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Sexual and reproductive health information: Disparities across sexual orientation groups in two cohorts of U.S. women

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Abstract

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Introduction: Limited research exists about how receiving/seeking sexual and reproductive health (SRH) information differs by sexual orientation. Our goal was to identify how sources and topics of SRH information differed by sexual orientation during adolescence in a sample of U.S. women.

Methods: A sample of 8,541 U.S. women ages 22–35 years from two cohorts of the Growing Up Today Study completed a 2016 questionnaire measure about receiving/seeking SRH information before age 18 years. Adjusted log-linear models assessed differences in SRH information topics and sources by reported sexual orientation (completely heterosexual with no same-sex partners [reference]; completely heterosexual with same-sex partners; mostly heterosexual; bisexual; lesbian).

Results: Compared to the referent, most sexual minority subgroups were more likely to receive/seek information from peers, media, and other sources (e.g., community centers). With the exception of lesbians, sexual minority subgroups were more likely to receive/seek information about contraception, and mostly heterosexual and bisexual women were more likely to receive information about sexually transmitted infections. **Conclusions:** Findings indicate women of diverse sexual orientations need access to SRH information from sources like schools, peers, and media. Sexual minority women receive/seek information about many SRH topics, which indicates that opportunities to tailor educational resources within and outside of schools are needed so SRH benefits to these populations are maximized.

Policy Implications: Specifying sexual minority-sensitive educational materials in sex education policy can meet information needs and aid sexual minority women in making informed sexual health decisions.

Keywords

Sex education; STI; Sexual and Gender Minorities; Women's Health; Contraception; Adolescents

In the United States (U.S.), recent estimates suggest 15–24% of women report a sexual minority identity (e.g., lesbian, bisexual) or a same-sex partner in their lifetime (Charlton et al., 2019; Solazzo, Tabaac, Agénor, Austin, & Charlton, 2019). Contrary to assumptions that sexual minority women are at reduced risk of unintended pregnancy or sexually transmitted infections (STI) due to exclusive same-sex partner histories, many have had male sexual partners (Diamant, Schuster, McGuigan, & Lever, 1999; Diamond, 2000). Further, women with exclusive same-sex partner histories still run the risk of contracting STIs (Bauer & Welles, 2001). During adolescence, sexual minority women disproportionately experience more STIs (McCauley et al., 2014), more pregnancies (Charlton et al., 2018), and use contraception (including barrier methods that can prevent STIs) less compared to heterosexual women (Charlton et al., 2013). Cumulatively, findings point to increased adverse sexual and reproductive health (SRH) burden in a group that comprises up to a fifth of the U.S. female population. Despite knowledge of these risks, we know little about how to improve sexual minority women's SRH through mechanisms like SRH information. Among U.S. women, receipt of SRH information has been linked to positive SRH outcomes, like increased contraception use (Vázquez-Rodríguez et al., 2018) and decreased likelihood of adolescent pregnancy (Kohler, Manhart, & Lafferty, 2008). Emerging SRH

information interventions with sexual minority youth are also effective in improving safe-sex facilitators, like SRH communication skills and knowledge (Mustanski, Greene, Ryan, & Whitton, 2015). Thus, understanding whether sexual minority women receive and seek SRH information differently than heterosexual women during adolescence can provide a promising pathway for addressing their SRH risks.

Receipt of SRH information can differ by race, ethnicity, and location among U.S. adolescents (Lindberg, Maddow-Zimet, & Boonstra, 2016), though how receipt/seeking of SRH information differs by sexual orientation is less understood. Qualitative descriptive studies suggest poorer SRH information quality and access for sexual minorities. For example, schools and churches tend to focus on information that young sexual minority women describe as less relevant to their SRH education needs (e.g., centering abstinence and heterosexual dating/relationships) (Doull et al., 2018; Fisher, 2009). Family is also a source of SRH information for young women, but parents may not be informed about correct SRH information for sexual minority women and may avoid communicating about SRH (Newcomb, Feinstein, Matson, Macapagal, & Mustanski, 2018). Sexual minority women are turning to the Internet as an alternative source of SRH information (Flanders, Pragg, Dobinson, & Logie, 2017; Polonijo & Hollister, 2011), but information varies in relevance and accessibility to sexual minority women (Lindley, Friedman, & Struble, 2012). Reduced access to and quality of SRH sources have been associated with negative SRH outcomes. For instance, receipt of information about “saying no to sex” from schools, churches, or community centers before sexual debut has been linked to higher rates of adolescent pregnancy among sexual minority youth (Bodnar & Tornello, 2018).

