our results highlight that these two indicators together influence sexual health risk behaviors. Furthermore, our results demonstrate the importance of incorporating assessments of identities, such as “unsure,” that do not fit into well-defined sexual orientation response categories. Understanding the factors that influence identification with an “other” or “unsure” identity is paramount for addressing the health and well-being of all young persons.

Disclaimer

The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Author Disclosure Statement

No competing financial interests exist.

Funding Information

This study was supported by a grant from the National Institute on Alcohol Abuse and Alcoholism (NIAAA; R01 AA024409, principal investigator [PI]: Gregory Phillips II). Dr. Everett was supported by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development of the National Institutes of Health under Award Number R01HD091405. Dr. Veldhuis’ participation in this research was made possible through a National Institutes of Health/NIAAA Ruth Kirschstein Postdoctoral Research Fellowship (F32AA025816; PI: C. Veldhuis). Dr. Margaret Paschen-Wolff was supported by a training grant (T32 MH019139; PI: Theodorus Sandfort, PhD) from the National Institute

of Mental Health at the HIV Center for Clinical and Behavioral Studies at the New York State Psychiatric Institute and Columbia University (P30-MH43520; Center PI: Robert Remien, PhD).

References

1. Charlton BM, Corliss HL, Missmer SA, et al.: Sexual orientation differences in teen pregnancy and hormonal contraceptive use: An examination across 2 generations. *Am J Obstet Gynecol* 2013;209:204.e1–e8.
2. Charlton BM, Roberts AL, Rosario M, et al.: Teen pregnancy risk factors among young women of diverse sexual orientations. *Pediatrics* 2018;141:pii:e20172278.
3. Goldberg SK, Reese BM, Halpern CT: Teen pregnancy among sexual minority women: Results from the National Longitudinal Study of Adolescent to Adult Health. *J Adolesc Health* 2016;59:429–437.
4. Saewyc EM: Adolescent pregnancy among lesbian, gay, and bisexual teens. In: *International Handbook of Adolescent Pregnancy: Medical, Psychosocial, and Public Health Responses*. Edited by Cherry AL, Dillon ME. New York: Springer US, 2014, pp. 159–169.
5. Saewyc EM, Poon CS, Homma Y, Skay CL: Stigma management? The links between enacted stigma and teen pregnancy trends among gay, lesbian, and bisexual students in British Columbia. *Can J Hum Sex* 2008;17:123–139.
6. Lindley LL, Walsemann KM: Sexual orientation and risk of pregnancy among New York City high-school students. *Am J Public Health* 2015;105:1379–1386.
7. McCauley HL, Silverman JG, Decker MR, et al.: Sexual and reproductive health indicators and intimate partner violence victimization among female family planning clinic patients who have sex with women and men. *J Womens Health (Larchmt)* 2015;24:621–628.
8. Poteat VP, Russell ST, Dewaele A: Sexual health risk behavior disparities among male and female adolescents using identity and behavior indicators of sexual orientation. *Arch Sex Behav* 2019;48:1087–1097.
9. Riskind RG, Tornello SL, Younger BC, Patterson CJ: Sexual identity, partner gender, and sexual health among adolescent girls in the United States. *Am J Public Health* 2014;104:1957–1963.
10. Rosario M, Corliss HL, Everett BG, et al.: Sexual orientation disparities in cancer-related risk behaviors of tobacco, alcohol, sexual behaviors, and diet and physical activity: Pooled Youth Risk Behavior Surveys. *Am J Public Health* 2014;104:245–254.
11. White Hughto JM, Biello KB, Reisner SL, et al.: Health risk behaviors in a representative sample of bisexual and heterosexual female high school students in Massachusetts. *J Sch Health* 2016;86:61–71.
12. Ybarra ML, Rosario M, Saewyc E, Goodenow C: Sexual behaviors and partner characteristics by sexual identity among adolescent girls. *J Adolesc Health* 2016;58:310–316.
13. Wolff M, Wells B, Ventura-DiPersia C, et al.: Measuring sexual orientation: A review and critique of U.S. data collection efforts and implications for health policy. *J Sex Res* 2017;54:507–531.
14. Goodenow C, Szalacha LA, Robin LE, Westheimer K: Dimensions of sexual orientation and HIV-related risk among adolescent females: Evidence from a statewide survey. *Am J Public Health* 2008;98:1051–1058.
15. Saewyc EM, Bearinger LH, Blum RW, Resnick MD: Sexual intercourse, abuse and pregnancy among adolescent

