Family building and pregnancy experiences of cisgender sexual minority women



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BACKGROUND: Although 10% to 20% of cisgender women aged 18 to 40 years have a sexual minority identity (eg., bisexual, lesbian, and gueer), there is limited research on the family building and pregnancy experiences of sexual minority cisgender women. Improving our understanding of the family building and pregnancy experiences of cisgender sexual minority women is critical for improving the perinatal health of this

OBJECTIVE: This study aimed to compare the mode of family building, past pregnancy experiences, and future pregnancy intentions among cisgender sexual minority women by sexual orientation.

STUDY DESIGN: This is an observational study which was conducted using cross-sectional data collected in 2019 from a national sample of 1369 cisgender sexual minority women aged 18 to 45 years.

RESULTS: Most participants (n=794, 58%) endorsed multiple sexual orientations, most commonly queer (n=641, 47%), lesbian (n=640, 47%), and/or bisexual (n=583, 43%). There were 243 (18%) cisgender sexual minority women who were parents. Pregnancy was used by 74% (181/243) of women to build their families. Among participants who used pregnancy, 60% (108/181) became pregnant through sexual activity with another parent of the child, whereas 27% (64/243) of women used donor sperm. An additional 10% (n=24) became parents through second-parent adoption, 10% (n=25) through adoption, and 14% (n=35) through step-parenting. Bisexual women more often used sexual activity to become parents (61/100, 61%) compared with queer (40/89, 45%) and lesbian women (40/130, 31%). In contrast, lesbian (50/130, 39%) and gueer (25/89, 27%) women more often used donor sperm to become parents compared with bisexual women (11/100, 11%). Among the 266 (19%) cisgender sexual minority women who had ever been pregnant, there were 545 pregnancies (mean, 2.05 pregnancies per woman). Among those pregnancies, 59% (n=327) resulted in live birth, 23% (n=126) resulted in miscarriage, 15% (n=83) resulted in abortion, and 2% (n=9) resulted in ectopic pregnancy. A quarter of women had future pregnancy intentions, with no differences by sexual orientation. Overall, few participants (16%) reported that all of their healthcare providers were aware of their sexual orientation.

CONCLUSION: Cisqender sexual minority women primarily built their families through pregnancy and a quarter have future pregnancy desires. In addition, there were important differences in family building methods used by sexual orientation. Providers should be aware of the pregnancy and family-building patterns, plans, and needs of cisqender sexual minority women.

Key words: bisexual women, family building, lesbian, parenthood, pregnancy, sexual minority women

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All study participants provided informed consent before answering surveys.

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Why was this study conducted?

Although 1 in 5 cisgender women have a sexual minority identity (eg, bisexual, lesbian, and queer), there are limited data on the family building and pregnancy experiences of sexual minority cisgender women.

Key findings

In a national study of 1369 cisgender sexual minority women, 18% were parents and primarily built their families through pregnancy. There were important differences in family building methods used by sexual orientation; for example, bisexual women were most likely to use sexual activity with a partner whereas lesbian and queer women were more likely to use donor sperm.

What does this add to what is known?

Our findings add nuance to previous studies and highlight that a quarter of sexual minority cisgender women had future pregnancy desires.

Introduction

Although 10% to 20% of cisgender women aged 18 to 40 years have a sexual minority identity (eg, bisexual, lesbian, and queer),¹⁻³ there is limited research on the family building and pregnancy experiences of cisgender sexual minority women (CSMW). Most of the literature to date has focused on family building experiences of lesbian or same-sex couples with less attention to the experiences of bisexual, pansexual, and queer cisgender women.4,5 To the best of our knowledge, only 2 previous studies have broadly described the modes of family building among CSMW: The LGBTQ Family Building Project⁶ and The National LGBTQ+ Women's Community Survey.^{7,8} These studies found that many women (53%-78%) used pregnancy (carried by themselves or their partner) to become parents; however, other means, including adoption and step-parenting were used.

CSMW experience significant barriers to achieving desired pregnancies, including difficulty accessing general sexual and reproductive healthcare, difficulty accessing medically assisted reproduction (eg, intrauterine insemination [IUI], in vitro fertilization [IVF]), and financial barriers. ^{9,10} At the same time, bisexual women are more likely than heterosexual women to experience pregnancy over their lifetime, ^{11,12} including unintended pregnancies. ^{13,14} CSMW's sexual and reproductive healthcare experiences are frequently

characterized by discrimination, erasure, and feeling their like identities and experiences are invisible owing to heteronormative assumptions and lack of LGBTQ+ competency. 9,10,15—17

Improving our understanding of the family building and pregnancy experiences of CSMW is critical for improving the whole family and perinatal health experiences of this population. Emerging data suggest that CSMW experience significant disparities in fertility and pregnancy outcomes, including higher rates of miscarriage, stillbirth, preterm birth, and severe maternal morbidity. 18-20 These inequities can be attributed to minority stress as well as substantial structural barriers to sexual and reproductive health services for CSMW. 9,21-24 For example, pregnant CSMW report decreased healthcare access, poorer mental health, higher number of chronic health conditions, and substance use compared with pregnant heterosexual women.²⁵

This study aimed to address these gaps by describing the family building and pregnancy experiences of CSMW using data from a large national community-engaged study on the sexual and reproductive health of sexual and gender minority (SGM) adults in the United States.

