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May 31, 2018

Dr. Robert R. Redfield, Director
Office of the Director
Centers for Disease Control and Prevention
1600 Clifton Road
Atlanta, GA 30329-4027 USA

VIA EMAIL: olx1@cdc.gov

Dear Dr. Redfield,

As scholars dedicated to conducting research on sexual orientation and gender identity, we are writing to communicate the importance of sustained inclusion of the sexual orientation and gender identity (SOGI) module in the Behavioral Risk Factor Surveillance System (BRFSS). LGBT adults are largely invisible in the US public health surveillance system because questions identifying them have been slow to be included in surveys and administrative data. Only a handful of more than 150 data sources and dozens of surveys that are used to monitor progress towards Healthy People 2020 objectives include SOGI items (https://www.healthypeople.gov/2020/data-search/Data-Sources). In fact, because the BRFSS is a large, rich source of population-based health data, increasing "the number of states, territories and the District of Columbia that use the provided module on sexual orientation and gender identity in the Behavioral Risk Factor Surveillance System (BRFSS) (https://www.healthypeople.gov/node/11512/data_details)" is a Healthy People 2020 objective – the federal blueprint for the health of the nation.

Due to the size of the BRFSS, the probability sampling approach, and the lack of consistent inclusion of SOGI measures across the US health surveillance system and other federal population monitoring systems, analyses of these data have filled critical voids in knowledge about the health of LGBT adults. As shown in the annotated bibliography below, BRFSS SOGI data are well-used by researchers. In fact, over 50 published, peer-reviewed BRFSS papers have provided information about the health of LGBT adults, including more than two dozen published in the last three years and 10 that feature transgender adults.

These analyses have produced knowledge about the health of LGBT adults and specific LGBT subgroups (e.g., veterans, cancer survivors, rural residents) across a broad array of issues, including physical and mental health, violence victimization, disability, and

health insurance coverage. The BRFSS has also provided a unique source of information about the prevalence of socioeconomic (e.g., education, employment, income) and behavioral determinants of health such as smoking, drinking, diet, activity, and screening (e.g., HIV, colorectal, and pap testing) which is necessary to ensure that LGBT people are included in prevention and intervention efforts. Additionally, BRFSS data have been utilized to examine the relationship between public policies and health.

Given the significant value of SOGI data gathered through the BRFSS, and the wide and long-standing gaps in the US health surveillance system, as well as other federal population monitoring systems, we strongly urge the CDC to continue and grow its data collection regarding the health of sexual and gender minorities. Specifically, with respect to the BRFSS, we strongly recommend that SOGI questions be added to the core survey so that they are asked of residents across all 50 states, US territories, and the District of Columbia. Like other demographic items on the BRFSS, the SOGI items belong on the demographic section of the core survey where they will be utilized uniformly across the states. At the very least, we urge the CDC to continue to offer the SOGI optional module, to process and analyze these data, and to encourage states to adopt the module with incentives. In addition, we urge the CDC to identify a division at CDC or external source to commit to financially sponsor the SOGI module in 2019 and into the future.

Actions to preserve and expand SOGI data collection in the BRFSS will enable the U.S. Department of Health and Human Services to ensure data about the health of LGBT people continues to be collected and help health policy makers track progress toward improving the health of sexual and gender minorities—goals described in Healthy People 2020.

Sincerely,

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I am lending my support to this letter my adding my name and affiliation (for identification purposes) *Listed by leaders in the field followed by order of time of endorsement.*

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83. Marik Xavier-Brier, Ph.D., Georgia State University; U.S. Commission on Civil Rights
84. C. Fariello, Ph.D., M.A., LMFT, Director, Philadelphia Institute for Individual, Relational, & Sex Therapy
85. Tara Kuther, Ph.D., Professor, Western Connecticut State University
86. Genya Shimkin, MPH, Founder, The Q Card: Empowering Queer Youth in Healthcare
87. Charles Wampold, J.D., Ph.D.
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269. Sarah Cho, MPH, Director of Research, SurveyMonkey
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272. K. Rivet Amico, Ph.D., Associate Professor, UMICH
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283. Rachel H. Farr, Ph.D., Assistant Professor, University of Kentucky
284. Phillip Hammack, Ph.D., Professor of Psychology, University of California, Santa Cruz
285. Christopher Wheldon, Ph.D., Cancer Prevention Fellow, National Cancer Institute
286. Shelby DuPont, B.S., Operations Associate, St. Kate's
287. Alli Irving, Ph.D., Licensed Psychologist, NC State University
288. Russell Toomey, Ph.D., Associate Professor, University of Arizona
289. William Smith, M.D., Resident Physician, University of California San Francisco
290. David Pantalone, Ph.D., Associate Professor of Psychology, University of Massachusetts, Boston
291. Ashley Perez, Sc.M., Doctoral Student, University of California, San Francisco
292. Ellen Nasper, Ph.D., Clinical Psychologist, Yale Department of Psychiatry
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711. Janelle Downing, Ph.D., Assistant Professor, University of South Carolina
712. Gina Rosich, Ph.D.

Annotated Bibliography (BRFSS publications that utilize SOGI data)

1. Andersen, J. P., & Blosnich, J. (2013). Disparities in Adverse Childhood Experiences among Sexual Minority and Heterosexual Adults: Results from a Multi-State Probability-Based Sample. *PLOS ONE, 8*(1), e54691. doi:10.1371/journal.pone.0054691

Background Adverse childhood experiences (e.g., physical, sexual and emotional abuse, neglect, exposure to domestic violence, parental discord, familial mental illness, incarceration and substance abuse) constitute a major public health problem in the United States. The Adverse Childhood Experiences (ACE) scale is a standardized measure that captures multiple developmental risk factors beyond sexual, physical and emotional abuse. Lesbian, gay, and bisexual (i.e., sexual minority) individuals may experience disproportionately higher prevalence of adverse childhood experiences. Purpose To examine, using the ACE scale, prevalence of childhood physical, emotional, and sexual abuse and childhood household dysfunction among sexual minority and heterosexual adults. Methods Analyses were conducted using a probability-based sample of data pooled from three U.S. states' Behavioral Risk Factor Surveillance System (BRFSS) surveys (Maine, Washington, Wisconsin) that administered the ACE scale and collected information on sexual identity (n = 22,071). Results Compared with heterosexual respondents, gay/lesbian and bisexual individuals experienced increased odds of six of eight and seven of eight adverse childhood experiences, respectively. Sexual minority persons had higher rates of adverse childhood experiences (IRR = 1.66 gay/lesbian; 1.58 bisexual) compared to their heterosexual peers. Conclusions Sexual minority individuals have increased exposure to multiple developmental risk factors beyond physical, sexual and emotional abuse. We recommend the use of the Adverse Childhood Experiences scale in future research examining health disparities among this minority population.

2. Austin, A., Herrick, H., & Proescholdbell, S. (2015). Adverse Childhood Experiences Related to Poor Adult Health Among Lesbian, Gay, and Bisexual Individuals. *American Journal of Public Health, 106*(2), 314-320. doi:10.2105/AJPH.2015.302904

Objectives. We explored the association of sexual orientation with poor adult health outcomes before and after adjustment for exposure to adverse childhood experiences (ACEs). Methods. Data were from the 2012 North Carolina, 2011 Washington, and 2011 and 2012 Wisconsin Behavioral Risk Factor Surveillance System (BRFSS) surveys regarding health risks, perceived poor health, and chronic conditions by sexual orientation and 8 categories of ACEs. There were 711 lesbian, gay, and bisexual (LGB) respondents and 29,690 heterosexual respondents. Results. LGB individuals had a higher prevalence of all ACEs than heterosexuals, with odds ratios ranging from 1.4 to 3.1. After adjustment for cumulative exposure to ACEs, sexual orientation was no longer

associated with poor physical health, current smoking, and binge drinking. Associations with poor mental health, activity limitation, HIV risk behaviors, current asthma, depression, and disability remained, but were attenuated. Conclusions. The higher prevalence of ACEs among LGB individuals may account for some of their excess risk for poor adult health outcomes.

3. Balsam, K. F., Beadnell, B., & Riggs, K. R. (2012). Understanding sexual orientation health disparities in smoking: A population-based analysis. *American Journal of Orthopsychiatry, 82*(4), 482-493. doi:http://dx.doi.org/10.1111/j.1939-0025.2012.01186.x

Lesbian, gay, and bisexual populations are at elevated risk for tobacco use compared to their heterosexual peers. However, there is little research examining reasons for this disparity. Drawing on prior literature regarding psychosocial variables associated with both sexual orientation and smoking, the authors tested a path model of risk and protective factors to help explain sexual orientation differences in smoking using data from the Washington State Behavioral Risk Factor Surveillance System from 2003 to 2007. The authors estimated separate models for men and women, comparing lesbians or gays and bisexuals to heterosexuals. Results indicated that the explanatory variables accounted for most of the variance in this relationship, with both risk-enhancing and risk-reducing pathways. Mental health, life dissatisfaction, alcohol use, exposure to tobacco marketing, and single relationship status were risk enhancers for most LGB participants. Health-care access and income level were risk enhancers for bisexual participants only. Neither emotional support nor attitudes and knowledge about tobacco use helped explain the relationship between sexual orientation and smoking. These findings have significant implications for tobacco prevention and control efforts in this high-risk population. (PsycINFO Database Record (c) 2016 APA, all rights reserved) (Source: journal abstract)

4. Barnhill, M. M., Lee, G. J., & Rafferty, P. A. (2017). Health Inequities among Lesbian, Gay, and Bisexual Adults in North Carolina, 2011–2014. *International Journal of Environmental Research and Public Health, 14*(8). doi:10.3390/ijerph14080835

Inequalities in health have been identified for lesbian, gay, and bisexual (LGB) populations nationally. Policies in the U.S. South offer fewer protections for LGB people than in other regions, yet, limited data exist for this region. North Carolina (NC) BRFSS data from 2011 to 2014 were combined (LGB n = 604; heterosexual n = 33,170) and analyzed using SAS survey procedures to estimate health characteristics by sexual orientation within gender. Many examined indicators were not different by sexual orientation, however, other results were significant and consistent with findings from state population surveys in other regions of the country. Both genders showed inequities in mental health, having over twice the odds of five or more poor mental health days in

the past month and of having ever been diagnosed with a depressive disorder. Sexual minority women had higher odds compared with heterosexual women for ever having smoked cigarettes, current smoking, exposure to secondhand smoke both in the workplace and at home, and both alcohol risk factors, binge and heavy drinking. Being part of the LGB population in NC is associated with worse health. The implementation of anti-LGB policies in the NC warrants ongoing monitoring of LGB health inequities in NC and in other southeastern states for potential effects on the health and well-being of sexual minorities.

