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ORIGINAL RESEARCH

Women's health care: the experiences and behaviors of rural and urban lesbians in the USA

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ABSTRACT

Introduction: Previous research has consistently demonstrated that, in comparison to their cisgender heterosexual counterparts, lesbians face a multitude of women's healthcare-related disparities. However, very little research has been conducted that takes an intersectionality approach to examining the potential influences of rural–urban location on the health-related needs and experiences of lesbians. The purpose of this study was to quantitatively compare rural and urban lesbians' access to women's health care, experiences with women's healthcare providers (WHCPs), and preventive behavior using a large, diverse sample of lesbians from across the USA.

Methods: A total of 895 (31.1% rural and 68.9% urban) lesbian-identified cisgender women (ie not transgender) from the USA participated in the current online study. As part of a larger parent study, participants were recruited from across the USA through email communication to lesbian, gay, bisexual, and transgender (LGBT)-focused organizations and online advertisements. Participants were asked to complete a series of questions related to their women's healthcare-related experiences and behaviors (ie access to care, experiences with WHCPs, and preventive behavior). A series of χ^2 analyses were utilized in order to examine rural–urban differences across dependent variables.

Results: An examination of sexual risks revealed that relatively more rural lesbians reported at least one previous male sexual partner in comparison to the urban sample of lesbians (78.1% vs 69.1%, $\chi^2(1, N=890)=7.56$, $p=0.006$). A similarly low percentage of rural (42.4%) and urban (42.9%) lesbians reported that they have a WHCP that they see on a regular basis for preventive care. In terms of experiences with WHCP providers, relatively fewer rural lesbians indicated that their current WHCP had discussed/recommended the human papillomavirus (HPV) vaccination in comparison to urban lesbians (27.5% vs. 37.2%; χ^2 (1,

N=796)=7.24, p=0.007). No other rural–urban differences in experiences with WHCPs emerged – few rural and urban lesbians had been asked about their sexual orientation by their WHCP (38.8% and 45.0%, respectively), been provided with appropriate safe-sex education by their WHCP (21.4% and 25.3%), had their last HIV/sexually transmitted infection screening instigated by their WHCP (if applicable; 15.7% and 19.5%), and reported that their WHCP seems knowledgeable about lesbian health concerns (56.5% vs 54.6%). In terms of preventive behavior, significantly fewer rural lesbians aged 40 years or more had received a mammogram in the past 3 years (63.2% vs 83.2%; $\chi^2(1, N=163)=8.36$, p=0.004) when compared to their urban counterparts. No other significant rural–urban differences in preventive behaviors emerged. A similarly low percentage of rural and urban lesbians indicated that they have received the HPV vaccination (22.8% and 29.0%, respectively) and/or have had a HIV/STI screening (43.0% and 47.8%), Pap test (62.0% and 64.5%) or breast exam (59.2% and 62.8%), in the past 3 years.

Conclusions: The current findings highlight that rural lesbians in the USA, in comparison to urban lesbians, may experience elevated health risks related to being more likely to have at least one previous male sexual partner, less likely to be recommended the HPV vaccination by a WHCP, and, for those 40 or older, less likely to receive routine mammogram screenings. Furthermore, rural lesbians appear to engage in similarly low rates of HPV vaccination and regular HIV/STI screenings, Pap tests, and clinical breast exams as their urban counterparts. Given the increased cervical and breast cancer risks associated with rural living, the current findings underscore the dire need for health promotion efforts aimed at increasing rural lesbians' engagement in routine pelvic and breast exams.

Key words: cancer risks, gynecology, healthcare experiences, human papillomavirus, lesbian, LGBT, preventive behavior, USA, women's health.

Introduction

Previous research has established that, in comparison to their heterosexual counterparts, lesbian identified women experience a variety of health disparities, including increased risks for and/or rates of breast and gynecologic cancers, obesity, asthma, diabetes, cardiovascular disease, and multiple chronic conditions[1-9], which appear to be largely associated with infrequent and/or inappropriate preventive health care[1,10,11]. According to the Institute of Medicine[1] one of the greatest health risks for lesbians and other sexual minorities is the avoidance of routine health care. Ongoing medical care and regular physical exams help with the identification of health-related risks (such as poor eating/exercise patterns, weight concerns, unprotected sex, smoking, alcohol and drug use, and other mental health issues, all of which have been shown to be high among lesbians[1-6,12-16]) and provides an opportunity for early prevention/intervention efforts and the provision of appropriate referrals. Furthermore, foregoing routine gynecological appointments is particularly problematic for lesbians as they are less likely to receive regular preventive screenings that are typically a part of women's health care. Overall, this lack of preventive care reduces the likelihood of early detection of reproductive cancers, sexually transmitted infections, heart disease, and diabetes, and therefore poses a significant risk for the development of long-term and potentially life-threatening health problems that, if detected early, are more manageable and treatable[17].

