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SCREENING FOR SEXUALLY TRANSMITTED INFECTIONS (STIs) AMONG A HETEROGENEOUS GROUP OF WSW(M)

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Abstract

Objectives—This study explored predictors of STI screening among a heterogeneous group of women who have sex with women and men.

Methods—Following bivariate analyses, a multivariate logistic regression model was conducted to assess the relationship between testing and sociodemographic, relationship characteristics.

Results—The majority of participants reported not receiving STI screening in the past year. Gender expression, and not sexual orientation, was a significant predictor of screening. For each increase in masculinity, participants had lower odds of receiving an STI test.

Conclusions—More research is needed to understand how gender expression of WSW(M) relates to preventative health behaviors.

Keywords

Women who have sex with women; gender identity; lesbian health; STIs; prevention; testing

INTRODUCTION

The likelihood of transmission of sexually transmitted infections (STI) during sexual behavior between women continues to be debated (Dolan & Davis, 2003). Historically, women who have sex with women (WSW) have been considered to be at low risk for STIs, including human immunodeficiency virus (HIV) (Muzny, Sunesara, Martin, & Mena, 2011). However, the critical importance of understanding sexual risk, STIs, and related health care delivery among WSW has been underlined by documented cases of transmission of STIs, most commonly bacterial vaginosis and candida (Skinner, Stokes, Kirlew, Kavanagh, & Forster, 1996), and genital herpes, trichomoniasis, chlamydia, and pelvic inflammatory disease infrequently (McNair, 2005, 2009). Population-based and clinic-based samples have both demonstrated self-reported lifetime rates of STIs of WSW as equivalent to other women (Carroll, Goldstein, Lo, & Mayer, 1997; Diamant, Lever, & Schuster 2000;

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McNair 2005). Research shows that WSW might be at a higher risk of bacterial vaginosis than other women (Fethers, Fairley, Hocking, Gurrin, & Bradshaw, 2008; Muzny et al., 2011; Marrazzo & Gorgos, 2012; Muzny & Schwebke, 2014). National prevalence data from the United States found BV (bacterial vaginosis) among 45.2% of women reporting a sexual history with another woman compared to 28.8% of women with no sexual history with a woman (Koumans et al., 2007).

The Institute of Medicine has emphasized that data are needed to guide clinical practice and policies related to WSW, calling for an increased need for research focused on both risk and protective factors related to WSW (Marrazzo, 2004; Marrazzo & Gorgos, 2012). One study showed variation in risk and protective behaviors based on self-identified sexual orientation, with bisexual women being more likely than heterosexual women to seek STI testing and lesbian women most likely to have sex with men who have sex with men (MSM) (Koh, Gómez, Shade, & Rowley, 2005). Other research has also shown WSW, particularly those who report never having had a sexual experience with a man, are less likely to receive a pap smear compared to heterosexually identified women (Marrazzo & Gorgos, 2012). Repeatedly, WSW cite the reason for not receiving a pap smear as not having had sex with men (Bailey, Kavanagh, Owen, McLean, & Skinner, 2000; Kerker, Mostashari, & Thorpe, 2006; Marrazzo et al., 1998; Marrazzo, Koutsky, Kiviat, Kuypers, & Stine, 2001), and many have had this confirmed as unnecessary by their physicians (Marrazzo, 2004; Waterman & Voss, 2015). Marrazzo and Gorgas, among others, have called for research on patterns of seeking preventive sexual health care among WSW (Marrazzo & Gorgos, 2012).

WSW represent a heterogeneous group who vary in terms of race/ethnicity, age, sexual history, and gender expression. Most previous research on STI screening among WSW has been limited by a small sample size that precluded the investigation of ways in which STI screening behaviors vary within groups of WSW. Utilizing a large sample, the purpose of this study was to better understand protective health seeking behaviors among women who have sex with women and men WSW(M). More specifically, this study explored how participant sociodemographic and relationship characteristics predicted STI screening among a heterogeneous group of WSW(M).