5. Beach, L. B., Elasy, T. A., & Gonzales, G. (2018). Prevalence of Self-Reported Diabetes by Sexual Orientation: Results from the 2014 Behavioral Risk Factor Surveillance System. *LGBT Health, 5*(2), 121-130. doi:10.1089/lgbt.2017.0091

Purpose: This study aimed to compare the prevalence of self-reported diabetes and diabetes risk factors among adult sexual minority and heterosexual populations in the United States. Methods: Data from the 2014 Behavioral Risk Factor Surveillance System for 3776 lesbian, gay, and bisexual (LGB) adults and 142,852 heterosexual adults aged 18 years and older were used to estimate the prevalence of diabetes. Binomial logistic regression models were used to compare the odds of diabetes by sexual orientation. Results: Sexual minorities were younger and more racially diverse than heterosexuals. Gay men less often and lesbian and bisexual women more often reported a body mass index of 30 kg/m2 or higher than heterosexuals. Overall, 14.2% of bisexual men, 11.4% of gay men, and 10.8% of heterosexual men reported a lifetime diabetes diagnosis, as did 8.5% of lesbian women, 5.7% of bisexual women, and 10.2% of heterosexual women. After controlling for multiple factors, gay (odds ratio [OR] = 1.50; confidence interval [95% CI] = 1.09, 2.07) and bisexual men [OR = 1.55; 95% CI = 1.00, 2.07] were more likely to report a lifetime diabetes diagnosis than heterosexual men. Similar differences were not found for lesbian [OR = 1.22; 95% CI = 0.76, 1.95] or bisexual women [OR = 0.88; 95% CI = 0.62, 1.26]. Conclusion: Sexual minorities may be at increased risk for diabetes than their heterosexual peers. This may be due partly to the chronic stressors associated with being a member of a marginalized population. Future research should explore the underlying causes and consequences of LGB diabetes disparities and elucidate best practices to improve diabetes screening and care for these vulnerable patient populations.

6. Blosnich, J., Bossarte, R., Silver, E., & Silenzio, V. (2013). Health Care Utilization and Health Indicators Among a National Sample of U.S. Veterans in Same-Sex Partnerships. *Military medicine, 178*(2), 207-212.

OBJECTIVES: To examine health indicators of same-sex partnered veterans as compared with their opposite-sex partnered veteran and nonveteran peers. METHODS: Same-sex partner status was derived by self-reported same-sex partnerships in data from the 2004 Behavioral Risk Factor Surveillance System. Outcome variables included

health risk disparities associated with sexual minority status (e.g., frequent mental distress) and veteran status (e.g., firearm ownership). Stratified multiple logistic regression models were used to examine the association of same-sex partnered veteran status with health indicators. RESULTS: Same-sex partnered veterans had higher odds of being overweight and keeping firearms in the house compared with same-sex partnered nonveterans. Same-sex partnered veterans were less likely than opposite-sex partnered veterans to be overweight, and they were more than twice as likely to be current smokers when compared with opposite-sex partnered nonveterans. CONCLUSIONS: Findings suggest both that some health disparities patterns identified by same-sex partnership status among the general population also exist among veteran populations, and that some unique distinctions may exist, particularly related to BMI and firearm ownership. Collection of information about sexual minority status within Department of Veterans Affairs data sources is needed to more accurately assess the health of this minority population.

7. Blosnich, J., Foynes, M. M., & Shipherd, J. C. (2013). Health Disparities Among Sexual Minority Women Veterans. *Journal of Women's Health, 22*(7), 631-636. doi:10.1089/jwh.2012.4214

Abstract Background: Lesbian and bisexual (i.e., sexual minority) identity is more common among women veterans than among male veterans. Unique health issues have been identified among women veterans and among sexual minority women, but little is known about women who are both sexual minorities and veterans. This study aimed to compare demographic and health information from sexual minority women veterans with sexual minority women non-veterans and heterosexual women veterans. Methods: Behavioral Risk Factor Surveillance Survey data were pooled from ten U.S. states that elected to ask sexual identity during 2010. The analytic sample was comprised of women who identified both their sexual identity and veteran status (n=1,908). Mental health indicators were frequent mental distress, sleep problems, low social/emotional support, and low satisfaction with life. Health risk indicators included current smoking, overweight, and obesity. Physical health status was defined by three components: disability requiring assistive equipment, >14 days of poor physical health in the past 30 days, and activity limitations. Results: Compared with heterosexual women veterans, sexual minority women veterans had higher odds of mental distress (odds ratio [OR]=3.03, 95% confidence interval [CI]: 1.61, 5.70) and smoking (OR=2.31, 95%CI: 1.19, 4.48). After adjusting for demographic correlates, sexual minority women veterans had three times the odds of poor physical health (OR=3.01, 95%CI: 1.51, 5.99) than their sexual minority non-veteran peers. Conclusions: Results suggest sexual minority women veterans may experience unique health disparities relevant to provision of care in both Veterans Affairs (VA) and non-VA healthcare systems. Future research requires availability of data that include sexual minority status.

8. Blosnich, J. R. (2017). Sexual Orientation Differences in Satisfaction with Healthcare: Findings from the Behavioral Risk Factor Surveillance System, 2014. *LGBT Health, 4*(3), 227-231. doi:10.1089/lgbt.2016.0127

Abstract Purpose: In the United States, the Affordable Care Act and marriage equality may have eased sexual orientation-based differences in access to healthcare coverage, but limited research has investigated sexual orientation-based differences in healthcare satisfaction. The purpose of this study was to examine whether satisfaction with healthcare varied by sexual orientation in a large population-based sample of adults. Methods: Data are from the 2014 Behavioral Risk Factor Surveillance System, including items about sexual orientation and healthcare (n = 113,317). Healthcare coverage included employer-based insurance; individually purchased insurance; Medicare; Medicaid; or TRICARE, VA, or military care. Respondents indicated whether they were "very satisfied, somewhat satisfied, or not at all satisfied" with healthcare. Results: After adjusting for several sociodemographic covariates, lesbian, gay, and bisexual status was associated with lower satisfaction with healthcare with individually purchased insurance (adjusted odds ratio = 1.49, 95% confidence interval = 1.24, 1.80). Conclusion: Efforts are needed to examine and reduce sexual orientation differences in satisfaction with healthcare.

9. Blosnich, J. R., & Andersen, J. P. (2015). Thursday's child: the role of adverse childhood experiences in explaining mental health disparities among lesbian, gay, and bisexual US adults. *Social Psychiatry and Psychiatric Epidemiology, 50*(2), 335-338. doi:10.1007/s00127-014-0955-4

This study examined how adverse childhood experiences (ACE) may explain disparities in poor mental health between lesbian, gay, and bisexual (LGB), and heterosexual adults. Data are from three US states' 2010 behavioral risk factor surveillance system surveys (n = 20,060) that included sexual orientation, ACE inventory, and mental distress. LGB status was significantly associated with mental distress (OR = 1.85 [1.14–3.02]). Once incorporating ACE scores into the multiple regression analysis, LGB status was no longer associated with mental distress (OR = 1.28 [0.76–2.16]). The results corroborate previous research that LGB individuals report greater prevalence of childhood adversity than their heterosexual peers, which may explain LGB adulthood health disparities.

10. Blosnich, J. R., & Bossarte, R. M. (2009). Comparisons of Intimate Partner Violence Among Partners in Same-Sex and Opposite-Sex Relationships in the United States. *American Journal of Public Health, 99*(12), 2182-2184. doi:10.2105/AJPH.2008.139535

Using 2005-2007 Behavioral Risk Factor Surveillance System data, we examined intimate partner violence (IPV) by same-sex and opposite-sex relationships and by Metropolitan Statistical Area status. Same-sex victims differed from opposite-sex victims in some forms of IPV prevalence, and urban same-sex victims had increased odds of

poor self-perceived health status (adjusted odds ratio = 2.41; 95% confidence interval = 1.17, 4.94). Same-sex and opposite-sex victims experienced similar poor health outcomes, underscoring the need both of inclusive service provision and consideration of sexual orientation in population-based research.

11. Blosnich, J. R., Farmer, G. W., Lee, J. G. L., Silenzio, V. M. B., & Bowen, D. J. (2014). Health Inequalities Among Sexual Minority Adults: Evidence from Ten U.S. States, 2010. *American Journal of Preventive Medicine, 46*(4), 337-349. doi:https://doi.org/10.1016/j.amepre.2013.11.010

Background Improving the health of lesbian, gay, and bisexual (LGB) individuals is a Healthy People 2020 goal; however, the IOM highlighted the paucity of information currently available about LGB populations. Purpose To compare health indicators by gender and sexual orientation statuses. Methods Data are from Behavioral Risk Factor Surveillance System surveys conducted January−December of 2010 with population-based samples of non-institutionalized U.S. adults aged over 18 years (N=93,414) in ten states that asked about respondents' sexual orientation (response rates=41.1%−65.6%). Analyses were stratified by gender and sexual orientation to compare indicators of mental health, physical health, risk behaviors, preventive health behaviors, screening tests, health care utilization, and medical diagnoses. Analyses were conducted in March 2013. Results Overall, 2.4% (95% CI=2.2, 2.7) of the sample identified as LGB. All sexual minority groups were more likely to be current smokers than their heterosexual peers. Compared with heterosexual women, lesbian women had more than 30% decreased odds of having an annual routine physical exam, and bisexual women had more than 2.5 times the odds of not seeking medical care owing to cost. Compared with heterosexual men, gay men were less likely to be overweight or obese, and bisexual men were twice as likely to report a lifetime asthma diagnosis. Conclusions This study represents one of the largest samples of LGB adults and finds important health inequalities, including that bisexual women bear particularly high burdens of health disparities. Further work is needed to identify causes of and intervention for these disparities.

12. Blosnich, J. R., Lee, J. G. L., Bossarte, R., & Silenzio, V. M. B. (2013). Asthma Disparities and Within-Group Differences in a National, Probability Sample of Same-Sex Partnered Adults. *American Journal of Public Health, 103*(9), e83-e87. doi:10.2105/AJPH.2013.301217

Objectives. We examined the prevalence and correlates of self-reported lifetime diagnosis of asthma and current asthma among same-sex and opposite-sex partnered adults.Methods. Data were from the 2004 Behavioral Risk Factor Surveillance System, in which same-sex partnership was a response option to a family planning item in the core questionnaire. Self-reported lifetime diagnosis of asthma and current asthma were examined in logistic regression models adjusted for demographic characteristics and

asthma-related confounding factors and stratified by both gender and same-sex partnership status.Results. Significantly higher proportions of same-sex partnered male and female respondents reported lifetime and current asthma compared with their opposite-sex partnered peers. In adjusted analyses, same-sex partnership status remained significantly associated with asthma outcomes among men and women, with odds ratios ranging from 1.57 to 2.34.Conclusions. Results corroborated past studies that indicated asthma disproportionately affects sexual minority populations. The addition of sexual minority status questions to federal survey projects is key to further exploring health disparities in this population. Future studies are needed to investigate the etiology of this disparity.