Understanding the topics (like contraception use or preventing STIs) and sources of SRH information that sexual minority girls receive/seek will aid in improving SRH education resources for this population by providing context behind how sexual minority women experience sexual health education during adolescence. This study’s main goal was to identify how sources (e.g., school, media, peers) and topics of SRH information (e.g., STIs, safe sex practices) differed by sexual orientation during adolescence in a sample of U.S. women. We hypothesized that compared to heterosexual women, sexual minority women differ in the i.) sources they receive/seek SRH information from and ii.) topics they receive/seek SRH information about. For example, we expected sexual minorities to be more likely to receive/seek SRH information from sources like media, peers, and elsewhere, and less likely from parents, schools, and religious institutions. We also expected sexual minorities to be less likely to receive/seek SRH information about “saying no to sex,” contraception, STIs, or abstinence, but more likely to receive/seek SRH information about LGB people/relationships.

Method

Study Design

The study consisted of 15,042 female participants recruited for the longitudinal Growing Up Today Study (GUTS) 1 in 1996 and GUTS 2 in 2004 from across the U.S.. Biennial follow-up of these cohorts is ongoing, has consisted of a mix of paper and online surveys, and the most recent online-only data collection occurred in 2016. Detailed information

on the GUTS study protocol can be found in Field and colleagues (1999). Participants were excluded from analyses if they were missing ($n=1,854$) or reported an unsure ($n=23$) sexual orientation in all study years; were gender minorities ($n=44$); or were missing all information on SRH information outcomes (i.e., they did not respond to the 2016 questionnaire or its SRH information items; $n=4,571$). The final analytical sample consisted of 8,541 female participants aged 22–35 years. This study was approved by the Brigham & Women’s Institutional Review Board.

Measures

Sexual Orientation—Sexual orientation has been collected on every questionnaire starting in 1999 for GUTS 1 and in 2008 for GUTS 2. This item was adapted from the Minnesota Adolescent Health Survey (Remafedi, Resnick, Blum, & Harris, 1992), which asked about feelings of attraction and identity with six mutually exclusive response options (completely heterosexual; mostly heterosexual; bisexual; mostly homosexual; completely homosexual; and unsure). Another item asked about sex of sexual partners (male; female; both male and female). For current analyses, we used participants’ report of sexual orientation from the same year as the SRH information outcomes (2016) and carried forward the response from the most recent questionnaire if the 2016 response was missing ($n=6,520$). Based on categorizations consistent with prior SRH literature (Charlton et al., 2014, 2018), sexual orientation groups were modeled as: completely heterosexual without same-sex partners (reference); completely heterosexual with same-sex partners; mostly heterosexual; bisexual; and lesbian (combination of mostly homosexual and completely homosexual categories, which is a standard operationalization in SRH literature [Charlton et al., 2018; Goldberg & Halpern, 2017]). For this study, sexual minority is defined as those who self-identified as an identity other than completely heterosexual, and those that identified as completely heterosexual who also reported having had same-sex partners.

Sexual health information—The 2016 GUTS 1 and 2 questionnaires included items about the “receiving or seeking” of “formal or informal instruction at age 17 or younger.” Topics included: methods of birth control; where to get birth control; how to use a condom; how to say no to sex; sexually transmitted infections (STIs); preventing HIV/AIDS; waiting until marriage to have sex; lesbian, gay and bisexual (LGB) people and relationships as normal; LGB people and relationships as abnormal/sinful. Sources for each information type included school; church/temple/etc.; parent/guardian; peers; media (TV, Internet, magazines); elsewhere (e.g., clubs, community centers); not sure. If a participant endorsed a particular topic from any source, a binary variable for a given information topic was created. Contraception items (methods, where to get, how to use a condom) were combined into one binary variable. Similarly, if a participant endorsed a particular source for any topic, a binary variable for information source was created for each category.