Materials and Methods Study population, design, and data collection

We conducted an online, cross-sectional survey on sexual and

reproductive health, designed for SGM participants. Survey development and content are described in detail elsewhere.26 Participants were recruited from the following 2 populations: (1) the general public (recruited via social media, community-based organizations, email distribution lists, in-person community events, and a standalone-study website), and (2) The Population Research in Identity and Disparities for Equality (PRIDE) study. The PRIDE Study is an online national prospective cohort study of SGM adults. The PRIDE Study's community-engaged research approach, demographics, and methods have been described elsewhere.^{27,28} The survey was administered through Qualtrics (Provo, UT) from May to September 2019. Respondents who initiated the survey were entered into a raffle to win 1 of 67 \$50 electronic gift cards.

Participants were eligible to complete the study if they were assigned female or intersex at birth; identified as transgender, nonbinary, gender diverse, or as a cisgender sexual minority woman (eg, lesbian, bisexual, or gay); resided in the United States or its territories; and could read and understand English. Participants recruited from the general public were eligible if they were 15 to 45 years old, whereas participants recruited from the PRIDE Study were 18 to 45 years old. The present analysis is restricted to cisgender women participants who did not endorse any transgender or gender-diverse identities. Nearly all CSMW participants (n=1366, 99.8%) were recruited through the PRIDE Study. Previous analyses have presented findings for transgender participants. 29-31

Measures

To identify cisgender women, we categorized participants based on their responses to 2 questions about their (1) current gender identity (using a select all that apply format that allowed for additional write-in response) and (2) sex assigned a birth. Additional sociodemographic variables included sexual orientation, age, racial or ethnic identity, relationship status, marital status, annual household income, health

insurance coverage, and US census region. We also asked participants what proportion of their healthcare providers were aware of their sexual orientation (modified from the Nebraska Outness Scale).³²

Parent participants were asked about the methods they used to become a parent for each child using a select-all-thatapply multiple-choice question with the following options: sexual activity with another parent of the child, carried pregnancy and was egg source, carried pregnancy but was not egg source, provided egg that a partner carried, surrosecond-parent adoption partner's biological child, adoption, step parent, foster parent, used anonymous donor sperm, used known donor sperm, used an egg donor. Second-parent adoption describes the process in which parents who did not give birth to a child and/or who are not biologically related to a child can adopt a child without terminating the first legal parent's rights.

For pregnancy-related outcomes, we asked participants how many times they had been pregnant and collected detailed information on the outcomes of each pregnancy. Participants' future pregnancy intentions were based on responses to a modified version of the Pregnancy Attitudes Timing and How questions.³³

Analysis

Descriptive statistics were used to summarize sociodemographic characteristics for the overall sample as well as by parental status and pregnancy history. We calculated frequencies for mode of family building, previous pregnancies, and future pregnancy intentions overall and by sexual orientation and racial or ethnic identity. Notably, most participants selected >1 sexual orientation. Therefore, we chose to conduct our analysis using overlapping, rather than mutually exclusive groups, to represent our participants most accurately. As a result of using overlapping categories, we were unable to conduct statistical tests for differences between groups defined by sexual orientation. Because of very small sample sizes for racial or ethnic minority parents (n=22) and participants with a previous pregnancy (n=26), results stratified by race or ethnicity are presented in the supplemental material. All analyses were conducted in Stata 15.1 (StataCorp, College Station, TX).

Ethics

This study received ethical approval from the institutional review boards of Stanford University; University of California, San Francisco; and WCG. In addition, the PRIDE Study Research Advisory Committee and the PRIDE Study Participant Advisory Committee (pridestudy.org) reviewed and approved the study. We obtained informed consent from all survey respondents.

Results

Participants characteristics

There were 1369 CSMW participants with a median age of 29.7 years (interquartile range, 24.4-37.6 years; Table 1). participants (n=794, endorsed >1 sexual orientation, most commonly queer (n=641, 47%), lesbian (n=640, 47%), and/or bisexual (n=583, 43%). Overlap between sexual orientations are presented in Supplemental Table 1. Few participants exclusively endorsed an asexual (n=31), gay (n=8), pansexual (n=31), same-gender loving (n=1), or a straight (n=1) identity. Most participants (n=1201, 88%) were White. In addition, 15 (1%) were American Indian or Alaska Native, 57 (4%) were Asian, 40 (3%) were Black or African American, 65 (5%) were Hispanic or Latinx, 16 (1%) were Middle Eastern or North African, and 6 (<1%) were Native Hawaiian or Pacific Islander.

