

Supplementary Online Content

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eTable 1. Percentage of Patients From SGM Groups With Breast Cancer Identified by Search Term

eTable 2. Medical History of Patients From SGM Groups and Cisgender Heterosexual Breast Cancer Patients

eTable 3. Hormonal Risk Factors of Patients From SGM Groups and Cisgender Heterosexual Breast Cancer Patients

eTable 4. Breast Cancer Screening and Diagnosis of Patients From SGM Groups and Cisgender Heterosexual Breast Cancer Patients

eTable 5. Genetic Testing and Clinical Trial Enrollment of Patients From SGM Groups and Cisgender Heterosexual Breast Cancer Patients

eTable 6. Breast Cancer Treatment and Recurrence of Patients From SGM Groups and Cisgender Heterosexual Breast Cancer Patients

eTable 7. Benjamini-Hochberg Corrected *P* Values for Prespecified Metrics

eTable 8. Adjusted Association Between Race and Sex and Gender Minority Outcomes

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Percentage of Patients From SGM Groups With Breast Cancer Identified by Search Term

Search term ^a , n ^b (% ^c)	
LGBTQ+ Identity Search, n (%)	20 (22)
SGM Behavior Search, n (%)	78 (85)
LGBT ICD10, n (%)	4 (4)

^a Identity search terms: lesbian, gay, homosexual, bisexual, queer, transgender, transexual, transsexual, male to female, MTF, female to male, FTM, gender nonconforming, gender fluid, nonbinary. Behavioral search terms in patients with sex listed as female: same sex, female partner(s), wife, girlfriend, women who have sex with women, WSW. Behavioral search terms in patients with sex listed as male: same sex, male partner(s), husband, boyfriend, men who have sex with men, MSM. ICD10 search terms: 302 sexual and gender identity disorders, 302.0 ego-dystonic sexual orientation, 302.5 transsexualism, F64 gender identity disorders, F64.0 transsexualism, F64.1 dual role transvestism, Z72.52 high risk homosexual behavior.

^b SGM patients overlapped between searches

^c After this initial search, charts were manually reviewed to identify false positives. Reasons for false positives included names (e.g., nurse Gay), medical terms (e.g., trans-fats), identities or behaviors of family members (e.g., a lesbian daughter), slurs used by patients directed at staff members, patient requests for same-sex providers, the presence of SGM screening questionnaires in the chart, and lack of specificity of some ICD-10 codes (e.g., 302: sexual and gender identity disorders).

eTable 2. Medical History of Patients From SGM Groups and Cisgender Heterosexual Breast Cancer Patients

Characteristic	SGM (n=92)	Cis-Het (n=92)	Difference (95% CI)^a
Diabetes, n (%)	5 (5.4)	9 (9.8)	-4.3 (-13 to 4.4)
Coronary artery disease, n (%)	7 (7.6)	2 (2.2)	5.4 (-1.8 to 13)
Obesity, n (%)	37 (40)	32 (35)	5.4 (-9.6 to 20)
Tobacco use, n (%)			
Current	10 (11)	9 (9.8)	1.1 (-8.8 to 11)
Former	25 (27)	18 (20)	7.6 (-5.7 to 21)
Alcohol use n (%)			
Routine use	55 (60)	55 (60)	0.00 (-14 to 14)
At-Risk use ^b	12 (13)	4 (4.3)	8.7 (-0.44 to 18)
Cannabis use, n (%)	23 (25)	7 (7.6)	17 (5.9 to 29)
Other illicit substance use, n (%)	3 (3.3)	0 (0)	3.3 (-1.5 to 8.0)

Abbreviations: cisgender heterosexual (Cis-Het), confidence interval (CI), sexual gender minority (SGM)

^a Median difference; difference in proportions

^b At-risk alcohol use, as defined by the US Department of Health and Human Services for women, is more than 3 drinks per day or more than 7 drinks per week³⁰

eTable 3. Hormonal Risk Factors of Patients From SGM Groups and Cisgender Heterosexual Breast Cancer Patients