Statistical Analyses—Data from the two cohorts were combined. Multivariable log-linear regression models were then used to estimate adjusted relative risk (RR) associations between sexual orientation and type/source of SRH information. Included in the models as potential confounders were: race (White, another race); study cohort (GUTS 1, GUTS 2), region (Northeast; South; West; Midwest), and age in years (continuous). In order to

account for clustering by family, 95% confidence intervals (CI) were constructed based on robust standard errors from a generalized estimating equations analysis with a compound symmetry working correlation matrix (Fitzmaurice, Laird, & Ware, 2004; Zeger & Liang, 1986). To formally assess the overall relationship between sexual orientation and each SRH information outcome, we performed type III joint hypothesis tests that simultaneously assessed all four sexual orientation categories. All analyses were conducted using SAS 9.4 (SAS Institute, Cary, NC).

Results

Participants

Thirty-two percent of the sample was categorized as a sexual minority. Participants were primarily White, resided in the Midwest or Northeast, and had a median age of 30 years ($IQR=6.0$). Schools ($n=7,482$, 87.6%) were the most commonly reported source of SRH information for all sexual orientation subgroups during adolescence, followed by parents/guardians ($n=6,922$, 81.0%). SRH information on contraception ($n=7,306$, 86.1%), STIs ($n=7,574$, 90.4%), and preventing HIV/AIDs ($n=7,202$, 87.4%) were the most commonly reported topics among all subgroups. Full descriptives of the sample are provided in Table 1.

Multivariate Analyses

Sexual minorities had different likelihood of receiving/seeking SRH information from each source compared to the completely heterosexual reference group ($p < .05$; Table 2). Compared to completely heterosexual women with no same-sex partners (reference), mostly heterosexual women and completely heterosexual women with same-sex partners were significantly less likely to receive/seek SRH information from a religious institution (e.g., church, temple). All sexual minority subgroups were more likely to receive/seek SRH information from peers and elsewhere (e.g., community centers, clubs) than the reference group. For instance, bisexual (RR=1.89, 95% CI [1.59, 2.24]) and lesbian (RR=1.88, 95% CI [1.52, 2.33]) women were almost twice as likely as the reference group to receive/seek SRH information from elsewhere. Further, mostly heterosexual, bisexual, and lesbian women were more likely than completely heterosexual women with no same-sex partners to receive/seek SRH information from media sources. This pattern persisted for other sources as well. For instance, compared to this reference group, bisexual women were more likely to receive/seek SRH information from their parents, and mostly heterosexual women were more likely to receive/seek SRH information from schools.

Sexual minorities also had different probabilities of receiving/seeking SRH information about each topic compared to the completely heterosexual reference group ($p < .05$; Table 2). Compared to completely heterosexual women with no same-sex partners (reference), both bisexual and lesbian women were less likely to receive/seek information about “saying no to sex,” and completely heterosexual women with same-sex partners, mostly heterosexual, and lesbian women were less likely to receive information about not having sex before marriage. For instance, lesbian women were 10% less likely than the reference (RR=.91, 95% CI [.83, .99]) to receive/seek SRH information about “saying no to sex” and 17% less likely to receive/seek SRH information about waiting until marriage to have sex

compared to the reference group (RR=.83, 95% CI [.75, .93]). However, sexual minority women were more likely to receive/seek SRH information for all other topics compared to completely heterosexual women with no same-sex partners. Specifically, all subgroups except lesbian women were more likely to receive/seek information about contraception and STIs. Similarly, both mostly heterosexual and bisexual women were more likely to receive/seek information about preventing HIV/AIDS. All subgroups except completely heterosexual women with same-sex partners were more likely than the reference group to receive/seek information about LGB people/relationships as normal/natural. Finally, compared to the reference group, completely heterosexual women with same-sex partners were less likely to receive/seek information about LGB people/relationships as abnormal/sinful, while all other sexual minority subgroups (except mostly heterosexuals) were more likely to receive/seek information on this topic.

Discussion

Prior literature shows that compared to heterosexual women, sexual minority women face heightened SRH disparities, like a greater likelihood of STI diagnosis, adolescent pregnancy, and lower likelihood of contraception use (Charlton et al., 2013, 2018; McCauley et al., 2014). Addressing potential intervention areas that can be used to reduce these disparities, like SRH information, is critical for their reduction (as is evidenced in digital SRH information interventions with LGB youth; Mustanski et al., 2015). The first step in pursuing this strategy is to identify potential SRH information disparities for sexual minority women.

