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Birth Cohort Trends in Health Disparities by Sexual Orientation

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Abstract

Lesbian, gay, and bisexual-identified (LGB) people experience worse mental and physical health than their straight-identified counterparts. Given remarkable social and legal changes regarding LGB status in recent decades, we theorize that this profound health disadvantage may be changing across cohorts. Using data from the 2013–2018 National Health and Interview Surveys, we analyze five mental and physical health outcomes—psychological distress, depression, anxiety, self-rated physical health, and activity limitation—across three birth cohorts colloquially known as (1) Millennials, (2) Generation Xers, and (3) Baby Boomers and pre-Boomers. We find no evidence of reduced health disparities by sexual orientation across cohorts. Instead, relative to straight-identified respondents, the health disadvantages of gay, lesbian, and—most strikingly—bisexual-identified people have increased across cohorts. Findings highlight the importance of identifying the causes of increased health disparities as well as designing and implementing more direct public policies and programs to eliminate health disparities among more recent LGB cohorts.

Keywords

Sexual orientation; Birth cohort; Trends; Health disparities; Bisexuality

Introduction

The percentage of American adults identifying as lesbian, gay, or bisexual (LGB) doubled from 2.7% in 2008 to 5.4% in 2016, with a particularly notable increase in bisexual identification over this period (Bridges and Moore 2018). Previous studies have demonstrated that LGB people report worse mental and physical health outcomes than their straight counterparts (Institute of Medicine 2011; Meyer 2003), with bisexual people reporting the worst such outcomes across all groups (Gorman et al. 2015; Hsieh and Liu 2019; Thomeer and Reczek 2016). The most predominant theory explaining these health disadvantages is minority stress theory, which suggests that LGB people experience both interpersonal and institutional discrimination on the basis of their sexuality (e.g., homophobia, biphobia) and that this discrimination contributes to worse health (Meyer,

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2003). Yet, a life course perspective—specifically, the concept of historical timing (Elder 1974; Elder et al. 2003; Hammack and Cohler 2011; Hammack et al. 2018)—posits that the health effect of minority stressors may differ across birth cohorts, given that the historical timing of socio-legal events will affect LGB health in unique ways depending on the birth cohort. It is unknown whether health disparities by sexual orientation declined, held steady, or increased across birth cohorts.

Younger LGB cohorts may experience better health relative to their straight counterparts than older LGB cohorts. Because younger LGB cohorts have grown up in an ostensibly more progressive era, they may experience lower levels of lifetime discrimination and thus have lower levels of health disadvantage than older LGB cohorts (Raifman et al. 2018; Raifman et al. 2017). The United States has witnessed significant progress in securing public support and legal rights for the LGB-identified population over the past decades, most conspicuously the legalization of same-sex marriage *(Obergefell v. Hodges*; see Adamczyk 2017; Gates 2015) and the U.S. Supreme Court ruling that workplace discrimination against LGB and transgender people is illegal *(Bostock v. Clayton County)*. Gay men who came of age during the HIV/AIDS crisis and sodomy laws directed at men who had sex with men may experience worse health outcomes than gay men who came of age after the stigma of HIV/AIDS declined, anti-sodomy laws were repealed, and same-sex marriage was legalized (Forstein 2013; Halkitis 2014; Hammack 2005; Hammack and Cohler 2011).

On the other hand, health disparities may have held steady or even increased across birth cohorts. Significant homophobia and biphobia persist in the United States, as does an uneven legal and social culture around LGB rights. Until 2020, the majority of U.S. states had failed to add LGB people to workplace discrimination laws (Pizer et al. 2012). The U.S. Supreme Court decided in 2018 to allow businesses the legal right to refuse to serve same-sex couples (*Masterpiece Cakeshop v. Colorado Civil Rights Commission*), and so-called bathroom bills attempted to restrict transgender people's public bathroom usage (although most bathroom bills have failed to become law; see Kralik 2019). At the same time, due to increased social acceptance and openness to sexual minorities, LGB people with disadvantaged status and thus poorer health who are members of younger cohorts may be more willing to cross social boundaries to disclose their sexual orientation than those who are from older cohorts. In this sense, LGB health disparities may remain or even increase across cohorts.

Regardless of the direction of change, according to the life course theory—in particular, the concept of historical period (Elder et al. 2003)—these social and legal changes imply unique historical contexts for LGB health across cohorts. Using the pooled data from the National Health Interview Surveys (NHIS) 2013–2018, we test these possibilities by providing the first population-based study of birth cohort trends in both mental and physical health outcomes for LGB people in comparison with their straight counterparts. Given the heightened health disadvantages that bisexual people face relative to all other groups, we also test for variation in cohort change separately for bisexual people. This study provides new insight into how LGB well-being has changed in the shifting historical socio-legal context and facilitates efforts to continue to reduce health disparities within and across the sexual minority population.

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A Merged Minority Stress and Life Course Perspective: Implications for Trends in Health Disparities

LGB-identified people have historically been subject to a host of health disparities relative to their straight counterparts, including worse mental and physical health, higher rates of substance use, and lower rates of health insurance (Buchmueller and Carpenter 2010; Herek et al. 2009). Notably, bisexual people experience the most severe health disadvantages across sexual identity groups (Gorman et al. 2015; Hsieh and Liu 2019). *Minority stress theory*, the primary theory used to explain LGB people's disproportionately poor health, suggests that specific health disadvantages accumulate for sexual minorities because interpersonal (i.e., micro) and institutional (i.e., macro) discrimination are fundamental causes of stress and disadvantage (Hatzenbuehler et al. 2013; Herek 1998; Meyer 2003). For example, institutional discrimination at the macro level includes discriminatory laws banning same-sex marriage and same-sex sex and a lack of state and federal workplace protections for LGB workers (Lloren and Parini 2017; Mishel 2016; Tilcsik 2011). Additionally, institutional discrimination is found in the structure of healthcare (e.g., presumed heterosexuality on forms and during exams) and educational settings (e.g., teaching only about heterosexual sex) (Hatzenbuehler et al. 2014; Hatzenbuehler et al. 2010; Hatzenbuehler et al. 2012). Cultural stereotypes at the micro level—such as interpersonal interactions with overt and implicit homophobic and biphobic language and violence by family, network ties, and strangers—further erode the health of LGB people (Meyer 2003).

