



Reproductive and Pregnancy Experiences of Diverse Sexual Minority Women: A Descriptive Exploratory Study

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Abstract

Objectives This study sought to explore how sexual minority women (SMW) and heterosexual women compare in terms of reproductive history, with a particular focus on examining within-group differences among SMW. **Methods** Women were predominantly recruited through consecutive sampling during presentation for prenatal care in Toronto Canada, and Massachusetts, USA. In total, 96 partnered pregnant women (62 SMW, 34 heterosexual) completed an internet survey during 2013–2015. **Results** We found few significant differences in reproductive history outcomes when comparing SMW and heterosexual groups. However, when we compared male-partnered SMW to female-partnered SMW, we found potentially important differences in rates of miscarriage and pregnancy complications, indicating that partner gender may be an important contributor to differences in reproductive history among SMW. **Conclusions for Practice** These findings highlight the need to recognize the unique health risks with which male-partnered SMW may present. Considering that this group is often invisible in clinical practice, the findings from this exploratory study have important implications for providers who treat women during the transition to parenthood. Future research should further examine the differences in social and health access within larger samples of SMW groups, as well as seek to understand the complex relationships between sexual identity and perinatal health for this understudied group of women.

Keywords Assisted reproduction · Perinatal · Reproductive · Sexuality · Sexual minority

Significance

Sexual minority women face unique reproductive and perinatal experiences, particularly because of reluctance of disclosure, and the challenges in accessing equitable health care. However, little knowledge has been generated on the

experiences of women who have sexual relationships with both men and women, or who do not identify as lesbian. Aspects of their sexual history and identity may in turn be invisible, which has implications for receiving appropriate health care.

Introduction

Sexual minority women (SMW) are women whose “sexual identity, orientation, or practices differ from the majority of surrounding society” (Math and Seshadri 2013). Sexual minorities tend to be at increased risk of physical, sexual, and mental health concerns compared to their heterosexual counterparts, indicating that sexual orientation is a social determinant of health (Muller and Hughes 2016). Furthermore, sexual minority women have unique reproductive and sexual health concerns regarding their sexual histories, sexually transmitted infection (STI) risk, modes of conceiving, and perinatal experiences (Chetcuti et al. 2013; Flanders et al. 2016). SMW may also encounter difficulties related to

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access and quality of health care (Przedworski et al. 2014). Concerns about discrimination lead some SMW to not disclose their sexual orientation or sexual histories to health care providers (Durso and Meyer 2013; Eliason and Schope 2001). Moreover, women who have a history of sexual relationships with women and men tend to have a particular set of experiences and needs that are often not captured in research, or understood by health care providers (Ross et al. 2017).

The Institute of Medicine of the United States, recognizing how few studies have been undertaken on the health of sexual minorities, recently called for a prioritization of research in this area (2011). Furthermore, little work has explored pregnancy and the postpartum period among SMW in general; existing work has focused almost exclusively on female-partnered and/or lesbian-identified women (Goldberg and Smith 2008; Ross et al. 2012). This limited research has also primarily focused on discrimination experiences and decision-making related to pregnancy (Goldberg and Gartrell 2014), with very few studies examining other aspects of SMW's reproductive history, such as previous miscarriages, terminations, or pregnancy complications (Wojnar 2007). Within the broad category of SMW, those who do not identify as lesbian (i.e., women who identify as bisexual or another non-heterosexual identification and/or have relationships with men and women) are particularly understudied (Kaestle and Ivory 2012). These women are also a significant demographic majority of SMW (Steele et al. 2009). This is a key research gap in part because these women—by virtue of their sexual relationships with men—make up a large proportion of childbearing SMW (Goldberg et al. 2014).