13. Blosnich, J. R., Lehavot, K., Glass, J. E., & Williams, E. C. (2017). Differences in Alcohol Use and Alcohol-Related Health Care Among Transgender and Nontransgender Adults: Findings From the 2014 Behavioral Risk Factor Surveillance System. *Journal of Studies on Alcohol and Drugs, 78*(6), 861-866. doi:10.15288/jsad.2017.78.861

Objective: Little is known regarding patterns of alcohol use and alcohol-related care among transgender adults. This study examined alcohol use and alcohol-related care across transgender status in a probability sample of U.S. adults. Method: We conducted secondary analyses of the 2014 Behavioral Risk Factor Surveillance System survey, focusing on adults in eight states that administered both an Alcohol Screening and Brief Intervention module and a Gender Identity module (n = 58,381). Measurements included transgender status, sociodemographic characteristics, alcohol consumption (any alcohol use, risky drinking, heavy episodic drinking, and any unhealthy alcohol use), and alcohol-related care (alcohol screening during healthcare visits and advice about unhealthy alcohol use). We tested the association between transgender status and alcohol consumption and alcohol-related care using multivariable logistic regression models adjusted for sociodemographic characteristics. Results: Approximately 0.6% of respondents (n = 283) self-identified as transgender. Overall, there were no significant differences in alcohol consumption or screening between transgender and nontransgender adults. A greater proportion of transgender than nontransgender adults reported being advised to reduce alcohol use (20.7% vs. 7.8%, p = .012). However, this difference was not significant after adjusting for other sociodemographic characteristics (adjusted odds ratio = 2.31, 95% CI [0.91, 5.86], p = .077). Conclusions: In this representative sample from eight U.S. states, we did not find differences related to transgender status in rates of alcohol use or of alcohol-related care.

14. Blosnich, J. R., & Silenzio, V. M. B. (2013). Physical health indicators among lesbian, gay, and bisexual U.S. veterans. *Annals of Epidemiology, 23*(7), 448-451. doi:https://doi.org/10.1016/j.annepidem.2013.04.009

Purpose To provide information about lesbian, gay, and bisexual (LGB) veterans' health status, diagnoses, and health screening behaviors compared with heterosexual veterans. Methods Data are from 10 states' 2010 Behavioral Risk Factor Surveillance System surveys that contained sexual orientation data for veterans (n = 11,665). $\chi 2$ tests and multiple logistic regression were used to examine outcomes among LGB and heterosexual veterans. Results More LGB than heterosexual veterans reported current smoking, not seeking medical care owing to cost, and activity limitations. Compared with heterosexual veterans, LGB veterans had greater odds of ever having an human immunodeficiency virus test (odds ratio [OR], 5.42; 95% confidence interval [CI], 3.28–8.96) but lower odds of diabetes diagnosis (OR, 0.55; 95% CI, 0.34–0.89). Conclusions Findings from this sample suggest patterns of health behaviors and outcomes among LGB veterans that are both unique from and similar to results from general samples of LGB persons. With the formal end of the “Don't Ask, Don't Tell” policy that discriminated against LGB people in the military, institutions such as the Department of Veterans Affairs are likely to see an increase in its current population of LGB veterans. The Department of Veterans Affairs stands in a unique place to meet the health equity needs of this minority population.

15. Buchmueller, T., & Carpenter, C. S. (2010). Disparities in Health Insurance Coverage, Access, and Outcomes for Individuals in Same-Sex Versus Different-Sex Relationships, 2000–2007. *American Journal of Public Health, 100*(3), 489-495. doi:10.2105/AJPH.2009.160804

Objectives. We used data from the Behavioral Risk Factor Surveillance System to compare health insurance coverage, access to care, and women's cancer screenings for individuals in same-sex versus different-sex relationships. Methods. We estimated logistic regression models by using data on 5265 individuals in same-sex relationships and 802 659 individuals in different-sex relationships. Results. Compared with women in different-sex relationships, women in same-sex relationships were significantly less likely to have health insurance coverage, were less likely to have had a checkup within the past year, were more likely to report unmet medical needs, and were less likely to have had a recent mammogram or Pap test. Compared with men in different-sex relationships, men in same-sex relationships were significantly less likely to have health insurance coverage and were more likely to report unmet medical needs, although they were more likely to have had a checkup in the past year. Conclusions. In the largest and most recent nationally representative sample, we found important differences in health insurance coverage and access to care between individuals in same-sex relationships

and those in different-sex relationships for both men and women.

16. Conron, K. J., Scott, G., Stowell, G. S., & Landers, S. J. (2011). Transgender Health in Massachusetts: Results From a Household Probability Sample of Adults. *American Journal of Public Health, 102*(1), 118-122. doi:10.2105/AJPH.2011.300315

Despite higher rates of unemployment and poverty among transgender adults (n = 131; 0.5% weighted) than among nontransgender adults (n = 28045) in our population-based Massachusetts household sample, few health differences were observed between transgender and nontransgender adults. Transgender adults who are stably housed and participated in a telephone health survey may represent the healthiest segment of the transgender population. Our findings demonstrate a need for diverse sampling approaches to monitor transgender health, including adding transgender measures to population-based surveys, and further highlight economic inequities that warrant intervention.

17. Conron, K. J., Mimiaga, M. J., & Landers, S. J. (2010). A Population-Based Study of Sexual Orientation Identity and Gender Differences in Adult Health. *American Journal of Public Health, 100*(10), 1953-1960. doi:10.2105/AJPH.2009.174169

Objectives. We provide estimates of several leading US adult health indicators by sexual orientation identity and gender to fill gaps in the current literature. Methods. We aggregated data from the 2001-2008 Massachusetts Behavioral Risk Factor Surveillance surveys (N = 67 359) to examine patterns in self-reported health by sexual orientation identity and gender, using multivariable logistic regression. Results. Compared with heterosexuals, sexual minorities (i.e., gays/lesbians, 2% of sample; bisexuals, 1%) were more likely to report activity limitation, tension or worry, smoking, drug use, asthma, lifetime sexual victimization, and HIV testing, but did not differ on 3-year Papanicolaou tests, lifetime mammography, diabetes, or heart disease. Compared with heterosexuals, bisexuals reported more barriers to health care, current sadness, past-year suicidal ideation, and cardiovascular disease risk. Gay men were less likely to be overweight or obese and to obtain prostate-specific antigen tests, and lesbians were more likely to be obese and to report multiple risks for cardiovascular disease. Binge drinking and lifetime physical intimate partner victimization were more common among bisexual women. Conclusions. Sexual orientation disparities in chronic disease risk, victimization, health care access, mental health, and smoking merit increased attention. More research on heterogeneity in health and health determinants among sexual minorities is needed.

18. Cranney, S. (2017). The LGB Mormon Paradox: Mental, Physical, and Self-Rated Health Among Mormon and Non-Mormon LGB Individuals in the Utah Behavioral Risk Factor Surveillance System. *Journal of Homosexuality, 64*(6), 731-744. doi:10.1080/00918369.2016.1236570

Much of the literature on mental and physical health among religious LGB individuals has relied on small-N convenience samples. This study takes advantage of a unique, large-N, population-based dataset to test the relationship between religious identity, religious activity, and health, with a specific emphasis on Utah Mormons. In a surprising finding, Mormon LGBs report better mental health than non-Mormon LGBs, while their self-rated and physical health is not significantly different. However, there is some evidence that Mormon LGBs derive fewer health benefits from church attendance than their non-LGB Mormon counterparts. These results may nuance the conventional wisdom regarding the health dynamics of LGB individuals who identify with a conservative, heteronormative religious tradition, and plausible explanations are discussed.

19. Crissman, H. P., Berger, M. B., Graham, L. F., & Dalton, V. K. (2016). Transgender Demographics: A Household Probability Sample of US Adults, 2014. *American Journal of Public Health, 107*(2), 213-215. doi:10.2105/AJPH.2016.303571

Objectives. To estimate the proportion of US adults who identify as transgender and to compare the demographics of the transgender and nontransgender populations. Methods. We conducted a secondary analysis of data from states and territories in the 2014 Behavioral Risk Factor Surveillance System that asked about transgender status. The proportion of adults identified as transgender was calculated from affirmative and negative responses (n=151456). We analyzed data with a design-adjusted chi2 test. We also explored differences between male-to-female and nontransgender females and female-to-male and nontransgender males. Results. Transgender individuals made up 0.53% (95% confidence interval=0.46, 0.61) of the population and were more likely to be non-White (40.0% vs 27.3%) and below the poverty line (26.0% vs 15.5%); as likely to be married (50.5% vs 47.7%), living in a rural area (28.7% vs 22.6%), and employed (54.3% vs 57.7%); and less likely to attend college (35.6% vs 56.6%) compared with nontransgender individuals. Conclusions. Our findings suggest that the transgender population is a racially diverse population present across US communities. Inequalities in the education and socioeconomic status have negative implications for the health of the transgender population.

20. Dai, H., & Hao, J. (2017). Sleep Deprivation and Chronic Health Conditions Among Sexual Minority Adults. *Behavioral Sleep Medicine*, 1-15. doi:10.1080/15402002.2017.1342166

Objectives: To examine associations between sleep duration and health outcomes among distinct groups of sexual minority adults. Methods: Using data from the 2014 Behavioral Risk Factor Surveillance System, we compared sleep duration (very short: ≤ 5 hr; short: 6 hr; normal: 7-8 hr; and long: ≥ 9 hr per day) between cisgender straight adults and distinct groups of sexual minorities. We further examined associations between sleep duration and 10 chronic health conditions among sexual minorities. Results: Of 146,893 respondents, 142,507 (96.2%) were cisgender straight, and 4,386 (3.8%) were lesbian, gay, bisexual, transgender (LGBT). Overall, 17.3% of LGBT respondents reported very short sleep per day, compared with 12.2% for cisgender straight respondents ($p < 0.0001$). Among LGBT populations, the prevalence of very short sleep varied significantly among distinct groups, ranging from 13.2% among transgender female to male adults to 35.5% among transgender gender nonconforming adults. Very short sleep was further associated with increased odds of having stroke (aOR = 4.1, 95% CI [2.2, 7.6]), heart attack (aOR = 3.0, CI [1.6, 5.8]), coronary heart disease (aOR = 3.1, 95% CI [1.5, 6.2]), asthma (aOR = 1.7, 95% CI [1.1, 2.4]), chronic obstructive pulmonary disease (aOR = 2.5, CI [1.5, 4.0]), arthritis (aOR = 2.1, CI [1.4, 3.0]), and cancer (aOR = 1.8, 95% CI [1.0, 3.2]) among sexual minorities. Disparities in the prevalence of stroke, heart attack, coronary health disease, COPD, diabetes, obesity, arthritis, and cancer were found among LGBT populations. Conclusions: Sexual minorities have a higher prevalence of sleep deprivation as compared with their straight counterparts. Sleep deprivation varies by sexual identity and gender. Very short sleep duration is associated with some chronic health conditions among LGBT populations. Promotion of sleep health education and routine medical assessment of sleep disorders are critically needed for sexual minority adults.

21. Dilley, J. A., Simmons, K. W., Boysun, M. J., Pizacani, B. A., & Stark, M. J. (2010). Demonstrating the Importance and Feasibility of Including Sexual Orientation in Public Health Surveys: Health Disparities in the Pacific Northwest. *American Journal of Public Health, 100*(3), 460-467. doi:10.2105/AJPH.2007.130336

Objectives. We identified health disparities for a statewide population of lesbian, gay, and bisexual (LGB) men and women compared with their heterosexual counterparts. Methods. We used data from the 2003-2006 Washington State Behavioral Risk Factor Surveillance System to examine associations between sexual orientation and chronic health conditions, health risk behaviors, access to care, and preventive services. Results. Lesbian and bisexual women were more likely than were heterosexual women to have poor physical and mental health, asthma, and diabetes (bisexuals only), to be overweight, to smoke, and to drink excess alcohol. They were also less likely to have

access to care and to use preventive services. Gay and bisexual men were more likely than were heterosexual men to have poor mental health, poor health-limited activities, and to smoke. Bisexuals of both genders had the greatest number and magnitude of disparities compared with heterosexuals. Conclusions. Important health disparities exist for LGB adults. Sexual orientation can be effectively included as a standard demographic variable in public health surveillance systems to provide data that support planning interventions and progress toward improving LGB health.