Although research has revealed these overall patterns, interpersonal and institutional norms that shape LGB health disparities have changed over time. In this study, we merge minority stress theory with a *life course approach* (Elder et al. 2003; Hammack et al. 2018) to argue that because of historical changes, the institutional and social climate that each cohort has uniquely experienced will shape their experiences of sexual minority stress—and thus health outcomes—differently across cohorts. As one of the key aspects of life course theory, the notion of historical time suggests that specific historical moments shape life course events and experiences differentially across cohorts (Elder et al. 2003). According to this theory, each cohort experiences entirely different historical, cultural, and social contexts; even if they experience the same events, they do so at different developmental ages. These different experiences, in turn, shape each cohort's life environment and subsequent health (Adamczyk 2017; Doan et al. 2014). As such, the socio-institutional context of the life course differs by cohort and distinctly shapes health.

A Convergence Hypothesis

A merged life course and minority stress approach brings attention to how the shifting historical context of LGB legal rights and social acceptance shapes health differentially by birth cohort. Some scholars have argued that the current U.S. environment has steadily grown more progressive in acceptance of LGB people. Public opinion has changed drastically over the past two decades, decidedly moving toward pro-LGB rights. National, state-level, and local protections have been granted to reduce homophobia and provide safe spaces for LGB people (Adamczyk 2017; Fetner and Kush 2008; Kosciw et al. 2015; Kull et al. 2015).

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Sexual minority cohorts who came of age in the 1950s, 1960s, and 1970s experienced lifelong discriminatory sociocultural events relative to those coming of age today, with likely strong implications for health. These older cohorts experienced legal and sanctioned outright rejection, harassment, and violence, often leading to the loss of jobs and family relationships as well as a high prevalence of remaining "in the closet." Significant evidence suggests that older LGB cohorts consistently faced higher rates of employment discrimination (Mishel 2016; Tilcsik 2011) and wage discrimination (Badgett 1995; Mize 2016). For example, during what has been called the "lavender scare" of the 1950s, the federal government legally terminated any LGB—or suspected LGB—individuals from government service (Gates 2015; Kail et al. 2015; Ofosu et al. 2019). These same individuals grew up and experienced adulthood in the conservative 1950s-era cultural and economic imperative of heterosexual, monogamous households that defined and confined family life for the majority of Americans (Hammack et al. 2018). Similarly, those who experienced the Stonewall riots of 1969, the HIV/AIDS crisis of the 1980s, and the subsequent gay liberation movement were likely affected by this social upheaval (and outright discrimination) in profound ways (Hammack et al. 2018).

These events likely had more subtle effects, if any, on younger cohorts who were not born yet or who were children during these historical moments. As such, younger cohorts face different legal and social environments that may facilitate healthier outcomes. Most young adults today grew up when same-sex marriage was legalized (at least at the state level) and the anti-gay military ban was abolished. As a result, more recent cohorts "come out" to their parents (and themselves) at earlier ages (Floyd and Bakeman 2006). Additionally, there has been a recent rush toward legal protection of same-sex marriages and greater protection of sexual minority status in the workplace and at school (Powell 2017; Powell et al. 2015; Savin-Williams 2001, 2009). Some evidence also suggests that gay men and lesbian women have higher levels of educational achievement and labor force participation now than before (Black et al. 2012). This population-level education and labor force participation advantage may be skewed by younger LGB cohorts who were of school age during the 1990s–2000s, when LGB policies and programs were introduced into secondary schools. Therefore, LGB people of younger generations, such as Millennials, are perhaps more likely to have been positively influenced by LGB-affirming policies, increasing their socioeconomic standing and in turn reducing their health disadvantages. In contrast, those typically understood as Generation Xers concluded primary education before this transitional period, and most Baby Boomers and pre-Boomers were of school age before the post-Stonewall gay rights movement (Escoffier 1985); neither Baby Boomers nor pre-Boomers experienced the more supportive environments in early life. Taken together, these changes in social, cultural, and economic climates of LGB issues may result in less stigma and minority stress for LGB people of younger cohorts relative to those of earlier cohorts, with potential effects on their health.

A Persistence/Divergence Hypothesis

As scholars of sexuality have cautioned (Ball 2019), the progression toward LGB acceptance and rights in the United States is not linear. Perhaps the biggest harbinger against the notion of linear progress is that LGB youth today still report higher levels of victimization than

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their straight peers (Grov et al. 2018; Pew Research Center 2013). Contemporary backlash in local and federal laws and sociocultural norms—mostly notable during the Trump era—may temper or even reverse acceptance and increase the stigma and discrimination that LGB people experience. For example, LGB people have experienced a rollback of some protections, including the legalization of workplace discrimination against LGB people in most states and the federal government (until 2020; Pizer et al. 2012), the U.S. Supreme Court Decision to legalize LGB discrimination in the private sector on the basis of religious freedom (e.g., *Masterpiece Cakeshop v. Colorado Civil Rights Commission)*, and bathroom bills restricting transgender people's bathroom usage (Kralik 2019). Moreover, even as we see so-called progress in laws and social opinion, it may not lead to an immediate reduction in health disparities across cohorts because changes in social policies may take a long time to produce discernible impacts on individuals' health (Burris 2011). In addition, legal progress and public opinion do not necessarily translate into better treatment; rather, illegal discrimination likely occurs and continues to shape the health of all LGB people.

Moreover, social acceptance and attitude changes toward sexual monitories are accompanied by remarkable changes in the composition of this population that may shape health disparities. One of the most noticeable U.S. demographic trends in the past few decades is the rapid growth of the LGB population, with a particularly notable increase in the bisexual population (Bridges and Moore 2018). Historically, socioeconomically disadvantaged LGB people have come out at lower rates than those who are socioeconomically advantaged, and these disadvantaged people also have worse health. Given reduced social barriers to coming out, especially in recent cohorts, a higher proportion of LGB individuals with disadvantaged status who are from younger cohorts may be more willing to disclose their sexual orientation than those from older cohorts. If so, the difference may lead to a larger health gap between the LGB and straight groups in more recent cohorts.

LGB Health Trends: Bisexual People as the Most Disadvantaged Group

Social, cultural, economic, and demographic shifts may not affect all LGB populations equally. Bisexual-identified people, in particular, appear to suffer greater marginalization in both heterosexual and gay/lesbian communities (Gorman et al. 2015; Hsieh and Liu 2019; Thomeer and Reczek 2016). As the most rapidly growing sexual minority group (Gorman et al. 2015; Hsieh and Liu 2019; Thomeer and Reczek 2016), bisexual people experience greater negative health consequences from minority stress than their gay and lesbian counterparts (Gorman et al. 2015; Hsieh and Liu 2019; Thomeer and Reczek 2016).