Eighteen percent of participants were parents and 19% had ever been pregnant. Parents were more likely to be in a relationship, living with a partner, legally married, and had higher household incomes compared with nonparents. Similar patterns were observed among participants who had ever been pregnant vs never pregnant. Overall, few participants (16%) reported that all their healthcare providers were aware of their sexual orientation. Parents (28% vs 15%, P<.001) and participants who had ever been pregnant (23% vs 14%, P=.014) were more likely to be out to their providers.

Family-building experiences

There were 243 (18%) CSMW who were parents; lesbian women were most likely to be parents (20%), followed by bisexual (17%), pansexual (17%), queer (13%), gay (12%), and asexual women (5%).

Three-quarters (74%, 181/243) of women used pregnancy to build their families for 1 or more of their children (eg, sexual activity with another parent of the child and/or carrying a pregnancy as the egg source or not as the egg source). The most common modes of family building were carrying a pregnancy (49%) and sexual activity with another parent of the child (44%; Table 2). Notably, these categories are not mutually exclusive, and 41% (46/ 113) of women who reported carrying a pregnancy as the egg source also reported using sexual activity as a mode of family building.

In addition, 14% were step-parents, 10% of parents underwent second-parent adoption of their partner's child, 10% adopted, and 4% were foster parents. A quarter of parents used donor sperm, and anonymous donor sperm was more common than known donor sperm (21% vs 5% of parents). Few participants carried a pregnancy for which they were not the egg source (n=6, 3%, also referred to as reciprocal IVF in which the index participant was pregnant) or used donor eggs (n=1, <1%). No participants provided an egg that a partner carried (also referred to as reciprocal IVF in which the index participant was the egg source) or used surrogacy.

Bisexual and pansexual women were more likely to have become pregnant via sexual activity (61%) compared with queer (45%), lesbian (31%), and gay (31%) women. In contrast, lesbian, gay, and queer women were more likely to use donor sperm (39%, 31%, and 27%, respectively) compared with pansexual (16%) and bisexual women (11%).

Previous pregnancy experiences

There were 266 (19%) CSMW who had ever been pregnant (Table 3). Forty-four percent (n=117) of participants had only 1 pregnancy. Pansexual,

Characteristics				ls a parent		E	ver pregnant	
ona actoristics		Overall n (%)	Yes n (%)	No n (%)	<i>P</i> value	Yes n (%)	No n (%)	<i>P</i> value
N		1369 (100)	243 (17.8)	1063 (77.8)		266 (19.4)	1101 (80.4)	
	Median age, y, IQR	29.7 (24-38)	40.1 (36-48)	27.6 (24-34)	<.001	39.9 (35-48)	27.6 (24-34)	<.001
Race and ethnicity ^a								
	American Indian or Alaska Native	15 (1.1)	2 (0.8)	13 (1.2)	.595	1 (0.4)	14 (1.3)	.20
	Asian	57 (4.2)	4 (1.6)	53 (5)	.021	2 (0.8)	55 (5.1)	.00
	Black or African American	40 (2.9)	7 (2.9)	33 (3.1)	.849	8 (3)	32 (2.9)	.96
	Hispanic or Latinx	65 (4.7)	6 (2.5)	58 (5.5)	.051	13 (4.9)	52 (4.8)	.948
	Middle Eastern or North African	16 (1.2)	3 (1.2)	13 (1.2)	.992	2 (0.8)	14 (1.3)	.46
	Native Hawaiian or Pacific Islander	6 (0.4)	0 (0)	6 (0.6)	.24	0 (0)	6 (0.6)	.22
	White	1201 (87.7)	229 (93.9)	970 (91.2)	.171	235 (88.3)	964 (88.8)	.81
	Other/unknown	29 (2.1)	5 (2)	24 (2.3)	.843	8 (3)	21 (1.9)	.28
	None of these	122 (8.9)	17 (7)	105 (9.9)	.255	17 (6.4)	105 (9.7)	.00
	Missing	67 (4.9)	4 (1.7)	63 (5.9)	_	13 (4.9)	54 (4.9)	_
Sexual orientation ^a								
	Asexual	111 (8.1)	5 (2)	106 (10)	<.001	8 (3)	103 (9.5)	.00
	Gay	227 (16.6)	26 (10.7)	189 (17.8)	.007	25 (9.4)	198 (18.2)	<.00
	Bisexual	583 (42.6)	100 (41)	465 (43.7)	.439	123 (46.2)	457 (42.1)	.22
	Lesbian	640 (46.7)	130 (53.3)	481 (45.2)	.023	129 (48.5)	506 (46.6)	.58
	Pansexual	253 (18.5)	44 (18)	199 (18.7)	.808	60 (22.6)	193 (17.8)	.07
	Queer	641 (46.8)	89 (36.5)	529 (49.7)	<.001	108 (40.6)	526 (48.5)	.02
	Same-gender loving	99 (7.2)	14 (5.7)	81 (7.6)	.309	17 (6.4)	82 (7.6)	.51
	Straight	5 (0.4)	1 (0.4)	4 (0.4)	.938	1 (0.4)	4 (0.4)	.98
	Questioning	37 (2.7)	1 (0.4)	34 (3.2)	.015	3 (1.1)	33 (3)	.08
	Another sexual orientation not listed	51 (3.7)	6 (2.5)	44 (4.1)	.218	7 (2.6)	44 (4.1)	.27