Consistent with our hypotheses, we found that compared to completely heterosexual women with no same-sex partners, most sexual minority subgroups were more likely to receive/seek SRH information from sources such as media, peers, or alternative sources (e.g., community centers). Unexpectedly, certain sexual minority women were also more likely to use other sources as well: bisexual women from parents, and mostly heterosexual women from schools. Potentially, bisexual and mostly heterosexual women may be accessing more SRH information as a risk reduction strategy to mitigate their heightened risk for STI transmission (Tao, 2008)—a risk that bisexual women attribute to bisexual stigma and vulnerability to sexual violence (Flanders, Ross, Dobinson, & Logie, 2017). Alternatively, bisexual and mostly heterosexual women may be coming up against biphobic stereotypes of promiscuity and be on the receiving end of unsolicited advice about their sexual health (Feinstein & Dyar, 2017). Further work dedicated to understanding how bisexual and mostly heterosexual women experience sexual health education is needed.

Our study was novel in identifying differences among sources like media, parents, peers, and schools. That most sexual minority women sought/received SRH information from media sources in adolescence more than completely heterosexual women with no same-sex partners makes sense from a health information-seeking operationalization of the study outcome (vs. receiving). As sexual minority adolescents encounter informational deficits or stigma from traditional sources like parents (Newcomb et al., 2018) and schools (Doull et al., 2018), they are likely to turn to other sources like the Internet (Flanders, Pragg, Dobinson, & Logie, 2017; Polonijo & Hollister, 2011) or peers (Lapointe, 2014) for

SRH information. Since the current study did not examine knowledge or accuracy of SRH information, we are unable to ascertain whether participants successfully received accurate SRH information, which is likely reduced by accessibility and complexity of sources available (Lindley et al., 2012). Using media and peers as SRH information sources may lead to greater SRH risks (i.e., earlier age of coitarche, more sexual partners, and limited knowledge of STI prevention or contraception use); past research has found that use of these sources for SRH information is associated with greater belief that sex is normative among peers and that media sources can aid in overcoming barriers to having sex (Bleakley, Hennessy, Fishbein, & Jordan, 2009). Alternatively, if peer or alternative sources also include Gay-Straight Alliances (GSAs), sexual minority adolescents may be receiving more affirming and accurate SRH information (Lapointe, 2014).

With regard to SRH topics, we found that compared to completely heterosexual women with no same-sex partners, most sexual minority women were more likely to receive/seek SRH information about contraception, STIs, preventing HIV/AIDS, and LGB relationships. The finding that most sexual minority women (aside from lesbian women) were more likely than completely heterosexual women with no same-sex partners to receive/seek information about topics like contraception and STIs is novel. This finding is consistent with research that found sexual minority women with male and female partners display higher perceived risk for STIs and greater need for contraception information compared to heterosexual women (Blunt-Vinti, Thompson, & Griner, 2018; Kaestle & Waller, 2011), which may be reflected in higher odds of receiving/seeking contraception and STI information.

We are also the first study to find that most sexual minority women were less likely to receive/seek SRH information about not having sex before marriage or “saying no to sex.” One national study with a random sample of U.S. adolescents and adults under age 25 years found that “formal” instruction (operationalized as “school, church, a community center, or some other place about how to say no to sex”; Bodnar & Tornello, 2018) did not differ by sexual orientation for bisexual, lesbian, or heterosexual women. These findings were different for bisexual and lesbian women in our sample, which may be due to differences in sexual orientation measurement, behavior measurement (e.g., receiving versus “receiving/seeking”), and assessment of “formal education” versus SRH information by discrete source. Further, receiving/seeking information about “how to say no to sex” and waiting until marriage to have sex may reflect exposure to these topics as proxies of abstinence-only instructional curricula (Doull et al., 2018; Fisher, 2009), which is the most prominent educational policy represented across the U.S. (Weaver, Smith, & Kippax, 2005). It is unsurprising that certain sexual minority women in our sample were less likely to receive/seek SRH information about these proxy topics since sexual minority adolescents report perceiving abstinence-based instruction as oppositional to sexual minority identities (Fisher, 2009), and until 2013, same-sex marriage was not a legal reality for many sexual minority youth. Receipt of SRH information about “how to say no to sex” has previously been associated with a higher lifetime number of male sexual partners, greater odds of pregnancy, and more pregnancies for sexual minority women compared to heterosexual women (Bodnar & Tornello, 2018), which indicates any exposure may be problematic without explicit content on sexual minority relationships and safe sex practices. Alternatively, our finding may reflect a lack of skills-based education about consent.