The goal of this study was therefore to explore these research gaps through an examination of how sexual minority women (female-partnered and male-partnered) and heterosexual women compare in terms of reproductive history (abortion, miscarriage, fertility issues, pregnancy complications, and use of reproductive technologies). A secondary goal was to explore differences among subgroups of SMW, and, specifically, to determine whether partner gender is associated with reproductive and pregnancy outcomes. Our examination of the reproductive histories across sexual orientation groups is exploratory, and therefore we do not pose formal hypotheses. However, these findings can inform reproductive and obstetric service provision for sexual minority women.

Method

Included in the study are data from 96 partnered women (62 sexual minority women [SMW], 34 heterosexual), who were surveyed during the prenatal period, in two locations:

Toronto Canada and areas in Central/Western Massachusetts USA (e.g., Worcester, Holyoke, Northampton).

Recruitment

Women were predominantly recruited through consecutive sampling from selected midwifery clinics and obstetricians/gynecologists during presentation for prenatal care. Consecutive women attending for prenatal care at 25–32 weeks gestation were asked to complete a brief demographic questionnaire including information about sexual orientation, gender of sexual partners in the past 5 years, and current partner status. This pre-screen enabled us to obtain a systematic sample of consecutive admissions wherein all SMW and a random selection of heterosexual women in our total population of pregnant women were invited to participate. Women were eligible for inclusion in the 'sexual minority' (SMW) group if they were currently partnered with women, identified as non-heterosexual, and/or reported having had at least one female sexual partner in the past 5 years. Within the SMW group, participants were placed into the female-partnered SMW or male-partnered SMW category, depending on the gender of their current partner. 'Sexual majority' (heterosexual) women were defined as those who were currently partnered with a man and reported no female sexual partners in the past 5 years. To be eligible for participation, all women had to be partnered, 18 years of age or over, speak English fluently, and be pregnant.

Because numbers of participants currently partnered with women were initially low, this group only was supplemented through convenience sampling. Flyers were distributed to perinatal health care centers, such as midwifery clinics and Ob/Gyn offices. LGBTQ services were also targeted, including general LGBTQ community centers and LGBTQ parenting listservs. People who were interested in participating contacted the researchers directly. Comparison of female-partnered participants recruited through consecutive sampling ($n = 14$) and convenience sampling ($n = 17$) revealed no significant differences in the two groups in terms of education, income, race, or employment status.

Eligible participants were contacted by email or phone by the research staff to determine if they were interested in participating in an Internet-based survey. Of the 91 eligible potential consecutively recruited participants who were successfully contacted (75.4% of attempted contacts), 81 (89%) consented to participate. A total of 17 women were recruited via convenience sampling, all of whom consented to participate. The total sample therefore included 98 women.

The study was granted IRB approved by the human subjects committees at the University of Toronto.

Data Collection

Data collection was by way of an internet survey, which was tested for ease of use and clarity of items with a small number of pregnant women before launch. Upon providing verbal consent to participate, women were emailed a link to the questionnaire (hosted using the software application Qualtrics), which included as its first page a consent form. Participants were required to tick a box indicating their consent before proceeding to the survey.

To collect demographic details, a quantitative questionnaire was constructed to determine participants' and their partners' household income, education, and employment. A questionnaire was also constructed to assess reproductive history and pregnancy related information, including numbers of live births, past miscarriages, terminations, and pregnancy complications. Participants' relationship history was also assessed by asking for the number and genders of past sexual partners. Most of the demographic and reproductive history items have been previously administered by our research team in related studies (Flanders et al. 2016).

Measures

Age was derived from a write-in option of the participant's birth date. Participants were asked to select which racial, ethnic, or cultural category they identified most closely with, from a list of categories developed by Statistics Canada. *Sexual identity* was captured by asking participants to identify their own orientation as lesbian, gay, bisexual, queer, heterosexual, or non-applicable. However, participants who had been with a partner of the same gender in the last 5 years were categorized as invisible sexual minorities, regardless of their self-identified sexual orientation. *Sexual history* was captured by asking participants to indicate how many sexual partners they had in the last five years, as well as the gender of these partners (exclusively women, mostly women, both men and women, mostly men, or exclusively men). Demographic variables, such as employment status, income level, and educational level were assessed by prompting participants to select from a pre-determined list of choices. Participants were asked to select the *employment* option that involved the most time of their week, out of full-time, part-time, homemaker, not employed, student, retired, or other. *Income* was captured by asking participants to select their combined annual household income before taxes, from options that ranged from < \$10,000 to > \$140,000 in increments of \$10,000. Participants selected the highest level of *education* they had completed (high school, community college/associate's degree, Bachelor's, Master's, Ph.D/other professional degree, or other). In order to determine *pregnancy history*, participants were asked yes/no questions to determine experiences of parity, miscarriages, terminated