Characteristic	SGM (n=92)	Cis-Het (n=92)	Difference (95% CI)^a
Age at menarche, Median (IQR)	12.50 (12 – 14)	12.50 (12 – 13)	0.09 (-0.36 to 0.54)
Age at menopause, Median (IQR)	50 (46 – 52)	50 (46 – 52)	1.2 (-2.2 to 4.5)
Nulligravida, n (%)	59 (64)	16 (17)	47 (33 to 60)
Number of children delivered, Median (IQR)	0 (0 – 0)	2 (0 – 2)	-1.2 (-1.5 to -0.84)
Age at first delivery, Median (IQR)	27 (22 – 35)	27 (21 – 32)	1.9 (-2.3 to 6.0)
Ever use of HRT, n (%)	15 (16)	15 (16)	0.00 (-11 to 11)
Ever use of OC, n (%)	48 (52)	56 (61)	-8.7 (-24 to 6.7)
Abbreviations: cisgender heterosexual (Cis-Het), confidence interval (CI), hormone replacement therapy (HRT), interquartile range (IQR), oral contraceptive (OC), sexual gender minority (SGM) ^a Median difference; difference in proportions			

eTable 4. Breast Cancer Screening and Diagnosis of Patients From SGM Groups and Cisgender Heterosexual Breast Cancer Patients

Characteristic	SGM (n=92)	Cis-Het (n=92)	Difference (95% CI)^a
Missed guideline-based screening, n (%) ^b	19 (23)	18 (20)	2.4 (-11 to 16)
Time from symptom onset to diagnosis, Median (IQR) ^b	64 (32 – 118)	34 (16 – 75)	56 (-2.9 to 116)
Diagnosed by screening, n (%)	37 (40)	36 (39)	1.1 (-14 to 16)
Symptoms detected by, n (%)			
Patient	44 (86)	49 (94)	-8.0 (-21 to 5.4)
Family	2 (3.9)	1 (1.9)	2.0 (-6.4 to 10)
Healthcare	5 (9.8)	2 (3.8)	6.0 (-5.7 to 18)
Abbreviations: cisgender heterosexual (Cis-Het), confidence interval (CI), interquartile range (IQR), sexual gender minority (SGM)			
^a Median difference; difference in proportions			
^b Primary outcomes used in adjusted analyses			

eTable 5. Genetic Testing and Clinical Trial Enrollment of Patients From SGM Groups and Cisgender Heterosexual Breast Cancer Patients

Characteristic	SGM (n=92)	Cis-Het (n=92)	Difference (95% CI)^a
Appropriate ^b referral to genetic testing, n (%)	46 (84)	43 (75)	8.2 (-8.4 to 25)
Offered genetic testing, n (%)	70 (76)	54 (59)	17 (3.0 to 32)
Approached for clinical trial, n (%)	38 (41)	28 (30)	11 (-4.0 to 26)
Enrolled in clinical trial, n (%)	36 (39)	26 (28)	11 (-3.8 to 26)
Enrolled in clinical trial of a treatment, n (%)	19 (21)	11 (12)	8.7 (-3.0 to 20)
Number of studies (if any enrolled), Median (IQR)	1 (1 – 3)	2 (1 – 3)	-0.19 (-0.73 to 0.35)
<p>Abbreviations: cisgender heterosexual (Cis-Het), confidence interval (CI), interquartile range (IQR), sexual gender minority (SGM)</p> <p>^a Median difference; difference in proportions</p> <p>^b Appropriate referrals to genetic counseling and testing, as specified by NCCN, are referrals for triple negative patients or those diagnosed with breast cancer under the age of 50 years.²⁵</p>			

eTable 6. Breast Cancer Treatment and Recurrence of Patients From SGM Groups and Cisgender Heterosexual Breast Cancer Patients