Finally, this is also the first study to examine seeking/receipt of sexual minority relationship information (both affirming- and discriminatory-) and suggests that sexual minority women are more likely to receive/seek both affirming and discriminatory information about sexual minority relationships during adolescence (or that these experiences are more salient and easier to recall). As the present study did not differentiate information seeking from receipt, whether this information was actively or passively experienced cannot be determined. However, based on our findings in conjunction with extant research on heteronormativity in U.S. sex education programs (Elia & Eliason, 2010a; Gowen & Wings-Yanez, 2014; McNeill, 2013), it is likely that sexual minority women experience stigma and are motivated to search for affirming information.

As this is the first study to quantify and compare accessing a variety of SRH information sources by sexual orientation, more data are needed across diverse samples. Notably, GUTS is a majority white sample, and our ability to examine how women experience the seeking/receipt of SRH information at the intersection of sexual orientation and race/ethnicity is limited, and thus the results of this study may not reflect the lived experiences of sexual minority women of color. Youth of color experience higher rates of STIs, HIV, and unintended pregnancy than white youth (U.S. Department of Health and Human Services, 2016; Centers for Disease Control and Prevention, 2018)—trends that are largely attributed to racialized experiences of poverty and structural inequality in the U.S. (Geronimus & Thompson, 2004). Work on SRH information indicates that receipt of information from sources like schools, churches, and parents is known to differ by race, ethnicity, or nativity status (Lantos et al., 2019; Lindberg et al., 2016). Additionally, Black and Latina/o/x youth describe discriminatory or othering experiences with school-based sex education predicated on negative racial stereotypes about promiscuity and “adultification” (i.e., assuming behaviors typically attributed to adults are normative of an adolescent population) that are not shared by white peers (Hoefer & Hoefer, 2017). Subsequently, future work is needed to examine how sexual minority women of color are seeking and receiving SRH information in order to present a more complete portrait of the experiences of sexual minority women and sex education in adolescence.

This study has several limitations. First, SRH information was assessed using a retrospective self-report item, thus adult participants may have difficulty recalling experiences that occurred during adolescence. Second, timing of the SRH information receipt/seeking cannot be determined since the question asks for information sought/received before age 18 years. Consequently, we were unable to examine SRH information as mediators of adolescent SRH outcomes. Due to this ambiguous timing of the outcome, we were also unable to use adolescent sexual orientation and opted to use most recent report (which was also carried forward if missing in 2016); previous GUTS research has demonstrated low sexual orientation mobility in the overall cohort (Ott, Corliss, Wypij, Rosario, & Austin, 2011), thus sexual fluidity may not be a large limitation for this sample. Future research should examine precise time points related to SRH information receiving/seeking in order to examine mediational effects. Third, wording of the SRH items as “receiving/seeking” information obfuscates whether participants actually received or were just searching for SRH information. As such, construct validity of our outcomes is lessened, and it is possible that sexual minority women had higher odds of seeking (rather than receiving) SRH

information compared to heterosexual women. Furthermore, the language of “receiving/seeking” does not enable us to ascertain whether participants found this information to be personally relevant or useful. Certainly, prior research with sexual minority youth indicates that they often perceive sexual health education as lacking in these areas (Elia & Eliason, 2010a; Elia & Eliason, 2010b), and this study’s examination of the sources and topics of SRH information sought and received by SMW may indicate the channels through which sexual health education of SMW may be improved. Fourth, healthcare providers (e.g., Donaldson, Lindberg, Ellen, & Marcell, 2013) were not included in our SRH information measure (though participants may have included them when endorsing the “elsewhere” source). These item limitations were driven by questionnaire space constraints, and future research should separate seeking and receiving SRH into distinct items with an explicit “healthcare provider” option. Fifth, one-third of the study cohort was missing data from the 2016 questionnaire due to longitudinal study attrition. Finally, participants were primarily White, family socioeconomic status was not collected since early childhood, and adolescent education experiences (like high school completion) were not known. Future research should prioritize more racially and ethnically diverse samples and should include covariates like family socioeconomic status within the study design. Our sample has more sexual minority women than other national samples, though this is likely due to our use of a multi-dimensional measure of sexual orientation that is better able to identify sexual minorities (Wolff, Wells, Ventura-Dipersia, Renson, & Grov, 2017).