pregnancies, fertility problems, pregnancy complications, and use of reproductive technology. Participants were prompted to write in a numerical answer when appropriate, to assess the numbers of these past events.

Analysis Strategy

Treatment of Missing Data

Two of the 98 participants were excluded from the final dataset, as they completed less than half of the baseline assessment and then withdrew from the study. This left a final count of 96 participants. Pairwise deletion was used in the instance of missing data, as there was no indication that data were not missing at random.

Analytic Procedure

We first conducted Chi square analyses to compare demographic and reproductive history variables between SMW and heterosexual participants. Variables with more than two levels were transformed into binary variables, as follows: education (less than a Bachelor's degree vs. attained a Bachelor's degree or higher), income (less than \$60,000 annually vs. \$60,000 or higher), employment status (not full time employed vs. full time employed), race (of color or biracial vs. white), sexual history (one vs. more than one sexual partner in the past 5 years), and parity (zero previous births vs. at least one previous birth). We then conducted Chi square analysis to compare these same variables between a three-level version of the sexual orientation variable: heterosexual women, visible (female-partnered) SMW, and invisible (male-partnered) SMW.

Results

Demographics

Our final sample size was: male-partnered SMW, $n = 30$ (31.3%); female-partnered SMW, $n = 32$ (33.3%); and heterosexual, $n = 34$ (35.4%), with one participant in the female-partnered SMW category partnered with a transgender woman. The analyses were also conducted with this participant removed, and the findings did not change; therefore we retained this participant in our final sample.

Differences Between Heterosexual and Sexual Minority Women

Table 1 presents descriptive statistics for the basic demographic variables by group, comparing SMW and heterosexual women. Women's mean age was 32.36 ($SD = 4.771$),

Table 1 Selected demographic characteristics comparing SMW and heterosexual participants

	SMW	Heterosexual	Chi square test	
	N=62 [n (%)]	N=34 [n (%)]	X^2 (df)	p
Race			.651 (2)	.420
White	53 (85.5)	31 (91.2)		
Other	9 (14.5)	3 (8.8)		
Education			.011(1)	.916
BA+	48 (77.4)	26 (76.5)		
<BA	14 (22.6)	8 (23.5)		
Employment			.183(1)	.669
Full-time	41 (66.1)	21 (61.8)		
Other	21 (33.9)	13 (38.2)		
Household Income			.546(1)	.460
\$60,000 +	45 (72.6)	27 (79.4)		
< \$60,000	17 (27.4)	7 (20.6)		
Sexual history			8.220 (1)	.004
1 partner	35 (56.5)	29 (85.3)		
More than 1 partner	27 (43.5)	5 (14.7)		
Parity			.851 (1)	.356
Zero previous births	44 (71.0)	21 (61.8)		
At least 1 birth	18 (29.0)	13 (38.2)		
	Mean (SD)	Mean (SD)	F (df)	p
Age	32.47 (4.619)	32.18 (5.102)	2.83 (2, 93)	.064

with no significant differences between groups. There were no significant demographic differences when comparing these two groups. However, SMWs were significantly more likely than heterosexual women to have had more than one partner in the past five years ($\chi^2 = 8.220$, $p = .004$).

