

Supplemental Table S1. Pain prevalence ratios for sexual minority adults, different covariate sets.

	Pain in 3+ sites				Chronic pain			
	Model 1		Model 2		Model 1		Model 2	
Sexual identity (straight)								
Gay/lesbian	1.47***	[1.32,1.64]	1.23***	[1.11,1.36]	1.33***	[1.19,1.49]	1.17**	[1.06,1.30]
Bisexual	2.05***	[1.80,2.34]	1.23***	[1.09,1.39]	1.88***	[1.66,2.14]	1.25***	[1.11,1.41]
“Something else”	2.33***	[1.88,2.88]	1.42***	[1.17,1.73]	1.89***	[1.58,2.26]	1.31**	[1.10,1.54]
Covariates								
Age ¹	1.21***	[1.19,1.23]	1.10***	[1.08,1.12]	1.38***	[1.36,1.40]	1.25***	[1.23,1.28]
Age squared ¹	0.93***	[0.91,0.94]	0.92***	[0.91,0.93]	0.95***	[0.94,0.96]	0.94***	[0.93,0.95]
Female (male)	1.58***	[1.52,1.65]	1.40***	[1.35,1.46]	1.19***	[1.15,1.23]	1.07***	[1.03,1.10]
Year of interview	1.01	[1.00,1.02]	1.01**	[1.00,1.03]	1.01	[1.00,1.02]	1.02***	[1.01,1.03]
Race/ethnicity (NH white)								
NH Black			0.74***	[0.69,0.78]			0.75***	[0.71,0.80]
Hispanic			0.89***	[0.83,0.95]			0.81***	[0.75,0.86]
NH Asian			0.63***	[0.55,0.73]			0.60***	[0.53,0.68]
NH AIAN			0.84	[0.69,1.02]			0.90	[0.78,1.04]
Multiracial			1.11*	[1.00,1.22]			0.92	[0.83,1.02]
DK			1.21	[0.84,1.76]			0.66	[0.42,1.01]
Region (Northeast)								
Midwest			1.01	[0.95,1.07]			1.05	[0.98,1.12]
South			1.02	[0.97,1.08]			1.06*	[1.00,1.13]
West			1.16***	[1.09,1.23]			1.17***	[1.10,1.25]
Immigrant status (US-born)								
In US 15+ years			1.00	[1.00,1.00]			1.00	[1.00,1.00]
In US 0-14 years			0.81***	[0.75,0.87]			0.80***	[0.74,0.86]
DK			0.60***	[0.53,0.68]			0.57***	[0.49,0.65]
Interview not in English (English)								
DK			0.59	[0.34,1.05]			0.52*	[0.28,0.96]
Marital status (Married)								
Previously married			0.96	[0.92,1.01]			0.99	[0.95,1.03]
Never married			0.89***	[0.84,0.94]			0.88***	[0.84,0.92]
DK			0.94	[0.62,1.40]			0.85	[0.59,1.22]
Children at home (No children)								
One child			1.00	[0.95,1.05]			1.02	[0.98,1.06]
Two or more children			0.93**	[0.88,0.98]			1.00	[0.95,1.05]
Education (BA)								
Less than HS or GED			1.18***	[1.08,1.28]			1.33***	[1.22,1.45]
HS degree			1.06	[0.98,1.15]			1.23***	[1.14,1.33]
Some college			1.16***	[1.07,1.25]			1.32***	[1.22,1.42]
AA degree			1.22***	[1.13,1.32]			1.36***	[1.26,1.47]
MA+			0.97	[0.89,1.05]			1.05	[0.97,1.13]
DK			0.96	[0.67,1.37]			1.11	[0.79,1.55]
Family income (\$100,000+)								
\$0-34,999			1.32***	[1.24,1.42]			1.18***	[1.11,1.26]
\$35,000-74,999			1.17***	[1.10,1.25]			1.15***	[1.09,1.22]
\$75,000-99,999			1.07	[0.99,1.16]			1.04	[0.97,1.12]
DK			1.02	[0.92,1.13]			0.97	[0.90,1.06]
Homeownership (Owns home)								
Rents			1.02	[0.98,1.07]			1.05*	[1.01,1.09]
Other			1.00	[0.91,1.09]			0.95	[0.87,1.04]
Employment status (Employed)								
Not employed			1.35***	[1.29,1.41]			1.40***	[1.35,1.46]
DK			0.99	[0.28,3.50]			1.10	[0.42,2.87]
Smoking (Never)								

