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#### Preventive Medicine

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## Sexual orientation and sexual health services utilization among women in the United States



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#### ARTICLE INFO

## Article history: Received 11 August 2016 Received in revised form 18 November 2016 Accepted 24 November 2016 Available online 06 December 2016

Keywords:
Sexual orientation
Sexual health services
Health care disparities
Women

#### ABSTRACT

Although sexual minority women are at risk of sexually transmitted infections (STIs) and cervical cancer, few nationally representative studies have assessed sexual orientation disparities in sexual health care among women. Using data from the 2011–2013 and 2013–2015 waves of the National Survey of Family Growth, which provide a national probability sample of U.S. women aged 15–44 years (N = 11,300), we used multivariable logistic regression to examine the associations between sexual behavior and sexual identity (modeled separately) and STI testing in the past year, Pap test use in the last 3 years, lifetime HIV testing, and lifetime human papillomavirus (HPV) testing. Women with male and female lifetime sexual partners had higher adjusted odds of being tested for STIs ([odds ratio:] 1.61; [95% confidence interval:] 1.37–1.89), HIV (1.66; 1.29–2.14), and HPV (1.79; 1.41-2.25) and similar adjusted odds of obtaining a Pap test (0.98; 0.76-1.27) than women with only male lifetime sexual partners. Self-identified bisexual women had higher adjusted odds of obtaining an STI (1.43; 1.10–1.86) and HIV (1.69; 1.24–2.30) test but lower adjusted odds of obtaining a Pap test in the last 3 years (0.66; 0.47-0.93) than heterosexual-identified women. Women with only female lifetime sexual partners had lower adjusted odds of receiving an STI (0.14; 0.07-0.28) and Pap (0.10; 0.03-0.27) test than women with only male lifetime sexual partners. Results comparing self-identified lesbian and heterosexual women were similar. Health care facilities should monitor and address sexual orientation disparities in women's sexual health care and ensure the provision of high-quality sexual health services to all women.

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#### 1. Introduction

Sexually transmitted infections (STIs) – including chlamydia, gonorrhea, syphilis, herpes, and human papillomavirus (HPV) – represent a notable public health problem (Centers for Disease Control and Prevention, 2015a). Each year, 20 million new STI cases are diagnosed in the United States (U.S.), with a substantial burden occurring among women (Centers for Disease Control and Prevention, 2015a). In addition to causing pain and discomfort in the short term, STIs have several long-term consequences among women, including infertility and ectopic pregnancy (Centers for Disease Control and Prevention, 2015a). Moreover, persistent infection with oncogenic HPV strains can cause cervical and other HPV-associated cancers, which affected 23,000 U.S. women

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between 2008 and 2012 (Viens et al., 2016). STIs can also increase women's risk of acquiring HIV (Ward and Rönn, 2010), with which 8328 U.S. women were newly diagnosed in 2014 (Centers for Disease Control and Prevention, 2016).

Sexual minority women (i.e., women who self-identify as lesbian, bisexual, or queer and/or have same-sex sexual partners or attractions; SMW) are at risk of acquiring STIs and HIV from sexual contact (e.g., penile-vaginal, penile-anal, vaginal-vaginal, oral-vaginal, vaginal-sex toy) with partners of any sex or gender (Diamant et al., 1999; Xu et al., 2010; Kwakwa and Ghobrial, 2003; Muzny et al., 2011, 2015; Gorgos and Marrazzo, 2011; Marrazzo et al., 2000; Campos-Outcalt and Hurwitz, 2002; Diamant et al., 2000a; Singh and Marrazzo, 2009; Bauer and Welles, 2001). For example, studies show that the prevalence of chlamydia was 7.1% among women with only female and both female and male past-year sexual partners, and the prevalence of herpes simplex virus 2 and HPV was 36.2% and 13%, respectively, among women with only female and both female and male lifetime female sexual