Table 2 presents descriptive statistics for selected reproductive outcomes, comparing SMW and heterosexual participants. Amongst these participants, SMW were somewhat more likely to report miscarriages ($n = 30.65\%$) and terminated pregnancies ($n = 17.74\%$), though neither difference was statistically significant. However, SMW were significantly more likely than heterosexual women to experience pregnancy complications ($\chi^2 = 4.604$, $p = .0319$), and to use reproductive technology to conceive ($\chi^2 = 12.718$, $p = .0004$).

Differences Between male- and Female-Partnered Sexual Minority Women

Table 3 presents the same demographic variables, but compares differences among subgroups of SMW (female-partnered and male-partnered), and heterosexual women. There was a significant association between income and sexual category ($\chi^2 = 12.031$, $p = .002$), indicating that male-partnered SMW were less likely to have an income of more than \$60,000 (53.5%) than both female-partnered

SMW (90.6%) and heterosexual women (79.4%). When considering education, a significant association was also found ($\chi^2 = 9.995$, $p = .007$), with male-partnered SMW less likely to possess more than a Bachelor's degree (60%) than female-partnered SMW (93.8%) and heterosexual women (76.5%). A significant association was also found with employment ($X^2 = 6.742$, $p = .033$), such that male-partnered SMW were less likely to be employed full time (50%) than female-partnered SMW (81.2%) and heterosexual women (61.8%). Finally, there was a statistically significant association between sexual history and sexual category ($\chi^2 = 36.909$, $p < .001$), with male-partnered SMW more likely to have more than one partner in the past 5 years (76.7%) than female-partnered SMW (12.5%) and heterosexual women (14.7%). No significant relationships were found when examining race or parity.

Table 4 presents comparisons in selected reproductive outcomes among subgroups of SMW (female-partnered and male-partnered), and heterosexual participants. A significant association was seen between use of reproductive technology and sexual category ($\chi^2 = 49.774$ (2), $p < .001$), with 29 female-partnered SMW ($n = 90.6\%$) indicating that they used technology when trying to get pregnant. No statistically significant relationships were found when examining rates of miscarriages, terminated pregnancies, fertility problems or pregnancy complications, and their

Table 2 Selected pregnancy outcomes comparing SMW and heterosexual women

	SMW N=62 [n (%)]	Heterosexual N=34 [n (%)]	Chi square test	
			X^2 (df)	<i>p</i>
Miscarriages			1.926 (1)	.165
Yes	19 (30.7)	6 (17.7)		
No	43 (69.3)	28 (82.3)		
Terminated pregnancies			.038 (1)	.846
Yes	11 (17.8)	5 (14.7)		
No	51 (82.2)	26 (83.9)		
Fertility problems			.143 (1)	.705
Yes	7 (11.3)	3 (8.8)		
No	55 (88.7)	31 (91.2)		
Pregnancy complications			4.604(1)	.032
Yes	17 (27.4)	3 (8.8)		
No	45 (72.6)	31 (91.2)		
Use of reproductive technology			14.662 (1)	.000
Yes	34 (54.8)	5 (14.7)		
No	28 (45.2)	29 (85.3)		
Planned pregnancy			.061 (1)	.805
Yes	54 (87.1)	29 (85.3)		
No	8 (12.9)	5 (14.7)		

Table 3 Selected demographic characteristics of participants stratified by sexual categorization

	Female-partnered SMW (VSM) N=32 [n (%)]	Male-partnered SMW (ISM) N=30 [n (%)]	Heterosexual N=34 [n (%)]	Chi square test	
				X^2 (df)	<i>p</i>
Race				.896 (2)	.639
White	28 (87.5)	25 (83.3)	31 (91.2)		
Other	4 (12.5)	5 (16.7)	3 (8.8)		
Education				9.995 (2)	.007
BA+	30 (93.8)	18 (60.0)	26 (76.5)		
<BA	2 (6.3)	12 (40.0)	8 (23.5)		
Employment				6.794 (2)	.033
Full-time	26 (81.3)	15 (50.0)	21 (61.8)		
Other	6 (18.8)	15 (50.0)	13 (38.2)		
Household Income				12.031 (2)	.002
\$60,000 +	27 (90.6)	16 (53.5)	27 (79.4)		
< \$60,000	3 (9.4)	14 (46.7)	7 (20.6)		
Sexual history				36.909 (2)	<.000
1 partner	28 (87.5)	7 (23.3)	29 (85.3)		
1 + partner	4 (12.5)	23 (76.7)	5 (14.7)		
Parity				2.400 (2)	.301
0 past births	25 (78.1)	19 (63.3)	21 (61.8)		
At least 1 birth	7 (21.9)	11 (36.7)	12 (38.2)		