Former	1.24***	[1.18,1.30]	1.26***	[1.21,1.32]
Current	1.25***	[1.19,1.32]	1.35***	[1.30,1.42]
DK	1.17	[0.72,1.90]	0.70	[0.42,1.19]
Alcohol use (None)				
Former use	1.24***	[1.16,1.32]	1.16***	[1.09,1.23]
Moderate use	1.17***	[1.10,1.24]	1.04	[0.99,1.10]
Excessive use	1.17***	[1.10,1.25]	1.06*	[1.00,1.13]
DK	1.16	[0.93,1.44]	0.91	[0.76,1.10]
BMI (Normal weight, 18.5-24.9)				
<18.5	1.06	[0.93,1.21]	1.19**	[1.05,1.36]
25-24.9	1.07*	[1.01,1.12]	1.12***	[1.07,1.17]
30-34.9	1.17***	[1.11,1.23]	1.33***	[1.27,1.40]
35-39.9	1.26***	[1.18,1.35]	1.44***	[1.35,1.53]
>=40	1.27***	[1.19,1.36]	1.63***	[1.54,1.73]
DK	1.04	[0.93,1.16]	1.17**	[1.06,1.29]
Physical activity (Adequate)				
Low, inadequate activity	1.15***	[1.11,1.20]	1.24***	[1.20,1.29]
DK	1.28***	[1.19,1.37]	1.43***	[1.34,1.52]
Sleep duration (Normal, 7-8 hrs)				
Short (<7 hrs)	1.52***	[1.46,1.58]	1.46***	[1.40,1.51]
Long (>8 hrs)	1.20***	[1.11,1.29]	1.22***	[1.15,1.30]
DK	1.30*	[1.06,1.60]	1.39***	[1.15,1.70]
Psychological distress (Low)				
Moderate	2.46***	[2.36,2.56]	1.86***	[1.79,1.93]
Severe	3.16***	[2.99,3.33]	2.13***	[2.02,2.25]
DK	1.28	[0.99,1.67]	1.22	[0.92,1.61]
Satisfaction with health care (Very)				
Somewhat satisfied	1.31***	[1.26,1.37]	1.15***	[1.11,1.20]
Very/somewhat dissatisfied	1.54***	[1.45,1.63]	1.37***	[1.30,1.45]
Had no care in prior 12 mos	0.81***	[0.75,0.88]	0.77***	[0.71,0.83]
DK	0.96	[0.62,1.49]	1.35	[0.81,2.23]
Where usually gets care (Doctor's office)				
Clinic/health center	0.98	[0.94,1.02]	1.02	[0.98,1.06]
Hospital	1.01	[0.92,1.12]	1.06	[0.96,1.16]
Other/has no usual place	0.92**	[0.86,0.97]	0.96	[0.90,1.02]
DK	1.11	[0.51,2.44]	1.29	[0.68,2.45]

*p<.05 **p<.01 ***p<.001

NHIS 2013-2018, US adults age 18-64. N=134,266 for pain in 3+ sites and N=95,675 for chronic pain, respectively. These models are identical to those shown in Table 3 in the manuscript, which only displays the prevalence ratios for sexual-identity groups.

Complex-survey-adjusted (modified/robust) Poisson models of two pain outcomes.

Supplemental Table S2. Odds ratios for sexual minority groups relative to straight, and percent of the pain disparities estimated in Model 1 that are mediated by covariates in Models 2-7.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
PANEL A. Pain in 3+ sites							
Sexual identity (straight=ref)							
Gay/lesbian	1.58***	1.42***	1.62***	1.47***	1.35***	1.58***	1.33***
Bisexual	2.37***	2.10***	2.17***	1.96***	1.49***	2.21***	1.30**
"Something else"	2.81***	2.52***	2.44***	2.44***	1.57**	2.71***	1.58**
% mediated (vs Model 1)							
Gay/lesbian		26.6	-1.7	18.3	36.3	2.8	44.2
Bisexual		14.8	11.6	25.0	53.7	8.7	70.6
"Something else"		10.8	14.9	18.8	57.5	5.2	60.1
PANEL B. Chronic pain							
Sexual identity (straight=ref)							
Gay/lesbian	1.44***	1.33***	1.53***	1.36***	1.22*	1.44***	1.28**
Bisexual	2.24***	2.00***	2.13***	1.83***	1.47***	2.10***	1.30*
"Something else"	2.35***	2.14***	2.03***	2.00***	1.46*	2.27***	1.43*
% mediated (vs Model 1)							
Gay/lesbian		29.2	-8.9	22.4	46.4	4.4	44.7
Bisexual		16.3	9.1	29.5	52.2	8.6	70.3
"Something else"		12.1	17.7	24.7	57.2	5.4	62.7

*p<.05 **p<.01 ***p<.001

NHIS 2013-2018, US adults age 18-64. N=134,266 for pain in 3+ sites and N=95,675 for chronic pain, respectively. Weighted logistic models of pain in 3+ sites, for 3 different definitions of the analytic sample. For parsimony, only odds ratios for sexual-identity categories shown.

