Sex Res Soc Policy (2017) 14:345–357
DOI 10.1007/s13178-017-0277-x

Sexual Health Care Services Among Young Adult Sexual Minority Women

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Published online: 30 March 2017

Abstract Young adult sexual minority women (YSMW) are at elevated risk for negative reproductive health outcomes, yet are less likely than heterosexual peers to utilize preventive health care. Medical and public health policy organizations advocate sexual orientation disclosure ("coming out") to health care providers as a strategy for increasing service utilization among YSMW. Limited research explores relationships between disclosure and receipt of sexual health services. YSMW ($N = 285$) ages 21–24 participated in an online survey assessing their health behaviors and care utilization. We employed multivariable logistic regression models to examine the association between receipt of sexual health services and sexual orientation disclosure to provider, after adjusting for sociodemographic covariates. Thirty-five percent of YSMW were out to their provider. Less than half the sample had received Pap screening or STI testing in the previous year; approximately 15% had received at least one dose of the HPV vaccination. Disclosure was associated with increased likelihood of Pap screening (OR=2.66, $p < .001$) and HPV vaccination (OR=4.30, $p < .001$), but was not significantly associated with STI testing. Promoting coming out to providers may be a promising approach to increase sexual health care use among YSMW. Future research should explore causal relationships between these factors.

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Keywords Lesbian · Bisexual · Emerging adult · Coming out · Testing

Introduction

Receiving appropriate sexual and reproductive health care is an important component of young adult women's overall health care experience. Nearly nine out of ten women ages 20–29 seek medical care annually (Cohen & Bloom, 2010); many of these visits are initiated due to a need for sexual health or family planning services. Despite universal need for education and access to sexual health services, utilization of these services is unequally distributed among women in the USA. Researchers have identified differences in key sexual health services—including human immunodeficiency syndrome and sexually transmitted infection (HIV/STI) testing, Papanicolaou testing, and human papillomavirus (HPV) vaccination—across numerous social determinants of health. Numerous studies report differences in regard to initiation (Chao, Velicer, Slezak, & Jacobsen, 2010; Cook et al., 2010) and completion (Daniel-Ulloa, Gilbert, & Parker, 2016; Neubrand, Breitkopf, Rupp, Breitkopf, & Rosenthal, 2009; Widdice, Bernstein, Leonard, Marsolo, & Kahn, 2011) of the HPV vaccine series by race and ethnicity, where African American and Hispanic/Latina women have poorer vaccination rates than White women. National data also show that Hispanic/Latina women are least likely to have received a Pap test in the past 3 years (National Center for Health Statistics, 2015). In addition to racial and ethnic differences, the residential area where young women reside may also affect their access and utilization of health services. Higher rates of HPV vaccination are recorded in urban areas (Reiter et al., 2010; Staras, Vadaparampil, Haderxhanaj, & Shenkman, 2010) with lower vaccination rates occurring in suburban and rural communities. Possibly, as is the

case in neighborhood-based disparities in STI testing, this is due to limited access to sexual health testing and prevention services, skepticism that STIs occur in non-urban communities, and stigma around STIs (Dreisbach, 2009). Taken together, these data suggest women with marginalized identities may lack timely access to sexual and reproductive health services.

A small but growing body of research explores the sexual health behaviors and reproductive health service needs of sexual minority women (SMW; women who report same-sex attraction or sexual activity, or a non-heterosexual identity) (Bradford & Van Wagenen, 2013). Like other health behaviors, outcomes, and services, SMW share many of the same risks and concerns to sexual health as their heterosexual peers (American College of Obstetricians and Gynecologists, 2012; United States Department of Health and Human Services, Office of Women's Health, 2009). Like heterosexual women, SMW require routine breast and pelvic exams (American College of Obstetricians and Gynecologists, 2013), should be screened for STIs, and may need help preventing or achieving pregnancy (Wojnar & Katzenmeyer, 2014). Nevertheless, despite overwhelming similarities in the sexual health care needs between sexual minority and heterosexual women, recent studies suggest YSMW are less likely than heterosexual young adults to receive needed reproductive health care (Agénor, Krieger, Austin, Haneuse, & Gottlieb, 2014; Charlton et al., 2011; Kerr, Ding, & Thompson, 2013). In their study of heterosexual and sexual minority college students, Kerr et al. (2013) report lesbian participants were least likely to have received a Pap test in the last year (though, importantly, rates of these tests were higher among bisexual versus heterosexual study participants) (Kerr et al., 2013). Lower rates of Pap test utilization were also documented among women who only had female sex partners (in the previous year) versus women with only male sex partners (Agénor et al., 2014), and among mostly heterosexual/bisexual women and lesbian women (versus completely heterosexual women) (Charlton et al., 2011). Receipt of other sexual health services, including STI screenings and HPV vaccination, is also a concern for YSMW. New evidence suggests YSMW are less likely than heterosexual peers to be vaccinated against HPV (Agénor et al., 2015b). Lower rates of HPV vaccination are especially troubling, when coupled with lower rates of Pap testing among YSMW, as lack of Pap testing may mean abnormal, cancer causing cells are not detected. Low rates of Pap testing and HPV vaccination may, in the long term, lead to later diagnoses or higher rates of cervical cancer among SMW.

Sexual orientation disclosure is offered as a key strategy for improving utilization of these services and the poor health outcomes that may result from low testing and vaccination rates (Peitzmeier, 2013; Steele, Tinmouth, & Lu, 2006). Of course, a patient's sexual orientation need not be known for a physician to recommend appropriate sexual health services. Clinical guidelines for sexual health screenings are the same no matter a patient's sexual orientation; providers should offer all women routine sexual health screenings provided a patient meets guideline requirements (i.e., age, sexual onset, family disease history) (McNair, Hegarty, & Taft, 2012; Mosack, Brouwer, & Petroll, 2013; Sanchez, Rabatin, Sanchez, Hubbard, & Kalet, 2006). In fact, the relationship between a provider's knowledge of a SMW patient's sexual orientation and discussions about, referrals for, and the patient's receipt of services is not well elucidated.

