Health Reporting Heterogeneity across Sexual Identities in the U.S.: Evidence from the National Health Interview Survey

Estelle Knoblauch, Sofie Quermann, Anna Oksuzyan

Background

Health outcomes show significant disparities between straight and sexual minority populations, as has been demonstrated in previous studies. Across a range of physical domains (Zeeman et al., 2019), as well as mental domains (Wittgens et al., 2022), lesbian, gay, and bisexual (LGB) populations experience poorer health outcomes. However, findings from studies using self-rated health (SRH) as an outcome are mixed. Whereas some studies have reported a health disadvantage of LGB women and men compared to their straight counterparts (Bränström et al., 2016; Dilley et al., 2010), other research has found no differences in self-rated physical health across sexual identities (Conron et al., 2010; Sivakumaran & Margolis, 2018). Further studies demonstrated a health disadvantage of sexual minority individuals only among women (Boehmer et al., 2014; Gonzales & Henning-Smith, 2015), or bisexual individuals (Booker et al., 2017; Conron et al., 2010; Liu et al., 2021). Notably, two studies documented better SRH among gay men and lesbian women compared to their heterosexual counterparts (Gorman et al., 2015; Liu et al., 2021). The inconsistent findings regarding the association between sexual identity and SRH, despite the documented disparities in specific health conditions, give rise to the question of whether underlying health conditions are being accessed and interpreted differently between sexual minority and straight individuals during the process of health evaluation. Despite its tremendous utility in health-based sociological, economic, and demographic studies, prior research indicates that comparing SRH across social groups and nations may be misleading because these contexts influence individuals' appraisals of their health status (Bago d'Uva et al., 2008; Chandola & Jenkinson, 2000; Dowd & Todd, 2011; Jürges, 2007; Oksuzyan et al., 2019).

In developing a conceptual model of self-rated health, Jylhä (2009) sought to explain how people evaluate their own health and why differences in reported health arise between groups with similar objective health. The model posits a three-stage process in which individuals first identify and interpret relevant health information, then evaluate it against personal experiences, norms or reference groups, and finally formulate an overall health rating. A range of contextual factors have been identified as influencing each stage of the evaluation process (Jylhä, 2009). These include age, culture, earlier health experiences and reference groups (ibid.). The differences between reported and 'true' underlying health is referred to as 'reporting heterogeneity'. Whether this reporting heterogeneity differs by sexual identity has not been investigated, yet.

Findings from prior studies suggest, however, that sexual identity may work as an additional contextual factor influencing self-rated health, by shaping not only the underlying health components, but also the framework in which they are evaluated. First, straight and sexual minority individuals may take different health components into account when assessing their health status. Given the greater barriers to access the healthcare system and the resulting lower healthcare use among sexual minority people (Gioia & Rosenberger, 2022; Jackson et al., 2016; Luk et al., 2017), certain health components may remain unknown to them and thus not be part of their health assessment. Instead, unique psychosocial stressors related to their minoritized identity, i.e. minority stress (Meyer, 2003), may function as an underlying component of their health evaluation. Secondly, otherwise equal health conditions may be interpreted differently between straight and LGB individuals. Specific comparison processes, play a central role in determining how each component is included in the overall health evaluation (Henchoz et al., 2008). A common strategy, is the health evaluation in relation to chosen reference groups, which are typically peers in the social network or abstract social groups based on general ideas or stereotypes (Wolff et al., 2010). Sexual minority individuals may assess their health against the stigmatized image of their own group, e.g. that being part of the sexual minority population goes hand in hand with being in poor physical and mental health (Boysen et al., 2006; Cipollina & Nicolas, 2025; Drescher, 2015; Rice et al., 2022). In this regard, sexual minority individuals may seek

to counteract stigma and invalidate prevailing prejudices (Fingerhut et al., 2022; Manning et al., 2025), resulting in a more positive interpretation of their underlying health conditions. The third and final step in people's health assessment is the translation of the results of their evaluation into the respective scale, that represents their health status best (Jylhä, 2009). This study seeks to understand potential differences in health reporting behavior between sexual identities.