More specifically, research consistently demonstrates that lesbians are less likely to have a regular source of women's health care, seek medical care in general less often, and have significantly lower rates of engagement in routine preventive cancer screenings and physical exams when compared to heterosexual women[6,10,13,15,18-21]. For example, results from the 2010 Behavioral Risk Factor Surveillance System surveys revealed that lesbians in the USA, in comparison to their heterosexual counterparts, have more than 30% lower odds of receiving yearly routine physical exams[14]. In particular, recent national data suggest that approximately 38% of

lesbians do not receive routine Pap tests. Although this is a decrease from past studies suggesting that 43–56% of lesbians do not receive regular Pap tests, the prevalence of non-screening among lesbians continues to be significantly higher in comparison to the general US population of women (16–25%[22]). Earlier research conducted by Diamant and colleagues[23] suggests a disparity among lesbians with regards to regular clinical breast exams, with approximately 39% of lesbians in their sample reporting that they had not received a breast exam by a medical provider in the previous 2 years (in comparison to only 29% of heterosexual women). Likewise, Grindel and colleagues[12] found that 42.3% of lesbians aged 40 years or more do not adhere to the American Cancer Society's guidelines for regular mammogram screenings, with almost 10% having never received a mammogram.

Given the magnitude of these disparities in preventive behavior among lesbians, coupled with their increased health risks, researchers have begun to explore potential explanations for the observed differences in the receipt of cancer screenings among lesbians and heterosexual women. One major factor that has been found to be associated with lower rates of preventive care among lesbians is the traditionally heterosexist nature of women's health care and the related avoidance by lesbians of regular care due to previous negative experiences with providers (ie exposure to heterosexism/homophobia-related language/paperwork, rejection, discrimination, and inappropriate care) and/or fear of future mistreatment within the healthcare setting[24-26]. Furthermore, fear-based avoidance of preventive healthcare may be particularly salient for more gender non-conforming lesbians whose gender presentation/identification may be in conflict with traditional femininity and typical, heteronormative women's healthcare experiences. Hiestand and colleagues[27] found that 'butch'-identified lesbians, in comparison to their 'femme'-identified counterparts, report less frequent gynecological examinations due to a history of poor treatment and perceived discrimination in healthcare settings. Therefore, the experiences that lesbians have with their women's healthcare providers (WHCPs, for example obstetricians/gynecologists and/or other healthcare providers that women see for gynecologic preventive care and screenings) are crucial to their health and wellbeing. Unfortunately, many WHCPs do not have adequate training to provide appropriate care to lesbians and/or harbor their own heterosexist attitudes, beliefs, and misperceptions, both of which can result in significant mistreatment and/or subsequent avoidance of care[1,24,25,28].

Although the past decade has shown a significant increase in research examining women's health-related experiences and behaviors of lesbians, the majority of that research has been conducted with primarily urban samples, with very few studies examining the potential influence of geographic context (rural or urban) on lesbians' preventive care. More specifically, due to a variety of cultural and structural related factors, rural lesbians may have more negative experiences with WHCPs and/or be less likely to receive appropriate and routine preventive care. For example, due to a greater emphasis on heteronormativity and traditional, conservative values, rural culture is often associated with higher levels of heterosexism/homophobia[29-34]. In addition, rural sexual minorities in the USA have been found to report increased exposure to enacted stigma[35]. Furthermore, the majority of rural communities are characterized by overall health professional shortages and a limited availability of women's healthcare specialists[36,37], with the general population of rural women having lower rates of engagement in regular women's healthcare services in comparison to their urban counterparts[36]. This shortage is coupled with the likelihood that WHCPs that are knowledgeable of and sensitive to lesbian health concerns are even more scarce (if available at all) in these areas[1,38].