22. Farmer Grant, W., Blosnich John, R., Jabson Jennifer, M., & Matthews Derrick, D. (2015). Gay Acres: Sexual Orientation Differences in Health Indicators Among Rural and Nonrural Individuals. *The Journal of Rural Health, 32*(3), 321-331. doi:10.1111/jrh.12161

Abstract Purpose Geographic location is a significant factor that influences health status and health disparities. Yet, little is known about the relationship between geographic location and health and health disparities among lesbian, gay, and bisexual (LGB) persons. This study used a US population-based sample to evaluate the associations of sexual orientation with health indicators by rural/nonrural residence. Methods Data were pooled from the 10 states that collected sexual orientation in the 2010 Behavioral Risk Factor Surveillance System surveys. Rural status was defined using metropolitan statistical area, and group differences by sexual orientation were stratified by gender and rural/nonrural status. Chi-square tests for categorical variables were used to assess bivariate relationships. Multivariable logistic regression models stratified by gender and rural/nonrural status were used to assess the association of sexual orientation to health indicators, while adjusting for age, race/ethnicity, education, and partnership status. All analyses were weighted to adjust for the complex sampling design. Findings Significant differences between LGB and heterosexual participants emerged for several health indicators, with bisexuals having a greater number of differences than gay men/lesbians. There were fewer differences in health indicators for rural LGB participants compared to heterosexuals than nonrural participants. Conclusions Rural residence appears to influence the pattern of LGB health disparities. Future work is needed to confirm and identify the exact etiology or rural/nonrural differences in LGB health.

23. Fish Jessica, N., Hughes Tonda, L., & Russell Stephen, T. (2017). Sexual identity differences in high- intensity binge drinking: findings from a US national sample. *Addiction, 113*(4), 749-758. doi:10.1111/add.14041

Abstract Aim To estimate sexual identity differences in high-intensity binge drinking. Design and setting Cross-sectional US adult health survey from 2014 and 2015. Participants US adults aged 18 and older (n = 215684; n = 203562 heterosexual, n = 2784 lesbian/gay, n = 2892 bisexual, n = 686 “other” and n = 1947 don't know/unsure). Measurements Self-reported past 30-day standard binge and high-

intensity binge drinking. Standard binge drinking cutoff values were 4+/5+ drinks for women and men, respectively. High-intensity binge drinking was measured as two and three times the standard level (8+ and 12+ drinks for women and 10+ and 15+ drinks for men). Findings Lesbian and bisexual women were more likely than heterosexual women to report consuming 4+ drinks (adjusted odds ratio [aOR] =1.57, confidence interval [CI] = 1.18, 2.09 and aOR = 1.83, CI = 1.45, 2.30 for lesbian and bisexual women, respectively); 8+ drinks (aOR = 3.86, CI = 2.39, 6.24, aOR = 2.07, CI = 1.39, 3.07); and 12+ drinks (aOR = 3.81, CI = 1.77, 8.19, aOR = 2.54, CI = 1.25, 5.14) on a single occasion in the past 30 days. Generally, gay and bisexual men were no more likely than heterosexual men to report standard or high-intensity binge drinking. However, bisexual men were more likely than heterosexual men to consume 15+ drinks (aOR = 1.76, 95% CI = 1.01, 3.06). Rates of standard and high-intensity binge drinking were similar between heterosexual and unsure men and women. Men and women who indicated "other" sexual identities were generally less likely than heterosexuals to report standard and high-intensity binge drinking, with the exception of 4+ drinks for women and 10+ drinks for men. Conclusions In the United States, sexual minority women are more likely, and sexual minority men are equally likely, to drink at standard and high-intensity binge drinking levels as their heterosexual counterparts.

24. Fredriksen-Goldsen, K. I., Kim, H.-J., & Barkan, S. E. (2011). Disability Among Lesbian, Gay, and Bisexual Adults: Disparities in Prevalence and Risk. *American Journal of Public Health, 102*(1), e16-e21. doi:10.2105/AJPH.2011.300379

Objectives. We used population-based data to comprehensively examine disability among lesbian, gay, and bisexual adults. Methods. We estimated prevalence of disability and its covariates and compared by sexual orientation by utilizing data from the Washington State Behavioral Risk Factor Surveillance System (n = 82 531) collected in 2003, 2005, 2007, and 2009. We used multivariate logistic regression to examine the relationship between disability and sexual orientation, after we controlled for covariates of disability. Results. Findings indicated that the prevalence of disability is higher among lesbian, gay, and bisexual adults compared with their heterosexual counterparts; lesbian, gay, and bisexual adults with disabilities are significantly younger than heterosexual adults with disabilities. Higher disability prevalence among lesbians and among bisexual women and men remained significant after we controlled for covariates of disability. Conclusions. Higher rates of disability among lesbian, gay, and bisexual adults are of major concern. Efforts are needed to prevent, delay, and reduce disabilities as well as to improve the quality of life for lesbian, gay, and bisexual adults with disabilities. Future prevention and intervention efforts need to address the unique concerns of these groups.

25. Fredriksen-Goldsen, K. I., Kim, H.-J., Barkan, S. E., Balsam, K. F., & Mincer, S. L. (2010). Disparities in Health-Related Quality of Life: A Comparison of Lesbians and Bisexual Women. *American Journal of Public Health, 100*(11), 2255-2261. doi:10.2105/AJPH.2009.177329

Objectives. We investigated the association of health-related quality of life (HRQOL) with sexual orientation among lesbians and bisexual women and compared the predictors of HRQOL between the 2 groups. Methods. We used multivariate logistic regression to analyze Washington State Behavioral Risk Factor Surveillance System population-based data (2003 to 2007) in a sample of 1496 lesbians and bisexual women and examined determinants of HRQOL among lesbians and bisexual women. Results. For lesbians and bisexual women, frequent mental distress and poor general health were associated with poverty and lack of exercise; poor general health was associated with obesity and mental distress. Bisexual women showed a higher likelihood of frequent mental distress and poor general health than did lesbians. The odds of mental distress were higher for bisexual women living in urban areas as compared with nonurban areas. Lesbians had an elevated risk of poor general health and mental distress during midlife. Conclusions. Despite the standard practice of collapsing sexual minority women into a single group, lesbian and bisexual women in this study emerge as distinct groups that merit specific attention. Bisexual women are at elevated risk for poor HRQOL.

26. Fredriksen-Goldsen, K. I., Kim, H.-J., Barkan, S. E., Muraco, A., & Hoy-Ellis, C. P. (2013). Health Disparities Among Lesbian, Gay, and Bisexual Older Adults: Results From a Population-Based Study. *American Journal of Public Health, 103*(10), 1802-1809. doi:10.2105/AJPH.2012.301110

Objectives. We investigated health disparities among lesbian, gay, and bisexual (LGB) adults aged 50 years and older. Methods. We analyzed data from the 2003-2010 Washington State Behavioral Risk Factor Surveillance System (n=96992) on health outcomes, chronic conditions, access to care, behaviors, and screening by gender and sexual orientation with adjusted logistic regressions. Results. LGB older adults had higher risk of disability, poor mental health, smoking, and excessive drinking than did heterosexuals. Lesbians and bisexual women had higher risk of cardiovascular disease and obesity, and gay and bisexual men had higher risk of poor physical health and living alone than did heterosexuals. Lesbians reported a higher rate of excessive drinking than did bisexual women; bisexual men reported a higher rate of diabetes and a lower rate of being tested for HIV than did gay men. Conclusions. Tailored interventions are needed to address the health disparities and unique health needs of LGB older adults. Research across the life course is needed to better understand health disparities by sexual orientation and age, and to assess subgroup differences within these communities.

27. Garland-Forshee, R. Y., Fiala, S. C., Ngo, D. L., & Moseley, K. (2014). Sexual Orientation and Sex Differences in Adult Chronic Conditions, Health Risk Factors, and Protective Health Practices, Oregon, 2005-2008. *Preventing Chronic Disease, 11*, E136. doi:10.5888/pcd11.140126

INTRODUCTION Research on lesbian, gay, and bisexual (LGB) individuals' health and health practices has primarily consisted of convenience studies focused on HIV/AIDS, substance use, or mental illness. We examined health-related disparities among Oregon LGB men and women compared with heterosexual men and women using data from a population-based survey. METHODS Data from the 2005 through 2008 Oregon Behavioral Risk Factor Surveillance System were used to examine associations between sexual orientation and chronic conditions, health limitations, health risk factors, and protective health practices. RESULTS Compared with heterosexual women, lesbian and bisexual women were significantly more likely to smoke cigarettes, be obese, binge drink, and have chronic conditions, and less likely to engage in protective health practices. Compared with heterosexual men, gay men were significantly less likely to be obese, more likely to binge drink, and more likely to engage in protective health practices. Compared with heterosexual men, bisexual men were significantly more likely to have a physical disability, smoke cigarettes, binge drink, and more likely to get an HIV test. CONCLUSIONS Health disparities among Oregon LGB individuals were most prominent among lesbian and bisexual women. Gay men had the most protective health practices, but they were more likely than heterosexual men to engage in risky behaviors that lead to chronic diseases later in life. Targeted public health interventions should be provided in environments that avoid stigmatizing and discriminating against LGB individuals where they live, work, learn, and socialize.

28. Gonzales, G., & Ehrenfeld, J. (2018). The Association between State Policy Environments and Self-Rated Health Disparities for Sexual Minorities in the United States. *International Journal of Environmental Research and Public Health, 15*(6). doi:10.3390/ijerph15061136

A large body of research has documented disparities in health and access to care for lesbian, gay, and bisexual (LGB) people in the United States. Less research has examined how the level of legal protection afforded to LGB people (the state policy environment) affects health disparities for sexual minorities. This study used data on 14,687 sexual minority adults and 490,071 heterosexual adults from the 2014–2016 Behavioral Risk Factor Surveillance System to document differences in health. Unadjusted state-specific prevalence estimates and multivariable logistic regression models were used to compare poor/fair self-rated health by gender, sexual minority status, and state policy environments (comprehensive versus limited protections for LGB people). We found disparities in self-rated health between sexual minority adults and heterosexual adults in most states. On average, sexual minority men in states with limited protections and sexual minority women in states with either

comprehensive or limited protections were more likely to report poor/fair self-rated health compared to their heterosexual counterparts. This study adds new findings on the association between state policy environments and self-rated health for sexual minorities and suggests differences in this relationship by gender. The associations and impacts of state-specific policies affecting LGB populations may vary by gender, as well as other intersectional identities.