METHODS

Participant Recruitment and Data Collection

Participants were recruited through a wide range of sampling approaches based on previous work conducted with hard to reach populations (Ross, Tikkanen, & Månsson, 2000). Recruitment messages were distributed globally through online/paper media, website discussion forums/blogs, and social networking websites for several months from 2010 to 2011. Participants aged 18 years and over who could read English were invited to participate if they had experienced or were currently experiencing sexual attraction, desire, affection, intentions toward, or sexual behavior with other women. All data were collected anonymously, through an online survey lasting approximately 20 minutes. Participants completed a variety of measures regarding their sociodemographic characteristics, sexual behavior, and safe sex practices (including STI testing). Participants who completed the survey were compensated with an electronic coupon for an online retailer. All study

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protocols were reviewed and approved by the Institutional Review Board prior to study initiation.

Sample

While survey data were collected globally, participants were only included in the analyses if they reported their current country of residence as the United States of America (USA), United Kingdom (UK), Canada, or Australia. These geographical locations were chosen because they represented the majority (93.9%) of the sample and because of similarities in the language and customs. Female participants were included in the present study if they reported having genital contact with a woman in the past year, including women who reported genital contact with men and women in the past year. Genital contact with a woman was defined as participant indication of engaging in any of the following activities: touching or rubbing of external genitals, inserting fingers into the vagina, putting the mouth or tongue on the genitals, rubbing genitals against another's genitals, and using or inserting a vibrator or dildo into the vagina. Given the focus on the outcome of having received an STI test, participants were removed from the final sample if they were over 55 years old or had been in a monogamous relationship for over five years. These restriction criteria were based upon U.S. Prevention Services Task Force recommendation on screening for STIs (Meyers et al., 2008) and aimed to focus the sample on highest-risk women who are most likely to be recommended for an STI test. The final sample size of analysis was 2,755.

Main Outcomes of Interest

The main outcome examined was having received an STI test, other than for HIV, in the past year (based on self-report). Several sociodemographic and relationship characteristics were the main predictor variables of interest: country of origin, age, education level, race, ethnicity, sexual orientation, self-described gender expression (7-point scale from very femme/feminine to very butch/masculine), current relationship status, and sexual history in the past year (gender of partner with whom participant had engaged in genital contact in the past year).

Analyses

Data were analyzed using SPSS 20. A series of chi-square analyses were conducted to investigate differences in the receiving of a STI test as a function of various sociodemographic and relationship characteristics, including gender of sexual partners. Following the bivariate analyses, a multivariate logistic regression model was conducted to assess the relationship between having been tested for STIs and these sociodemographic and relationship characteristics. Country of origin, age, education level, race, sexual orientation, current relationship status, sexual history, and self-described gender expression were all included in the model.

RESULTS

Sociodemographic Characteristics

Nearly all participants lived in the United Kingdom (42.1%, n = 1,159) or the United States (52.3%, n = 1,441) with a minority of the sample reporting their residence as Canada or

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Australia (3.1% and 2.5%, respectively) (see Table 1). Participants ranged in age from 18 to 55 with an average age of 27.62 (SD = 8.12; median = 26.00). Most participants were well educated, White, and self-identified as lesbian. Women who had genital contact with women only in the past year were the largest group (74.8%, n = 2,061), followed by women who had genital contact with both men and women (25.2%, n = 694).

STI Testing History

The majority of participants (64.1%, n = 1,766) reported not having received STI screening, other than for HIV, in the past year (compared to 34.4%, n = 949 who had received a STI screening) (1.5 % of the sample, n = 40, were unsure about testing status). A chi-square test of independence was performed to examine the relation between sociodemographic variables, relationship context, and receiving an STI test (see Table 2). The relationship between all variables of interest and testing was significant, except for ethnicity. The relationship between gender expression and testing was significant, χ^2 (2, N = 1766) = 38.732, $p < .000$.