Despite the added vulnerabilities of rural living, there is currently a dearth of research that explores aspects of women's health among rural lesbians. Only two known studies specifically examine the potential impact of living outside of an urban area on the healthcare behaviors and experiences of lesbians. First, Austin[39] examined the rates of disclosure to healthcare providers among a sample of lesbians living in urban and non-urban areas in the Southern region of the USA and found that, in comparison to urban lesbians, non-urban lesbians had lower rates of disclosure (50.7% vs 61.3%, respectively). However, although this study provides some valuable information with regards to the disclosure behavior of non-urban Southern US lesbians, these

results are limited in their generalizability to *rural* lesbians across the USA given that the study was conducted with lesbians in one region of the country and only a small portion of the 'non-urban' sample were residents of rural communities. Furthermore, Austin's[39] study focused on primary health care and did not specifically assess aspects of gynecological care. Next, Tiemann and colleagues[40] conducted a qualitative study involving a small (N=8), geographically limited (Midwest USA) sample of rural lesbians that was also primarily focused on disclosure to providers. Participants were asked to describe their healthcare disclosure-related behaviors and related experiences with providers in their areas. Results of these interviews highlighted a variety of negative experiences with rural medical providers if one's sexual orientation was known (eg heterosexist/homophobic reactions and/or mistreatment). Furthermore, interview responses suggested that rural lesbians may engage in a variety of disclosure-related protective strategies when interacting with healthcare providers such as screening potential providers with regards to their sensitivity/knowledge of lesbian health, discontinuing care following negative reactions to their sexual orientation disclosure, and/or avoidance of disclosure due to fears of rejection and/or mistreatment given that alternative options for safe, affirming care may not be available due to the shortage of providers in their community.

Current study

The Institute of Medicine[1] has emphasized a substantial need for research that takes an intersectionality approach to examining the potential influences of rural–urban location on the health-related needs and experiences of lesbians and other sexual minorities. More specifically, there is currently no known large-scale quantitative research that examines aspects of women's health care among rural lesbians. The purpose of this study was to quantitatively compare rural and urban lesbians' access to women's health care, experiences with WHCPs, and preventive behavior (receipt of human papillomavirus (HPV) vaccination and past 3-year HIV screening, Pap test, clinical breast exam, and mammogram) using a large, diverse sample of lesbians from across the USA. It was hypothesized that, in comparison to their urban counterparts, rural lesbians would have less access to women's health care and, for those that do have access, different experiences with WHCPs (eg less likely to be asked about their sexual orientation and provided appropriate safe-sex education), in addition to having lower rates of engagement in preventive behaviors.

Methods

Participants

As part of a larger lesbian, gay, bisexual, and transgender (LGBT) health survey[41], participants for the current study were recruited from across the USA through email communication to LGBT-focused organizations and a classified advertisements website. To participate in the overall study, individuals had to be aged 18 years or older and identity as a gender and/or sexual minority (lesbian, gay, bisexual, pansexual, queer, transgender, gender non-conforming/genderqueer). A total of 3279 LGBT-identified individuals participated in the overall study. For the purposes of this study, only cisgender (not transgender) women who identified their sexual orientation as lesbian were included in the analytic sample (N=895).

Procedures

Recruitment for this study was completed entirely online through email, social media, and a classified advertisement website. Over the course of the study, approximately 5000 emails and messages were sent to LGBT-related organizations and listservs in all 50 US states. To increase the sample of rural-residing gender and sexual minorities who may have limited access to formal LGBT organizations and networks[29], the same recruitment message was also used to create an online advertisement that was posted in the 'community volunteer' section of each US municipality on classified advertisement websites. The hyperlink to the study was included within the recruitment advertisements. After interested and eligible participants reached the survey webpage they were initially asked to read the informed consent page and indicate their

willingness to voluntarily participate in the anonymous study by clicking 'yes' at the end of the page. Following informed consent, participants were guided through the survey using skip patterns. After completing the survey, participants were redirected to a debriefing page and provided with an opportunity to voluntarily participate in a draw to win 1 of 30 gift cards valued at $50.

Measures

The parent study included 75-demographic and health-related questions created by the investigators and seven formal questionnaires. For the current study, only demographics and questions related to women's health care were used. To assess current geographic location, participants were asked 'Which best describes the area that you currently live in?' (answer choices: 'rural' and 'urban'). To examine access to women's healthcare and experiences with providers, participants were asked to complete a series of dichotomous (yes/no) questions regarding their personal experiences ('Do you have an obstetrician/gynecologist (OB/GYN) or other women's healthcare provider that you see on a regular basis for preventive care?', 'Do you feel that your women's health provider is knowledgeable and sensitive to unique lesbian and bisexual women's health issues/concerns?'). Next, with the exception of receipt of HPV vaccination, which was measured using a similar yes/no question, preventive behavior was assessed by having participants indicate when they last received an HIV/sexually transmitted infection (STI) test, Pap smear, breast exam, and mammogram using the following scale: 0='never' to 4='within the last year'. Lastly, participants were asked to indicate how many male sexual partners they have had in their lifetime (1='none' to 7='over 50').