29. Gonzales, G., & Henning-Smith, C. (2016). The Affordable Care Act and Health Insurance Coverage for Lesbian, Gay, and Bisexual Adults: Analysis of the Behavioral Risk Factor Surveillance System. *LGBT Health, 4*(1), 62-67. doi:10.1089/lgbt.2016.0023

Abstract Purpose: This study compares uninsurance rates for lesbian, gay, and bisexual (LGB) adults by state Medicaid expansion decisions under the Affordable Care Act. Methods: Data come from nonelderly adults in the 2014 Behavioral Risk Factor Surveillance System. Prevalence estimates and logistic regression models identified LGB adults most likely to be uninsured. Results: Approximately 15.7% of LGB adults lack health insurance, but the uninsurance rate is lower among LGB adults in Medicaid expansion states (12.5%) compared with LGB adults in nonexpansion states (20.0%). Conclusions: Expanding Medicaid in states that have not yet done so should increase coverage and lead to improved health for vulnerable LGB adults.

Purpose: This study compares uninsurance rates for lesbian, gay, and bisexual (LGB) adults by state Medicaid expansion decisions under the Affordable Care Act. Methods: Data come from nonelderly adults in the 2014 Behavioral Risk Factor Surveillance System. Prevalence estimates and logistic regression models identified LGB adults most likely to be uninsured. Results: Approximately 15.7% of LGB adults lack health insurance, but the uninsurance rate is lower among LGB adults in Medicaid expansion states (12.5%) compared with LGB adults in nonexpansion states (20.0%). Conclusions: Expanding Medicaid in states that have not yet done so should increase coverage and lead to improved health for vulnerable LGB adults.

30. Gonzales, G., & Henning-Smith, C. (2017). Health Disparities by Sexual Orientation: Results and Implications from the Behavioral Risk Factor Surveillance System. *Journal of Community Health, 42*(6), 1163-1172. doi:10.1007/s10900-017-0366-z

Until recently, population-based data for monitoring sexual minority health have been limited, making it difficult to document and address disparities by sexual orientation. The primary objective of this study was to examine differences by sexual orientation in an array of health outcomes and health risk factors using one of the nation’s largest health surveys. Data for this study came from 8290 adults who identified as lesbian, gay, or

bisexual (LGB) and 300,256 adults who identified as heterosexual in the 2014–2015 Behavioral Risk Factor Surveillance System (BRFSS). Logistic regression models were used to compare physical and mental health outcomes, health condition diagnoses, and health risk factors by sexual orientation, controlling for demographic and socioeconomic status. Controlling for sociodemographic characteristics, gay and bisexual men reported higher odds of frequent mental distress [odds ratio (OR) 1.71, P = 0.001; OR 2.33, P < 0.001] and depression (OR 2.91, P < 0.001; OR 2.41, P < 0.001), compared with heterosexual men. Lesbian and bisexual women had higher odds of frequent mental distress (OR 1.53, P < 0.001; OR 2.08, P < 0.001) and depression (OR 1.93, P < 0.01; OR 3.15, P < 0.001), compared to heterosexual women. Sexual minorities also faced higher odds of poor physical health, activity limitations, chronic conditions, obesity, smoking, and binge drinking, although these risks differed by sexual orientation and gender. This study adds to the mounting evidence of health disparities by sexual orientation. Community health practitioners and policymakers should continue to collect data on sexual orientation in order to identify and address root causes of sexual orientation-based disparities, particularly at the community-level.

31. Gorman, B. K., Denney, J. T., Dowdy, H., & Medeiros, R. A. (2015). A New Piece of the Puzzle: Sexual Orientation, Gender, and Physical Health Status. *Demography, 52*(4), 1357-1382. doi:10.1007/s13524-015-0406-1

Although research has long documented the relevance of gender for health, studies that simultaneously incorporate the relevance of disparate sexual orientation groups are sparse. We address these shortcomings by applying an intersectional perspective to evaluate how sexual orientation and gender intersect to pattern self-rated health status among U.S. adults. Our project aggregated probability samples from the Behavioral Risk Factor Surveillance System (BRFSS) across seven U.S. states between 2005 and 2010, resulting in an analytic sample of 10,128 sexual minority (gay, lesbian, and bisexual) and 405,145 heterosexual adults. Logistic regression models and corresponding predicted probabilities examined how poor self-rated health differed across sexual orientation–by-gender groups, before and after adjustment for established health risk factors. Results reveal distinct patterns among sexual minorities. Initially, bisexual men and women reported the highest—and gay and lesbian adults reported the lowest—rates of poor self-rated health, with heterosexuals in between. Distinct socioeconomic status profiles accounted for large portions of these differences. Furthermore, in baseline and fully adjusted regression models, only among heterosexuals did women report significantly different health from men. Importantly, the findings highlight elevated rates of poor health experienced by bisexual men and women, which are partially attributable to their heightened economic, behavioral, and social disadvantages relative to other groups.

32. Hoffman, L., Delahanty, J., Johnson, S. E., & Zhao, X. (2018). Sexual and gender minority cigarette smoking disparities: An analysis of 2016 Behavioral Risk Factor Surveillance System data. *Preventive Medicine, 113*, 109-115. doi:https://doi.org/10.1016/j.ypmed.2018.05.014

We examined the association between lesbian, gay, bisexual, and transgender (LGBT) identity, cigarette and e-cigarette use, and potential risk factors in the United States. Using data from 198,057 adults in 26 states in the 2016 Behavioral Risk Factor Surveillance System (BRFSS), we estimated the prevalence of cigarette use, e-cigarette use, and potential risk factors by gender identity and sexual identity. Overall and sex-stratified bivariate and multivariate logistic regressions examined whether the relationship between sexual and gender identity and cigarette and e-cigarette use persisted after adjusting for demographics, socio-economic status, and other unhealthy behaviors. After adjusting for covariates, gender minority identity was no longer associated with increased likelihood of currently smoking cigarettes and ever use of e-cigarettes. Sexual minority identity continued to be significant after adjusting for covariates, indicating that sexual identity disparities in cigarette and e-cigarette use are not fully explained by these factors. Findings varied by identity. Compared to their straight peers, likelihood of tobacco product use among LGB individuals varied between sexes, by product, and by sexual identity (gay/lesbian versus bisexual). More research is needed to understand the mechanisms that influence diverse patterns of cigarette and e-cigarette use among sexual and gender minority adults.

33. Jabson, J. M., & Blosnich, J. R. (2012). Representation of lesbian, gay, and bisexual people in clinical cancer trials. *Annals of Epidemiology, 22*(11), 821-823. doi:https://doi.org/10.1016/j.annepidem.2012.08.006

Purpose Clinical trials are important tools for advancing cancer treatment, prevention, and control. To identify and describe clinical effects relevant to underserved groups, their representation in clinical trials is necessary. Lesbian, gay, and bisexual (LGB) people have been identified as a medically underserved group and their representation in cancer clinical trials is unknown. This study sought to examine LGB cancer survivor representation in cancer clinical trials. Methods Data were from the 2010, Behavioral Risk Factor Surveillance System, Cancer Survivorship Module. Data were from five states that included both the Cancer Survivorship module and an item asking self-identified LGB status. Results Participation in cancer clinical trials was higher among LGB cancer survivors (12.5%) than among heterosexual cancer survivors (6.0%) ($p = .005$). In the multivariate, adjusted model, LGB cancer survivors were more than twice as likely, as heterosexual cancer survivors, to report participation in a clinical trial (AOR 2.17, 95% CI 1.21-3.90). Conclusion LGB cancer survivors had greater likelihood of cancer clinical trial participation than heterosexual cancer survivors and this was not explained by demographics. The finding was unexpected given the historic marginalization of this group. The small number of LGB cancer survivors limits the

generalizability and statistical power. Findings should be interpreted cautiously, and further research is needed to clarify explanatory mechanisms.

34. Jesdale, B. M., & Mitchell, J. W. (2012). Reported Excellent Health Among Men in Same-Sex and Mixed-Sex Couples: Behavioral Risk Factor Surveillance System, 1993–2010. *Journal of Homosexuality, 59*(6), 788-807. doi:10.1080/00918369.2012.694755

Self-reported excellent health was examined across sexual orientation among male adult couples using 18 years of data from the Behavioral Risk Factor Surveillance System. Men in same-sex couples were more likely to report being in excellent health (28.7%) than men in unmarried and married mixed-sex couples (20.4% and 23.2%). After adjusting for other demographic and health factors, men in same-sex couples remained more likely to report excellent health than men in unmarried mixed-sex couples, but not than men in married mixed-sex couples. Reporting only adverse health disparities provides a partial picture of sexual minority health, and discounts the role of resilience and other health promoting factors in these populations.

35. Kamen, C., Blosnich, J. R., Lytle, M., Janelsins, M. C., Peppone, L. J., & Mustian, K. M. (2015). Cigarette smoking disparities among sexual minority cancer survivors. *Preventive Medicine Reports, 2*, 283-286. doi:https://doi.org/10.1016/j.pmedr.2015.04.004

Objective Sexual minority (i.e., lesbian, gay, and bisexual) adults smoke cigarettes at higher rates than heterosexual adults. Smoking after receiving a cancer diagnosis is a major health concern, yet risk of continued smoking among sexual minority cancer survivors is as yet unknown. The current study examines current smoking among sexual minority vs. heterosexual adult cancer survivors. Method Data drawn from the 2010 Behavioral Risk Factor Surveillance System survey in five states (Alaska, California, Massachusetts, New Mexico, and Wisconsin) included items about sexual orientation, cancer diagnosis, and tobacco use. The analytic sample included 124 sexual minority and 248 propensity score matched heterosexual adult cancer survivors. Results Bivariate analysis showed that sexual minority cancer survivors had twice the odds of current smoking as their heterosexual counterparts (OR=2.03, 95%CI:1.09–3.80). In exploratory analyses stratified by sex, sexual minority disparities in prevalence of smoking post-cancer showed a trend toward significance among females, not males. Conclusion The current study offers preliminary evidence that sexual minority status is one variable among many that must be taken into account when assessing health behaviors post-cancer diagnosis. Future research should identify mechanisms leading from sexual minority status to increased rates of smoking and develop tailored smoking cessation interventions

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36. Kamen, C., Palesh, O., Gerry, A. A., Andrykowski, M. A., Heckler, C., Mohile, S., . . . Mustian, K. (2013). Disparities in Health Risk Behavior and Psychological Distress Among Gay Versus Heterosexual Male Cancer Survivors. *LGBT Health, 1*(2), 86-92. doi:10.1089/lgbt.2013.0022

Abstract Gay men have been found to have higher rates of cancer diagnoses than heterosexual men and poorer outcomes postcancer diagnosis. The two aims of this study were to examine rates of cancer diagnosis in a national sample of gay and heterosexual men, and to examine disparities in health risk behavior between gay and heterosexual men and gay and heterosexual cancer survivors. The current study utilized data from a total sample of 14,354 men, including 373 gay men, collected as part of the Behavioral Risk Factor Surveillance System survey conducted in 2009 in the states of Arizona, California, Massachusetts, Ohio, and Wisconsin. This study replicated the finding that prevalence of self-reported cancer diagnoses differed significantly between gay and heterosexual men, with gay men 82% more likely to report a lifetime history of cancer diagnosis ($p<0.05$); however, this disparity became nonsignificant after controlling for a weakened immune system proxy variable ($p=0.06$). Gay men were more likely than heterosexual men to report health risk behaviors, including less time spent exercising, more psychological distress, more current alcohol use, more current smoking, and a lifetime history of smoking. Some of these disparities in health risk behavior persisted for gay cancer survivors postcancer diagnosis. This study offers a perspective on behavioral risk factors previously shown to be higher among gay men that may continue postcancer diagnosis. Future research should test the degree to which these disparities are caused by minority stress, as previous studies have indicated that increased health risk behaviors among sexual minority populations may result from exposure to chronic stress and discrimination. Developing behavior change interventions to address these risk behaviors is vital for improving cancer outcomes among gay men.