Two primary reasons can be proposed for this disadvantage. First, bisexual people are often not seen by some as authentically a sexual minority and are thus ostracized from not only the straight community but also the gay and lesbian community. As a result, the recent LGB movement may not confer the same health effects to bisexual people as to gay men and lesbian women (Gorman et al. 2015; Hsieh and Liu 2019; Thomeer and Reczek 2016). For example, given that most married and cohabiting bisexual people are in different-sex relationships, they may not feel they have been discriminated against in regard to the legality of their union and therefore, compared with gay men and lesbians, do not benefit as much from the passage of same-sex marriage laws. In support of this perspective, Hsieh and Liu

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(2019) found that married bisexual people—especially those in different-gender unions—exhibited poorer health than unmarried bisexual people; the researchers argued that the unique stressors that bisexual people face (e.g., doubts about their loyalty and commitment to a monogamous intimate relationship) may bring additional disadvantages in their intimate relationships and health outcomes compared with heterosexual, gay, and lesbian people.

Second, bisexual people are the most socioeconomically disadvantaged across sexual orientation groups. Although gay and lesbian people achieve higher educational attainment than heterosexuals in adulthood, bisexual people—especially bisexual women—suffer an educational disadvantage relative to all other groups (Badgett et al. 2013; Black et al. 2000; Black et al. 2007; Valfort 2017). Bisexual people also experience higher rates of unemployment, homelessness, and poverty than gay and lesbian people (Boehmer et al. 2012; Conron et al. 2010; Gorman et al. 2015). As a result, bisexual people may not receive the same health boost as gay and lesbian people in more recent cohorts. Thus, it is imperative to analyze bisexual people separately to address the potential risk associated with this status, including how these risks change across cohorts (Cochran and Mays 2017).

Research Hypotheses

We test two competing hypotheses.

Convergence hypothesis: The health disadvantage of LGB people relative to their straight counterparts decreases in more recent cohorts, and the convergent trend is less profound for bisexual people than for gay or lesbian people.

Persistence/divergence hypothesis: The health disadvantage of LGB people relative to their straight counterparts persists or increases in more recent cohorts, and the persistent/divergent trend is more profound for bisexual people than for gay or lesbian people.

Data and Sample

We used data from the pooled 2013–2018 Integrated National Health Interview Surveys (NHIS) (Blewett et al. 2018). The NHIS is a cross-sectional household survey conducted annually in the United States by the National Center for Health Statistics (NCHS). The NHIS sample design follows a multistage area probability design that permits the representative sampling of the U.S. civilian noninstitutionalized population (NHIS 2012). Starting in 2013, the NHIS has collected information on respondents' sexual orientation. One adult aged 18 and older in each household is randomly selected to answer supplementary questions on sexual orientation and additional health information contained in the Sample Adult questionnaire. We excluded respondents who had missing values on sexual orientation or the focal health outcome in the specific model (about 5% of the sample). We retained missing data for other covariables and included an indicator of missing for each relevant covariate to retain the sample size. Supplementary analyses using multiple imputation to handle missing data on covariates (results available upon request) revealed results similar to those reported here. Our final analytic sample varies slightly across models with different focal health outcomes.

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Table 1 shows unweighted sample frequency by sexual orientation and cohort based on the analytic sample of psychological distress (N = 180,559), containing 175,678 self-identified straight individuals, 3,144 self-identified gay and lesbian individuals, and 1,737 self-identified bisexual individuals. Characteristics of analytic samples for other health outcomes are similar. All analyses were weighted to account for the inverse probability of selection into the sample and poststratification based on age, race/ethnicity, and sex. We used the *svy* commands in Stata to account for the complex nature of the NHIS sampling design (StataCorp 2017).

Measures

Sexual Orientation—All selected sample adults in the NHIS were asked, "Which of the following best represents how you think of yourself?" Five response options were provided: (1) lesbian or gay, (2) straight (i.e., not lesbian or gay), (3) bisexual, (4) something else, and (5) I don't know the answer. Our analysis is restricted to respondents who identified as lesbian/gay, straight, or bisexual due to our study's focus on LGB people as well as small sample sizes in other categories.

Health Outcomes—We considered general mental and physical health outcomes that are available in the data. Specifically, we analyzed three measures of mental health: psychological distress, depression, and anxiety. We analyzed two measures of physical health: self-rated physical health and activity limitation. *Psychological distress* was measured using the Kessler-6 (K6) scale, which is an unweighted sum of six items: "During the past 30 days, how often did you feel: (1) so sad that nothing could cheer you up, (2) nervous, (3) restless or fidgety, (4) hopeless, (5) that everything was an effort, and (6) worthless" (Kessler et al. 2010). The response options ranged from none of the time (coded 0) to all the time (coded 4). Respondents with higher scores on the K6 had higher levels of nonspecific psychological distress (range = 0–24, alpha = .86). *Depression* was measured based on the following question: "How often do you feel depressed?" *Anxiety* was measured based on the following question: "How often do you feel worried, nervous, or anxious?" For both depression and anxiety, response categories included: daily, weekly, monthly, a few times a year, and never, with higher values indicating higher levels of depression and anxiety. Both questions on depression and anxiety were asked for all sample adults in 2018 but only selected sample adults in 2013–2017, resulting in smaller sample sizes for the analysis of depression and anxiety. *Self-rated physical health* was rated as poor, fair, good, very good, and excellent; higher values indicate better health. *Activity limitation* is a recoded variable that indicates whether a person has any activity limitation in daily life and handling routine needs, such as work, eating, bathing, dressing, walking, shopping, and household chores (1 = yes, 0 = no).

Birth Cohorts—For ease of discussion and in line with life course theory, we utilized colloquial and commonly understood cohorts to build our argument and analysis. Millennials (i.e., born after 1980) and, to a lesser extent, Generation Xers (i.e., born in 1965–1980) came of age during the progressive period, whereas LGB Baby Boomers (born in 1946–1964) and pre-Boomers (i.e., born before 1946) came of age during a period of heightened legal and social stigmatization. We used respondents' birth year to construct birth

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cohorts representing Millennials (born after 1980), Generation Xers (born in 1965–1980), and Baby Boomers and pre-Boomers (born before 1965; the reference category). We combined Baby Boomers and pre-Boomers (sometimes referred to as the "Silent Generation" or "Great Generation") into one group (hereafter, "Baby Boomers+ ") given the small number of pre-Baby Boomers in our sample who self-identified as bisexual (n = 80) and gay/lesbian (n = 195). In our sample, Millennials (n = 45,651) were aged 18–37, Generation Xers (n = 45,251) were aged 32–53, and Baby Boomers+ (n = 89,657) were aged 48–85 at the time of the survey.