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TABLE 1

Characteristics				ls a parent			Ever pregnant	
		Overall n (%)	Yes n (%)	No n (%)	<i>P</i> value	Yes n (%)	No n (%)	<i>P</i> value
Relationship status								
	Not in a relationship	408 (29.8)	25 (10.2)	382 (35.9)	<.001	40 (15)	367 (33.8)	<.001
	In a relationship with 1 person, not living with partner	233 (17)	11 (4.5)	222 (20.9)	<.001	12 (4.5)	220 (20.3)	<.001
	In a relationship with 1 person, living with partner	579 (42.3)	179 (73.4)	398 (37.4)	<.001	172 (64.7)	407 (37.5)	<.001
	In a relationship with >1 person, not living with partner(s)	28 (2)	7 (2.9)	21 (2)	.384	8 (3)	20 (1.8)	.232
	In a relationship with >1 person, living with partner(s)	47 (3.4)	18 (7.4)	29 (2.7)	<.001	21 (7.9)	26 (2.4)	<.001
	Another type of relationship	25 (1.8)	3 (1.2)	22 (2.1)	.388	3 (1.1)	22 (2)	.329
	Missing	62 (4.5)	2 (0.2)	60 (5.6)	_	13 (4.9)	49 (4.5)	_
Legal marital status					<.001			<.001
	Single, never married	771 (56.3)	20 (8.2)	751 (70.6)		47 (17.7)	722 (66.5)	
	Married	396 (28.9)	168 (68.9)	226 (21.2)		150 (56.4)	246 (22.7)	
	Legally recognized civil union	3 (0.2)	2 (0.8)	1 (0.1)		3 (1.1)	0 (0)	
	Registered domestic partnership	9 (0.7)	2 (0.8)	7 (0.7)		1 (0.4)	8 (0.7)	
	Separated	20 (1.5)	13 (5.3)	7 (0.7)		12 (4.5)	8 (0.7)	
	Divorced	78 (5.7)	33 (13.5)	45 (4.2)		35 (13.2)	43 (4)	
	Widowed	4 (0.3)	1 (0.4)	3 (0.3)		1 (0.4)	3 (0.3)	
	Not listed	16 (1.2)	4 (1.6)	12 (1.1)		4 (1.5)	23 (2.1)	
	Missing	61 (4.5)	1 (0.4)	1 (0.1)		13 (4.9)	32 (2.9)	
Annual household income					<.001			<.001
	<\$15,000	51 (3.7)	6 (2.5)	45 (4.2)		8 (3)	43 (4)	
	\$15,000—\$30,000	90 (6.6)	12 (4.9)	78 (7.3)		14 (5.3)	76 (7)	
	\$30,000—\$50,000	190 (13.9)	19 (7.8)	171 (16.1)		23 (8.6)	167 (15.4)	
	\$50,000—\$75,000	210 (15.3)	29 (11.9)	181 (17)		32 (12)	178 (16.4)	
	\$75,000—\$100,000	125 (9.1)	39 (16)	86 (8.1)		39 (14.7)	86 (7.9)	
	\$100,000-\$150,000	182 (13.3)	54 (22.1)	128 (12)		47 (17.7)	135 (12.4)	
	>\$150,000	184 (13.4)	60 (24.6)	124 (11.7)		58 (21.8)	126 (11.6)	
	Missing	337 (24.6)	25 (10.3)	251 (23.6)		45 (16.9)	274 (25.3)	