Overall, findings that sexual minority women seeking/receiving SRH information about STIs and contraception during adolescence suggests that tailored resources and interventions are needed. As many sexual minority women describe poor quality of traditional SRH information sources (Flanders, Pragg, Dobinson, & Logie, 2017), and given that a digital SRH information intervention with LGB youth produced better safer sex knowledge and sexual communication outcomes (Mustanski et al., 2015), educational resources both inside and outside of schools (including the Internet) should focus on evidence-based SRH information. Further, sexual minority women’s increased exposure to both LGB-affirming and -discriminatory SRH information indicates existing sex education policy and resources need to be transparent in their inclusivity of sexual minorities, and GSAs may be useful school-based resources (Lapointe, 2014). In line with this, most sexual minority women reported receiving/seeking SRH information from sources like peers or media compared to completely heterosexual women with no same-sex partners. This finding indicates deficits exist in traditional, school-based sex education, which is supported by extant qualitative research (Elia & Eliason, 2010a; Fisher, 2009) and suggests U.S. sex education curricula contributes to inaccurate SRH risk perceptions (Doull et al., 2018) of sexual minority women, which then may lead to poorer SRH outcomes (Bodnar & Tornello, 2018). Before concrete conclusions can be made, further research is needed on sexual minority women’s SRH information experiences with media, peers, parents, and alternative sources, and among topics like sexuality, STIs, contraception, and abstinence-only education. Overall, findings demonstrate that sexual minority women are receptive to or are actively seeking SRH information during adolescence, and addressing SRH information needs identified in this study may be an effective SRH promotion strategy.

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Table 1.

Frequency of demographics, sexual health information topics, and sexual health information sources by sexual orientation in two cohorts^a of U.S. women (*N* = 8,541).

	Completely Heterosexual with no same-sex partners (<i>n</i> =5,816, 68%)	Completely Heterosexual with same-sex partners (<i>n</i> =338, 4%)	Mostly Heterosexual (<i>n</i> =1,903, 22%)	Bisexual (<i>n</i> =303, 4%)	Lesbian (<i>n</i> =181, 2%)
Demographics					
Current age (2016), Median (IQR)	30 (26–32)	31 (30–33)	30 (27–32)	29 (25–32)	29 (26–32)
White, % (N)	96 (5,514)	90 (300)	94 (1,770)	97 (290)	92 (167)
Region, % (N)					
Midwest	33 (1,905)	26 (89)	28 (529)	23 (70)	23 (42)
Northeast	31 (1,787)	31 (104)	32 (603)	28 (85)	38 (68)
South	19 (1,119)	23 (77)	17 (323)	17 (52)	18 (32)
West	17 (994)	20 (66)	23 (444)	32 (95)	22 (39)
Sexual health information received					
Health information source, % (N)					
School	87 (5,042)	85 (287)	90 (1,720)	90 (273)	88 (160)
Church/Temple/Etc.	60 (3,504)	47 (159)	54 (1,033)	59 (180)	51 (93)
Parent or Guardian	80 (4,674)	83 (280)	82 (1,566)	87 (265)	76 (137)
Peers	51 (2,987)	62 (211)	68 (1,291)	69 (210)	64 (116)
Media	53 (3,094)	53 (180)	70 (1,338)	78 (235)	67 (122)
Elsewhere (e.g., community center)	17 (998)	28 (96)	28 (525)	34 (103)	33 (59)
Health information topic, % (N)					
Contraception ^b	83 (4,817)	88 (298)	93 (1,751)	95 (286)	86 (154)
Saying no to sex	81 (4,480)	77 (244)	78 (1,384)	75 (210)	74 (126)
Sexually transmitted infections (STIs)	89 (5,083)	92 (299)	93 (1,752)	94 (278)	91 (162)
Preventing HIV/AIDS ^c	86 (4,846)	88 (289)	90 (1,658)	91 (261)	85 (148)
No sex before marriage	80 (4,447)	71 (227)	72 (1,309)	76 (220)	64 (110)
LGB ^d People/Relationships are Normal/Natural	46 (2,467)	45 (141)	65 (1,156)	72 (209)	60 (105)
LGB ^d People/Relationships are Abnormal/Sinful	50 (2,697)	39 (125)	52 (908)	66 (188)	69 (119)

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^aGUTS¹ participants were born in 1982–1987, GUTS 2 in 1987–1994.