37. Keyes, S. M., Rothman, E. F., & Zhang, Z. (2007). Sexual Orientation and Sexual Behavior: Results from the Massachusetts Behavioral Risk Factor Surveillance System, 2002–2006. *Journal of LGBT Health Research, 3*(3), 1-10. doi:10.1080/15574090802092614

ABSTRACT Few population-based surveys in the United States include sexual orientation as a demographic variable. As a result, estimating the proportion of the U.S. population that is gay, lesbian, or bisexual (GLB) is a substantial challenge. Prior estimates vary widely, from 1-21%. In 2001, questions on sexual orientation and sexual behavior were added to the Massachusetts Behavioral Risk Factor Surveillance System (MA BRFSS) and have been asked continually since that time. The purpose of this study was to determine the prevalence of adults in Massachusetts identifying as GLB

and providing a demographic description of this group. The study also examined the correlation of reported sexual behavior and sexual identity within this group. Overall, 1.9% of Massachusetts adults identified as gay or lesbian and 1.0% of Massachusetts adults identified as bisexual. Of those identifying as gay or lesbian, 95.4% reported sexual behavior concordant with this identification, and 99.4% of respondents identifying as heterosexual reported behavior concordant with heterosexual sexual orientation. Among those reporting a GLB sexual orientation, men were more likely than women to identify as gay, and women were more likely than men to identify as bisexual. Younger adults (18-25 years old) were more likely than people in other age groups to identify as bisexual. Respondents with 4 or more years of education were more likely to identify as gay or lesbian than those in all other education categories. The addition of sexual orientation to population-based surveys will allow for research on the health of GLB adults and provide critical information for those charged with the creation of public policy regarding sexual orientation.

38. Kim, H.-J., & Fredriksen-Goldsen, K. I. (2011). Hispanic Lesbians and Bisexual Women at Heightened Risk or Health Disparities. *American Journal of Public Health, 102*(1), e9-e15. doi:10.2105/AJPH.2011.300378

Objectives. We investigated whether elevated risks of health disparities exist in Hispanic lesbians and bisexual women aged 18 years and older compared with non-Hispanic White lesbians and bisexual women and Hispanic heterosexual women. Methods. We analyzed population-based data from the Washington State Behavioral Risk Factor Surveillance System (2003-2009) using adjusted logistic regressions. Results. Hispanic lesbians and bisexual women, compared with Hispanic heterosexual women, were at elevated risk for disparities in smoking, asthma, and disability. Hispanic bisexual women also showed higher odds of arthritis, acute drinking, poor general health, and frequent mental distress compared with Hispanic heterosexual women. In addition, Hispanic bisexual women were more likely to report frequent mental distress than were non-Hispanic White bisexual women. Hispanic lesbians were more likely to report asthma than were non-Hispanic White lesbians. Conclusions. The elevated risk of health disparities in Hispanic lesbians and bisexual women are primarily associated with sexual orientation. Yet, the elevated prevalence of mental distress for Hispanic bisexual women and asthma for Hispanic lesbians appears to result from the cumulative risk of doubly disadvantaged statuses. Efforts are needed to address unique health concerns of diverse lesbians and bisexual women.

39. Kim, H.-J., & Fredriksen-Goldsen, K. I. (2012). Nonresponse to a Question on Self-Identified Sexual Orientation in a Public Health Survey and Its Relationship to Race and Ethnicity. *American Journal of Public Health, 103*(1), 67-69. doi:10.2105/AJPH.2012.300835

We examined whether nonresponse to the survey question on self-identified sexual orientation was associated with race and ethnicity, utilizing Washington State Behavioral Risk Factor Surveillance System data. The results of adjusted multinomial logistic regression indicated that the nonresponse rates of Asian Americans, Hispanics, and African Americans are higher than those of non-Hispanic Whites. Innovative ways of measuring sexual orientation to reduce racially and ethnically driven bias need to be developed and integrated into public health surveys.

40. Landers, S. J., Mimiaga, M. J., & Conron, K. J. (2011). Sexual Orientation Differences in Asthma Correlates in a Population-Based Sample of Adults. *American Journal of Public Health, 101*(12), 2238-2241. doi:10.2105/AJPH.2011.300305

To understand what conditions may correlate with asthma diagnoses in the lesbian, gay, and bisexual (LGB) population, we used Massachusetts Behavioral Risk Factor Surveillance System data to construct multivariable logistic regression models separately for LGB individuals and heterosexuals. Current or former smoking and obesity were positively associated with history of an asthma diagnosis among both LGB individuals and heterosexuals. Being underweight (negative correlation) and overweight and reporting frequent symptoms of depression in the preceding 30 days also predicted a history of asthma diagnosis among heterosexuals.

41. Lehavot, K., Blosnich, J. R., Glass, J. E., & Williams, E. C. (2017). Alcohol use and receipt of alcohol screening and brief intervention in a representative sample of sexual minority and heterosexual adults receiving health care. *Drug and Alcohol Dependence, 179*, 240-246. doi:https://doi.org/10.1016/j.drugalcdep.2017.07.003

Background Despite evidence of alcohol disparities between sexual minority and heterosexual individuals in the general population, research has not examined whether there are disparities in receipt of alcohol screening and brief intervention − together considered one of the highest prevention priorities for US adults. This study examined differences in alcohol use and receipt of alcohol screening and brief intervention across sexual minority status. Methods Behavioral Risk Factor Surveillance System 2014 data from eight US states were used to estimate patterns of alcohol use and receipt of alcohol screening and brief intervention among persons reporting sexual orientation and a checkup in the last two years (N=47,800). Analyses were conducted in 2016–2017. Results Gay men and bisexual women reported higher rates of alcohol use on some measures compared to heterosexual men and women, respectively. There were some differences in screening and brief intervention by sexual orientation. Lesbian women

were more likely to report being asked about heavy episodic drinking than heterosexual women, and among those reporting unhealthy alcohol use, gay men were less likely, and bisexual men were more likely, to report receiving brief intervention compared to heterosexual men. Conclusions Overall similarities between sexual minorities and heterosexuals in alcohol use and receipt of screening and brief intervention are encouraging. Nonetheless, research is needed to confirm findings and understand mechanisms underlying disparities in receipt of brief intervention between gay and heterosexual men.

42. Matthews, D. D., & Lee, J. G. L. (2014). A Profile of North Carolina Lesbian, Gay, and Bisexual Health Disparities, 2011. *American Journal of Public Health, 104*(6), e98-e105. doi:10.2105/AJPH.2013.301751

Objectives. We investigated the health profile of lesbian, gay, and bisexual (LGB) adults in North Carolina, the first state in the South to include a measure of sexual orientation identity in a probability-based statewide health survey. Methods. Using data from 9876 respondents in the 2011 North Carolina Behavioral Risk Factor Surveillance Survey, we compared sexual minorities to heterosexuals on a variety of health indicators. Results. LGB respondents were younger and more likely to be reached by cell phone. Many examined indicators were not different by sexual orientation. Significant results, however, were consistent with findings from state population surveys in other regions of the country, including disparities in mental health and, among women, smoking. Conclusions. Reporting LGB identity in North Carolina is associated with poorer health. The concentration of anti-LGB policies in the South warrants ongoing monitoring of LGB health disparities in North Carolina and in other Southeastern states for potential effects on the health and well-being of LGB populations.

43. Meyer, I. H., Brown, T. N. T., Herman, J. L., Reisner, S. L., & Bockting, W. O. (2017). Demographic Characteristics and Health Status of Transgender Adults in Select US Regions: Behavioral Risk Factor Surveillance System, 2014. *American Journal of Public Health, 107*(4), 582-589. doi:10.2105/AJPH.2016.303648

Objectives. To describe the health status of the transgender population in the United States. Methods. We used 2014 Behavioral Risk Factor Surveillance System data that comprised a probability sample from 19 US states and Guam (n=151456). Results. Bivariate analyses showed that, in comparison with cisgender individuals, transgender individuals had a higher prevalence of poor general health (odds ratio [OR] = 1.7; 95% confidence interval [CI] = 1.2, 2.4), more days per month of poor physical (b = 2.43; 95% CI = 0.61, 4.24; P < .01) and mental (b = 1.74; 95% CI = 0.28, 3.19; P = .02) health, and a higher prevalence of myocardial infarction (OR = 1.7; 95% CI = 1.1, 2.5). In addition, more transgender than cisgender people lacked health care coverage (OR = 1.8; 95% CI = 1.2, 2.7) and a health care provider (OR = 1.5; 95% CI = 1.0, 2.1), and they were less likely to have visited a dentist in the preceding year (OR = 0.7; 95% CI =

0.5, 1.0). However, transgender individuals did not differ from cisgender individuals with respect to prevalence of chronic diseases, cancers, or depressive disorders or in terms of health behaviors such as smoking, binge drinking, and always wearing a seatbelt. Conclusions. Our findings highlight areas of unmet needs in the transgender population.

44. Miller, B., & Irvin, J. (2017). Invisible Scars: Comparing the Mental Health of LGB and Heterosexual Intimate Partner Violence Survivors. *Journal of Homosexuality, 64*(9), 1180-1195. doi:10.1080/00918369.2016.1242334

ABSTRACT Intimate partner violence (IPV) affects countless women and men in lesbian, gay, and bisexual (LGB) as well as heterosexual relationships, but few studies have examined how such abuse is associated with the mental health of LGB victims. The present study addresses this issue using data from the 2006 Behavioral Risk Factor Surveillance System (BRFSS) survey to examine differences in depression and anxiety among IPV victims in LGB and heterosexual partnerships. The findings indicate LGB IPV victims are much more likely to have a history of depression (OR 1.70, $p < .05$) and anxiety (OR 1.70, $p < .05$) than heterosexual victims. These differences are slightly mediated by the victim's perceived emotional support but not the type of abuse experienced. Our findings accentuate the need for greater inclusion of LGB persons in the IPV and mental health discourse, as well as the importance of social support for IPV victims. Policy implications for members of the LGB community are discussed.

45. Mimiaga, M. J., Landers, S. J., & Conron, K. J. (2011). Prevalence and Correlates of Lifetime HIV Testing in a Population-Based Sample of Men Who Have Sex with Men in Massachusetts. *AIDS Patient Care and STDs, 25*(6), 323-326. doi:10.1089/apc.2011.0078

46. Narayan, A., Lebron-Zapata, L., & Morris, E. (2017). Breast cancer screening in transgender patients: findings from the 2014 BRFSS survey. *Breast Cancer Research and Treatment, 166*(3), 875-879. doi:10.1007/s10549-017-4461-8

Transgender patients undergoing transitions often receive cross-sex hormonal therapies, placing them at uncertain risk for developing breast cancer. There is limited population-based information about the extent to which transgender patients undergo mammography screening. Our purpose was to determine the extent to which transgender patients undergo mammography screening using nationally representative survey data.