Covariates—Both sexual identity and health are associated with sociodemographic characteristics. Health tends to decline with age, and older people are also less likely to identify as LGB than younger people (Hammack et al. 2018). Women tend to report worse health (Bird and Rieker 2008) and are more likely to identify as LGB than men (Bridges and Moore 2018). Compared with White people, racial/ethnic minorities tend to report worse health (Brown 2018) and are also more likely to identify as LGB (Bridges and Moore 2018). People living in the South tend to have worse health than others (Levi et al. 2015), and immigrants tend to report better health than those who are native-born (Brown 2018). LGB identification also varies by region of residence and immigration status (Rosenfeld 2007). In addition, LGB people are less likely to be married than their heterosexual counterparts (Hsieh and Liu 2019), and married people have better health than unmarried people (Liu and Umberson 2008). There are also complex socioeconomic variations by sexual orientation, and socioeconomic factors are strong predictors for health (Link and Phelan 1995; Phelan et al. 2010).

Therefore, we controlled for demographic and socioeconomic covariates: *age* in years; *sex* (0 = male, 1 = female); *race/ethnicity* (non-Hispanic White [reference], non-Hispanic Black, Hispanic, and others); *nativity* (born in the United States or U.S. territory [reference], born outside the United States or U.S. territory, and missing reports); *region of residence* (Northeast [reference], North central/Midwest, South, West); *marital status* (different-sex married [reference], same-sex married, different-sex cohabiting, same-sex cohabiting, divorced, widowed, never married, and missing reports); *education* (less than high school [reference], high school or equivalent, some college, college graduate and above, and missing reports); *poverty status* (at or above federal poverty threshold [reference], below federal poverty threshold, and missing reports); *employment status* (employed [reference], unemployed, not in labor force and missing reports); and *survey year* (2013 [reference], 2014, 2015, 2016, 2017, and 2018).

Statistical Analysis

Our statistical models vary across focal health outcomes. Specifically, we estimated linear regression models to analyze the K6 scores (assessing psychological distress). Additional analysis of K6 scores using negative binomial models, binary logit models (0–12 vs. 13–24), and ordinal logit models (0, 1–5, 6–10, and 11–24) produced similar findings (results not shown but available upon request). We estimated ordinal logit models for frequency of depression, frequency of anxiety, and self-rated physical health; we estimated binary logit models for reporting any activity limitation. For each health outcome, we estimated two

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models. Model 1 tested the main effects of sexual orientation and birth cohorts, controlling for all covariates (age, sex, race/ethnicity, nativity, region of residence, marital status, education, poverty status, employment status, and survey year). Model 2 added the interaction terms of sexual orientation and birth cohorts to explore whether sexual orientation disparities in health outcomes varied across cohorts when all covariates were controlled for. We also tested models comparing results with and without controls for socioeconomic indicators (i.e., education, poverty status, and employment status); results (not shown but available upon request) showed basically similar patterns, suggesting that socioeconomic factors explained little of the health trends by sexual orientation. Further, our additional analysis that included three-way interactions of sexual orientation, cohort, and sex, as well as a stratified analysis by sex, revealed no significant sex differences in cohort trends of health disparities by sexual orientation (results not shown but available upon request).

Results

Descriptive Results

Table 2 shows weighted descriptive statistics of all analytic variables by sexual orientation and birth cohorts. Within each cohort, gays/lesbians and bisexuals had significantly higher K6 scores (i.e., higher levels of psychological distress) and were more likely to report a higher frequency of feeling depression and anxiety, poorer health, and any activity limitation than straight respondents; and bisexuals were the group with the worst health outcomes among all sexual orientation groups.

Results in Table 2 also show cohort differences in socioeconomic characteristics across sexual orientation groups, suggesting an overall trend toward decreasing socioeconomic advantages (i.e., increasing disadvantages) of LGB respondents relative to straight respondents. Among Baby Boomers+, both gay/lesbian and bisexual respondents had greater proportions in higher-educated groups (e.g., those with some college and college graduates and above) and smaller proportions in lower-educated groups (e.g., those with less than high school and high school graduates) than straight respondents. These education advantages of gay/lesbian and bisexual respondents tended to decrease among Generation Xers, with some even reversed among Millennials: bisexual Millennials had a lower proportion of college graduates than straight Millennials. Similarly, both gay/lesbian and bisexual respondents had a higher proportion employed than the straight group among Baby Boomers +, but this difference tended to decrease for more recent cohorts and even reversed for bisexual individuals: among Generation Xers and Millennials, a lower proportion of bisexual respondents were employed than straight respondents. Moreover, although the proportion in poverty was lower among gay/lesbian Generation Xers than straight Generation Xers, the poverty rate was higher among gay/lesbian Millennials than straight Millennials. Across all cohorts, we see a significantly higher proportion of bisexual respondents living in poverty than straight respondents.

In terms of marital status, across all cohorts, bisexual respondents were more likely to have a different-sex partner than gay/lesbian respondents and were more likely to have a same-sex partner than straight respondents. Among Baby Boomers +, both gay/lesbian and bisexual

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respondents were younger, on average, than straight respondents; this age difference tended to disappear or even reverse among more recent cohorts. Female respondents were more likely to identify as bisexual than male respondents, especially in more recent cohorts. Across all cohorts, female respondents were less likely to identify as lesbian than male respondents were to identify as gay. Among Baby Boomers and Generation Xers, gay/lesbian respondents were more likely than straight respondents to be non-Hispanic White; among Millennials, gay/lesbian respondents were less likely than straight respondents to be non-Hispanic White. Among Baby Boomers +, compared with straight respondents, gay/lesbian respondents were more likely to live in the Northeast and West and less likely to live in the Midwest or South; these differences, however, tended to disappear among more recent cohorts. Among Generation Xers and Millennials, bisexual respondents were more likely to live in the West and were less likely to live in the South than did straight respondents. In general, LGB people were less likely to be born outside the United States than straight respondents across all cohorts.

Regression Results

Table 3 shows the estimated cohort trends in sexual orientation differences in mental health outcomes: K6 scores, assessing psychological distress (linear regressions); depression (ordinal logit regressions); and anxiety (ordinal logit regressions). Results from Model 1 of Table 3 suggest that after age, sex, survey year, race/ethnicity, geographic region, nativity, marital status, education, poverty status, and employment status were controlled for, both gay/lesbian and bisexual respondents reported significantly higher psychological distress (b = 1.185, $p < .001$; b = 2.514, $p < .001$) and higher frequencies of feeling depression (OR = 2.048, $p < .001$; OR = 3.457, $p < .001$) and anxiety (OR = 1.922, $p < .001$; OR = 2.685, $p < .001$) than the straight group, with bisexual respondents showing the worst outcomes. Moreover, after these sociodemographic covariates were controlled for, both Generation Xers and Millennials reported lower K6 scores (b = −0.204, $p < .001$; b = −1.163, $p < .001$) and lower frequency of depression (OR = 0.905, $p < .01$; OR = 0.560, $p < .001$) than Baby Boomers+, and Millennials also reported lower frequency of feeling anxiety than Baby Boomers + (OR = 0.686, $p < .001$).