^bContraception includes “methods of birth control,” “where to get birth control,” and “how to use a condom.”

^cHIV/AIDS is “Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome.

^dLGB is “lesbian, gay, bisexual.”

Table 2.

Adjusted^d risk ratios of sexual orientation differences in sexual health information topics and sources in two cohorts of U.S. women (N=8,541).

	Completely Heterosexual with No Same-Sex Partners (Reference)					Completely Heterosexual with Same-Sex Partners		Mostly Heterosexual		Bisexual		Lesbian	
	RR ^b	(95% CI) ^b	RR ^b	RR ^b	(95% CI) ^b	RR ^b	(95% CI) ^b	RR ^b	(95% CI) ^b	RR ^b	(95% CI) ^b	RR ^b	(95% CI) ^b
Health information source^d													
School	1.00		0.99		(0.95, 1.04)	1.04		1.03		(1.02, 1.06)	1.01		(0.95, 1.06)
Church/Temple/Etc.	1.00		0.81		(0.73, 0.91)	0.92		(0.88, 0.96)		(1.01, 1.11)	0.89		(0.78, 1.02)
Parent or Guardian	1.00		1.04		(0.99, 1.09)	1.02		1.07		(1.03, 1.12)	0.94		(0.86, 1.02)
Peers	1.00		1.24		(1.13, 1.35)	1.30		(1.24, 1.35)		(1.22, 1.42)	1.20		(1.08, 1.35)
Media	1.00		1.04		(0.94, 1.16)	1.31		(1.26, 1.36)		(1.31, 1.49)	1.21		(1.09, 1.35)
Elsewhere (e.g., community center)	1.00		1.69		(1.41, 2.02)	1.58		(1.44, 1.73)		(1.59, 2.24)	1.88		(1.52, 2.33)
Health information topic^d													
Contraception ^e	1.00		1.07		(1.03, 1.11)	1.11		(1.09, 1.13)		(1.09, 1.16)	1.02		(0.96, 1.09)
Saying no to sex	1.00		0.96		(0.90, 1.02)	0.97		(0.95, 1.00)		(0.86, 0.99)	0.91		(0.83, 0.99)
Sexually transmitted infections (STIs)	1.00		1.04		(1.00, 1.07)	1.05		(1.03, 1.06)		(1.02, 1.08)	1.02		(0.97, 1.07)
Preventing HIV/AIDS ^f	1.00		1.03		(0.98, 1.07)	1.04		(1.02, 1.06)		(1.00, 1.09)	0.98		(0.92, 1.04)
No sex before marriage	1.00		0.90		(0.83, 0.96)	0.92		(0.89, 0.95)		(0.92, 1.05)	0.83		(0.75, 0.93)
LGB ^g People/Relationships are Normal/Natural	1.00		1.06		(0.93, 1.20)	1.38		(1.32, 1.44)		(1.33, 1.56)	1.22		(1.08, 1.38)
LGB ^g People/Relationships are Abnormal/Sinful	1.00		0.82		(0.71, 0.94)	1.05		(1.00, 1.11)		(1.21, 1.44)	1.35		(1.22, 1.50)

^aModels adjusted for race/ethnicity (reference: Race/Ethnicity Other than White), age in years, region (reference: Northeast), and longitudinal study cohort (GUTS 1, GUTS 2); reference group is completely heterosexual with no same-sex partners.

^bBolded values indicate adjusted relative risk ratios with significance at $p < .05$ and 95% confidence intervals that do not cross 1.00.

^c P -values represent significance at $p < .05$ for joint hypothesis tests testing the null hypothesis that the fixed effect of sexual orientation's class parameters are equal to zero using the "Type 3" model option in SAS with reference parameterization (param=ref). In other words, significant P -values indicate that for a given model, the odds of an outcome occurring is related to sexual orientation.

^dParticipants were asked "When you were 17 years old or younger, did you receive or seek out any formal or informal instruction from the following sources about the topics listed below? (Mark all that apply)" and could select any source and topic combinations from the question grid.

^eContraception includes “methods of birth control,” “where to get birth control,” and “how to use a condom.”

^fHIV/AIDS is “Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome.”

^gLGB is “lesbian, gay, bisexual.”

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