The lines for % mediated show the percent of each sexual minority category's pain difference (vis-à-vis straight adults) that is explained by the respective model's control variables (obtained by comparing the disparities between Model 1 and each respective model). We used the KHB decomposition method appropriate for comparing coefficients from nested nonlinear models (Breen, Karlson and Holm 2013, Karlson, Holm and Breen 2012).

Model 1 controls for age (squared, in decades, centered about 45), sex, and year of interview centered about 2015

Model 2 includes controls like Model 1 and adds race, immigrant status, language of interview, marital, and parental status.

Model 3 includes controls like Model 1 and adds education, family income, home ownership, and employment status

Model 4 includes controls like Model 1 and adds smoking, alcohol, BMI, physical activity, and sleep

Model 5 includes controls like Model 1 and adds psychological distress

Model 6 includes controls like Model 1 and adds satisfaction with health care and usual place of care

Model 7 includes all covariates.

Supplemental Table S3. Prevalence ratios for sexual minority groups for 14 pain operationalizations.

	Gay/lesbian	Bisexual	"Something else"	N
Site-specific pain (NHIS 2013-2018)				
1. Number of pain sites	1.24***	1.68***	1.71***	134,266
2. Pain in at least one site	1.15***	1.44***	1.39***	134,266
3. Facial/jaw pain	1.80***	2.14***	3.11***	134,348
4. Migraine/headache	1.25***	1.70***	1.67***	134,348
5. Joint pain	1.15***	1.67***	1.70***	134,309
6. Low back pain	1.19***	1.50***	1.43***	134,343
7. Neck pain	1.31***	1.72***	1.76***	134,347
General pain (NHIS 2013-15, 2018)				
8. Chronic pain (3 months)	1.41***	1.92***	1.97***	54,421
9. Severe pain	1.74***	2.28***	2.24***	53,537
General pain (NHIS 2016, 2017)				
10. Chronic pain (6 months)	1.17	1.83***	1.80***	41,254
11. High-impact pain	1.33	2.18***	2.34***	41,269
General pain (NHIS 2019-2020)				
12. Chronic pain (3 months)	1.13	2.21***	1.98***	43,321
13. Severe pain	0.93	2.09***	2.34***	43,294
14. High-impact pain	1.05	2.23***	2.43***	40,979

***p<.001

NHIS select years (see within Table). US adults age 18-64. Sample sizes for each model are shown in the last column.

Prevalence ratios from complex-survey-design-adjusted modified (robust) Poisson models for 14 different pain definitions for adults 18-64 as a function of sexual identity with straight as omitted reference, controlling for age, age squared, year, and sex.

Each row is a separate model. Each model only shows the prevalence ratios for sexual minority categories; prevalence ratios for covariates are omitted for parsimony.

- Site-specific pain measures were ascertained as
 - "During the past 3 months, did you have [low back, neck, facial/jaw, headache/migraine, joint] pain?"
 - Number of pain sites adds up all the sites respondents noted while pain in at least one site is a dichotomous measure coded yes if respondents experienced pain in any of the five sites and zero otherwise.
- General pain measures were ascertained and coded as follows.
 - Chronic pain captures the frequency of pain over the past 3 or 6 months, respectively: never or some days are coded as 0 while most days or every day are coded as 1.
 - Severe pain combined the frequency question with the level of pain last time the respondent had pain: "a lot of pain" is coded as 1, while a little or "somewhere in between" are coded as 0.
 - High-impact pain captures "How often did pain limit life or work activities." Never or some days is coded 0; most days or every day is coded 1.

REFERENCES

- Breen, Richard, Kristian Bernt Karlson and Anders Holm. 2013. "Total, Direct, and Indirect Effects in Logit and Probit Models." *Sociological Methods & Research* 42(2):164-91. doi: 10.1177/0049124113494572.
- Karlson, Kristian Bernt, Anders Holm and Richard Breen. 2012. "Comparing Regression Coefficients between Same-Sample Nested Models Using Logit and Probit: A New Method." *Sociological Methodology* 42:286-313.