- women: Does sexual orientation make a difference? *Fam Plann Perspect* 1999;31:127–131.
16. Tornello SL, Riskind RG, Patterson CJ: Sexual orientation and sexual and reproductive health among adolescent young women in the United States. *J Adolesc Health* 2014; 54:160–168.
 17. Kann L, Olsen EO, McManus T, et al.: Sexual identity, sex of sexual contacts, and health-related behaviors among students in grades 9–12: United States and selected sites, 2015. *MMWR Surveill Summ* 2016;65:1–202.
 18. Everett BG, Higgins JA, Haider S, Carpenter E: Do sexual minorities receive appropriate sexual and reproductive health care and counseling? *J Womens Health (Larchmt)* 2019;28:53–62.
 19. Kann L, Kinchen S, Shanklin SL, et al.: Youth Risk Behavior Surveillance—United States, 2013. *MMWR Suppl* 2014; 63:1–168.
 20. World Health Organization (WHO), Johns Hopkins University Center for Communication Programs (JHU/CCP), and the United States Agency for International Development (USAID). Family planning: A global handbook for providers. 2011. Available at www.fphandbook.org Accessed August 19, 2019.
 21. Agénor M, Jahn JL, Kay E, et al.: Human papillomavirus risk perceptions among young adult sexual minority cisgender women and nonbinary individuals assigned female at birth. *Perspect Sex Reprod Health* 2019;51:27–34.
 22. Fuzzell L, Fedesco HN, Alexander SC, et al.: “I just think that doctors need to ask more questions”: Sexual minority and majority adolescents’ experiences talking about sexuality with healthcare providers. *Patient Educ Couns* 2016;99: 1467–1472.
 23. Kitts RL: Barriers to optimal care between physicians and lesbian, gay, bisexual, transgender, and questioning adolescent patients. *J Homosex* 2010;57:730–747.
 24. Doull M, Wolowic J, Saewyc E, et al.: Why girls choose not to use barriers to prevent sexually transmitted infection during female-to-female sex. *J Adolesc Health* 2018;62:411–416.
 25. Marrazzo JM, Coffey P, Bingham A: Sexual practices, risk perception and knowledge of sexually transmitted disease risk among lesbian and bisexual women. *Perspect Sex Reprod Health* 2005;37:6–12.
 26. Richters J, Prestage G, Schneider K, Clayton S: Do women use dental dams? Safer sex practices of lesbians and other women who have sex with women. *Sex Health* 2010;7: 165–169.
 27. Saewyc EM: Research on adolescent sexual orientation: Development, health disparities, stigma, and resilience. *J Res Adolesc* 2011;21:256–272.
 28. Eliason MJ, Radix A, McElroy JA, et al.: The “something else” of sexual orientation: Measuring sexual identities of older lesbian and bisexual women using National Health Interview Survey questions. *Womens Health Issues* 2016; 26 Suppl 1:S71–S80.
 29. Eliason MJ, Streed CG Jr: Choosing “something else” as a sexual identity: Evaluating response options on the National Health Interview Survey. *LGBT Health* 2017;4:376–379.
 30. Rider GN, McMorris BJ, Gower AL, et al.: Health and care utilization of transgender and gender nonconforming youth: A population-based study. *Pediatrics* 2018;141:e20171683.
 31. Watson RJ, Wheldon CW, Puhl RM: Evidence of diverse identities in a large national sample of sexual and gender minority adolescents. *J Res Adolesc* 2019 [Epub ahead of print]; DOI: 10.1111/jora.12488
 32. Everett B: Sexual orientation identity change and depressive symptoms: A longitudinal analysis. *J Health Soc Behav* 2015;56:37–58.
 33. Talley AE, Aranda F, Hughes TL, et al.: Longitudinal associations among discordant sexual orientation dimensions and hazardous drinking in a cohort of sexual minority women. *J Health Soc Behav* 2015;56:225–245.
 34. Rosario M, Schrimshaw EW, Hunter J, Braun L: Sexual identity development among gay, lesbian, and bisexual youths: Consistency and change over time. *J Sex Res* 2006;43:46–58.
 35. Austin SB, Conron K, Patel A, Freedner N: Making sense of sexual orientation measures: Findings from a cognitive processing study with adolescents on health survey questions. *J LGBT Health Res* 2007;3:55–65.
 36. Austin SB, Roberts AL, Corliss HL, Molnar BE: Sexual violence victimization history and sexual risk indicators in a community-based urban cohort of “mostly heterosexual” and heterosexual young women. *Am J Public Health* 2008;98:1015–1020.
 37. Vrangalova Z, Savin-Williams RC: Psychological and physical health of mostly heterosexuals: A systematic review. *J Sex Res* 2014;51:410–445.
 38. Young RM, Meyer IH: The trouble with “MSM” and “WSW”: Erasure of the sexual-minority person in public health discourse. *Am J Public Health* 2005;7:1144–1149.

Address correspondence to:
 Bethany G. Everett, PhD
 Department of Sociology
 University of Utah
 380 S 1530 E, Rm 301
 Salt Lake City, UT 84112

E-mail: bethany.everett@soc.utah.edu