Predictors of STI Screening

Country of origin, age, education level, race, sexual orientation, current relationship status, and sexual history (gender of partner) were entered into a model predicting STI testing based on their significance at the bivariate level. Table 3 shows odds of not receiving an STI test. Women in the United States were less likely to receive an STI test than women in the United Kingdom (AOR = 0.69, CI 0.59, 0.84, $p = .00$). As age increased, the odds of receiving an STI test decreased, and as education increased, the odds of receiving an STI test increased. Asian and Pacific Islander participants were less likely to receive an STI test than White participants. Although significant at the bivariate level, sexual orientation was not a significant predictor of STI screening when entered into the multivariate model. Gender expression was also significant (AOR = 0.93, 0.87, 0.99, $p = .02$). For each increase in masculinity, participants had lower odds of receiving an STI test. Participants in long-term monogamous relationships had the lowest odds of receiving a STI test, compared to participants in shorter monogamous relationships, nonmonogamous relationships, or participants who were currently dating. Participants who reported genital contact with both men and women in the past year were significantly more likely to report STI screening than participants who reported genital contact with only women (AOR= 2.092, 95%CI 1.648, 2.656, $p = 0.00$).

DISCUSSION

This study explored STI screening within a large sample of WSW(M). This research reveals multiple aspects that may be important for understanding STI screening practices in populations of WSW(M). In part, testing may decrease with age, as women become more likely to enter long-term relationships and consider themselves at lower risk; but even within a sample restricted to relationships less than a year old, age was negatively associated with STI testing. Public health models promoting STI testing should make an effort to reach all age groups. This goal is especially important in considering new evidence of emerging STIs

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among men and women and older adults reentering the dating scene later in life (Orel, Spence, & Steele, 2005; Schick et al., 2010).

It is also important to note that WSW(M) are a heterogeneous group who may vary in the types of public health messaging that they receive. For instance, black participants were most likely to report STI testing. Increased rates of STI testing among this particular racial minority group may be driven by public health campaigns designed to heighten perceived susceptibility to STI/HIV in black communities. Black college students report higher rates of STI testing than their white peers, and some researchers have suggested the higher prevalence in reported STI cases among blacks may be residual of the higher screening rates (Buhi, Marhefka, & Hoban 2010). More research is needed to understand the needs of these groups. Beyond race, age and education also have a significant impact on seeking STI test. WSW(M) are not a homogenous group; clinicians and researcher must acknowledge the complex ways in which their identities intersect to influence their health decision making. This finding echoes the work of Young and Meyer in calling for more attention to the diversity of sexual minorities in public health discourse (Young & Meyer, 2005). Work with WSW should parallel work with MSM in understanding the intersection of race, masculinity, sexual identity, and community (Malebranche et al., 2007).

Participants in the present study accessed preventative health services (i.e., STI screening) differently, based on the gender of their partners in the past year. The gender of recent sexual partners may be a more accurate predictor of STI testing than sexual identity. Women who had sex with only women were the least likely to report a recent STI test when compared to women who also reported partnering with men. WSW, as previously noted, may be at risk of STIs, but may not be receiving STI tests based on perceptions and misinformation about the absence of risk. The lack of public health messages targeting WSW may contribute to these misconceptions (Schick, Rosenberger, Herbenick, & Reece. 2012.). In addition, there are limited products designed specifically to reduce STI transmission between women and few marketing campaigns that target sexual health needs of WSW (Schick et al., 2012).

These results are further complicated by the unique finding that self-reported gender expression predicted odds of receiving an STI test. This finding may be due to several reasons. First, it is possible that those who express their gender in more masculine ways may be more likely to *give* as opposed to *receive* sexual behaviors consistent with traditional sexual roles/expectations (similar patterns have been documented among men who have sex with men (MSM) (Malebranche et al., 2012). If this is the case, they may have a reduced risk for STI. Another potential explanation is that the exam during which STI screening occurs often refers to patient gender (well woman exam) or body parts (gynecologist) to which more masculine presenting women may not feel as connected. However, this possibility needs to be explored in further research as we did not explore the ways in which these participants viewed their own gender or their thoughts and beliefs regarding traditional gender roles. The finding that gender identity predicts protective behaviors points to the need for better data on gender expression and sexual behavior. More research is needed to understand how gender expression of WSW(M) relates to preventative health behaviors. Patient/provider interactions and qualitative work on this topic are imperative.

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Overall, there are two primary components to increasing public health services for WSW (M). There is a need for more empirical evidence of what really constitutes the STI risk for WSW. Subsequently, WSW need to be made more aware of their actual STI risk in order to make informed decisions about their sexual health behaviors, including preventive health seeking behaviors such as STI testing. It is apparent from this data that WSW(M) in all categories have low rates of receiving an STI test. The public health community needs specific campaigns dedicated to STI prevention among WSW(M), with attention to the unique ways WSW(M) may reduce their STI risk. Furthermore, clinical practitioners need to seek information about sexual behaviors, beyond assumptions based on sexual identity.