	Characteristics of cisqe	nder sexual minority womer	n. stratified by	parent status and	pregnanc	v historv	(continued)
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Characteristics			ls a parent			Ever pregnant	
	Overall n (%)	Yes n (%)	No n (%)	<i>P</i> value	Yes n (%)	No n (%)	<i>P</i> value
Health insurance coverage				.662			.515
Yes	1242 (90.7)	228 (93.4)	1012 (95.1)		238 (89.5)	1003 (92.4)	
No	53 (3.9)	12 (4.9)	41 (3.9)		13 (4.9)	39 (3.6)	
Don't know	8 (0.6)	2 (0.8)	6 (0.6)		1 (0.4)	7 (0.6)	
Missing	66 (4.8)	2 (0.8)	5 (0.5)		14 (5.3)	36 (3.3)	
Percent of healthcare providers aware of sexual orientation				<.001			.014
0%	240 (17.5)	38 (15.6)	199 (18.7)		49 (18.4)	190 (17.5)	
10%-50%	499 (36.4)	62 (25.4)	433 (40.7)		76 (28.6)	423 (39)	
60%-90%	296 (21.6)	65 (26.6)	226 (21.2)		61 (22.9)	235 (21.7)	
100%	224 (16.4)	68 (27.9)	154 (14.5)		62 (23.3)	162 (14.9)	
Don't know	64 (4.7)	64 (26.2)	64 (6)		12 (4.5)	51 (4.7)	
Missing	46 (3.4)	46 (18.9)	46 (4.3)		6 (2.3)	24 (2.2)	
US census region				.037			.015
Midwest	263 (19.2)	44 (18)	219 (20.6)		45 (16.9)	218 (20.1)	
Northeast	263 (19.2)	37 (15.2)	225 (21.1)		41 (15.4)	221 (20.4)	
South	307 (22.4)	56 (23)	250 (23.5)		59 (22.2)	248 (22.9)	
West	368 (26.9)	84 (34.4)	284 (26.7)		92 (34.6)	275 (25.3)	
Missing	168 (12.3)	23 (9.4)	86 (8.1)		29 (10.9)	123 (11.3)	
IOR interquartile range							

IQR, interquartile range.

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 $^{^{\}rm a}$ Participants could select >1 response, therefore percentages sum to >100%.

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TABLE 2
Family-building experiences among cisgender sexual minority women, overall and by sexual orientation

						Sexua	l orientatior	1		
		Overall n (%)	Asexual n (%)	Gay n (%)	Bisexual n (%)	Lesbian n (%)	Pansexual n (%)	Queer n (%)	Same-gender loving n (%)	Questioning n (%)
N		1369	111	227	583	640	253	641	99	37
Is a parent		243 (17.8)	5 (4.5)	26 (11.5)	100 (17.2)	130 (20.3)	44 (17.4)	89 (13.9)	14 (14.0)	1 (2.7)
Mode(s) of family building ever used										
	Sexual activity with another parent of the child ^a	108 (44.4)	5 (100.0)	8 (30.8)	61 (61.0)	40 (30.8)	27 (61.4)	40 (44.9)	5 (35.7)	1 (100)
	Carried pregnancy and was egg source ^a	113 (46.5)	2 (40.0)	7 (26.9)	48 (48.0)	55 (42.3)	25 (56.8)	46 (51.7)	6 (42.9)	0 (0)
	Carried pregnancy but was not egg source ^a	6 (2.5)	0 (0)	0 (0)	0 (0)	4 (3.1)	0 (0)	3 (3.4)	1 (7.1)	0 (0)
	Provided egg that a partner carried ^a	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Surrogacy	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Second-parent adoption of partner's biological child	24 (9.9)	0 (0)	6 (23.1)	4 (4)	18 (13.8)	2 (4.5)	10 (11.2)	2 (14.3)	0 (0)
	Adoption	25 (10.3)	0 (0)	5 (19.2)	3 (3)	22 (16.9)	0 (0)	5 (5.6)	2 (14.3)	0 (0)
	Step parent	35 (14.4)	0 (0)	4 (15.4)	15 (15)	20 (15.4)	5 (11.4)	9 (10.1)	1 (7.1)	0 (0)
	Foster parent	9 (3.7)	0 (0)	1 (3.8)		4 (3.1)	3 (6.8)	6 (6.7)	0 (0)	0 (0)
Ever used gamete donors					5 (5)					
	Anonymous donor sperm	52 (21.4)	0 (0)	6 (23.1)	9 (9.0)	39 (30.0)	5 (11.4)	20 (22.5)	4 (28.6)	0 (0)
	Known donor sperm	13 (5.3)	0 (0)	2 (7.7)	2 (2.0)	11 (8.5)	2 (4.5)	4 (4.5)	0 (0)	0 (0)
	Egg donor	1 (0.4)	0 (0)	0 (0)	0 (0)	1 (0.8)	0 (0)	1 (1.1)	1 (7.1)	0 (0)

There were 6 (2.5%) participants who were parents were missing data on mode of family building. Participants can select >1 sexual orientation, and therefore may appear in multiple columns.

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^a These 4 family-building methods involve pregnancy of the study participant or their partner. "Carried a pregnancy but was not the egg source" and "provided egg that a partner carried" are both responses that refer to reciprocal IVF.