Data & Methods

In the present study we utilized data from the National Health Interview Survey (NHIS) first initiated in 1957 (Blewett et al., 2024; National Center for Health Statistics, 2019). It is an annual, cross-sectional household interview study, representative for the non-institutionalized population in the USA.

Sexual identity was self-identified and assessed as follows: "Do you think of yourself as gay or lesbian; straight, that is not gay or lesbian; bisexual; something else; or you don't know the answer?". This item has been a part of the questionnaire since 2013. To enlarge the sample size and enhance the statistical robustness of our results, particularly for sexual minority groups, we aggregated the data from waves 2013 to 2018. A redesign of the study in 2019, leading to the exclusion of health variables we consider important for our analysis, made including more recent survey waves infeasible. We grouped individuals based on their sexual identity into straight, lesbian and gay (LG) or bisexual. Although the people belonging to the 'bisexual' category were included in the analysis, the results for this groups are not shown due to its small size in the sample. Refusal, not knowing the answer or identifying with another category were omitted from the analysis (N = 7093). The interpretation of the differences in health and health reporting by sexual identity requires an understanding of the social context, which is very heterogeneous for these groups. Thus, sexual minority groups were not combined.

To assess their general health (SRH), all NHIS participants were asked: "Would you say your health is excellent, very good, good, fair, or poor?". The survey further covers health related topics such as chronic illnesses, functional limitations, access to and use of medical services, insurance coverage, and health behaviors. To estimate the underlying latent health, we used a wide range of health measures which were all coded as binary. Some health measures were self-reports of a physician-diagnosed chronic conditions, such as diabetes, high cholesterol, hypertension, coronary conditions, chronic respiratory disease, cancer, arthritis, stroke, joint problems, musculoskeletal pain, gastrointestinal problems, and migraine. Anthropometric measures only included calculations of BMI coded as overweight (BMI≥25 and BMI<30), and obesity (BMI≥30). Other measures reflected participants' activity limitations, and healthcare use, specifically taking prescribed medications, overnight stays in the hospital, and insurance coverage. Finally, we used the K6 mental distress scale to account for mental health and identify people with moderate mental distress (K6 ≥ 5) and severe mental illness (K6 ≥ 13) (Kessler et al., 2003), and a lifestyle behavior with being a current smoker.

Threshold variables included in the present study are related to age, educational attainment, race, gender, sexual identity and whether a person lives with their partner.

Statistical approach

To account for differences in health reporting by sexual identity and across sociodemographic groups, we follow Jürges' (2007) methodology. Employing a generalized hierarchical ordered probit model (Dańko, 2019), we regressed our dependent variable – self-rated health (SRH) – onto two sets of independent variables: health variables and threshold variables (Greene et al. 2014; Greene and Hensher 2010; King et al. 2004a). While health variables aim to define the individual's 'true' underlying health, threshold variables identify cut points (or thresholds) between adjacent SRH response categories as functions of sociodemographic characteristics including gender and sexual identity. As a result, we obtain individuals' continuous latent health ranging from 0 to 1 that accounts for reporting heterogeneity ('adjusted' health). The latent underlying health is then projected onto a discrete scale using the same distribution as the initial SRH ('original' health) observed in the survey data. The deviations from the initial level of health are the degree of reporting heterogeneity. For a deeper

discussion of the method see (Hensher & Greene, 2010; Jürges, 2007; Oksuzyan et al., 2019; Rebelo & Pereira, 2014).