One recent study reports SMW who are out to their providers are more satisfied with clinical sexual health conversations than SMW who were not out (Mosack et al., 2013), and numerous studies show positive associations between sexual identity disclosure (or "coming out") to providers and some preventive service utilization (Bergeron & Senn, 2003; Dehart, 2008; Diamant, Schuster, & Lever, 2000; Steele et al., 2006). Yet, it may also be the case that disclosure reduces the likelihood that SMW are appropriately counseled regarding their sexual health care needs. A lack of familiarity with sexual health screening guidelines, coupled with a paucity of knowledge regarding SMW's sexual health risk behaviors, may mistakenly lead some providers to suggest SMW avoid or delay seeking some forms of needed care (Peitzmeier, 2013). Evidence from qualitative studies among SMW provides some support for this concern. SMW in these studies reveal a variety of negative experiences related to their sexual health care following sexual identity disclosure, including a sense of judgment and ridicule (Eliason & Schope, 2001), lack of provider acknowledgement of the disclosure (Agénor et al., 2015a), lack of disease preventive information and resources (McIntyre, Szewchuk, & Munro, 2010; Seaver, Freund, Wright, Tjia, & Frayne, 2008), and a myopic focus on one's sexual identity versus other behavioral risk factors (Bjorkman & Malterud, 2007). Whether or not these negative care experiences translate into reduced utilization of sexual health care services for YSMW is presently unknown. More research investigating if sexual orientation disclosure is linked to YSMW's access to and utilization of sexual health services, and if so, how does disclosure influence care is needed.

The purpose of the following study is to explore factors influencing receipt of routine sexual health care services (sexually transmitted infection testing, Pap testing, and HPV vaccination) among YSMW. Our study had three objectives. First, we sought to examine the prevalence of sexual health care services reported by a sample of YSMW. Consistent with prior research with sexual minority women care (Agénor et al., 2014; Charlton et al., 2011; Kerr et al., 2013; Matthews, Brandenburg, Johnson, & Hughes, 2004), we hypothesized low receipt of routine sexual health care services. Second, we tested whether sexual orientation disclosure to providers was associated with receipt of sexual health services. Documented deficits in medical education related to sexual minority health (Obedin-Maliver et al., 2011), alongside the expressed concerns from practicing physicians regarding their ability to discuss YSMW's sexual health issues (Abdessamad, Yudin, Tarasoff, Radford, & Ross, 2013; Stott, 2013), may mean that YSMW who come out to their provider

do not receive appropriate health care recommendations or services. Given poor training and physicians' concerns regarding their ability to counsel patients, we hypothesize that YSMW who disclose their sexual orientation will be less likely to receive sexual health care services than women who are not out to their provider. Finally, we examined whether the association between sexual health care services and coming out to providers persisted after adjusting for sociodemographic variables, including measures of health care access and YSMW's sexual health history.

Methods

Recruitment

Data for this study come from a 2011 cross-sectional, web-based survey of YSMW's health behaviors (Bauermeister, Youatt, Pingel, Soler, & Johns, in press). Participants were recruited via promotions in online LGBTQ listservs, flyers in local gay friendly venues and community-based organizations, and advertisement through Facebook Ads. Recruitment via Facebook Ads allowed for tailored study advertisements to appear on women's profiles who fit the eligible age range and who marked themselves as interested in relationships with women (or men and women). Use of social media for web-based survey recruitment is a common method for reaching potential young sexual minority participants, as it allows for reaching those who may not socialize in LBGTQ-specific venues either in-person or online. All promotional materials displayed a synopsis of eligibility criteria, a mention of a $25 electronic gift card incentive, and directed interested parties to visit the survey's website to learn more about the study.

We recruited 471 participants who met study criteria (Johns et al., 2013). The process for selecting our final analytic sample from our original pool of participants is detailed in Fig. 1. A total of 1017 entries were recorded during the 4 months of data collection. We excluded 317 entries because they did not meet eligibility requirements in the screener. We then reviewed the 700 potentially eligible participants for duplication or falsification using best practices documented in the literature (Bauermeister et al., 2012a, b; Teitcher, Bockting, Bauermeister, Hoefer, Miner, & Klitzman, 2015). The research team reviewed new survey responses on a daily basis and manually examined participants' online presence, email and IP addresses, operating system and browser information, irregular answer patterns, and time taken to complete survey. Based on data review, we subsequently disqualified another 211 entries because they were identified as duplicate/fraudulent entries (e.g., men attempting to garner the survey incentive; surveys from non-US I.P. addresses). Of the validated 489 participants, 18 participants consented but did not commence the survey (i.e., missing all data) and were subsequently excluded. Therefore, our final sample was $N = 471$ eligible YSMW.

Fifty-five percent of women in this sample identified as lesbian, 33% as bisexual, and 13% as some other identity (i.e., queer, pansexual, no label, heterosexual). Seventy percent of the sample identified their race or ethnicity as White/European American, 11% identified as Black/African American, 6% as Latino/ Hispanic, and 12% identified as some other racial category. We asked women to characterize the area or neighborhood in which they lived—54% said they lived in an urban environment, 25% said suburban, 19% said rural, and 3% said other. Women in this study ranged in age from 18 to 24 with a mean age of 21.41. Given professional guidelines regarding the timing of Pap testing (American College of Obstetricians and Gynecologists, 2013), only participants age 21 and older at the time of survey completion are included in the analytic sample. Thus, the analytic sample ($N = 285$) is comprised of participants over the age of 21 (inclusive) with complete data on measures of interest.