The significant interaction effects of sexual orientation and cohort in Model 2 of Table 3 reveal a consistent pattern: the differences in mental health across sexual orientation groups were significantly larger among Generation Xers and Millennials than among Baby Boomers+. Specifically, among Baby Boomers+, the predicted K6 score was 0.611 ($p < .01$) units higher for gay and lesbian respondents and 1.139 ($p < .001$) units higher for bisexual respondents than for their straight counterparts. These differences in K6 increased to 1.313 (i.e., 0.611 + 0.702) and 2.680 (i.e., 1.139 + 1.541), respectively, among Generation Xers, and 1.522 (i.e., 0.611 + 0.911) and 2.797 (i.e., 1.139 + 1.658), respectively, among Millennials. In addition, among Baby Boomers+, the odds of reporting a higher frequency of feeling depression were 1.648 ($p < .001$) times higher for gay and lesbian respondents and 2.083 ($p < .001$) times higher for bisexual respondents than for their straight counterparts. These numbers increased to 2.586 (i.e., 1.648 × 1.569) for gay and lesbian respondents and 3.801 (i.e., 2.083 × 1.825) for bisexual respondents among Millennials and to 3.477 (i.e., 2.083 × 1.669) for bisexual Generation Xers. In terms of anxiety, the odds of reporting a

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higher frequency of feeling anxiety were 1.579 ($p < .001$) times higher for gay and lesbian respondents and 1.539 ($p < .05$) times higher for bisexual respondents than for their straight counterparts. These numbers increased to 2.132 (i.e., 1.579 × 1.350) for gay and lesbian respondents and 2.993 (i.e., 1.539 × 1.945) for bisexual respondents among Millennials and to 2.576 (i.e., 1.539 × 1.674) for bisexual Generation Xers. Note that the cohort interaction effects in Model 2 are larger for bisexual than for gay/lesbian respondents (and most were found to be statistically significant in additional analysis), suggesting that the widening trend in mental health relative to straight respondents was more pronounced for bisexual than for gay/lesbian respondents.

Table 4 shows the estimated cohort trends in sexual orientation differences in physical health outcomes, including self-rated physical health (ordinal logit regressions) and activity limitation (binary logit regressions). Results from Table 4 suggest patterns similar to those in Table 3. First, results from Model 1 in Table 4 suggest that after age, sex, survey year, race/ethnicity, geographic region, nativity, marital status, education, poverty status, and employment status are controlled for, both gay/lesbian and bisexual respondents reported worse physical health (OR = 0.789, $p < .001$; OR = 0.542, $p < .001$) and higher odds of activity limitation (OR = 1.424, $p < .001$; OR = 2.315, $p < .001$) than the straight group. Both Generation Xers and Millennials reported better self-rated physical health (OR = 1.154, $p < .001$; OR = 1.985, $p < .001$) and lower odds of activity limitation (OR = 0.849, $p < .001$; OR = 0.306, $p < .001$) than Baby Boomers+. Second, results from Model 2 of Table 4 suggest that the differences in physical health across sexual orientation groups tended to be larger among Generation Xers and Millennials than among Baby Boomers +, with one exception: the widening gap in self-rated physical health across sexual orientation groups was not significant in the comparison of Baby Boomers + with Generation Xers.

To better illustrate the interaction effects of cohort and sexual orientation, we calculated the average marginal predicted scores (for linear models) or probabilities (for logit models) by birth cohort and sexual orientation based on results from Model 2 of Tables 3 and 4. These data are graphically presented in Figures 1–5, which clearly illustrate the increasing sexual orientation gaps in health outcomes across cohorts. As shown in the figures, these divergent trends were mostly driven by a more rapid improvement in health across cohorts among straight respondents in comparison with their LGB counterparts, with disadvantages most evident among bisexual respondents.

Discussion

Previous studies have demonstrated that LGB-identified people experience poorer mental and physical health than their straight-identified counterparts (Institute of Medicine 2011; Meyer 2003). According to sexual minority stress and life course theories, increased legal rights and social acceptance of sexual minority identities—operating at both the individual and institutional levels—will decrease stigma and, in turn, reduce health disadvantages associated with sexual minority status across cohorts (Herdt and Kertzner 2006; Kail et al. 2015). Other scholars, however, have suggested a nonlinear progression toward LGB rights, wherein LGB people have experienced uneven progression and sometimes a reduction in protections. Moreover, some doubt remains as to whether a population-level change in legal

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and social rights would translate into reduced health disparities across one or two generations (Frohlich and Potvin 2008). Our analyses of pooled data from the National Health and Interview Surveys support the latter view. Consistent with the divergence hypothesis, we found widening health gaps between LGB people—especially bisexual people—and their straight counterparts across cohorts. Indeed, this finding is consistent with a recent proposition positing that health disparities among younger LGB people have not diminished with recent social change and have actually increased in some cases (Russell and Fish 2019). Results from our descriptive analysis also suggest an overall trend toward decreasing socioeconomic advantages (i.e., increasing disadvantages) of LGB people relative to straight people, but the identified divergent health trends by sexual orientation are robust with these socioeconomic factors controlled, thus suggesting that other unobserved factors may drive the health trends.

Our merged life course and minority stress theoretical model suggests that minority stressors at the individual, interpersonal, and institutional levels underlie sexual minority health outcomes and that changes in the social-legal context of LGB status translate into different health outcomes across cohorts. Although public opinion on sexual minority status is more favorable than ever (Adamczyk 2017), LGB-identified people still face significant stigma (Doyle and Molix 2015). Recent debates about workplace protections for sexual minorities and adoption rights for gay and lesbian people, for example, suggest that the U.S. social institutions remain resistant to fully accepting the legitimacy of sexual minorities and sexual minority families (Tucker and Meier 2016; Veldhuis et al. 2018). Thus, despite some substantial progress in stigma reduction and increased legal rights for sexual minorities, significant interpersonal and structural discrimination may occur in the workplace, even during this more progressive legal era when it may be considered unlawful. Moreover, because Millennials and Generation Xers in our sample inhabit an earlier life course stage than current Baby Boomers+, the life skills that cumulate with advancing age likely provide LGB Baby Boomers + with better coping skills and a greater sense of control than their younger counterparts. Perhaps as these younger cohorts age, they will experience an alleviation in their distress and health disadvantages (see Mirowsky and Ross 1992 and Mirowsky 2013 for discussion of the general aging and life course process of stress). Future research should explore this possibility.