Results

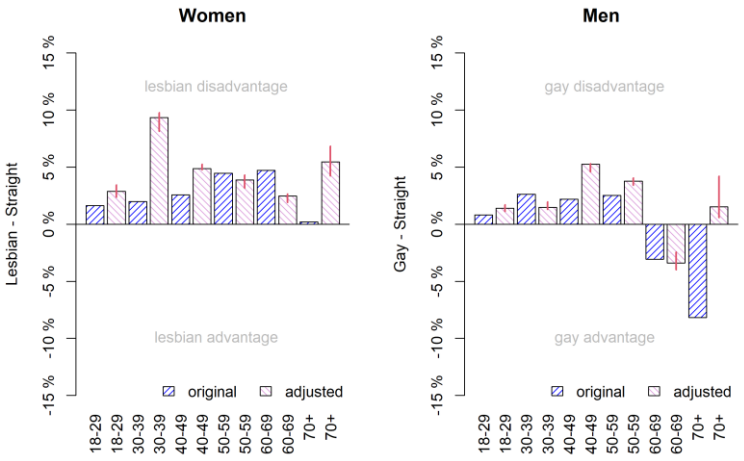
The final sample includes 168,976 participants, of whom 3,002 identified as gay or lesbian and 164,331 self-identified as straight.

Descriptive results reveal the following: High-risk level of metabolic measures and most chronic conditions were more prevalent among straight women and men than among lesbian and gay persons. The exception from this pattern were asthma, musculoskeletal pain, and migraine which were slightly more prevalent among LG than straight people. The prevalence of cancer was slightly higher among gay than among straight men, while joint problems and activity limitation were more prevalent among lesbian women than among their straight counterparts. LG people were also more likely to use prescription medications, have overnight hospital stay in the past year, have no health insurance (lesbian women only) and to smoke than straight men and women. Gay and lesbian people in our sample were also younger and higher educated than their straight peers.

Sexual identity differences in prevalences of poor health by sexual identity and gender

Figure 1 shows the differences in prevalence of poor health between sexual identities on the original and adjusted scale by gender, and age. Positive differences show higher prevalences of poor health among sexual minorities compared to straight peers, which can be interpreted as a disadvantage in health for sexual minorities. The prevalence of poor SRH was higher among lesbian than straight women at all ages on both scales. One exception is the oldest age group with similar prevalence of poor health in both groups on the original scale. Gay men also had a higher prevalence of poor health relative to straight men at ages 18 to 59 year, while the pattern reversed from age 60+. The same prevalences increased with advanced age among straight women and men. Among lesbian women the age-related increase was less apparent, and even less so among gay men.

Figure 1. Differences in the prevalence of poor health between sexual identities.

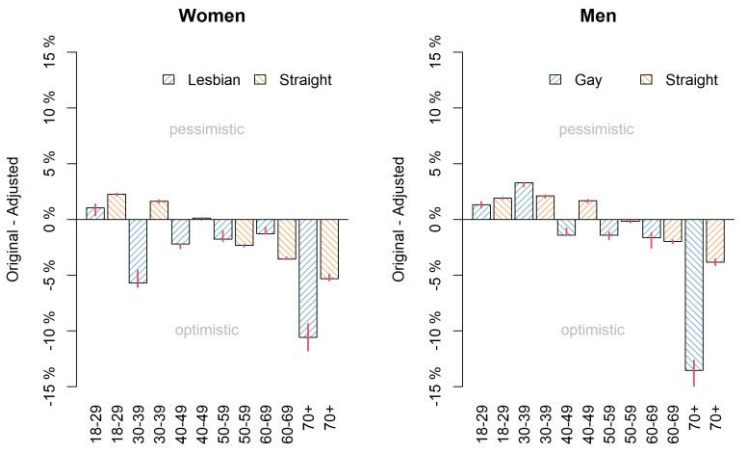


After adjusting for reporting heterogeneity, the health disadvantage of LG people became more apparent in all age groups, as did the age-related increase in the prevalence of poor health. One exception is 60-69-year-old straight men who had higher proportion of poor health compared to their gay peers. What looked like an advantage for older gay men compared to their straight peers on the original scale looks more like an exception than a pattern on the adjusted scale.