Procedures

Upon entering the study website, participants were asked to enter a valid and private email address, which served as their survey username. This allowed participants to save their answers and complete their survey in more than one sitting if necessary. Participants were asked eight questions during the eligibility screener. To be eligible for study participation, recruits had to be between the ages of 18 and 24 (i.e., born between 1987 and 1993) and either identify as any sexual identity other than heterosexual, or reply yes to a single item that asked if they had any sexual experiences with one or more women in the past year. If eligible, participants read a detailed consent form explaining the study purpose and their rights as

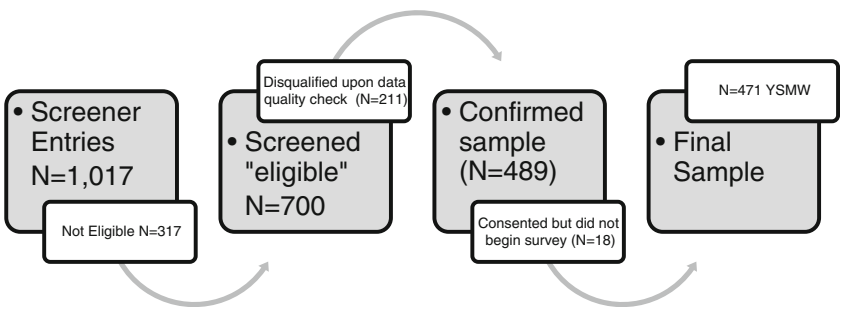

Fig. 1 Participant recruitment and exclusion strategy to determine our final analytic sample of YSMW recruited online

participants. YSMW who remained interested in study participation were asked to acknowledge that they read and understood each section of the consent form. Consented participants completed a 45–60 min survey regarding their sociodemographic characteristics, smoking attitudes and behaviors, health care utilization and experiences, sexuality, experiences of discrimination, and psychosocial wellbeing. For participant privacy, all study data were protected with a 128-bit SSL encryption and kept within a firewalled server. A Certificate of Confidentiality protected study data. Our Institutional Review Board approved the study's procedures.

Measures

Disclosure To measure whether participants had come out to their health care provider, participants were asked a series of questions regarding their provider's knowledge of their sexual orientation. After being asked whether they believed their doctor knew about their sexual orientation, participants were also asked, "How does your doctor know your sexual orientation?" Response options include "doctor doesn't know, probably assumes it, someone else told, I disclosed it without being asked, or, I disclosed because my doctor asked me". Responses were dichotomized into "yes disclosed" (I disclosed it without being asked ($N = 53$), I disclosed because my doctor asked me ($N = 27$), or someone else told ($N = 20$); total ($N = 100$)) and "no disclosure" (doctor does not know ($N = 185$)). Those who stated that their doctor probably assumes their sexual orientation were excluded because of the importance of knowing affirmatively whether or not YSMW's sexual orientation was known by their provider ($N = 18$).

Demographics Participants were asked a series of questions about their sociodemographic characteristics including their sexual identity, race, ethnicity, and neighborhood description (urban versus suburban versus rural residence). Participants were asked two questions to measure what sexual identity label best represented the way they thought about themselves: "How do you identify your sexual orientation?" and "If you had to pick ONE of the following labels to best represent the way you think about yourself, which would it be?" To the former question, participants were instructed to select all categories that applied; for the latter, participants could choose only one category. For both questions, participants could select heterosexual, lesbian or gay, bisexual, queer, other, or no label. This combination of questions was meant to indicate that the study team understands the variety of ways people may identify their sexual orientation. From their responses to the second question, participants were grouped into three categories: lesbian, bisexual, and other non-heterosexual identities. In the multivariate model, lesbians serve as the referent group. We also asked women to indicate their racial identity, selecting as many options as applied from a list of racial categories. Based on their response, women were categorized as White/Caucasian, Black/African American, or other. White women serve as the referent group in the multivariate models. To assess ethnicity, women were asked, "Are you Hispanic or Latina?"

To measure the influence of neighborhood contexts, we asked participants "How would you characterize the area where you live?" Response options for this question were as urban, rural, or suburban. Respondents living in urban areas serve as the referent group in the multivariate model.

Health Care Access and Insurance Status Survey participants were asked to describe their health care use. Participants were asked where they routinely go to receive medical care. From their responses we grouped women into two categories: yes (have medical home) and no (no medical home). Participants were also asked to provide the year in which they last visited a doctor or other medical provider for a recent check-up. Responses were grouped into those who received recent care (medical visit in 2011 or 2010) versus those who did not receive recent medical care (visit prior to 2009 or earlier). We also asked participants whether they had any health care insurance. Response options were yes (insured) or no (uninsured).

Sexual Health History Participants were asked a number of questions related to their sexual health history, including their number of male and female sexual partners, and the age at which they became sexually active. Given the count nature of the number of male and female partners, respective, a log transformation was conducted to reduce skewness. To measure that age at which participants became sexually active, we asked them how old they were when they engaged in a number of sexual acts (giving and receiving oral sex, vaginal sex, anal sex) with male, female, and transgender partners (if applicable). Age of sexual onset was determined based on the earliest age of any sexual act, with a partner of any gender.

Sexual Health Services YSMW were asked a series of questions regarding their use of specific types of sexual health care. Participants were asked to "select all" sexual health care services they had received from a provided list. For the purpose of this analysis, we focus on whether participants reported having received STI testing, Papanicolaou testing (Pap test), and human papillomavirus (HPV) vaccination. Receipt of STI testing was anchored in the previous 12 months, while questions regarding receipt of Pap test and HPV vaccination were not bound by time.