47. Newlin Lew, K., Dorsen, C., & Long, T. (2018). Prevalence of Obesity, Prediabetes, and Diabetes in Sexual Minority Men: Results From the 2014 Behavioral Risk Factor Surveillance System. *The Diabetes Educator, 44*(1), 83-93. doi:10.1177/0145721717749943

Purpose The purpose of this study is to assess the prevalence and related odds ratios for obesity, prediabetes, and diabetes in sexual minority men (SMM) in relation to straight men. Methods A secondary analysis of 2014 Behavioral Risk Factor

Surveillance System data from 19 states (n = 53542) was conducted. Weighted means and standard errors were computed to estimate prevalence rates of obesity, prediabetes, and diabetes across male sexual orientation groups, respectively. Unadjusted and adjusted (demographics, depression, and health care access factors) weighted logistic regression models were developed. Results Obesity prevalence was lower in gay men relative to straight men with logistic regression modeling indicating gay men were significantly less likely to be obese, relative to their straight counterparts, in the unadjusted and adjusted models. In terms of prediabetes, rates were low across all sexual orientation groups with no significant differences observed. Yet bisexual men, relative to straight men, had higher rates of diabetes with significantly increased odds for the disease in both the unadjusted and adjusted models. Conclusion Findings indicate gay men have reduced risk for obesity while bisexual men may have increased diabetes burden. Across all male sexual orientation groups, prediabetes prevalence was low, suggesting the need for more aggressive prediabetes screening. Additional research is necessary to confirm the findings.

48. Nokoff, N. J., Scarbro, S., Juarez-Colunga, E., Moreau, K. L., & Kempe, A. (2018). Health and Cardiometabolic Disease in Transgender Adults in the United States: Behavioral Risk Factor Surveillance System 2015. *Journal of the Endocrine Society, 2*(4), 349-360. doi:10.1210/js.2017-00465

Context Little is known about the health of transgender adults in the United States, a growing population. There have been no large reports examining differences in health status and cardiometabolic disease in subgroups of transgender adults [female-to-male (FTM), male-to-female (MTF), and gender nonconforming (GNC)] in the United States. Objective Compare the health status and prevalence of cardiometabolic disease among specific subgroups of transgender adults (FTM, MTF, GNC) with those of cisgender adults in the United States. Design Secondary data analysis based on the 2015 Behavioral Risk Factor Surveillance System survey. Setting The 22 states in the United States that asked about transgender identity. Participants Noninstitutionalized adults age ≥18 years who reside in the United States, identified through telephone-based methods. Main Outcome Measures Data were extracted for respondents who answered the transgender identity question. Weighted percentages are given for all measures. Adjusted odds ratios (ORs) are reported for health status and cardiometabolic disease measures. Results FTM adults have a higher odds of being uninsured than both cisgender women [OR 3.8; 95% confidence interval (CI), 2.1 to 7.1] and cisgender men (OR 2.5; 95% CI, 1.4 to 4.7). MTF adults have a higher odds of reporting myocardial infarction than cisgender women (OR 2.9; 95% CI, 1.6 to 5.3) but not cisgender men. Conclusions There are significant differences in health status measures and cardiometabolic health between subgroups of transgender adults and cisgender adults. There is a need for additional research to understand the societal and medical (e.g.,

hormone therapy) effects on these outcomes.

49. Pitasi, M. A., Oraka, E., Clark, H., Town, M., & DiNenno, E. A. (2017). HIV Testing Among Transgender Women and Men — 27 States and Guam, 2014–2015. *Morbidity and Mortality Weekly Report, 66*(33), 883-887. doi:10.15585/mmwr.mm6633a3

Raifman, J., Moscoe, E., Austin, S., Hatzenbuehler, M. L., & Galea, S. (2018). Association of state laws permitting denial of services to same-sex couples with mental distress in sexual minority adults: A difference-in-difference-in-differences analysis. *JAMA Psychiatry*. doi:10.1001/jamapsychiatry.2018.0757

Importance Recent evidence suggests that state policies affecting sexual minorities are associated with health disparities. Twelve states have laws permitting the denial of services to same-sex couples, and the US Supreme Court is considering whether states can prohibit the denial of services to same-sex couples. Objective We investigated whether state laws permitting individuals to refuse services to sexual minorities were associated with changes in the proportion of sexual minority adults reporting mental distress. Design, Setting, and Participants This difference-in-difference-in-differences linear regression analysis with state fixed effects used Behavioral Risk Factor Surveillance System (BRFSS) data from 2014 through 2016 from adults aged 18 to 64 years in 3 states that implemented laws permitting the denial of services to same-sex couples (Utah, Michigan, and North Carolina) and 6 nearby control states (Idaho and Nevada, Ohio and Indiana, and Virginia and Delaware, respectively). Sexual minority adults were defined as those who identified as gay, lesbian, bisexual, or not sure of their sexual orientation under a module on sexual orientation that BRFSS implemented in 2014 and each state could opt to include. Analysis controlled for year and individual-level sex, race, ethnicity, age group, educational attainment, income, employment, and marital status. A permutation test was conducted to precisely estimate statistical significance. Exposures An interaction term indicating whether individuals identified as a sexual minority and lived in a state with a law permitting denial of services to same-sex couples in 2015.Main Outcomes and Measures Mental distress, defined as poor mental health on 14 or more of the past 30 days. Results Of 109 089 participants, 4656 (4.8%; all percentages incorporate survey weights) identified as sexual minorities, 86141 (72.1%) were non-Hispanic white, and ages were uniformly distributed between 18 and 64 years. In 2014, 2038 of 16637 heterosexual adults (12.6%) and 156 of 815 sexual minority adults (21.9%) in the 3 same-sex denial states reported mental distress. The proportion of sexual minority adults reporting mental distress increased by 10.1 percentage points (95% CI, 1.8 to 18.5 percentage points, permutation-adjusted P value = .046) between 2014 and 2016 in states that passed laws permitting denial of services to same-sex couples compared with control states, a 46% relative increase in sexual minority adults experiencing mental distress. Laws permitting denial of services

to same-sex couples were not associated with significant changes in heterosexual adults experiencing mental distress (−0.36 percentage points, 95% CI, −1.73 to 1.01 percentage points). Conclusions and Relevance Laws permitting denial of services to same-sex couples, which exist in 12 states and are under consideration by the US Supreme Court, are associated with a 46% increase in sexual minority adults experiencing mental distress.

50. Ramirez, M., & Kim, J. (2018). Traversing gender, sexual orientation, and race-ethnicity: Sexual victimization in a population-based sample of older adults. *Journal of Gay & Lesbian Social Services, 30*(2), 192-208. doi:10.1080/10538720.2018.1445054

This research examined the intersectionality of gender, sexual orientation, and race-ethnicity, and its impact on lifetime sexual victimization among a population-based sample of older adults. Data for this study came from the 2011-2014 waves of the Behavioral Risk Factor Surveillance System. The final sample to be used for analysis included 8.862 individuals ages 50 years and over to examine whether and to what extent lesbian, gay, and bisexual older adults differ from heterosexual older adults in experiencing lifetime sexual victimization, and whether the effect of sexual orientation on experiencing lifetime sexual victimization differs across racial-ethnic groups. Logistic regression analysis revealed that lesbian women were 2.59 times more likely and bisexual women 2.15 times more likely both relative to heterosexual women to experience lifetime sexual victimization. When examining whether race-ethnicity imparts additional risk, the findings revealed that non-White heterosexual individuals were 29.6% less likely relative to White heterosexual individuals to experience lifetime sexual victimization, while non-White women, generally, were 2.29 times more likely relative to White men to experience lifetime sexual victimization. Our findings affirm the importance of the intersectionality of sexual orientation and gender when examining lifetime sexual victimization of older adults, adding to the emerging body of research that examines the complexities of older adult lives from multifaceted perspectives.

51. Ransome, Y., Batson, A., Galea, S., Kawachi, I., Nash, D., & Mayer Kenneth, H. (2017). The relationship between higher social trust and lower late HIV diagnosis and mortality differs by race/ethnicity: results from a state- level analysis. *Journal of the International AIDS Society, 20*(1), 21442. doi:10.7448/IAS.20.01/21442

Abstract Introduction: Black men who have sex with men (MSM) continue to suffer a disproportionate burden of new HIV diagnoses and mortality. To better understand some of the reasons for these profound disparities, we examined whether the association between social trust and late HIV diagnosis and mortality differed by race/ethnicity, and investigated potential indirect effects of any observed differences. Methods: We performed generalized structural equation modelling to assess main and interaction associations between trust among one's neighbours in 2009 (i.e. social trust)

and race/ethnicity (Black, White, and Hispanic) predicting late HIV diagnosis (a CD4 count ≤200 cell/μL within three months of a new HIV diagnosis) rates and all-cause mortality rates of persons ever diagnosed late with HIV, across 47 American states for the years 2009-2013. We examined potential indirect effects of state-level HIV testing between social trust and late HIV diagnosis. Social trust data were from the Gallup Healthways Survey, HIV data from the Centers for Disease Control and Prevention, and HIV testing from the Behavioral Risk Factor Surveillance System. Covariates included state-level structural, healthcare, and socio-demographic factors including income inequality, healthcare access, and population density. We stratified analysis by transmission group (male-to-male, heterosexual, and injection drug use (IDU)). Results: States with higher levels of social trust had lower late HIV diagnosis rates: Adjusted Rate Ratio [aRR] were consistent across risk groups (0.57; 95%CI 0.53, 0.62, male-to-male), (aRR 0.58; 95%CI 0.54, 0.62, heterosexual) and (aRR 0.64; 95%CI 0.60, 0.69, IDU). Those associations differed by race/ethnicity (all $p < 0.001$). The associations were most protective for Blacks followed by Hispanics, and least protective for Whites. HIV testing mediated between 18 and 32% of the association between social trust and late HIV diagnosis across transmission group but for Blacks relative to Whites only. Social trust was associated with lower all-cause mortality rates and that association varied by race/ethnicity within the male-to-male and IDU transmission groups only. Conclusions: Social trust may promote timely HIV testing, which can facilitate earlier HIV diagnosis, thus it can be a useful determinant to monitor the relationship with HIV care continuum outcomes especially for racial/ethnic minority groups disproportionately infected by HIV.