Ethics approval

All relevant ethical safeguards were followed in relation to participant protection, and the project was reviewed by the institutional review board of Georgia Southern University (H13171).

Data preparation and analysis

According to recent updates to the cervical cancer screening guidelines, the US Preventive Services Task Force[42] recommends that women receive a Pap test every 3–5 years (instead of the traditional emphasis on having annual HPV screenings). Furthermore, according to the American Cancer Society's Guidelines for Early Detection of Cancer, the recommended frequency of clinical breast exams for women aged 20–39 is also every 3 years[43]. To simplify the current study's interpretations, past 3-year preventive behaviors (Pap smear, breast exam, mammogram, and HIV/STI screening) were examined by collapsing responses into two categories: 'never' and 'over 3 years ago' = 'no' and all other responses = 'yes'. Similarly, responses to the question regarding previous male sexual partners were collapsed into yes/no categories ('never' = 'no' and all other responses = 'yes'). To compare rural–urban differences across dependent variables, a series of χ^2 analyses were utilized for each dichotomous question. Given that, in the USA, the recommended age to begin receiving regular mammograms is 40[43], only those lesbians that self-reported their age as 40 years or more (n=163) were included in the χ^2 analysis examining rural–urban differences in mammography behavior.

Results

Sample characteristics

A total of 895 lesbian-identified cisgender women participated in the current study. Of the total sample, 31.1% were rural residents and 68.9% were urban residents. The mean age of the total sample was 30.4 (standard deviation (SD)=11.6), with the sample of rural-residing lesbians being significantly older than those living in urban areas ($t(893)=-3.05$, $p=0.002$). More than two-thirds (68.9%) of the total sample identified their racial/ethnic background as Caucasian/European American. However, the urban sample was significantly more racially and ethnically diverse in comparison to the rural sample of lesbians ($\chi^2(1, N=895)=18.00$, $p=0.021$). See Table 1 for additional sample characteristics.

Table 1: Demographic characteristics of lesbian-identified cisgender women who participated in study (*N*=895)

Characteristic	Rural (*n*=278)	Urban (*n*=617)	Total (*N*=895)
Age (years)*†	32.17 (12.2)	29.6 (11.2)	30.4 (11.6)
Racial/ethnic background (%)			
Caucasian/European-American*	74.5	66.5	68.9
African-American	5.4	10.2	8.7
Hispanic-American	6.8	11.0	9.7
Asian-American	1.1	2.9	2.3
Jewish descent	4.0	4.1	4.0
Pacific Island/Native Hawaiian	0.0	0.3	0.2
American Indian	4.7	2.8	3.4
Multiracial	3.2	1.8	2.2
Relationship status (%)			
Single	22.7	27.7	26.1
Legally married	7.6	6.8	7.0
Formalized partnership	11.2	9.1	9.7
In a relationship, cohabitating	32.7	31.3	31.7
In a relationship, non-cohabiting	18.0	20.3	19.6
Divorced/separated	6.8	4.7	5.4
Widowed	1.1	0.2	0.4
Highest level of education (%)			
Less than high school	0.4	1.0	0.8
Some high school	3.2	3.4	3.4
High school diploma/General Education Diploma	7.9	8.6	8.4
Some college/vocational	33.1	34.6	34.1
Vocational degree	5.8	3.9	4.5
College degree	27.3	23.9	24.9
Some graduate work	7.6	6.0	6.5
Master's degree	11.2	14.6	13.5
Doctorate degree	3.6	4.1	3.9
Employment status (%)			
Full-time employment	41.9	41.8	41.7
Part-time employment	11.6	16.6	15.0
Self-employed	7.9	4.1	5.3
Unemployed	14.1	12.4	12.8
Unable to work/disabled	6.9	5.2	5.7
Retired	1.8	1.6	1.7
Full-time student	15.9	18.4	17.5
Gender presentation/identification* (%)			
Masculine ('butch', 'stud', 'boi')	24.2	21.0	21.9
Feminine ('femme', 'lipstick')	30.3	41.1	37.7
Androgynous/genderqueer	36.5	31.7	33.1
Other/prefer not to identify	9.0	6.2	7.0
Lifetime male sexual partners ≥ 1* (%)	78.1	69.1	71.5

* Rural–urban comparison significant at $p<0.05$; **$p<0.01$

† Mean/standard deviation.