TABLE 3
Pregnancy history and future pregnancy intentions among cisgender sexual minority women, overall and by sexual orientation

						Sexua	l orientation			
		Overall	Asexual	Gay	Bisexual	Lesbian	Pansexual	Queer	Same-gender loving	Questioning
		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
N		1369	111	227	583	640	253	641	99	37
Ever pregnant		266 (19.4)	8 (7.2)	25 (11.0)	123 (21.1)	129 (20.2)	60 (23.7)	108 (16.8)	17 (17.2)	3 (8.1)
Currently pregnant		8 (0.6)	1 (0.9)	1 (0.4)	5 (0.9)	2 (0.3)	2 (0.8)	5 (0.8)	1 (1.0)	0 (0)
Number of pregnancies										
	0	1085 (79.3)	103 (92.8)	198 (87.2)	457 (78.4)	506 (79.1)	193 (76.3)	526 (82.1)	82 (82.8)	33 (89.2)
	1	117 (8.5)	4 (3.6)	14 (6.2)	50 (8.6)	58 (9.1)	28 (11.1)	58 (9.0)	7 (7.1)	1 (2.7)
	2	70 (5.1)	4 (3.6)	5 (2.2)	31 (5.3)	34 (5.3)	13 (5.1)	22 (3.4)	3 (3.0)	0 (0)
	3	45 (3.3)	0 (0)	5 (2.2)	23 (3.9)	23 (3.6)	12 (4.7)	15 (2.3)	5 (5.1)	2 (5.4)
	4+	34 (2.5)	0 (0)	1 (0.4)	19 (3.3)	14 (2.2)	7 (2.8)	13 (2.0)	2 (2.0)	0 (0)
Future pregnancy intentions										
	Would like to be pregnant at some point	325 (23.7)	24 (21.6)	56 (24.7)	162 (27.8)	137 (21.4)	68 (26.9)	164 (25.6)	19 (19.2)	9 (24.3)
	Within next year ^a	64 (19.7)	1 (4.2)	12 (21.4)	31 (19.1)	26 (19.0)	18 (26.5)	36 (22.0)	3 (15.8)	0 (0)
	Within next 5 y ^a	104 (32.0)	7 (29.2)	20 (35.7)	49 (30.2)	51 (37.2)	22 (32.4)	46 (28.0)	2 (10.5)	1 (11.1)
	Within 6—10 y ^a	100 (30.8)	11 (45.8)	18 (32.1)	50 (30.9)	42 (30.7)	15 (22.1)	44 (26.8)	11 (57.9)	5 (55.6)
	>10 y ^a	7 (2.2)	1 (4.2)	0 (0)	3 (1.9)	3 (2.2)	3 (4.4)	5 (3.0)	1 (5.3)	1 (11.1)

Participants can select >1 sexual orientation, and therefore may appear in multiple columns.

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^a Percentage out of the total number of participants who indicated they "would like to be pregnant at some point."

bisexual, and lesbian women were most likely to have ever been pregnant (23%, 21%, and 20%, respectively), followed by queer (17%), gay (11%), and asexual women (7%).

Among the 558 pregnancies reported by participants, 59% resulted in live birth, 23% resulted in miscarriage, 15% resulted in abortion, and 2% resulted in ectopic pregnancy (Table 4). Of the live births, 28% were by cesarean delivery. One participant reported having a stillbirth. There were no differences in these pregnancy outcomes by sexual orientation.

Future pregnancy intentions

A quarter (24%) of CSMW had future pregnancy intentions (Table 3). Among those who would like to be pregnant at some point, 20% indicated a desire to become pregnant within the next year, an additional 32% said they would like to become pregnant in the next 5 years, and an additional 31% in the next 5 to 10 years. There were no differences in future pregnancy intentions by sexual orientation.

Comment Results

Our findings demonstrate that CSMW primarily build their families through pregnancy, and many have future pregnancy intentions. There are differences in family building methods use by sexual orientation. Although sexual activity was the most common method for family building among bisexual women, lesbian and queer women were more likely to use donor sperm, second-parent adoption, adoption, and foster parenting to build their families. Most pregnancies resulted in live birth, although miscarriage (23%) and abortion (15%) were also common outcomes. Although we do not have a comparator group, the rates of miscarriage and abortion are similar to what is observed in the overall US population. 34,35

We observed that 18% of CSMW were parents, a prevalence that is similar to what was previously reported by the Generations Study, a national probability sample of sexual minority adults in the United States, which found that

23% of CSMW were parents.³⁶ Our findings also add nuance to previous studies which have broadly documented the family building and pregnancy experiences of CSMW. For example, Goldberg found that 73% of CSMW self-reported using donor insemination, 21% adoption or fostering, 4% penisvagina sex, and 5% step-parenting to build their families.⁶ In our study, sexual activity was significantly more common as a mode of family building (reported by 49%) and may reflect differences in study populations. Notably, Goldberg's study primarily included CSMW is same-sex partnerships, and is less representative of the overall population of CSMW. Data from the National LGBTQ+ Women's Community Survey^{7,8} similarly found that many CSMW became parents through pregnancy, with significant differences by self-reported gender expression. Women who were femme or on the feminine spectrum were most likely to have given birth (52%) compared with women who were butch or on the masculine spectrum (30%), although a similar proportion of women reported becoming parents by their partner giving birth (19% of femme and 23% of butch women). Butch women were more likely than femme women to use nonpregnancy methods (eg, adoption, step-parenting) to become parents. Collectively, this small but growing body of research highlights heterogeneity in experiences of family building among CSMW.