52. Riley, N. C., Blosnich, J. R., Bear, T. M., & Reisner, S. L. (2017). Vocal Timbre and the Classification of Respondent Sex in US Phone-Based Surveys. *American Journal of Public Health, 107*(8), 1290-1294. doi:10.2105/AJPH.2017.303834

Objectives. To characterize the conflict of sex and gender identity variables in the 2014 Behavioral Risk Factor Surveillance System (BRFSS) sample and examine how this may affect the administration of sex-related health behavior items to transgender participants. Methods. We conducted a secondary analysis of the 2014 BRFSS gender identity, sex, and sex-related health behavior variables. Twenty states administered the gender-identity variables (n = 154062), and 691 respondents identified as transgender in the survey (0.4%). We examined conflict among sex, gender identity, and gender-related variables, and compared conflicting and nonconflicting groups across 4 sociodemographic characteristics. Results. Nearly one third of respondents (27.8%; n=171) who identified as transgender received sex-specific items that conflicted with their natal sex, thereby reducing the already small subsample of valid responses. There were no significant differences between conflicting and nonconflicting groups on the basis of region, age, race/ethnicity, or type of interview. Conclusions. Public health

surveys should ask respondents to self-identify their sex and gender identity. Interviewer assumptions of respondents' sex may lead to erroneous collection of sex- and gender-based items, inhibit survey administration, and create problems in data quality.

53. Rothman, E. F., Sullivan, M., Keyes, S., & Boehmer, U. (2012). Parents' Supportive Reactions to Sexual Orientation Disclosure Associated With Better Health: Results From a Population-Based Survey of LGB Adults in Massachusetts. *Journal of Homosexuality, 59*(2), 186-200. doi:10.1080/00918369.2012.648878

This study investigated associations between coming out to parents, experiences of parental support, and self-reported health behaviors and conditions among a population-based sample of LGB individuals using data collected via the 2002 Massachusetts Behavioral Risk Factor Surveillance System (BRFSS; N = 177). We explored the following two hypotheses: 1) Lesbian, gay, and bisexual (LGB) individuals who had never disclosed their sexual orientation to a parent would report higher levels of risk behaviors and poorer health conditions than those who had come out; and 2) among LGB respondents who had come out to their parents, the individuals whose parents had reacted unsupportively would report higher levels of risk behaviors and poorer health conditions than those who had come out to parents who were supportive. Approximately two thirds of gay and bisexual (GB) males and lesbian and bisexual (LB) females reported receiving adequate social and emotional support from the parent to whom they first disclosed their sexual orientation. Among LB females, no disclosure of sexual orientation to a parent was associated with significantly elevated levels of past-month illicit drug use (AOR 12.16, 95% CI 2.87, 51.54), fair or poor self-reported health status (AOR 5.71, 95% CI 1.45, 22.51), and >15 days of depression in the past month (AOR 5.95, 95% CI 1.78, 19.90), controlling for potential confounders. However, nondisclosure to a parent by GB males was not associated with greater odds of any of the health indicators assessed. Among GB males, those with unsupportive parents were significantly more likely to report current binge drinking (AOR 6.94, 95% CI 1.70, 28.35) and >15 days depression in the past month (AOR 6.08, 95% CI 1.15, 32.15), and among LB females, those with unsupportive parents were significantly more likely to report lifetime illicit drug use (AOR 11.43, 95% CI 2.50, 52.30), and >15 days depression in the past month (AOR 5.51, 95% CI 1.36, 22.36). We conclude that coming out may be associated with better health for LB women, and that parents who react nonsupportively when their children disclose LGB sexual orientation may contribute to children's increased odds of depression and hazardous substance use.

54. Ruben, M. A., Blosnich, J. R., Dichter, M. E., Luscri, L., & Shipherd, J. C. (2017). Will Veterans Answer Sexual Orientation and Gender Identity Questions? *Medical Care, 55*.

Background: The Veterans Health Administration does not routinely collect and document sexual orientation and gender identity (SOGI) data, despite existing health disparities among sexual and gender minority Veterans. Because of the legacy of previous Department of Defense (DoD) policies that prohibited disclosure of sexual or gender minority identities among active duty personnel, Veterans may be reluctant to respond to SOGI questions. Objectives: This population-based study assesses item nonresponse to SOGI questions by Veteran status. Research Design: This is a secondary analysis of data from a population-based sample of adults in 20 US states that elected to administer a SOGI module in the 2014 Behavioral Risk Factor Surveillance System survey. Prevalence of SOGI refusals and responses of “don’t know” were compared for Veterans and non-Veterans. Subjects: Veterans (n=22,587) and non-Veterans (n=146,475) were surveyed. Results: Nearly all Veteran respondents (≥98%) completed the SOGI questions, with 95.4% identifying as heterosexual, 1.2% as gay or lesbian, 1.2% as bisexual, and 0.59% as transgender. A significantly lower proportion of Veterans than non-Veterans refuse to answer sexual orientation (1.5% vs. 1.9%). There was no difference between Veterans and non-Veterans in responses for gender identity. Conclusions: Veterans are just as likely as non-Veterans to complete SOGI items in survey research. Asking Veterans about SOGI is unlikely to yield significant nonresponse. These data suggest that future research should investigate Veterans’ perspectives on being asked about SOGI in research settings and as part of routine clinical care.

55. Seelman, K. L. (2018). Differences in Mental, Cognitive, and Functional Health by Sexual Orientation Among Older Women: Analysis of the 2015 Behavioral Risk Factor Surveillance System. *The Gerontologist*, gnx215-gnx215. doi:10.1093/geront/gnx215

Background and Objectives This study addresses a gap in the knowledge base regarding whether there are differences in mental, cognitive, and functional health between sexual minority women aged 65 and older and their heterosexual counterparts, as well as whether disparities are moderated by age, socioeconomic status, and race/ethnicity. Research Design and Methods This study analyzes 2015 Behavioral Risk Factor Surveillance System data from 21 states. Multivariate logistic regression is used to test the hypotheses. Results Compared to heterosexual women, lesbian/gay women aged 65 and older report worse functional health and bisexual women report worse cognitive health and more difficulties with instrumental activities of daily living. Disparities are particularly present for women in their late 60s and those in their 70s. While the likelihood of a depression diagnosis tends to be lower for heterosexual women with higher income, the inverse is true of sexual minority women. Additionally,

sexual minority women with less education have lower odds of frequent mental distress and activity limitations than those with some college education. Sexual minority women of color have significantly lower odds of frequent mental distress, activity limitations, and use of special equipment compared to white sexual minority women. Discussion and Implications Findings indicate a need for gerontological services that provide support to older sexual minority women, particularly in relation to cognitive and functional health. Future research is needed to understand risk and protective factors contributing to these disparities, including forms of resilience that occur among older sexual minority women of color.

56. Seelman, K. L., Miller, J. F., Fawcett, Z. E. R., & Cline, L. (2018). Do transgender men have equal access to health care and engagement in preventive health behaviors compared to cisgender adults? *Social Work in Health Care*, 1-24. doi:10.1080/00981389.2018.1462292

Using 2015 Behavioral Risk Factor Surveillance System data, this study investigates whether transgender men have equal access to health care and engagement in preventive health behaviors compared to cisgender adults in the U.S. and whether race/ethnicity, socioeconomic status, and rural residence moderate these relationships. Once controlling for sociodemographic factors, we do not find differences for transgender men. Rural transgender men were less likely to have a personal doctor or receive a blood cholesterol screening than their urban peers; transgender men with less education were more likely to have a cholesterol screening. We detail implications for social workers within health care.

57. Solazzo, A., Brown, T. N., & Gorman, B. K. (2018). State-level climate, anti-discrimination law, and sexual minority health status: An ecological study. *Social Science & Medicine, 196*, 158-165. doi:https://doi.org/10.1016/j.socscimed.2017.11.033

How social and legal climate influence LGB health is an under-studied topic. In response, this study examines whether the lesbian/gay/bisexual (LGB) climate index and presence of anti-discrimination law show population health significance for U.S. sexual minorities. The LGB climate index uses survey data collected between 2012 and 2013 to gauge states' support of lesbian, gay, and bisexual individuals, whereas anti-discrimination law captures any state-level law that makes it illegal to discriminate because of sexual orientation in employment, housing, and public accommodations. We merge these two contextual measures with 2011–2015 Behavioral Risk Factor Surveillance System (BRFSS) aggregated, individual-level survey data, from which we generate three measures of state-level rates: excellent self-rated health, routine health care utilization, and health insurance among self-identified lesbian/gay and bisexual adults. We find that the LGB climate index associates positively with rates of excellent self-rated health, routine health care utilization, and health insurance—but only for

states with anti-discrimination laws, and only among lesbian/gay adults. Analyses confirm salubrious synergism between a sexually-minority-friendly climate and anti-discrimination law—together these two contextual measures interact to protect lesbian/gay population health.

58. Streed, C. G., Jr, McCarthy, E. P., & Haas, J. S. (2017). Association between gender minority status and self-reported physical and mental health in the united states. *JAMA Internal Medicine, 177*(8), 1210-1212. doi:10.1001/jamainternmed.2017.1460

The National Institutes of Health (NIH) has underscored the need to better understand the health of gender minorities, including transgender and gender-nonconforming individuals.1 There is a dearth of nationally representative data identifying gender minorities.2 In 2013, the Centers for Disease Control and Prevention (CDC) developed3 a gender identity question module for the Behavioral Risk Factors Surveillance System (BRFSS); states had the option to administer this module beginning in 2014. Our study aimed to examine the health status of gender minorities in the United States compared with cisgender (gender identity that corresponds to gender at birth) peers.

59. Tabaac, A. R., Sutter, M. E., Wall, C. S. J., & Baker, K. E. (2018). Gender Identity Disparities in Cancer Screening Behaviors. *American Journal of Preventive Medicine, 54*(3), 385-393. doi:https://doi.org/10.1016/j.amepre.2017.11.009

Introduction Transgender (trans) and gender-nonconforming adults have reported reduced access to health care because of discrimination and lack of knowledgeable care. This study aimed to contribute to the nascent cancer prevention literature among trans and gender-nonconforming individuals by ascertaining rates of breast, cervical, prostate, and colorectal cancer screening behaviors by gender identity. Methods Publicly available de-identified data from the 2014–2016 Behavioral Risk Factor Surveillance System surveys were utilized to evaluate rates of cancer screenings by gender identity, while controlling for healthcare access, sociodemographics, and survey year. Analyses were conducted in 2017. Results Weighted chi-square tests identified significant differences in the proportion of cancer screening behaviors by gender identity among lifetime colorectal cancer screenings, Pap tests, prostate-specific antigen tests, discussing prostate-specific antigen test advantages/disadvantages with their healthcare provider, and up-to-date colorectal cancer screenings and Pap tests ($p<0.036$). Weighted logistic regressions found that although some differences based on gender identity were fully explained by covariates, trans women had reduced odds of having up-to-date colorectal cancer screenings compared to cisgender (cis) men (AOR=0.20) and cis women (AOR=0.24), whereas trans men were more likely to ever receive a sigmoidoscopy/colonoscopy as compared to cis men (AOR=2.76) and cis women (AOR=2.65). Trans women were more likely than cis men to have up-to-date prostate-specific antigen tests (AOR=3.19). Finally, trans men and gender-

nonconforming individuals had reduced odds of lifetime Pap tests versus cis women (AOR=0.14 and 0.08, respectively), and gender-nonconforming individuals had lower odds of discussing prostate-specific antigen tests than cis men (AOR=0.09; all $p<0.05$). Conclusions The findings indicate that gender identity disparities in cancer screenings persist beyond known sociodemographic and healthcare factors. It is critical that gender identity questions are included in cancer and other health-related surveillance systems to create knowledge to better inform healthcare practitioners and policymakers of appropriate screenings for trans and gender-nonconforming individuals.