Reporting of poor health by sexual identity and gender

To identify patterns in the reporting of poor health by sexual identity and gender, we plotted the differences between the original and adjusted proportions of both sexual identities in poor health by gender and age (Figure 2). It reveals a clear age-specific pattern among straight people with younger men and women showing a pessimistic and respondents aged 50+ showing optimistic health reporting behaviors. This age-specific pattern was less clear among lesbian and gay people with gay men and lesbian women at ages 18-29- and 30-39-year-old gay men being pessimistic about their health. In all other age groups LG people reported optimistically about their health.

Figure 1. Reporting of poor health by sexual identity and gender.



Discussion

Our study contributes to research on heterogeneity in health reporting in several ways. Not solely does the latent health differ between straight and sexual minority individuals, but so does the way in which individuals assess their health status. Specifically, we show that lesbian and gay individuals tend to report their health more optimistically than straight people. These findings may be attributable to sexual minority individuals' lower knowledge about certain health conditions, as well as to a downward comparison of their health status against the stigmatized expectation of their own group being in poor health. Thus, previous studies about differences in self-rated health between the straight and sexual minority population may have overestimated the health status of sexual minority people.

While initial prevalences of most conditions were lower for sexual minorities, this initial perspective soon shifted when looking at SRH and adjusted health levels by age groups. This suggests that lower condition prevalences can be attributed to the sexual minority group being younger on average in the present sample, or following Jackson et al. (2016), to their limited healthcare seeking behaviors. Researchers should be careful in comparing self-rated general health measures between groups of different sexual identities as any disadvantages that may be found may be conservative considering our results of optimistic reporting behavior (which is equal to an underreporting of bad health). Although, as Marja Jylhä (2009) points out, it is not clear that a measure adjusting for (semi-) objective health measures is any more comparable, our findings show, that it is important to consider the context in which to interpret self-rated health measure.

Additionally, our study supports previous findings about age-specific patterns in health reporting (pessimistic at younger ages and optimistic at older ages) among straight, less so among lesbian and gay people.

Though our sample size suffices for meaningful results for gay men and lesbian women, we cannot say anything about bisexual people or other sexual identity minorities with the data at hand. The exclusion of the "something else" category results in the loss of critical information about subgroups of the sexual minority population, who may have unique health risks (Eliason et al., 2016). However, given the possible heterogeneity of this group, and the lack of further information in the publicly available data, we were not able to include other sexual identities. This, however, is essential for future research as studies show substantial differences in health between sexual minority groups (Conron et al., 2010; Gorman et al., 2015).

References

Bago d'Uva, T., Van Doorslaer, E., Lindeboom, M., & O'Donnell, O. (2008). Does reporting heterogeneity bias the measurement of health disparities? *Health Economics*, *17*(3), 351–375. https://doi.org/10.1002/hec.1269

Blewett, L. A., Rivera Drew, J. A., King, M. L., Williams, K. C. W., Backman, D., Chen, A., & Richards, S. (2024). *IPUMS Health Surveys: National Health Interview Survey* (Version 7.4) [Dataset]. https://doi.org/10.18128/D070.V7.4

Boehmer, U., Miao, X., Linkletter, C., & Clark, M. A. (2014). Health Conditions in Younger, Middle, and Older Ages: Are There Differences by Sexual Orientation? *LGBT Health*, *1*(3), 168–176. https://doi.org/10.1089/lgbt.2013.0033

Booker, C. L., Rieger, G., & Unger, J. B. (2017). Sexual orientation health inequality: Evidence from Understanding Society , the UK Longitudinal Household Study. *Preventive Medicine*, *101*, 126–132. https://doi.org/10.1016/j.ypmed.2017.06.010

Boysen, G. A., Vogel, D. L., Madon, S., & Wester, S. R. (2006). Mental Health Stereotypes About Gay Men. *Sex Roles*, *54*(1–2), 69–82. https://doi.org/10.1007/s11199-006-8870-0