Our findings also likely reflect relative differences in perceptions about discrimination across cohorts, given the very different social contexts that each cohort inhabits. Older cohorts have experienced significant interpersonal and institutional discrimination throughout their lives, including the devastating HIV/AIDS crisis (in part resulting from a lack of governmental response to this crisis), the Stonewall riots, police violence during the gay liberation movement, and the second wave feminist movement (Hammack et al. 2018). Thus, new social and legal rights may be interpreted as a significant improvement over previous experiences of state-sanctioned homophobia, social vilification, and widespread harassment. In this sense, older adults may perceive the current era to be relatively better than the past and may experience better well-being as a result of this perception. Thus, recent social, legal, and policy changes may have made significant improvements in the lives of LGB people who have lived through some of the most overtly homophobic eras.

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In contrast, those in the younger cohorts did not experience the same intense homophobia at both the interpersonal and institutional levels toward gay men during the AIDS epidemic, the constant and more overt harassment and violence toward lesbian women and gay men in gay bars, and the constant fear of being outed and subsequently fired at the workplace—although these events certainly still occur unlawfully (Connell 2014). Younger LGB cohorts may therefore perceive the stigma that still exists in society at large more severely than their older cohort counterparts and view the more subtle prejudices that typify today's experiences of homophobia as more severe injustices (Doan et al. 2014).

Additionally, changes in the composition of who identifies as LGB may shape our findings across cohorts. The increases in identification as lesbian, gay, and especially bisexual imply that important changes in the composition of these groups across cohorts may drive our findings. The lesbian, gay, and especially bisexual groups appear to consist of very different individuals in each cohort in terms of sociodemographic characteristics—such as marital status, nativity, and race/ethnicity—as shown in our descriptive analysis. These changes in the sociodemographic compositions may underlie health differences among sexual orientation groups across cohorts, although findings of widening health gaps across sexual orientation groups were robust after we controlled for a range of demographic and socioeconomic covariates. Still, these compositional changes across cohorts mean that being LGB in younger versus older cohorts takes place within very different contexts, which likely impact health. Future research should examine what underlies these cohort shifts and the effect of such shifts on health.

Finally, we examined whether bisexual respondents experienced a unique disadvantage relative to straight respondents over time, given the significant body of research suggesting that bisexual people are the most disadvantaged among LGB populations (Gorman et al. 2015; Hsieh and Liu 2019; Thomeer and Reczek 2016). Our study advances this line of research, finding that bisexual individuals not only experience overall worse health outcomes relative to other groups but also that they experience the most remarkable *widening* trends of health disparities across cohorts relative to their straight counterparts. Relative to gay/lesbian and straight individuals, bisexual people—who appear to be more prevalent in recent cohorts (Bridges and Moore 2018)—may experience inaccurate negative stereotypes that they are confused or indecisive about their sexual orientation, are less able to commit to the values and norms of either straight or gay/lesbian people, and are less trustworthy in a romantic relationship (Anderson and McCormack 2016; Diamond 2008; Hsieh and Liu 2019; Israel and Mohr 2004; Zivony and Lobel 2014). These long-lasting but inaccurate stereotypes may intensify as the population of bisexual-identified people grows and gains visibility. Prejudice against bisexuality can come from both straight and gay/lesbian communities, referred to as the "double stigma" (Bostwick et al. 2010). Therefore, recent progress in the gay/lesbian civil rights movement may not benefit the bisexual population, in turn diminishing the health returns of social change. As gay and lesbian movements work to diminish sexual identity stigma by creating a unifying gay identity, bisexuals in more recent cohorts might be more marginalized in both the straight and gay/lesbian communities, leading to poorer mental and physical health.

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Despite the important findings, this study has several limitations. First, the trends identified likely result from a combination of both age and birth cohort trends. It is not clear whether the widening health gaps by sexual orientation are primarily driven by the birth cohort differences or different aging/life course stages experienced by different birth cohorts. Mirowsky (2013:415) described these trends as "represent[ing] two inseparable aspects of the same phenomenon." Because our data cover a relatively shorter period, from 2013 to 2018, there is little overlap in age across birth cohorts. To better tease out the age and birth cohort trends, we need additional years of data that allow for the comparison of the same age range across different birth cohorts. More ideally, longitudinal panel data that follow a significant period of the life course within each cohort are required (Mirowsky 2013).

Second, another limitation relates to the measure of sexual orientation used in the NHIS data. Sexual orientation has multiple dimensions, including identity, attraction, and behavior. The NHIS currently includes only a single measure of sexual identity, which may underestimate the number of sexual minorities, especially among older birth cohorts, who may have different interpretations of the terms "gay," "lesbian," and "bisexual." It is important to refine the measures of sexual orientation in large national surveys to more accurately identify this segment of the disadvantaged population.

Third, the NHIS provides no information about when and to what degree respondents have come out as gay, lesbian, or bisexual. Because sexual minority adults of different birth cohorts may have undergone the process of coming out at different developmental moments and with different consequences, the lack of measures related to coming out may result in a major source of unmeasured variation that may explain the reported health trends. Indeed, the shift in the LGB population across cohorts may reflect multiple sources of mixed changes, such as an increase in the LGB population itself or an increase in disclosure among the LGB population (Hammack et al. 2018). This shift is related to an important and broader question as to who is being captured in national surveys and the fluid nature of sexuality. The changing and fluid dynamic processes that underlie coming out, particularly in survey responses, may result in bias in our estimates of the health trends. For example, due to increased social acceptance and openness to sexual minorities, LGB individuals with disadvantaged status—and thus poorer health—may be more willing to cross social boundaries to disclose their sexuality among younger cohorts or in more recent surveys than among older cohorts or in earlier surveys. If so, LGB of older cohorts in our sample may be more selective of those with advantaged status—and thus better health—than LGB of younger cohorts, which may explain some of the identified divergent health trends.

Fourth, the dramatic impact of HIV/AIDS mortality and mortality generally is most significant for the oldest cohort, and particularly for gay and bisexual men (Hammack et al. 2018). This mortality selection may lead to bias in estimating the effects of health for men in older cohorts.