Other available data on modes of family building focus on same-sex couples rather than self-reported sexual orientation. Using birth-certificate data for women in same-sex partnerships, Downing et al⁵ found that three-quarters (73%) of couples had used any fertility treatments, most commonly IVF (34%) and intracervical insemination (22%); and 60% used anonymous donor sperm. Data from the US census also found that same-sex couples are less likely to have biological children compared with opposite-sex couples (52% vs 84%) and were more likely to adopt (17% vs 2%).³⁷ Data on same-sex partnerships highlight the critical role that

dyad structure may play in mode of family building options. In the absence of the comprehensive collection of sexual orientation and gender identity data on national surveys, administrative data on same-sex couples is an important step toward documenting the reproductive health needs of SGM populations. However, this approach excludes bisexual, pansexual, and queer women who are partnered with cisgender and transgender men, a population that is underresearched. Furthermore, a focus on same-sex couples, though important, precludes examination of individuals who are not currently or may never have been in a dyad or who are in relationships with >1 person, as over 10% of our sample of parents were. Examinations of various family structures in family building is needed.

Clinical implications

The number of pregnancies to CSMW is anticipated to increase as younger generations are more likely to identify as sexual minorities (19.7% of Generation Z, compared with 11.2% of Millennials and 3.3% of Generation X)² and are twice as likely to desire children through sexual activity and medically assisted reproduction compared with older cohorts.³⁸ Access to and general use of medically assisted reproduction is also expected to grow. Therefore, it is critical that providers are aware of the reproductive healthcare needs CSMW.

Notably, few participants in our study reported that all their healthcare providers were aware of their sexual minority identity. Providers should avoid making assumptions about the sexual orientation of their patients, especially when providing sexual and reproductive health services counseling. Previous research emphasized the centrality of patientprovider communication and experiences of erasure for CSMW and their experiences of autonomy, empowerment, and agency in healthcare settings throughout their family building and pregnancy journeys. 9,24

A quarter of the women in our sample had future pregnancy intentions,

TABLE 4 Prior pregnancy	TABLE 4 Prior pregnancy outcomes among cisgender sexual	isgender sexu		women, ov	rerall and by	minority women, overall and by sexual orientation	ntation			
						Ñ	Sexual orientation	_		
		Overall n (%)	Asexual n (%)	Gay n (%)	Bisexual n (%)	Lesbian n (%)	Pansexual n (%)	Queer n (%)	Same-gender loving n (%)	Questioning n (%)
N pregnancies		558 (100.0)	12 (2.2)	44 (7.9)	272 (48.7)	263 (47.1)	123 (22)	215 (38.5)	38 (6.8)	7 (1.3)
Pregnancy Outcomes										
	Still pregnant	8 (1.4)	1 (8.3)	1 (2.3)	5 (1.8)	2 (0.8)	2 (1.6)	5 (2.3)	1 (2.6)	(0) 0
	Miscarriage	126 (22.6)	1 (8.3)	11 (25.0)	68 (25.0)	56 (21.3)	34 (27.6)	62 (28.8)	9 (23.7)	1 (14.3)
	Ectopic pregnancy	9 (1.6)	(0) 0	1 (2.3)	5 (1.8)	6 (2.3)	1 (0.8)	3 (1.4)	(0) 0	0 (0)
	Abortion	83 (14.9)	3 (25.0)	9 (20.5)	39 (14.3)	46 (17.5)	16 (13.0)	28 (13.0)	7 (18.4)	3 (42.9)
	Stillbirth	1 (0.2)	(0) 0	(0) 0	(0) 0	1 (0.4)	0) 0	0) 0	0 (0)	0) 0
	Live birth	327 (58.6)	7 (58.3)	22 (50.0)	155 (57.0)	148 (56.3)	70 (56.9)	117 (54.4)	21 (55.3)	3 (42.9)
	Cesarean delivery ^a	91 (27.8)	1 (14.3)	4 (18.2)	34 (21.9)	42 (28.4)	21 (30.3)	39 (33.3)	3 (14.3)	0 (0)
	Missing	4 (0.7)	0) 0	0 (0)	0 (0)	4 (1.5)	0) 0	0) 0	0 (0)	0 (0)

Participants can select > 1 sexual orientation, and therefore may appear in multiple columns.