Data Analytic Strategy

We examined the distribution of our variables of interest using descriptive statistics (see Table 1), including the overall

Table 1 Descriptive sample characteristics among YSMW ($N = 285$)

	N (%)/M (SD)
Sexual orientation disclosure to provider	
Yes	100 (35.1)
No	185 (64.9)
Demographic characteristics	
Sexual identity	
Lesbian/gay	169 (59.3)
Bisexual	88 (30.9)
Other non-heterosexual	28 (9.8)
Race	
White/European American	187 (65.7)
Black/African American	42 (14.7)
Other	56 (19.6)
Hispanic or Latina ethnicity	33 (11.6)
Education	
Less than HS diploma	3 (1.5)
More than HS diploma	282 (98.5)
Neighborhood	
Urban	172 (60.4)
Suburban	64 (22.5)
Rural	49 (17.2)
Sexual history	
Age of sexual onset	17.23 (2.25)
Lifetime male partners[a]	3.47 (8.64)
Lifetime female partners[a]	3.93 (4.06)
Health care access and utilization	
Recent care	196 (68.8)
Medical home	186 (65.3)
Insured	250 (87.7)
Clinical history	
Received STI testing (12 months)	131 (46.0)
Received PAP test	122 (42.8)
Received HPV vaccine	38 (13.3)

[a] In subsequent analyses transformed (log) values are reported

prevalence of sexual health care services in our sample. In order to examine the association between sexual orientation disclosure and sexual health care services, we first conducted bivariate analyses. We also examined whether sexual health care services was associated with key sociodemographic indicators known to be associated with the outcomes of interest (e.g., demographic characteristics, health care use, and sexual history). Variables that were significantly ($p < .05$) associated with the sexual health care services in our bivariate analyses were included in our subsequent multivariable analyses. Finally, we ran logistic regression models to predict the independent associations between receipt of sexual health care services and coming out to providers, after adjusting for key sociodemographic indicators known to be associated with the outcomes of interest (e.g., demographic characteristics, health care use, and sexual history). We ran regression diagnostics to ensure that the inclusion of our covariates would not create problems of multicollinearity; we found no evidence of collinearity problems in our final models.

Results

The majority of participants in the study identify as lesbian, White, non-Hispanic/Latina, and urban dwelling (Table 1). The average age of participants was 22 years old (SD=1.06 years) and 98% of the sample had at least graduated high school. Approximately, 65% of participants reported having a regular primary care physician, and almost 70% reported receiving recent medical care. Slightly more than one third (35%) of YSMW had previously disclosed their sexual identity to a health care provider. The average age of sexual onset among participants was 17.23 years old (SD=2.25 years). The average number of lifetime sexual partners was 3.5 male partners (SD=8.64) and 3.9 female sexual partners (SD=4.06). Receipt of sexual health services was low. Less than half of YSMW reported receiving STI (46%) or Pap (43%) tests. Across the sample, only 13% of participants reported receiving the HPV vaccine.

Correlates of Sexual Health Care Services

STI Testing As shown in Table 2, YSMW who were out to their provider were more likely to have received STI testing (x^2 (1, $N = 285$) = 5.06, $p = 0.03$). YSMW who identified as bisexual or otherwise non-heterosexual (x^2 (2, $N = 285$) = 8.21, $p = 0.02$), White (x^2 (2, $N = 285$) = 8.05, $p = 0.02$), non-Hispanic/Latina (x^2 (1, $N = 285$) = 5.25, $p = 0.03$), and resided in urban areas (x^2 (2, $N = 285$) = 16.67, $p < 0.001$) were more likely to have received STI testing than their counterparts. Insured YSMW (x^2 (1, $N = 285$) = 8.21, $p < 0.01$) were also more likely to have received STI testing, as were women who had a younger age of sexual onset (x^2 (283, $N = 285$) = −2.83, $p < 0.001$). Participants who had a greater number of male (x^2 (283, $N = 285$) = 4.22, $p < 0.001$) and female sexual partners (x^2 (283, $N = 285$) = 3.18, $p < 0.002$) were also more likely to have received STI testing than those with fewer sexual partners (Table 2).

In the multivariable logistic regression model, the association between STI testing and sexual orientation disclosure to a provider was no longer statistically significant. YSMW who identified as neither lesbian or bisexual but "other" non-heterosexual were 3.32 times more likely to have received an STI test than lesbian and bisexual women in our sample (OR=3.32, 95% CI 1.02, 10.85, $p = 0.05$). Urban-dwelling women were 7.14 times more likely to have received a STI test than YSMW living in suburban communities (OR=0.14, 95% CI 0.06, 0.32, $p < 0.001$) and 2.56 times more likely to have been tested than

Table 2 Receipt of STI testing by demographic characteristics, health care use, and sexual history among YSMW ($N = 285$)

	Bivariate comparisons					Multivariable logistic regression			
	Total N (%)/M (SD)	No STI test ($N = 154$) N (%)/M (SD)	STI test ($N = 131$) N (%)/M (SD)	t/X^2	p value	Odds ratio	95% CI	Wald x^2	p value
Out to provider									
Yes	100 (35.1)	45 (29.2)	55 (42.0)	5.06	0.03	1.65	(0.91, 3.00)	2.73	0.10
No	185 (64.9)	109 (70.8)	76 (58.0)						
Sexual identity				8.21	0.02				
Lesbian/gay	169 (59.3)	101 (65.6)	68 (51.9)			REF			
Bisexual	88 (30.9)	44 (28.6)	44 (33.6)			0.85	(0.38, 1.90)	0.16	0.68
Other	28 (9.8)	9 (5.8)	19 (14.5)			3.32	(1.02, 10.85)	3.95	0.05
Race				8.05	0.02				
White	187 (65.7)	90 (58.4)	97 (74.0)			REF			
Black/AA	42 (14.7)	29 (18.8)	13 (9.9)			0.58	(0.26, 1.32)	1.69	0.19
Other	56 (19.6)	35 (22.7)	21 (16.0)			1.20	(0.52, 2.78)	0.18	0.67
Hispanic/Latina	33 (11.6)	24 (15.6)	9 (6.9)	5.25	0.03	0.46	(0.16, 1.36)	1.95	0.16
Neighborhood				16.67	<0.001				
Urban	172 (60.4)	77 (50.0)	95 (72.5)			REF			
Suburban	64 (22.5)	47 (30.5)	17 (13.0)			0.14	(0.06, 0.32)	22.88	0.001
Rural	49 (17.2)	30 (19.5)	19 (14.5)			0.39	(0.17, 0.87)	5.25	0.02
Primary care	186 (65.3)	99 (64.3)	87 (66.4)	0.14	0.71				
Recent care	196 (68.8)	112 (72.7)	84 (64.1)	2.44	0.13				
Insured	250 (87.7)	143 (92.9)	107 (81.7)	8.21	0.01	1.36	(0.54, 3.43)	0.43	0.51
Age of sex onset	17.23 (2.25)	17.57 (1.80)	16.82 (2.64)	−2.83	0.01	0.96	(0.83, 1.11)	0.38	0.54
Lifetime male partners (log)	0.37 (0.43)	0.28 (0.34)	0.48 (0.49)	4.22	<0.001	4.80	(1.74, 13.25)	9.16	0.002
Lifetime female partners (log)	0.63 (0.22)	0.59 (0.21)	0.67 (0.23)	3.18	0.002	4.53	(1.17, 17.52)	11.47	0.028
LR $\chi 2$					72.29				0.001
Pseudo R2					0.30				