Finally, we note that we are in the beginning stages of understanding large-scale health disparities for sexual minorities in the United States. As is the case with other historical health disparities, it may be a long time before changes in social opinion improve the health of LGB people, a possibility that we did not capture in the analysis.

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Conclusion

One of the major goals for *Healthy People 2030* is to achieve health equity and eliminate sexual minority health disparities. The United States has witnessed significant progress in social support for LGB people and in promoting and securing legal rights for the LGB population during the past few decades, alongside continued social and legal setbacks (Gates 2015). However, our results suggest that contemporary social-legal progress has not yet translated into more positive health outcomes for LGB people in recent cohorts. It is likely that sexual minority stress remains or is growing or that unobserved factors, such as survey disclosure selection and cohort differences in experiences of coming out, underlie sexual minority health disparities across cohorts. Indeed, LGB health disparities may be a result of more insidious and deeply embedded factors in U.S. society that are not eradicated simply with changes in marriage or discrimination laws. Instead, more drastic societal changes at both the interpersonal and institutional levels must take place to shift the life context of LGB people that results in health disparities. Additionally, our finding that bisexual people experience the most deleterious trend relative to their straight counterparts also draws attention to the diversity of the sexual minority population and the lack of effect the current social-legal environment may have on bisexual people. Public policies and programs should be designed and implemented at the interpersonal and institutional levels to eliminate health and other major disadvantages among LGB people in more recent cohorts.

Acknowledgment

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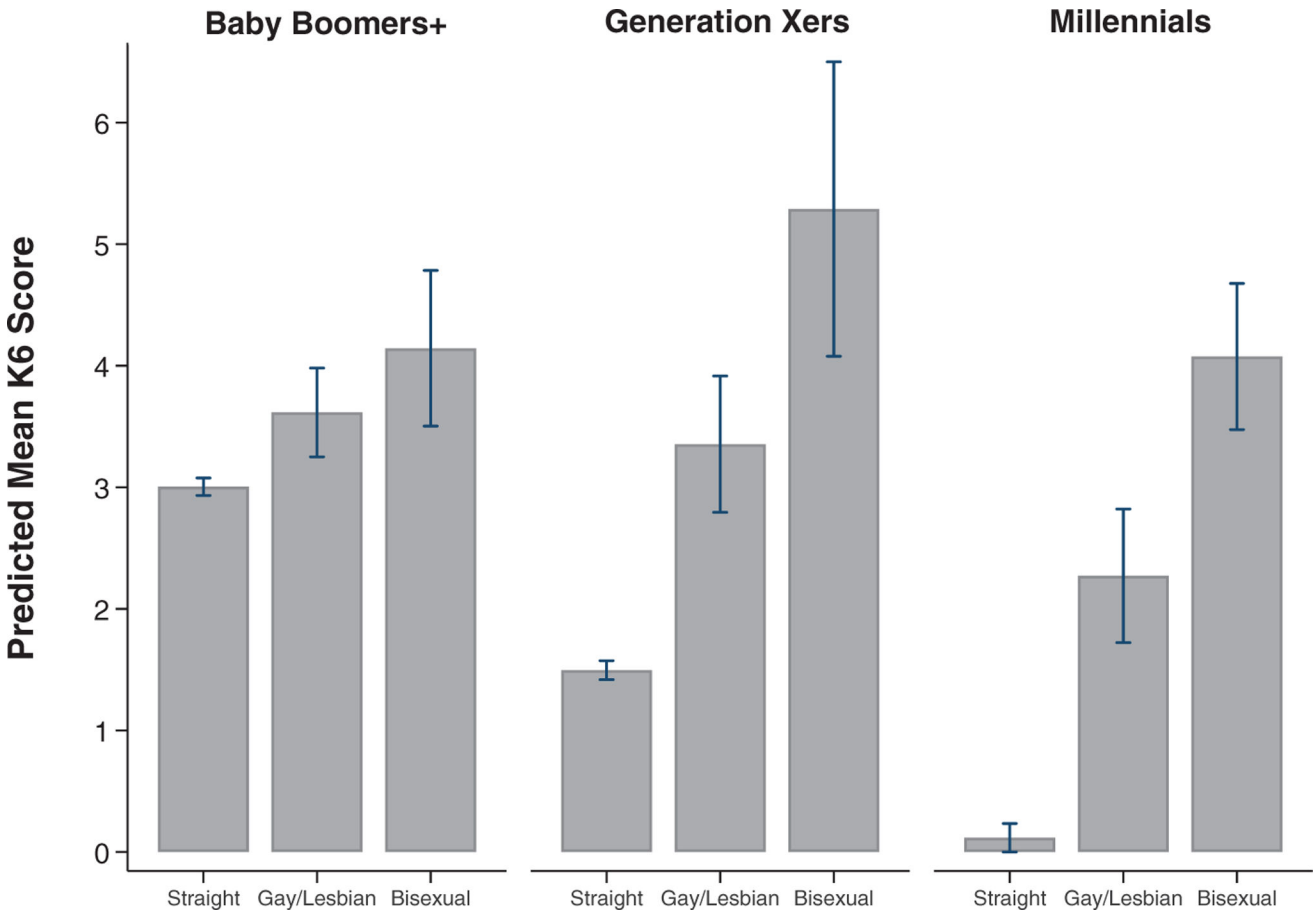

Fig. 1.

Marginal predicted mean K6 scores assessing psychological distress, by sexual orientation and cohort, and 95% confidence intervals