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partners (Gorgos and Marrazzo, 2011). Self-identified bisexual women and women with both male and female sexual partners may be at higher risk of STIs (Everett, 2013; Rosario et al., 2014a; Tao, 2008; Lindley et al., 2008; McNair, 2005) and HIV (Goodenow et al., 2008) than heterosexual women and women with only male sexual partners because of lower levels of social, economic, and health care resources (Kerker et al., 2006; Miller et al., 2007; Badgett et al., 2013; Diamant et al., 2000b), higher levels of sexual violence (Everett, 2013; Goodenow et al., 2008; Rosario et al., 2014b; Austin et al., 2008a, 2008b; Black et al., 2011; McCauley et al., 2015; Saewyc et al., 2006), higher average number of sexual partners (Everett, 2013; Oswalt and Wyatt, 2013), and higher prevalence of sex under the influence of drugs or alcohol (Koh et al., 2005) in these marginalized and stigmatized populations (Miller et al., 2007; Roberts et al., 2015; Friedman et al., 2014). Moreover, lesbians and women with only female sexual partners who are infected with HPV may be at higher risk of developing cervical cancer than heterosexual women and women with only male sexual partners because of a lower prevalence of cervical cancer screening (Kerker et al., 2006; Diamant et al., 2000b; Agénor et al., 2014; Matthews et al., 2004; Tracy et al., 2010) and higher prevalence of smoking (Boehmer et al., 2012; Cochran et al., 2001a), a notable risk factor for the disease.(Waggoner, 2003)

The U.S. Preventive Services Task Force (USPSTF) (Meyers et al., 2008; LeFevre, 2014) and Centers for Disease Control and Prevention (CDC) (Centers for Disease Control and Prevention, 2015b) recommend that all sexually active women under the age of 25 years be tested annually for chlamydia and gonorrhea, regardless of sexual behavior. The USPSTF STI testing guidelines also indicate that women who engage in "high risk" sexual behaviors (e.g., using condoms inconsistently, having multiple current sexual partners, having sex under the influence of drugs or alcohol) receive routine chlamydia, gonorrhea, HIV, and syphilis tests (Meyers et al., 2008; LeFevre, 2014). Moreover, at the time of the survey, the USPSTF and American Cancer Society recommended that women aged 21-29 years obtain a Pap test every 3 years to screen for cervical cancer (U.S. Preventive Services Task Force, 2016; Moyer, 2012; Saslow et al., 2012). Women aged 30-65 years could be screened every 3 years with a Pap test alone or every 5 years with Pap and HPV co-testing, which enables health care providers to not only detect cervical abnormalities (Pap test) but also identify high-risk HPV types in cervical cells (HPV test) (U.S. Preventive Services Task Force, 2016; Moyer, 2012; Saslow et al., 2012).

Although SMW are at risk of acquiring STIs and HIV and developing cervical cancer, research examining access to and utilization of sexual health services in this population is limited (Solarz, 1999; Institute of Medicine, 2011; Coulter et al., 2014). The few studies on this understudied topic have mostly relied on convenience samples composed of predominately white, college or college-educated women, failed to use appropriate comparison groups (e.g., heterosexual women), assessed only one dimension of sexual orientation relevant to sexual health care (i.e., sexual identity or sexual behavior), and/or combined lesbians or women with only female sexual partners and bisexual women or women with both male and female sexual partners – who have different social, economic, and health profiles (Kerker et al., 2006; Miller et al., 2007; Badgett et al., 2013; Diamant et al., 2000b) – into a single group (Bauer and Welles, 2001; Oswalt and Wyatt, 2013; Matthews et al., 2004; Tracy et al., 2010; Mullinax et al., 2015; Charlton et al., 2011; Marrazzo et al., 2001; Cochran et al., 2001b; Charlton et al., 2013; Diamant et al., 2000c; Kerr et al., 2013; Tracy et al., 2013). Further, with one notable exception (Tornello et al., 2014), studies that have utilized data from probability samples of U.S. women pertained to subnational geographic areas (Kerker et al., 2006; Diamant et al., 2000b) or focused on Pap test use to the exclusion of other sexual health services (Kerker et al., 2006; Diamant et al., 2000b; Agénor et al., 2014). Thus, in order to address these notable gaps in the scientific literature, we examined the association between both sexual behavior and sexual identity - two dimensions of sexual orientation relevant to sexual health care (Sell, 2007) – and the utilization of various sexual health services in a national probability sample of U.S. women aged 15–44 years using appropriate comparison groups.