Lesbians served as referent group for sexual identity. White women were referent group for race. Non-Hispanic/Latina women were referent group for ethnicity. Urban-dwelling women served as referent group for urban environment

YSMW residing in rural areas (OR=0.39, 95% CI 0.17, 0.87, $p = 0.02$). Greater number of female (OR=4.53, 95% CI 1.17, 17.52, $p < .05$) or male (OR=4.80, 95% CI 1.74, 13.25, $p = 0.002$) sexual partners also increased the likelihood that YSMW had received STI testing (Table 2).

Pap Testing As shown in Table 3, YSMW who were out to their provider were more likely to have received Pap testing (x^2 (1, $N = 285$) = 11.0, $p = 0.001$). Receipt of Pap testing occurred more often among YSMW who identified their sexuality as not-heterosexual (but not lesbian or bisexual; (x^2 (2, $N = 285$) = 9.54, $p = 0.01$)), White (x^2 (2, $N = 285$) = 18.53, $p < 0.001$), non- and Hispanic/Latina (x^2 (1, $N = 285$) = 9.24, $p = 0.002$). Higher rates of Pap testing also occurred among YSMW who were insured (x^2 (1, $N = 285$) = 6.55, $p < 0.02$) had a younger age of sexual onset (x^2 (283, $N = 285$) = −2.95, $p < 0.003$) and who had a greater number of male sexual partners (x^2 (283, $N = 285$) = 6.31, $p < 0.001$), compared to YSMW who were uninsured, initiated sexual activity at an older age, or had fewer male sexual partners (Table 3).

In the multivariable logistic regression model, the association between having a Pap test and coming out to their provider remained significant. Women who had disclosed their sexual identity to their provider were more likely to have received a Pap test (OR=2.66, 95% CI 1.46, 4.88, $p = 0.001$). Bisexual women were 2.38 times less likely than lesbians to have received a Pap test (OR=0.42, 95% CI 0.18, 0.98, $p = 0.05$). White women were 2.33 times and 2.56 times more likely than Black (OR=0.43, 95% CI 0.19, 0.96, $p = 0.04$) and other non-White YSMW (OR=0.39, 95% CI 0.16, 0.99, $p = 0.05$) to have received Pap testing, respectively. Greater number of male partners was associated with 13.77 times the odds of Pap test receipt (OR=13.77, 95% CI 4.49, 42.22, $p < 0.001$) (Table 3).

Table 3 Receipt of PAP test by demographic characteristics, health care use, and sexual history among YSMW ($N = 285$)

	Bivariate comparisons					Multivariable logistic regression			
	Total N (%)/M (SD)	No PAP ($N = 163$) N (%)/M (SD)	PAP ($N = 122$) N (%)/M (SD)	t/X^2	p value	Odds ratio	95% CI	Wald x^2	p value
Out to provider									
Yes	100 (35.1)	44 (27.0)	56 (45.9)	11.0	0.001	2.66	(1.46, 4.88)	10.10	0.001
No	185 (64.9)	119 (73)	66 (54.1)						
Sexual identity				9.54	0.01				
Lesbian/gay	169 (59.3)	106 (65.0)	63 (51.6)			REF			
Bisexual	88 (30.9)	48 (29.4)	40 (32.8)			0.42	(0.18, 0.98)	4.03	0.05
Other	28 (9.8)	9 (5.5)	19 (15.6)			1.04	(0.34, 3.15)	0.004	0.95
Race				18.53	<0.001				
White	187 (65.7)	90 (55.2)	97 (79.5)			REF			
Black/AA	42 (14.7)	30 (18.4)	12 (9.8)			0.43	(0.19, 0.96)	4.29	0.04
Other	56 (19.6)	43 (26.4)	13 (10.7)			0.39	(0.16, 0.99)	3.94	0.05
Hispanic/Latina	33 (11.6)	27 (16.6)	6 (4.9)	9.24	0.002	0.49	(0.15, 1.67)	1.29	0.26
Neighborhood				1.95	0.38				
Urban	172 (60.4)	104 (63.8)	68 (55.7)			REF			
Suburban	64 (22.5)	34 (20.9)	30 (24.6)			1.95	(0.86, 4.43)	2.55	0.11
Rural	49 (17.2)	25 (15.3)	24 (19.7)			1.00	(0.49, 2.02)	0.00	1.00
Primary care	186 (65.3)	105 (64.4)	81 (66.4)	0.12	0.80				
Recent care	196 (68.8)	116 (71.2)	80 (65.6)	1.02	0.37				
Insured	250 (87.7)	150 (92.0)	100 (82.0)	6.55	0.02	1.47	(0.60, 3.61)	0.69	0.41
Age of sex onset	17.23 (2.25)	17.6 (1.82)	16.8 (2.66)	−2.95	0.003	1.07	(0.93, 1.23)	0.85	0.36
Lifetime male partners (log)	0.37 (0.43)	0.24 (0.31)	0.54 (0.50)	6.31	<0.001	13.77	(4.49, 42.22)	21.03	<0.001
Lifetime female partners (log)	0.63 (0.22)	0.61 (0.19)	0.65 (0.26)	1.41	0.16				
LR $\chi 2$					76.76				0.001
Pseudo R2					0.32				