Access to women's healthcare, and experiences with providers

A similarly low percentage of rural (42.4%) and urban (42.9%) lesbians reported that they have a WHCP that they see on a regular basis for preventive care. In terms of experiences with WHCP providers, significantly fewer rural lesbians indicated that their current WHCP had discussed/recommended the HPV vaccination in comparison to urban lesbians (27.5% vs 37.2%, $\chi^2(1, N=796)=7.24$,

p=0.007). No other rural–urban differences emerged, with a similar percentage of rural and urban lesbians indicating that they avoid/put off women's healthcare appointments due to fears of discrimination (19.7% and 18.1%, respectively) and they believe that it is important for their WHCP to be aware of their sexual orientation (74.0% and 78.9%), in addition to the following experiences with a women's healthcare provider: they consider their WHCP to be their primary care provider (20.5% and 18.6%, respectively); their WHCP has asked about mental health concerns (28.8% and 28.5%); their WHCP has prescribed psychotropic medication (14.9% and 13.5%); their WHCP has asked about sexual orientation (38.8% and 45.0%); their WHCP has provided appropriate safe-sex education (21.4% and 25.3%); their WHCP instigated their previous HIV/STI screening (if applicable; 15.7% and 19.5%); their WHPC seems knowledgeable about lesbian health concerns (56.5% and 54.6%).

Preventive behaviour

An examination of preventive behavior among rural and urban lesbians revealed that significantly fewer rural lesbians aged 40 years or more had received a mammogram in the past 3 years (63.2% vs 83.2%, $\chi^2(1, N=163)=8.36$, p=0.004) when compared to their urban counterparts. No other significant differences in preventive behavior emerged. A similar percentage of rural and urban lesbians indicated that they have received the HPV vaccination (22.8% and 29.0%, respectively), had a HIV/STI screening (43.0% and 47.8%), Pap test (62.0% and 64.5%), or breast exam (59.2% and 62.8%) in the past 3 years. See Table 2 for rural–urban comparisons of experiences with providers and preventive behavior.

Discussion

The purpose of the current student was to explore rural–urban differences with regards to women's healthcare-related experiences and preventive behaviors among US lesbians. Given the unique cultural and structural aspects of rural living, it was hypothesized that there would be differences across many aspects of care. Namely, it was expected that, in comparison to their urban counterparts, rural lesbians would have less access to women's health care and, for those that do have access, different experiences with WHCPs, in addition to having lower rates of engagement in preventive behaviors. Contrary to expectations, however, very few significant rural–urban differences in experiences and behavior emerged. Overall, it appears that women's healthcare-related experiences and preventive behaviors of rural lesbians are fairly similar to those of their urban counterparts (ie similarly low levels of engagement with and access to appropriate care).

The few significant rural–urban differences found in the current study are important to recognize and explore further as they have significant implications for the health and wellbeing of rural lesbians, especially with regards to HPV and cervical cancer risks. In comparison to urban lesbians, relatively fewer rural lesbians indicated that their WHCP had recommended that they receive the HPV vaccination (27.5% vs 37.2%), coupled with the finding that 22.8% of the current sample of rural-residing lesbians have actually been vaccinated for HPV. This is particularly concerning given that almost 80% of the rural-residing lesbians endorsed having at least one previous male sexual partner in their lifetime, which was significantly higher than the urban sample. This highlights an elevated risk for contracting HPV among rural lesbians, as they were less likely to receive a vaccination recommendation despite being more likely to have a history of male sexual partners. Although it is often assumed by providers and patients alike that lesbians have lower risks for contracting HPV and are less susceptible to cervical cancer given that one major risk factor is unprotected sexual intercourse with multiple male partners[44,45], the current findings and previous studies (with prevalence rates ranging from 70% to 80%[46–49]) highlight that the majority of lesbian-identified women have had at least one male sexual partner, which adds to their risk of developing cervical cancer[13,50]. Furthermore, despite misconceptions about lesbians' risks, HPV infections can be sexually transmitted between women[13,51,52], and HPV infections have been found among samples of women with only female sexual partners, with recent research suggesting a HPV infection prevalence rate of 34% among sexual minority women with no previous male sexual contact[52].