Research suggests that sexual orientation can influence women's sexual health care by shaping their knowledge of, attitudes toward, and access to sexual health information and services as well as health care providers' communication about and recommendation of sexual health services based on their training (or lack thereof) and beliefs about SMW's health (Muzny et al., 2013; Marrazzo et al., 2005; Marrazzo, 2005; Power et al., 2009; Richardson, 2000; Price et al., 1996; McNair et al., 2009; Lindley et al., 2012; Polek and Hardie, 2010; McNair, 2003a, 2003b; Hutchinson et al., 2006). Moreover, it is possible that health insurance status and access to health care, which differ based on sexual orientation and influence the use of preventive health services, may help explain sexual health care disparities related to sexual behavior and identity among U.S. women (Kerker et al., 2006; Solarz, 1999; Institute of Medicine, 2011; Gonzales and Blewett, 2014; Jerant et al., 2013). Similarly, sexual orientation disparities in sexual health services use may be due to sexual risk factors (e.g., history of STIs), which disproportionately affect self-identified bisexual women and women with both male and female sexual partners and may lead clinicians to provide sexual health care to women in these sexual orientation groups more often than those at lower average sexual risk (Everett, 2013; Rosario et al., 2014b; Austin et al., 2008a; McCauley et al., 2015).

Given the exclusion of SMW from sexual health promotion efforts and misperceptions, among both women and providers, that the risk of female-to-female STI transmission is low (Muzny et al., 2013; Marrazzo et al., 2005; Marrazzo, 2005; Power et al., 2009; Richardson, 2000; Price et al., 1996; McNair et al., 2009; Lindley et al., 2012; Polek and Hardie, 2010; McNair, 2003a, 2003b), it is critically important that researchers ascertain STI and HIV testing and cervical cancer screening disparities among women in relation to both sexual behavior and sexual identity and elucidate the underlying mechanisms of sexual orientation disparities in women's sexual health care. These efforts will in turn help inform evidence-based interventions that facilitate access to and utilization of recommended sexual health services among underserved groups of SMW and help promote the sexual health of all women, regardless of sexual orientation.

#### 2. Methods

#### 2.1. Study participants

We analyzed self-reported data from the 2011–2013 and 2013–2015 waves of the National Survey of Family Growth (NSFG), which provide a national probability sample of 11,300 civilian, noninstitutionalized U.S. women aged 15–44 years (female response rates: 73.4% in 2011–2013 and 71.2% in 2013–2015) (National Center for Health Statistics, 2011-2013; Lepkowski et al., 2010; National Center for Health Statistics, 2016). Study participants were randomly selected using a stratified, five-stage cluster sampling design and completed surveys administered by female interviewers. Data on sensitive topics, including sexual orientation, were collected using audio-computer assisted self-interview (ACASI) software in order to promote participant privacy (National Center for Health Statistics, 2011-2013, 2016; Lepkowski et al., 2010).

#### 2.2. Measures

The primary predictors were two dimensions of sexual orientation relevant to sexual health care: sexual behavior (operationalized as sex of lifetime sexual partners, which we created using data on any lifetime same- and opposite-sex sexual contact and categorized as only male, both male and female, only female, and none) and sexual identity (categorized as heterosexual, bisexual, lesbian). The four outcomes of interest were receiving a test for chlamydia, gonorrhea, herpes, or syphilis

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