Lesbians served as referent group for sexual identity. White women were referent group for race. Non-Hispanic/Latina women were referent group for ethnicity. Urban-dwelling women served as referent group for urban environment

HPV Vaccination As shown in Table 4, YSMW who were out to their provider were more likely to have received at least one dose of the HPV vaccine (x^2 (1, N = 285) = 12.46, $p < 0.001$). YSMW who became sexually active at a younger age (x^2 (283, $N = 285$) = −2.95, $p < 0.003$), and had more male sexual partners (x^2 (283, N = 285) = 4.76, $p < 0.001$), were also more likely to have received the HPV vaccine than YSMW who became sexually active at older age or had fewer male sexual partners (Table 4).

In the multivariable logistic regression model, the association between HPV vaccination and coming out to their provider remained significant. YSMW who were out to their provider were more likely to a have received the HPV vaccine (OR=4.30, 95% CI 1.18, 10.19, $p = 0.001$) compared to women who had not previously disclosed their sexual orientation to their provider. YSMW with a larger number of male sexual partners were 12.5 times more likely to have received the HPV vaccine (OR=12.50, 95% CI 3.87, 40.35, $p < 0.001$) with fewer male partners (Table 4).

Discussion

Receipt of sexual health care services in our sample was lower than the national average with heterosexual counterparts. Given that these disparities in sexual health care utilization have been linked to deficits in medical education related to sexual minority health (Obedin-Maliver et al., 2011) and concerns from practicing physicians regarding their ability to discuss sexual health issues with YSMW (Abdessamad et al., 2013; Stott, 2013), we proposed to examine the relationships between sexual identity disclosure and receipt of sexual health care services among YSMW. Although only a third of our sample had disclosed their sexual orientation to their provider, our analysis found that disclosure was associated with greater likelihood of having received sexual health care services. We discuss the implication of these findings below.

YSMW who had come out to their providers reported higher rates of Pap testing. These findings support two previous studies on Pap testing reported that disclosure was

Table 4 Receipt of HPV vaccine by demographic characteristics, health care use, and sexual history among YSMW ($N = 285$)

	Bivariate comparisons					Multivariable logistic regression			
	Total sample N (%)/M (SD)	No vaccine ($N = 247$) N (%)/M (SD)	Vaccine ($N = 38$) N (%)/M (SD)	t/X^2	p value	Odds ratio	95% CI	Wald x^2	p value
Out to provider									
Yes	100 (35.1)	77 (31.2)	23 (60.5)	12.46	<0.001	4.30	(1.81, 10.19)	10.94	0.001
No	185(64.9)	170(68.8)	15 (39.5)						
Sexual identity				3.94	0.14				
Lesbian/gay	169 (59.3)	150 (60.7)	19 (50.0)			REF			
Bisexual	88 (30.9)	76 (30.8)	12 (31.6)			0.45	(0.14, 1.46)	1.76	0.19
Other	28 (9.8)	21 (8.5)	7 (18.4)			0.86	(0.23, 3.16)	0.05	0.82
Race				0.60	0.74				
White	187 (65.7)	160 (64.8)	27 (71.1)			REF			
Black/AA	42 (14.7)	37 (15.0)	5 (13.2)			1.40	(0.44, 4.45)	0.33	0.57
Other	56 (19.6)	50 (20.2)	6 (15.8)			1.68	(0.47, 5.94)	0.64	0.42
Hispanic/Latina	33 (11.6)	31 (12.6)	2 (5.3)	1.71	0.28	0.35	(0.05, 2.39)	1.14	0.29
Neighborhood				0.60	0.74				
Urban	172 (60.4)	151 (61.1)	21 (55.3)			REF			
Suburban	64 (22.5)	55 (22.3)	9 (23.74)			0.82	(0.27, 2.48)	0.12	0.73
Rural	49 (17.2)	41 (16.6)	8 (21.1)			0.69	(0.26, 1.83)	0.56	0.46
Primary care	186 (65.3)	159 (64.4)	27 (71.1)	0.65	0.47				
Recent care	196 (68.8)	168 (68.0)	28 (73.7)	0.49	0.48				
Insured	250 (87.7)	220 (89.1)	30 (78.9)	3.13	0.11				
Age of sex onset	17.23 (2.25)	17.38 (2.11)	16.24 (2.87)	−2.95	0.003	0.99	(0.84, 1.16)	0.03	0.87
Lifetime male partners (log)	0.37 (0.43)	0.32 (0.40)	0.69 (0.45)	4.76	<0.001	12.50	(3.87, 40.35)	17.84	<0.001
Lifetime female partners (log)	0.63 (0.22)	0.622 (0.21)	0.66 (0.28)	0.87	0.38				
LR $\chi 2$					43.82				0.001
Pseudo R2					0.26				

Lesbians served as referent group for sexual identity. White women were referent group for race. Non-Hispanic/Latina women were referent group for ethnicity. Urban-dwelling women served as referent group for urban environment