Despite some of the strengths of the current study (e.g., the large sample size), this study has several limitations. The inclusion of only women who had genital contact with their partners might miss the ways in which women negotiate their risk-taking by excluding certain behaviors. The sample diversity may have been affected by the online nature of data collection. Finally, the data on STI testing is all self-reported and does not include women who may not report receiving an HPV test during a gynecological exam or may include women who conflate receiving a gynecological exam with an STI test. Additionally, other important variables that were not the focus of this survey may affect health seeking behaviors (e.g. rural versus urban place of residence).

CONCLUSION

While the gender of sexual partners and one's own self-described gender appear to play a role in accessing STI testing, the majority of participants in the study did not receive an STI test in the past year regardless of demographic and relationship characteristics. The public health and medical community should design sexual health messages tailored to the needs of WSW(M), beyond modified heterosexual recommendations. Recommendations should take into consideration the diversity in lived experiences of WSW(M).

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TABLE 1

Participant Sociodemographic Characteristics and Relationship Context

Variable	%	(n = 2755)
Country of Origin		
United Kingdom	42.1%	(1159)
United States	52.3%	(1441)
Canada	3.1%	(86)
Australia	2.5%	(69)
Age		
18–23	35.5%	(978)
24–29	31.7%	(873)
30–39	19.3%	(533)
40–49	10.1%	(278)
50–55	1.8%	(49)
Education		
High school/secondary school or less	21.1%	(580)
College or associates (2-year) degree	41.2%	(1134)
Higher degree/professional (masters/doctorate)	31.0%	(853)
Other	6.6%	(182)
Race		
White	87.9%	(2422)
Black	2.8%	(78)
Asian/pacific islander	1.6%	(44)
Other	6.8%	(186)
Ethnicity		
Hispanic/Latino	4.4%	(120)
Sexual orientation		
Lesbian/gay/homosexual	74.3%	(2046)
Bisexual	15.9%	(437)
Queer	7.6%	(210)
Other	0.4%	(57)
Heterosexual/straight	0.1%	(4)
Self-described gender		
Very Femme/Feminine	12.8%	(353)
Somewhat Femme/Feminine	35.9%	(988)
Slightly Femme/Feminine	23.2%	(638)
Androgynous	12.5%	(343)
Slightly Butch/Masculine	10.7%	(294)
Somewhat Butch/Masculine	3.3%	(90)
Very Butch/Masculine	0.8%	(21)
Relationship status		
Monogamous Relationship, 1–5 years	24.2%	(667)

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Variable	%	(n = 2755)
Monogamous Relationships, under 1 year	20.3%	(558)
Nonmonogamous relationship	15.9%	(437)
Dating or having sex with one person	13.2%	(364)
No relationship, not currently sexually active	26.3%	(725)
Sexual History (genital contact in the past year)		
Women partners only	74.8%	(2061)
Both men and women sexual partners	25.2%	(694)

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TABLE 2

Chi-square Distribution of Descriptive Statistics (by Having Received a STI Test in the Past Year)

	Have Received STI test		Have NOT Received STI test			
Variable	**%**	**(Count)**	**%**	**(Count)**	**X2**	**p-value**
Country of Origin					19.071	0.000
United Kingdom	31.2%	(445)	68.8%	(981)		
United States	39.4%	(448)	60.6%	(689)		
Canada	38.1%	(32)	61.9%	(52)		
Australia	35.3%	(24)	64.7%	(44)		
Age					56.816	0.000
18–23	42.2%	(406)	57.8%	(555)		
24–29	36.0%	(310)	64.0%	(552)		
30–39	17.2%	(162)	69.2%	(364)		
40–49	20.7%	(57)	79.3%	(219)		
50–55	18.8%	(9)	81.3%	(39)		
Education					15.717	0.003
High school/secondary school or less	31.5%	(181)	68.5%	(393)		
College or associates (2-year) degree	37.8%	(421)	62.2%	(694)		
Higher degree/professional (masters/doctorate)	31.8%	(268)	68.2%	(574)		
Other	42.7%	(76)	57.3%	(102)		
Race					13.606	0.003
White	34.2%	(815)	65.8%	(1570)		
Black	45.5%	(35)	54.5%	(42)		
Asian/pacific islander	20.5%	(9)	79.5%	(35)		
Other	42.9%	(79)	57.1%	(105)		
Ethnicity						
Hispanic/Latino	42.5%	(51)	57.5%	(69)	3.45	0.630
Sexual orientation						
Lesbian/gay/homosexual	30.9%	(624)	69.1%	(1396)	62.329	0.000
Bisexual	47.4%	(203)	52.6%	(225)		
Queer	49.0%	(101)	51.0%	(105)		