^a Percentage out of the total number of live births.

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and this did not differ by sexual orientation. Sexual minority identity can have a strong impact on individual pregnancy intentions. Prior qualitative research demonstrates that many CSMW view pregnancy as inaccessible and that heteronormative narratives of motherhood, pregnancy, and family planning impact whether women thought of pregnancy as an option for them. ³⁹ Therefore, providers should avoid assumptions about patients' pregnancy desires based on their sexual orientation, gender presentation, or family composition, and assist all sexual minority patients in family building and reproductive health options.

Lastly, provider familiarity with the variety of modes used for family building is critical for supporting CSMW. There are well-documented gaps in information on fertility and family building available to sexual minority women. 24,40 Informational barriers can create uncertainty, confusion, dissatisfaction, isolation, and decreased engagement with healthcare services.²⁴ In addition, different pathways to pregnancy and parenthood can significantly impact physical and mental health owing to systemic and structural barriers experienced by SGM couples. Although operational definitions are changing and building a family is considered a basic human right, 41,42 until very recently, infertility was defined based on a period of unprotected (assumed) penis-in-vagina sex, leaving many sexual minority women with systematically limited access to fertility services. 43 Utilization of fertility services and donor gametes can create significant financial, legal, and socioemotional stress for CSMW and are associated with complicated perinatal outcomes such as multiple gestation. Few insurance companies cover fertility services for SGM individuals, and in many cases, certain modes of family building such as traditional IVF, reciprocal IVF, and surrogacy are inaccessible because of financial barriers. Notably, few women in our study used reciprocal IVF and none used surrogacy. Additional barriers include the limited availability of provider and clinics that are LGBTQ+

inclusive and knowledgeable, parenthood designation laws that require second-parent adoption for nongestational parents to be legally recognized as a parent, as well as unnecessary, expensive assessments and clinic procedures that disproportionately impact SGM couples (such as required psychological assessment and sperm quarantine when using known donor). Provider awareness of these specific challenges can improve their ability to support patients.

Strengths and limitations

Our study had several strengths, including community engagement, the use of a questionnaire developed specifically for SGM populations, and a large geographically diverse national sample. Compared with a national probability sample of CSMW, our study was representative of the overall population of CSMW in the United States with respect to age, sexual orientation, and United States region.³⁶ To the best of our knowledge, this is the first study to comprehensively assess modes of family building, pregnancy experiences, and intentions among cisgender women who self-identify as asexual, queer, and pansexual, because most previous studies relied on lesbian and bisexual sexual orientation categories only. In addition, our large sample size enabled us to provide more descriptive information than previously available.

Our findings should be interpreted considering several limitations. This study was a cross-sectional convenience sample. Although our sample was representative in term of age, sexual orientation, and geography, our study sample was underrepresentative of Black and Latina CSMW.36 Thus, we were limited in our ability to assess differences by race and ethnicity. Prior research suggests that there are large differences in receipt of sexual healthcare, 44,45 access to assisted reproduction, 10 and pregnancy outcomes 18,46,47 among Black and Latina/Latinx CSMW. Intersectional approaches to understanding differences in family building and pregnancy experiences among racial and ethnic minority CSMW is a critical area for future research.

We did not assess the gender(s) of participants partners at the time of family building. The observed differences in modes of family building likely reflect differences in the gender(s) of participants' partners and coparents, for example, cisgender women in partnerships with people who produce sperm have different family building options available to them compared with cisgender women in partnership with other cisgender women, transgender and gender-diverse people men. assigned female at birth. We also did not explicitly ask about assisted reproduction methods (eg, IUI or IVF) or experiences accessing fertility services.

Conclusions

CSMW primarily build their families through pregnancy, and many have future pregnancy desires. There are important differences in family building methods used by bisexual, lesbian, and queer women. Given that as many as 1 in 5 cisgender women aged 18 to 40 years are sexual minorities, it is critical that clinicians be aware of the pregnancy and family-building patterns, plans, and needs of CSMW, including fertility planning, assisted reproduction, contraception, and abortion.

CRediT authorship contribution statement

Diana M. Tordoff: Conceptualization, Writing - original draft. Heidi Moseson: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Writing - review & editing. Sachiko Ragosta: Conceptualization, Investigation, Writing - review & editing. Jen Hastings: Conceptualization, Investigation, Writing - review & editing. Annesa Flentje: Conceptualization, Investigation, Writing - review & editing. Matthew R. Capriotti: Conceptualization, Investigation, Writing review & editing. Micah E. Lubensky: Conceptualization, Investigation, Writing - review & editing. Mitchell R. Lunn: Conceptualization, Investigation, Writing – review & editing. **Juno Obe**din-Maliver: Conceptualization, Data curation, Funding acquisition, Investigation, Writing – review & editing.

Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.xagr.2023.100298.

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