Table 2: Rural–urban comparisons of experiences with women's healthcare providers and preventive behavior among lesbian-identified cisgender women who participated in study (*N*=895)

Experience	Rural (%)	Urban (%)	OR	*p* value
Regular source of women's health care	42.4	42.9	–	0.888
Avoid women's health care due to fears of discrimination	19.7	18.1	–	0.571
Current obstetrician/gynecologist or other WHCP				
Male provider	22.4	18.0	–	–
Female provider	77.6	82.0	–	–
Considered WHCP to be primary care provider	20.5	18.6	–	0.500
Asked about mental health concerns	28.8	28.5	–	0.924
Prescribed psychotropic medication	14.9	13.5	–	0.591
Asked about sexual orientation	38.8	45.0	–	0.094
Provided appropriate safe-sex education	21.4	25.4	–	0.221
Discussed/recommended HPV vaccination	27.5	37.2	1.56 (1.13–2.16)†	0.007
Instigated last HIV/STI screening (if applicable)	15.7	19.5	–	0.257
Seems knowledgeable about lesbian-health concerns	56.5	54.6	–	0.621
Think important for WHCP to be aware of sexual orientation	74.0	78.9	–	0.111
Preventive behavior				
Received HPV vaccination	22.8	29.0	–	0.057
HIV/STI screen in past 3 years	43.0	47.8	–	0.181
Never received HIV/STI screen	34.3	33.4	–	–
Pap test in past 3 years	62.0	64.5	–	0.466
Never received Pap test	19.2	23.6	–	–
Breast exam in past 3 years	59.2	62.8	–	0.306
Never received breast exam	23.8	26.8	–	–
Mammogram in past 3 years (>40 years)	63.2%	83.2%	2.87 (1.39–5.95)†	0.004
Never received mammogram	14.1	9.0	–	–

† 95% confidence interval for odds ratio
–, odds ratios not significant.
HPV, human papillomavirus. OR, odds ratio. STI, sexually transmitted infection. WHCP, women's healthcare provider.

The prevalence of HPV among the general population of both men and women in the USA is alarmingly high, with approximately 50% of sexually active Americans estimated to contract HPV over the course of their lifetime[53]. Furthermore, although the majority of HPV infections typically diminish over time, 40 out of the 150 strains of HPV can cause cancer[54], with HPV being an underlying cause in almost all newly diagnosed cases of cervical cancer[55]. This is coupled with a well-documented and persistent rural–urban disparity wherein, in comparison to the general population of urban women in the USA, rural-residing women have been found to have significantly higher cervical cancer incidence and mortality rates[56]. Given that both lesbian-identified women and rural-residing women, in comparison to their heterosexual and urban counterparts, have increased risks for developing cervical cancer, the intersectionality of the two likely results in a greater risk for rural lesbians as well. Due to these potentially elevated risks and the higher rates of sexual activity with men among the current sample of rural lesbians, future research is needed that specifically examines HPV and cervical cancer risk factors and rates among rural lesbians.

It is important to note that the first US Food and Drug Administration-approved vaccine for HPV was released in 2006 and is currently only approved for use in older children and young adults (ie ages 9–26 years) and, although national utilization rates are not available for young women, approximately one-third of adolescent girls aged 14–19 years received the HPV vaccine between 2007 and 2010, with approximately 37.6% having received the vaccine by 2013[57]. Therefore, given these national rates and the age range of our

sample, overall rates of HPV vaccination were not expected to be high. However, the reasonably low percentage of lesbians in the current study who indicated that a WHCP had previously recommended that they receive the HPV vaccination, especially among the rural-residing lesbians, remains relatively concerning and warrants further research and clinical attention. To illustrate, post-hoc examination of age groups reveals that approximately 70% of the rural sample either are or were recently in the appropriate age range to receive the HPV vaccination (ie aged 26 years or less at the time of the study). However, only 46.6% of the rural-residing lesbians in this age range indicated that the HPV vaccination had been recommended to them by a WHCP. Therefore, the current results highlight that, despite the fact that the majority of lesbians have had heterosexual intercourse and have elevated risks for developing cervical cancer[51,58], rural WHCPs may not be adequately addressing this disparity by including the HPV vaccination as part of the prevention education and recommendations that they provide to their lesbian patients.

An examination of access to women's health care highlights a major health risk among both rural and urban lesbians in the USA in that less than half of the women in both samples had a regular source of women's health care. These findings are consistent with previous studies highlighting the access to care disparity faced by lesbians and other sexual minorities in the general population[10,14,59,60] and also suggest that this particular women's health-related risk is not exacerbated by rural location. This lack of a significant rural–urban difference is especially surprising given the previous research highlighting that women's healthcare providers tend to be more scarce in rural areas and rural women typically have less access to care when compared to their urban counterparts[36,37,61-63]. Overall, the current finding that almost 60% of both rural and urban lesbians do not have a regular source of women's health care represents a major public health concern, and future research, clinical, and policy efforts are needed to adequately address this disparity. For example, it may be helpful for future studies to examine the specific types of barriers (eg availability of providers, transportation limitations, insurance coverage, financial restrictions) that potentially restrict access to women's health care among both rural and urban samples of lesbians in order to further explore potential differences in access to care and identify specific target areas for improving access within these different geographic locations. One potential barrier highlighted in the current study is a personal avoidance of care that is specifically related to sexual orientation. Namely, rates of fear-based avoidance of women's health care was alarmingly high among rural and urban lesbians, with approximately 20% of the total sample of lesbians indicating that they delay or avoid women's healthcare appointments due to fears related to disclosure of sexual orientation and/or discrimination, rejection, and mistreatment. Therefore, the current finding adds to the growing body of literature highlighting that avoidance of preventive care due to fears of discrimination represents a considerable barrier to women's health care among lesbians in both rural and urban areas.