associations with sexual category. However, a higher proportion of male-partnered SMW indicated experiences of miscarriages ($n = 40.0\%$), terminated pregnancies ($n = 23.3\%$), and fertility problems ($n = 20.0\%$), as compared to their female-partnered counterparts.

Discussion

The current study found that when comparing SMW (broadly defined) and heterosexual participants, there were

Table 4 Selected Pregnancy Outcomes Stratified by Sexual Category

	Female-partnered SMW (VSM)	Male-partnered SMW (ISM)	Heterosexual	Chi square test	
	N = 32 [n (%)]	N = 30 [n (%)]	N = 34 n (%)	X^2 (df)	p
Miscarriages				4.567 (2)	.102
Yes	7 (21.9)	12 (40.0)	6 (17.6)		
No	25 (78.1)	18 (60.0)	28 (82.4)		
Terminated pregnancies				1.454 (2)	.483
Yes	4 (12.5)	7 (23.3)	5 (14.7)		
No	28 (87.5)	23 (76.7)	29 (85.3)		
Fertility problems				4.868 (2)	.088
Yes	1(3.1)	6 (20.0)	3 (8.8)		
No	31 (96.9)	24 (80.0)	31 (91.2)		
Pregnancy complications				4.624 (2)	.099
Yes	9 (28.1)	8 (26.7)	3 (8.8)		
No	23 (71.9)	22 (73.3)	31 (91.2)		
Use of reproductive technology				49.774 (2)	.000
Yes	29 (90.6)	5 (16.7)	5 (14.7)		
No	3 (9.4)	25 (83.3)	29 (85.3)		
Planned pregnancy				9.465 (2)	.009
Yes	32 (100.0)	22 (73.3)	29 (85.3)		
No	0 (0.0)	8 (26.7)	5 (14.7)		

few significant differences with regard to reproductive history—specifically, the use of reproductive technologies (which is to be expected, considering that female-partnered SMW typically require reproductive technologies to conceive) and pregnancy complications. However, when we disaggregated the broad category of SMW, potentially important differences emerged between female-partnered women and male-partnered women with regards to their reproductive history. Thus, it appears that partner gender may be an important contributor to differences in reproductive history among SMW, particularly in relation to miscarriages and complications (i.e., higher-though not statistically significant-rates were observed among male-partnered SMW). Our findings underscore that SMW are not a homogenous group, and that SMW partnered with men in particular warrant clinical and research attention. This is particularly the case since (a) they are a substantial group of SMW seen in clinical practice (as indicated by our ease in recruiting them relative to the challenges recruiting female-partnered SMWs via consecutive sampling); (b) they are often not recognized as SMW (i.e., they are assumed to be heterosexual, (Goldberg et al. 2017); and (c) they may have particular vulnerabilities with regard to mental health outcomes in general (as suggested by prior work; e.g., Ross et al. 2007; Ross et al. 2012, 2017) and possibly for reproductive and pregnancy-related outcomes, as this study suggests. Other work has identified the disparate physical and mental health risks that invisible sexual minorities are susceptible to because of their sexual

identity (Johnson and Nemeth 2014). Bisexual women in particular face higher risks of cancer, heart disease, and depression (Human Rights Campaign 2015), in part due to biphobia and erasure of identity that occurs in healthcare settings (Persson and Pfaus 2015). Our work suggests that bisexual women could also be facing higher risks of reproductive and pregnancy-related vulnerabilities.