positively associated with routine Pap testing behavior (Diamant et al., 2000; Tracy, Lydecker, & Ireland, 2010). Notably, however, 40% of our sample reported having had a Pap test. Given that our subsample focuses on sexually active women who meet professional guidelines regarding the timing of Pap testing (American College of Obstetricians and Gynecologists, 2013), these findings are problematic and are compounded by observed disparities across sexual identity. Compared to lesbians, bisexual women in our sample were less likely to receive a Pap test. Though a number of studies have examined Pap test rates between sexual minority and heterosexual women, our analysis may be the first to report differences exclusively among sexual minority women. Exploring sexual identity based differences in Pap testing rates deserve further inquiry, particularly as prior research has noted that YSMW underutilize sexual health services (Charlton et al., 2011). An analysis of data from the Growing Up Today Study (GUTS, a nationally representative cohort of 18- to 25-year-old women) examined the relationship between Health Belief Model constructs (e.g., cervical cancer severity and susceptibility, and barriers and benefits to Pap testing), hormonal contraceptive use, and Pap test utilization (Charlton et al., 2014). Less hormonal contraceptive use and lower positive beliefs about Pap testing accounted for over 40% of the disparity in Pap test utilization between sexual minority and heterosexual participants (Charlton et al., 2014). Moreover, fewer positive beliefs related to Pap testing and reduced perceptions of cervical cancer susceptibility contributed to lower rates of Pap testing among young lesbians (Charlton et al., 2014). Similarly, Tracy et al. (2010) found that lesbians who did not routinely receive a Pap test perceived fewer benefits and greater barriers than did participants who met current screening guidelines, though this analysis did not find differences in perceived susceptibility or severity of cervical cancer, nor knowledge of risk factors between routine versus non routine screeners. Participants in this study also

cited fears of discrimination as a specific concern to receive a regular Pap test (Tracy et al., 2010). These studies suggest the ongoing utility of examining Health Belief Model constructs in the study of YSMW's sexual health and the public health potential in better communicating the benefits and reducing barriers to Pap testing for YSMW.

Coming out to a provider was associated with greater likelihood of having vaccinated; however, only 13% of YSMW in our sample received one or more doses of the HPV vaccine, compared to approximately 30% of women aged 19–26 in a general population study who reported receiving the vaccine in 2011 (Centers for Disease Control, 2013). Factors influencing this disparity remain unclear, yet researchers investigating sexuality based differences in HPV vaccination rates documented elsewhere have shown that these differences are not caused by lack of awareness of the vaccine: heterosexual, lesbian, and bisexual young women were similarly aware of the HPV vaccine (Agénor et al., 2015b). Unfortunately, we cannot infer from the responses regarding the HPV vaccine whether YSMW in our study had a single vaccination or completed the three-vaccination sequence required for optimal vaccination efficacy.

Disclosure was not associated with STI testing; however, less than half of the sample reported having an STI test in the prior year. This finding is worrisome, as elevated rates of some STIs have been documented among women who report higher numbers of female sexual partners (Evans, Scally, Wellard, & Wilson, 2007; Marrazzo, Stine, & Wald, 2003), and infrequent use of barrier methods during same-sex sexual activity is a risk factor for YSMW (Rowen et al., 2013). In general, as the number of sexual partners one has (regardless of partner sex) is associated with increased risk of HIV/STI infection, HPV infection, and cervical cancer ("HPV and Cancer," , 2015, "STDs and HIV – CDC Fact Sheet," , 2015), the strong association between number of sexual partners and sexual health services is reasonable. Lastly, our analysis found women who identified as an "other" sexual minority identity (i.e., queer or pansexual), were more likely than lesbian counterparts to receive STI testing, even after adjusting for covariates including lifetime number of sexual partners. Given low rates of STI testing behavior for all women in our sample, this finding further suggests a need for greater emphasis on STI testing for all sexual minority women. As emphasized above, all YSMW should discuss family planning, gynecological health, and HIV/STI prevention with their provider and should receive clinical guidance regarding HIV/STI and Pap testing, in addition to HPV vaccination referrals. The need for such counseling and care would benefit YSMW, who may benefit from a clearer understanding of health risks associated with engaging in sexual relationships with other women (Muzny, Harbison, Pembleton, & Austin, 2013).

Greater number of partners were associated with a greater likelihood of receiving sexual health care services. Specifically, YSMW who reported a greater number of male partners were more likely than those with fewer partners to have received STI and Pap testing and the HPV vaccine. YSMW who reported more lifetime female sexual partners were more likely to have received STI testing in the past 12 months, compared to YSMW with fewer lifetime female sexual partners. These findings are especially interesting given that identifying as bisexual reduced the likelihood of receiving these services. Examined together, these findings underscore the limitations of solely relying on sexual identity. These data show that measuring lifetime sexual behavior (same-sex and opposite-sex sexual experiences), in addition to measuring sexual identity, is important to understanding YSMW's sexual health care experiences. Collecting both identity and behavioral data is necessary to constructing a nuanced, accurate picture of the factors predicting YSMW's uptake of sexual health services.

These recent avenues of research provide a starting point for public health interventions seeking to improve rates of sexual health screening among YSMW. Educational campaigns may be less effective if the focus is merely on awareness around testing or disease prevention, but may be more successful if messages combat perceived barriers to care and emphasize benefits of receiving these sexual health services. Efforts such as "The Check It Out: Queer Women Need Paps Too!" (and a complementary campaign for transgender men) by a Canadian-based health group provided strategies to combat barriers or negative attitudes toward Pap testing. To counter sexual minority women's fears of discrimination, Seattle/King County's "Lesbian Health Matters" campaign highlighted the availability of welcoming, lesbian-friendly health care providers (in addition to promoting awareness of cervical cancer risk factors). From a clinical perspective, providers should ensure that all patients who meet clinical guidelines are recommended routine sexual health screenings and services. These guidelines provide criteria for who is eligible for services based on factors such as age, onset of sexual activity, and previous health history, and importantly, state that screening recommendations do not vary based on sexual partner's sex nor the patients' sexual orientation. To improve utilization of services among YSMW, it is vital that health care providers are knowledgeable of, and adhere to, professional guidelines when discussing and recommending sexual health services to patients, regardless of patient's sexual orientation.