Characteristic	SGM (n=92)	Cis-Het (n=92)	Difference (95% CI) ^a
Declined recommended treatment, n (%) ^b	35 (38)	18 (20)	18 (4.3 to 32)
Time from diagnosis to treatment, Median (IQR) ^b	31 (22 – 49)	30 (20 – 48)	1.9 (-7.5 to 11)
Recurrence, n (%) ^{b,c}	29 (32)	12 (13)	19 (5.8 to 32)
Time (in months) from diagnosis to recurrence, Median (IQR) ^{b,c}	41 (18 – 69)	27 (17 – 51)	-2.2 (-54 to 49)
Lumpectomy, n (%) ^b	49 (54)	49 (55)	-1.2 (-17 to 14)
Mastectomy, n (%)	42 (46)	40 (45)	1.2 (-14 to 17)
Chest reconstruction, n (%) ^b	29 (55)	44 (83)	-28 (-47 to -9.6)
Neoadjuvant chemo for Stage III, n (%) ^b	10 (53)	10 (48)	5.0 (-31 to 41)
Prophylactic contralateral mastectomy, n (%)	32 (36)	22 (26)	10 (-4.3 to 25)
Anti-estrogen for at least 5 years for ER+, n (%)	27 (52)	40 (73)	-21 (-41 to -1.0)
HER-2 drug for HER-2+, n (%)	10 (77)	10 (83)	-6.4 (-44 to 31)
Adjuvant radiation after lumpectomy, n (%)	31 (94)	38 (95)	-1.1 (-13 to 11)
Alternative medicine use, n (%)	42 (46)	28 (30)	15 (0.3 to 30)
Alternative medication users who refused treatment, n (%)	19 (45)	7 (25)	20 (-4.7 to 45)
Most used alternative medications			
Cannabis, n (%)	26 (60)	7 (25)	35 (11 to 60)
Flaxseed, n (%)	7 (16)	7 (25)	-8.7 (-31 to 14)
Lutein, n (%)	5 (12)	4 (14)	-2.7 (-21 to 16)
Turmeric, n (%)	4 (9.3)	1 (3.6)	5.7 (-8.3 to 20)
Biotin, n (%)	1 (2.3)	2 (7.1)	-4.8 (-18 to 8.7)
Garlic, n (%)	3 (7.0)	1 (3.6)	3.4 (-9.8 to 17)
Abbreviations: chemotherapy (chemo), cisgender heterosexual (Cis-Het), confidence interval (CI), interquartile range (IQR), sexual gender minority (SGM)			
^a Median difference; difference in proportions			
^b Primary outcome used in adjusted analyses			
^c The number of patients included in this statistic is 90 for both SGM and Cis-Het patients because there were two patients in each group with Stage IV breast cancer at diagnosis.			

eTable 7. Benjamini-Hochberg Corrected *P* Values for Prespecified Metrics

Outcome	B-H Corrected p-value
Missed guideline-based screening	0.89
Appropriate referral to genetic testing	0.89
Mastectomy	0.89
Chest reconstruction	0.44
Adjuvant radiation after lumpectomy	0.89
Neoadjuvant chemo for Stage III	0.89
Anti-estrogen for at least 5 years for ER+	0.44
HER-2 drug for HER-2+	>0.99
Declined oncologist recommended treatment	0.17 ^a
Time (in days) from symptom onset to diagnosis	0.17 ^a
Time (in days) from diagnosis to treatment	0.89
Time (in months) from diagnosis to recurrence	0.014 ^a

Abbreviations: Benjamini-Hochberg (B-H), Estrogen receptor-positive (ER+), HER-2 positive (HER-2+)
^a Deemed as significant after Benjamini-Hochberg correction with FDR of 20%

eTable 8. Adjusted Association Between Race and Sex and Gender Minority Outcomes

Outcome	Adjusted Effect (95% CI)	
	All patients	White Non-Hispanic patients
Declined oncologist recommended treatment	2.3 (1.1 to 4.7)	2.6 (0.9 to 7.7)
Time (in days) from symptom onset to diagnosis	0.6 (0.4 to 1.0)	0.7 (0.4 to 1.2)
Time (in months) from diagnosis to recurrence	3.1 (1.6 to 6.0)	3.3 (1.5 to 7.3)

Abbreviations: confidence interval (CI)