As a small exploratory study, our data provide limited insight into the potential mechanisms for observed differences in reproductive health outcomes for male- versus female-partnered SMW; however, we offer a few hypotheses that warrant further research. First, it is notable that there were several statistically significant differences in demographic variables between male- and female-partnered sexual minority women that suggest lower socioeconomic status for this group (e.g., fewer financial/educational resources; less likely to be employed full-time). This is consistent with limited other research that has indicated socioeconomic disparities associated with bisexual identity relative to other sexual orientation groups (e.g., Carpenter 2005; Albelda et al. 2017). Further, very limited evidence suggests that socioeconomic disparities may be an important contributor to disparities in self-reported physical health status for bisexual people (Gorman et al. 2015). As such, sociodemographic, and particularly socioeconomic, differences between male- and female-partnered SMW require additional study as a potential contributor to differences in reproductive health between these groups.

Secondly, our finding that male-partnered SMW tended to report more complex sexual histories, both in terms of gender of partners as well as number of partners overall, suggest that, simply as a function of exposure to more partners, this group may be at elevated risk for STIs, which in turn may contribute to risk for future reproductive health complications. However, we urge caution in interpreting these data, given that a history of multiple sexual partners is not necessarily associated with an increased risk for STIs; and, although male-partnered SMW were more likely to report having more than one partner in the past 5 years, the most frequently endorsed answer was still having had only one partner. Furthermore, we did not ask women directly about history of STIs. Future work should gather more in-depth information about women's medical histories, including data relevant to reproductive health, to better understand potential mechanisms for a relationship between SMW status and reproductive complications.

Finally, we concur with other scholars in bisexual health that discrimination specific to non-monosexual (i.e., multi-gender attracted) identities is likely a critically important determinant of health disparities observed among male-partnered, relative to female-partnered, SMW (e.g., Ross et al. 2017; Feinstein and Dyar 2017; Barker 2015). Indeed, there is some limited evidence that stereotypes that construct bisexual women as hypersexual may be an important contributor to high rates of sexual violence among this group (Flanders et al. 2017). Additional longitudinal research to explore a potential relationship between experiences of discrimination and later reproductive health outcomes is therefore warranted.

A primary limitation of this study is the relatively small sample sizes per group, and the heterogeneity within groups, particularly with respect to self-identified sexual orientation. While this heterogeneity is a key finding in and of itself, it poses challenges in terms of understanding how subgroups of sexual minority women may differentially experience (and possess different risks during) the perinatal period. Future research with larger sample sizes will be necessary to confirm these descriptive findings, and subsequently explore their causal mechanisms. Finally, the study's cross-sectional nature is also a limitation; longitudinal work can help to clarify directionality of associations.

Despite these limitations, this study represents the only known study to examine reproductive history among male-partnered SMW women, and it holds important implications for clinical service providers and researchers. Our findings suggest that healthcare providers should consider routinely collecting sexual identity and sexual history data to help identify women who may be at particular risk for poor outcomes (such as miscarriages or pregnancy complications) in order to provide timely, appropriate support. In addition to facing reproductive risks, sexual minorities also face stigma

around being parents (Kazyak et al. 2014), and should thus be supported holistically in their perinatal health. Continuing education may be required to support providers in developing their comfort and skill in collecting sexual identity and sexual history information, especially since health care providers often receive little attention to or training in sexual minority health issues in medical school, nursing school, or obstetric and gynecology residency programs (Abdessamad et al. 2013; McManus et al. 2006).

A substantial volume of fertility and reproduction research focuses on the experiences of heterosexual women, and does not specifically address the impact of sexual identity. Furthermore, SMW partnered with men are particularly under-researched, and should be targeted for specific inclusion in research on the health of SMW. This paper therefore calls for further research to understand the complex relationships between sexual identity, pregnancy, and health for this understudied group of women.

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