Bränström, R., Hatzenbuehler, M. L., & Pachankis, J. E. (2016). Sexual orientation disparities in physical health: Age and gender effects in a population-based study. *Social Psychiatry and Psychiatric Epidemiology*, *51*(2), 289–301. https://doi.org/10.1007/s00127-015-1116-0

Chandola, T., & Jenkinson, C. (2000). Validating Self-rated Health in Different Ethnic Groups. *Ethnicity & Health*, *5*(2), 151–159. https://doi.org/10.1080/713667451

Cipollina, R., & Nicolas, G. (2025). Characterizing stereotypes that perpetuate sexual minorities' anticipated stigma in healthcare settings. *Psychology of Sexual Orientation and Gender Diversity*. https://doi.org/10.1037/sgd0000822

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. https://doi.org/10.2105/AJPH.2009.174169

Dańko, M. (2019). hopit: An R Package for Analysis of Reporting Behavior Using Generalized Ordered Probit Models. *Journal of Open Source Software*, *4*(43), 1508. https://doi.org/10.21105/joss.01508

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. https://doi.org/10.2105/AJPH.2007.130336

Dowd, J. B., & Todd, M. (2011). Does Self-reported Health Bias the Measurement of Health Inequalities in U.S. Adults? Evidence Using Anchoring Vignettes From the Health and Retirement Study. *The Journals of Gerontology: Series B*, *66B*(4), 478–489. https://doi.org/10.1093/geronb/gbr050

Drescher, J. (2015). Out of DSM: Depathologizing Homosexuality. *Behavioral Sciences*, *5*(4), 565–575. https://doi.org/10.3390/bs5040565

Eliason, M. J., Radix, A., McElroy, J. A., Garbers, S., & Haynes, S. G. (2016). The "Something Else" of Sexual Orientation: Measuring Sexual Identities of Older Lesbian and Bisexual Women Using National Health Interview Survey Questions. *Women's Health Issues*, *26*, S71–S80. https://doi.org/10.1016/j.whi.2016.03.012

Fingerhut, A. W., Martos, A. J., Choi, S. K., & Abdou, C. M. (2022). Healthcare Stereotype Threat and Health Outcomes Among LGB Individuals. *Annals of Behavioral Medicine*, *56*(6), 562–572. https://doi.org/10.1093/abm/kaab060

Gioia, S. A., & Rosenberger, J. G. (2022). Sexual Orientation-Based Discrimination in US Healthcare and Associated Health Outcomes: A Scoping Review. *Sexuality Research and Social Policy*, *19*(4), 1674–1689. https://doi.org/10.1007/s13178-022-00741-8

Gonzales, G., & Henning-Smith, C. (2015). Disparities in Health and Disability Among Older Adults in Same-Sex Cohabiting Relationships. *Journal of Aging and Health*, *27*(3), 432–453. https://doi.org/10.1177/0898264314551332

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. https://doi.org/10.1007/s13524-015-0406-1

Henchoz, K., Cavalli, S., & Girardin, M. (2008). Health perception and health status in advanced old age: A paradox of association. *Journal of Aging Studies*, *22*(3), 282–290. https://doi.org/10.1016/j.jaging.2007.03.002

Hensher, D. A., & Greene, W. H. (Eds.). (2010). Accommodating individual heterogeneity. In *Modeling Ordered Choices: A Primer and Recent Developments* (pp. 208–238). Cambridge University Press. https://doi.org/10.1017/CBO9780511845062.008

Jackson, C. L., Agénor, M., Johnson, D. A., Austin, S. B., & Kawachi, I. (2016). Sexual orientation identity disparities in health behaviors, outcomes, and services use among men and women in the United States: A cross-sectional study. *BMC Public Health*, *16*(1), 807. https://doi.org/10.1186/s12889-016-3467-1

Jürges, H. (2007). True health vs response styles: Exploring cross-country differences in self-reported health. *Health Economics*, *16*(2), 163–178. https://doi.org/10.1002/hec.1134