Given that other mental and physical health specialists may not be readily available in rural areas[36,37,61-64] it was anticipated that rural lesbians would be more likely to consider their WHCP to be their primary care provider and report greater mental health service provision by their WHCP. This hypothesis was not supported by the current findings; a similar percentage of rural and urban lesbians identified their WHCP as their primary care provider (20.5% and 18.6%, respectively) and reported being prescribed psychotropic medications by their WHCP (14.9% and 13.5%). Interestingly, previous research has suggested that only about 6% of women in the general population utilize their WHCP as their primary source of medical care[65]. However, this rate has been found to be much higher (38.0%) among more underprivileged groups of women (those with lower incomes)[66]. Therefore, the current findings suggest that lesbians, like other disadvantaged groups of women, may have a great propensity to utilize their WHCP as their primary care provider. Although there is no research available that allows for a direct comparison of rates of being prescribed any type of psychotropic medications by a WHCP, previous national data examining prescription rates in a given quarter has suggested that only about 3% of antidepressants are prescribed by obstetricians/gynecologists[67]. Given this

previous research, the current findings suggest that many lesbians (almost 15% of the current sample) are prescribed psychotropic medications by their WHCPs and rurality does not appear to increase this probability. Future research is needed to further explore the mental health-related needs and experiences among lesbians accessing women's healthcare services.

An examination of rural and urban lesbians' reported experiences related to receipt of appropriate and affirming women's health care also reveals a multitude of concerns for the treatment of both rural and urban lesbians. First, 61.2% of rural lesbians and 55% of urban lesbians had not been asked about their sexual orientation by their WHCP. These rates are disturbingly high given that knowledge of one's unique sexual identity and behavior on the part of women's healthcare providers is particularly crucial for the provision of appropriate and affirming care[68-70]. Given these low rates, it is not surprising that only 21.4% of rural lesbians and 25.4% of urban lesbians indicated that they had been provided with appropriate safe-sex education by their WHCP, with less than 20% of both samples reporting that their last HIV/STI screening was instigated by their provider. Furthermore, only about 55% of rural and urban lesbians felt that their WHCP seemed knowledgeable about lesbian health concerns. Taken together, these findings highlight significant experiences of inappropriate, and largely heterosexist, treatment among both rural and urban lesbians and suggest a high prevalence of inadequate care that likely contributes substantially to the health disparities faced by this population. Furthermore, this type of insensitive treatment increases the likelihood that lesbians will avoid subsequent health care[71], which can drastically exacerbate their risk for poor health outcomes. Lastly, despite the American College of Obstetrics and Gynecology's[72,73] guidelines recommending that women's healthcare providers address behavioral health concerns (including assessment, prevention, and treatment) as part of their regular practice and the well-documented mental health disparities among lesbians and other sexual minorities[1,2,6,74,75], less than 30% of rural and urban lesbians reported that they had been asked about mental health concerns by a WHCP. This finding is consistent with previous research suggesting that WHCPs may not be adequately addressing the behavioral health needs of their patients[76]. Overall, the current findings highlight a significant need for both rural and urban WHCPs to engage in cultural competency training related to providing appropriate and affirming gynecological and behavioral health care to lesbian-identified women. Given that these types of training may not be readily available to providers practicing in rural areas, further research and policy efforts are needed to facilitate the creation of innovative strategies for providing lesbian health training to rural providers (ie through online training modules, live webinars, cyber-based supervision/consultation).