Though disclosure was the main variable of interest in our analysis, this analysis also examined the relationship between various demographic predictors and sexual health care service receipt. Several disparities in service receipt across race/ethnicity and neighborhood type deserve mention. Black and other non-White YSMW were less likely to have ever received a Pap test than White peers, a finding that stand in contrast to analyses conducted with National Survey for Family Growth data (NSFG; 2006–2010). In an analysis of

NSFG data focused on YSMW ages 20–29 who reported both male and female sexual partners, Pap testing rates were highest among Black (62%), with minimal differences between Hispanic/Latina (56%) and White women (53%) (Agénor et al., 2014). Among women with only female sex partners, Hispanic/Latina women were least likely to have received a Pap test (26%), followed by White (42%) then Black women (50%) (Agénor et al., 2014). Similarly, while we observed no racial/ethnic differences with regard to STI testing, Agénor et al. (2014) found that, among bisexually behaving women, Black women were most often tested (60%), with essentially no differences in STI testing rates between Hispanic/Latina and White women (26 and 27%, respectively). Among women with only female same-sex partners, STI service utilization was similar for Black and Hispanic/Latina women (17 and 19%, respectively), and lower for White women (9%). Factors underlying differences in our findings versus NSFG data may be due to different sampling frames (e.g., selection of participants who meet professional guidelines regarding the timing of Pap testing versus national sample), interview techniques (e.g., web-based versus in-person), or characteristics of the samples (e.g., diverse age ranges, educational attainment, and racial/ethnic diversity). The explanations notwithstanding, differences and disparities reflected in our findings and Agénor's et al. analysis of NSFG data suggest the ongoing importance of examining health disparities using an intersectional lens. Future studies, both qualitative and quantitative, examining multiple social identities and their relationships to health outcomes and service utilization are necessary.

The type of neighborhood or geographic area where YSMW resided was significantly associated with receipt of STI testing. Living outside of an urban center (residence in a suburban or rural community) decreased the likelihood of receiving a STI test. Certainly, those living outside urban areas face unique barriers to accessing medical services, and to accessing sexual health services in particular. Limited access to sexual health services outside of urban centers may include an absence of health centers offering HIV/STI testing (or significant travel distances to such centers), decreased exposure to sexual health promotion campaigns or community prevention resources, increased stigma surrounding sexual health, and fewer state-based policies that promote access to available sexual health services (Kelly, 2011). Additionally, health care providers working outside of urban areas may face challenges to adhering to clinical guidelines not experienced by providers practicing in urban settings. A qualitative study of physicians practicing in urban, suburban, and rural environments reported concerns about societal norms and priorities, general agreement with specific guidelines, and patient-physician relationships as factors that more commonly influence non-urban providers' adherence to preventive service guidelines (Khoong, Gibbert, Garbutt, Sumner, & Brownson, 2014). Future research examining geographic disparities in sexual health service utilization among sexual minorities may be warranted.

Several study limitations warrant attention. Issues of sample size and homogeneity (particularly by race and ethnicity) may limit the ability to which these findings can be extended to the broader YSMW community. Concerns also exist with regard the time range for our sexual health screening measures. Paired with a cross-sectional design, the reliance on a one-year (e.g., STI) versus lifetime (e.g., Pap and HPV) time frame does not allow us to examine whether disclosure happened before or after receipt of these services. Specifically, we do not know whether disclosure preceded receipt of services or if services were obtained prior disclosure. The ambiguity of the sequence of events means precludes us from making causal assertions between the relationship between disclosure and sexual health services. Further qualitative research in this area may interrogate the act(s) of disclosure between a patient and her provider more explicitly, seeking to better understand how coming out did or did not influence communication with the provider, his/her recommendations, and the patient's subsequent pursuit of sexual health services. Similarly, while this study interrogated associations between disclosure and receipt of sexual health care, it may be the case that unexamined variables underlie the relationships describe throughout this paper. Factors study data do not account for (i.e., unmeasured individual characteristics, length or quality of patient-provider relationship, etc.) that are linked to both disclosure status and health service utilization may exist, resulting in a spurious relationship between disclosure and sexual health service receipt. Future work in this area would benefit from additionally exploring patient-provider relationship characteristics and rely on study designs that would allow for casual inferences to be drawn. Separately, investigating the type of provider (professional and, for physicians, clinical specialty) and exploring the relationship between provider type, disclosure, and sexual health service recommendations may be similarly valuable. Our questionnaire asked YSMW if "their doctor" knew their sexual orientation, but it does not tell us whether or not the provider YSMW were out to (or not) is the same person responsible for offering or providing sexual health care services. Finally, while optimally our data would allow us to examine differences in YSMW's sexual health care experiences by how disclosure occurred (for example, "I disclosed without being asked" versus "I disclosed because my doctor asked me"), we were unable to do so in this analyses due to sample size limitations. It is possible that "how" (not just "if") disclosure occurred influences the likelihood that YSMW seek out sexual and reproductive health care services. Future studies examining the relationship between disclosure and health services utilization should endeavor to strive to recruit samples large enough to explore possible differences by how disclosure occurs.

Conclusion

Reduced patient-provider communication around sexual health is exacerbated for SMW patients (Boehmer & Case, 2004; United States Department of Health and Human Services, Office of Women's Health, 2009) and may limit SMW's access and utilization of these services. Given the importance of provider recommendations in seeking sexual health services (Coughlin, Breslau, Thompson, & Benard, 2005; Juon, Seung-Lee, & Klassen, 2003), our analyses suggest a positive relationship between coming out to providers and receipt of sexual health care services. Fears that coming out to one's provider will negatively influence the likelihood that YSMW receive sexual health care recommendations and services are not borne out in our findings, though future research should continue investigating relationships between disclosure and sexual health care using more sophisticated study designs where causal relationships between these factors can be examined. Moreover, several social determinants of health (e.g., sexual identity, race, urbanity) were negatively associated with likelihood of reporting sexual health services; thus, it is important for future studies to examine how disclosure influences sexual health care within diverse groups of women. Whether or not disclosure is equally beneficial to all YSMW, particularly YSMW who sit at the intersection of multiple marginalized identities, warrants further investigation. Given that overall rates of sexual health services use were troublingly low, increased efforts to meet the needs of SMW are warranted to decrease disparities in sexual health care service utilization and reproductive health outcomes for YSMW.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Funding This work was supported by a pilot grant by the University of Michigan Comprehensive Cancer Center.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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