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	Have Received STI test		Have NOT Received STI test			
Variable	**%**	**(Count)**	**%**	**(Count)**	**X2**	**p-value**
Other	33.9%	(19)	66.1%	(37)		
Heterosexual/straight	50.0%	(2)	50.0%	(2)		
Self-described gender					38.732	0.000
Very Femme/Feminine	45.8%	(159)	54.2%	(188)		
Somewhat Femme/Feminine	36.9%	(361)	63.1%	(616)		
Slightly Femme/Feminine	29.9%	(186)	70.1%	(437)		
Androgynous	36.3%	(123)	63.7%	(216)		
Slightly Butch/Masculine	26.9%	(78)	73.1%	(212)		
Somewhat Butch/Masculine	30.0%	(27)	70.0%	(63)		
Very Butch/Masculine						
Relationship status					63.653	0.000
Monogamous Relationship, 1–5 years	26.3%	(173)	73.7%	(486)		
Monogamous Relationships, under 1 year	40.8%	(224)	59.2%	(325)		
Nonmonogamous relationship	46.9%	(203)	53.1%	(230)		
Dating or having sex with one person	36.3%	(131)	63.7%	(230)		
No relationship, not currently sexually active	30.6%	(217)	69.4%	(492)		
Sexual History (genital contact in the past year)						
Women partners only	29.1%	(592)	70.9%	(1442)	122.006	0.000
Both men and women sexual partners	52.4%	(357)	47.6%	(324)		

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TABLE 3

Odds of NOT Receiving an STI Test

Variable	Odds Ratio	Confidence Interval	P-value
Country of Origin			
United Kingdom	REF		
United States	0.69	(0.58, 0.84)	0.00
Canada	0.93	(0.57, 1.51)	0.76
Australia	1.07	(0.61, 1.86)	0.81
Age			
18–23	REF		
24–29	0.78	(0.63, 0.96)	0.02
30–39	0.60	(0.47, 0.77)	0.00
40–49	0.33	(0.23, 0.47)	0.00
50–55	0.28	(0.12 0.61)	0.00
Education			
High school/secondary school or less	REF		
College or associates (2-year) degree	1.59	(1.09, 2.32)	0.02
Higher degree/professional (masters/doctorate)	1.50	(0.99, 1.79)	0.05
Other	1.72	(0.94, 2.62)	0.08
Race			
White	REF		
Black	0.74	(0.45, 1.21)	0.23
Asian/pacific islander	0.28	(0.11, 0.68)	0.01
Other	0.85	(0.48, 1.51)	0.58
Sexual orientation			
Lesbian/gay/homosexual	REF		
Bisexual	1.16	(0.89, 1.51)	0.26
Queer	1.38	(0.17, 11.55)	0.77
Other	1.29	(0.93, 1.79)	0.13
Heterosexual/straight	0.61	(0.33, 1.10)	0.10
Self described gender	0.93	(0.87, 0.99)	0.02
Relationship status			
Monogamous Relationship, 1–5 years	REF		
Monogamous Relationships, under 1 year	1.70	(1.31, 2.21)	0.00
Nonmonogamous relationship	1.56	(1.15, 2.11)	0.00
Dating or having sex with one person	1.87	(1.4, 2.49)	0.00
No relationship, not currently sexually active	1.23	(0.95, 1.6)	0.12
Sexual History (genital contact in the past year)			
Women partners only	REF		
Both men and women sexual partners	2.27	(1.85 2.78)	0.00