Rural lesbians also evidenced rates of engagement in regular preventive health behaviors that were either lower or similar to their urban counterparts, depending on the behavior. Namely, among the current sample of lesbian aged 40 years or more, those residing in rural areas were significantly less likely to have received a mammogram in the past 3 years when compared to their urban counterparts (63.2% vs 83.2%). Furthermore, rates of HIV/STI screening, Pap testing, and clinical breast exams were relatively low for both samples of lesbians and appear to be reasonably consistent with previous studies. For example, in the current study, 43.0% of rural lesbians and 47.8% of urban lesbians reported past 3-year HIV/STI screening; with previous studies demonstrating rates among lesbians of approximately 27–58%, depending on the sample[4,21,77]. In terms of Pap testing, 62.0% of rural lesbians and 64.5% of urban lesbians had received a Pap smear in the past 3 years (previous rates are 48–81%[44]). Likewise, rates of past 3-year breast exam among rural and urban lesbians were 59.2% and 62.8%, respectively (similar to the 61% found in Diamant and colleagues' 2000 study[23]), with almost a quarter of the total sample of lesbians indicating that they have never received a clinical breast exam.

Given the documented rural–urban disparities in the USA with regards to both cervical cancer (rural women have high incidence and mortality rates[56]) and breast cancer (diagnosed at later stage in rural women[78]) among the general population of women, coupled with the fact that lesbians experience

greater gynecological cancer risks[58], the risks for these types of cancer is theoretically highest among rural lesbians. Consequently, in order to adequately address these discrepancies, cancer screening rates among rural lesbians need to be higher than those for their urban counterparts. Therefore, the current finding that rural lesbians receive age-appropriate mammograms at significantly lower rates, and Pap tests and clinical breast exams at rates similar to urban lesbians despite having higher disease burden, represents an important shortcoming in addressing a recognized health disparity among rural-residing lesbians.

In response to the emerging evidence highlighting the lower health screening rates and related health risks of lesbians, there has been recent increased public health attention supporting the creation of lesbian-specific community outreach programs and prevention efforts (ie the Lesbian Breast and Cervical Health Project, the Atlanta Lesbian Health Initiative, The Stud Health Project and 'Real Bois Talk', the Lesbian Education and Health Program, and the 'Get Screened' Program) across the USA and Canada. However, the majority of these programs, in addition to LGBT-focused healthcare facilities (ie Fenway Health, the Mazzoni Center, the Howard Brown Health Center, Capitol Hill Medical), are located in large metropolitan areas and are not accessible to lesbians residing in rural areas and small communities. There is currently a dearth of women's health-related health education resources and programming that are culturally tailored to specifically target and meet the unique health needs of lesbians and other sexual minority women in rural areas of the USA. Therefore, if health promotion efforts aimed at increasing preventive behaviors among lesbians continue to be urban-centric, this will likely widen the rural–urban disparity among lesbians. Overall, the current findings highlight the need for women's health programming and outreach efforts that are uniquely designed to promote rural lesbians' engagement in preventive behaviors. Given the 'hard-to-reach' and less visible nature of this population[29,79] these types of effort will require innovative and culturally sensitive recruitment and delivery strategies (ie using online-based programming, chain referrals, lesbian health resource guides that are discreet in their design and delivery) in order to be effective in promoting engagement in women's health care among rural-residing lesbians.

Limitations to the current study should be considered when interpreting the findings. First, this study relied exclusively on a convenience sampling approach to recruitment; thus, the current sample may not be representative of the experiences and behaviors of rural and urban lesbians in the general population. For example, the researchers' reliance on online postings to LGBT-focused organizations/listservs and a classified advertisements website limited the sample to those lesbians who: have access to the internet, are technologically literate and/or are connected with an LGBT-focused organization and/or a user of the classifieds website. Also, the majority of the lesbians included in the current sample were Caucasian/European-American (almost 70%). As a result, the current findings may not be generalizable to lesbians who identify as racial/ethnic minorities. Lastly, the current findings regarding rural and urban lesbians' women's healthcare-related experiences and behaviors are based solely on participant self-report and therefore may not be an exact representation of the preventive behaviors of lesbians.

Conclusions

The current study's findings highlight that rural lesbians in the USA, in comparison to urban lesbians, may experience elevated health risks related to being more likely to have at least one previous male sexual partner, less likely to be recommended the HPV vaccination by a WHCP, and, for those 40 or older, less likely to receive routine mammograms. Given the increased cervical and breast cancer risks associated with rural living, the current findings that rural lesbians engage in lower rates of age-appropriate mammogram screenings and similarly low rates of HPV vaccinations, Pap tests, and clinical breast exams as their urban counterparts highlight the dire need for health promotion efforts aimed at increasing rural lesbians' engagement in routine pelvic and breast exams. Lastly, based on the self-reported experiences of rural and urban lesbians, the current findings suggest that many of these women may

not be receiving appropriate and affirming women's healthcare services. Overall, the current findings support the need for increased lesbian health-focused cultural competency training among WHCPs and also point to a need for future research that further explores the unique women's health-related risks and needs of rural and urban lesbians.

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