Jylhä, M. (2009). What is self-rated health and why does it predict mortality? Towards a unified conceptual model. *Social Science & Medicine*, *69*(3), 307–316. https://doi.org/10.1016/j.socscimed.2009.05.013

Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., Howes, M. J., Normand, S.-L. T., Manderscheid, R. W., Walters, E. E., & Zaslavsky, A. M. (2003). Screening for Serious Mental Illness in the General Population. *Archives of General Psychiatry*, *60*(2), 184–189. https://doi.org/10.1001/archpsyc.60.2.184

Liu, H., Hsieh, N., & Lai, W. (2021). Sexual Identity and Self-Rated Health in Midlife: Evidence from the Health and Retirement Study. *Health Equity*, *5*(1), 587–595. https://doi.org/10.1089/heq.2021.0034

Luk, J. W., Gilman, S. E., Haynie, D. L., & Simons-Morton, B. G. (2017). Sexual Orientation Differences in Adolescent Health Care Access and Health-Promoting Physician Advice. *Journal of Adolescent Health*, *61*(5), 555–561. https://doi.org/10.1016/j.jadohealth.2017.05.032

Manning, W. D., Dush, C. K., & Gustafson, K. (2025). Health Care Stereotype Threat During the COVID-19 Pandemic Among Sexual and Gender Minority Individuals. *American Journal of Public Health*, *115*(3), 425–433. https://doi.org/10.2105/AJPH.2024.307926

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, *129*(5), 674–697. https://doi.org/10.1037/0033-2909.129.5.674

National Center for Health Statistics. (2019). *Survey Description, National Health Interview Survey, 2018*. https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2018/srvydesc.pdf

Oksuzyan, A., Dańko, M. J., Caputo, J., Jasilionis, D., & Shkolnikov, V. M. (2019). Is the story about sensitive women and stoical men true? Gender differences in health after adjustment for reporting behavior. *Social Science & Medicine*, *228*, 41–50. https://doi.org/10.1016/j.socscimed.2019.03.002

Rebelo, L. P., & Pereira, N. S. (2014). Assessing Health Endowment, Access and Choice Determinants: Impact on Retired Europeans' (In)activity and Quality of Life. *Social Indicators Research*, *119*(3), 1411–1446. https://doi.org/10.1007/s11205-013-0542-1

Rice, D. R., Hudson, S. T. J., & Noll, N. E. (2022). Gay = STIs? Exploring gay and lesbian sexual health stereotypes and their implications for prejudice and discrimination. *European Journal of Social Psychology*, *52*(2), 326–341. https://doi.org/10.1002/ejsp.2793

Wittgens, C., Fischer, M. M., Buspavanich, P., Theobald, S., Schweizer, K., & Trautmann, S. (2022). Mental health in people with minority sexual orientations: A meta-analysis of population-based studies. *Acta Psychiatrica Scandinavica*, *145*(4), 357–372. https://doi.org/10.1111/acps.13405

Wolff, L. S., Subramanian, S. V., Acevedo-Garcia, D., Weber, D., & Kawachi, I. (2010). Compared to whom? Subjective social status, self-rated health, and referent group sensitivity in a diverse US sample. *Social Science & Medicine*, *70*(12), 2019–2028. https://doi.org/10.1016/j.socscimed.2010.02.033

Zeeman, L., Sherriff, N., Browne, K., McGlynn, N., Mirandola, M., Gios, L., Davis, R., Sanchez-Lambert, J., Aujean, S., Pinto, N., Farinella, F., Donisi, V., Niedźwiedzka-Stadnik, M., Rosińska, M., Pierson, A., Amaddeo, F., Health4LGBTI Network, Taibjee, R., Toskin, I., … De Sutter, P. (2019). A review of lesbian, gay, bisexual, trans and intersex (LGBTI) health and healthcare inequalities. *European Journal of Public Health*, *29*(5), 974–980. https://doi.org/10.1093/eurpub/cky226