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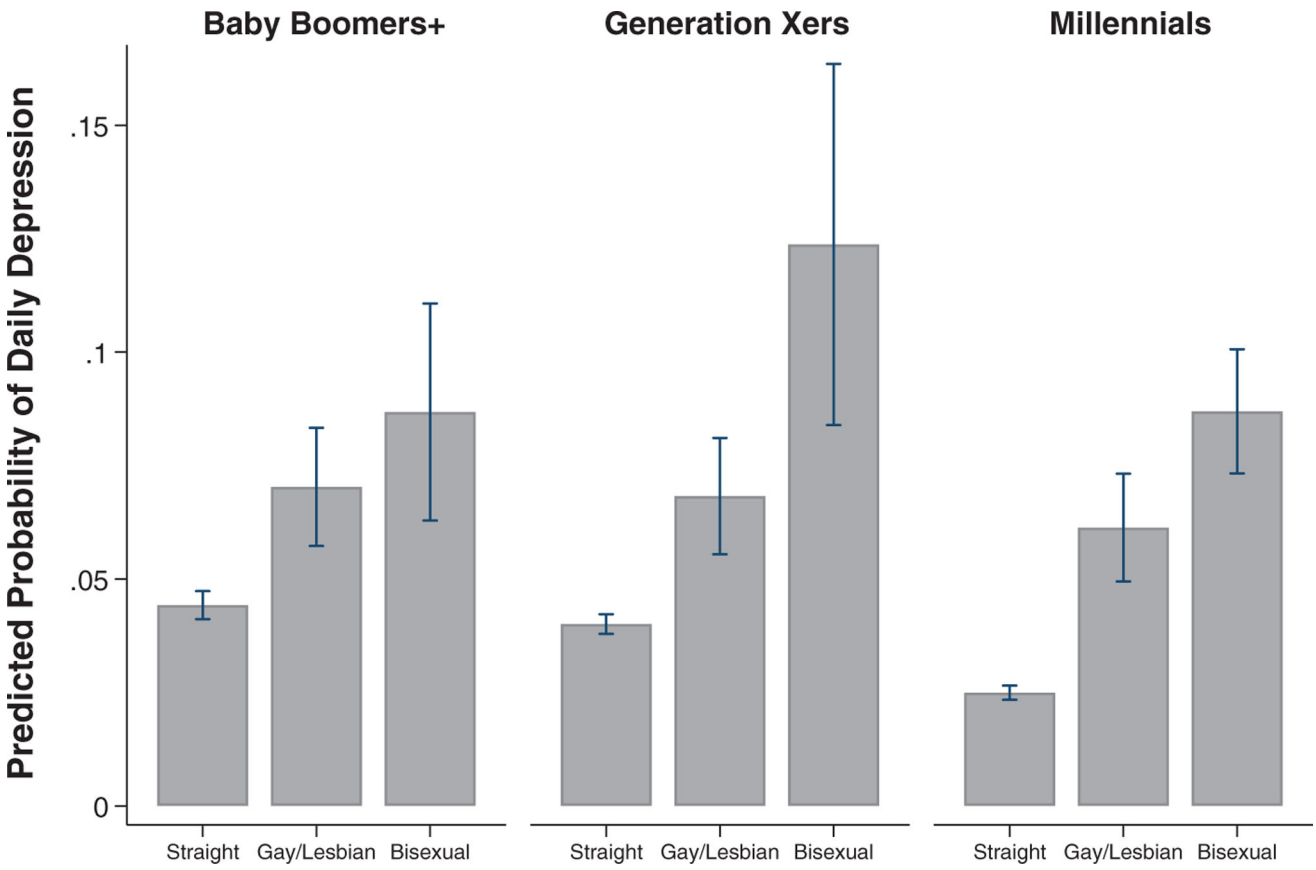

Fig. 2.

Marginal predicted probability of reporting daily depression (i.e., frequency of feeling depression = daily) by sexual orientation and cohort, and 95% confidence intervals

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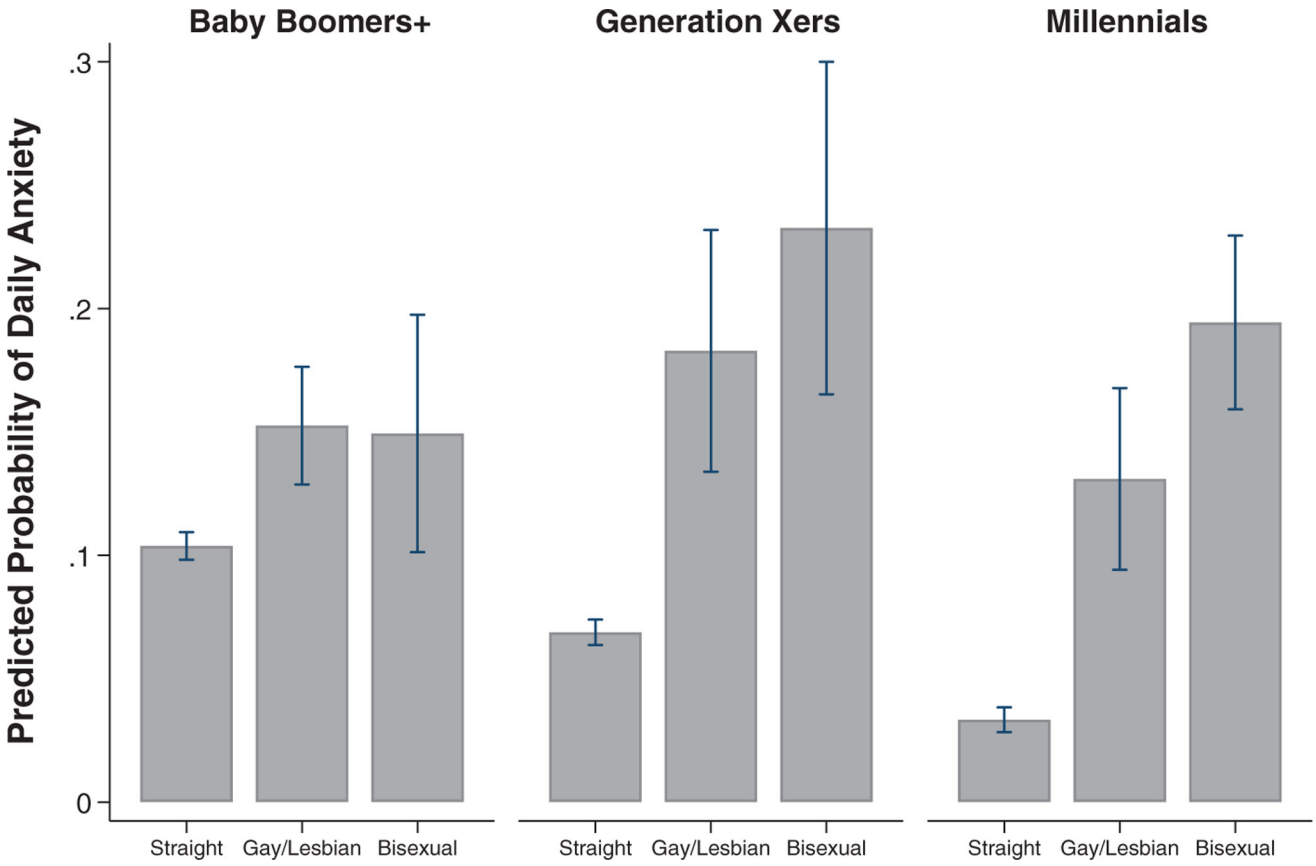

Fig. 3.

Marginal predicted probability of reporting daily anxiety (i.e., frequency of feeling anxiety = daily) by sexual orientation and cohort, and 95% confidence intervals

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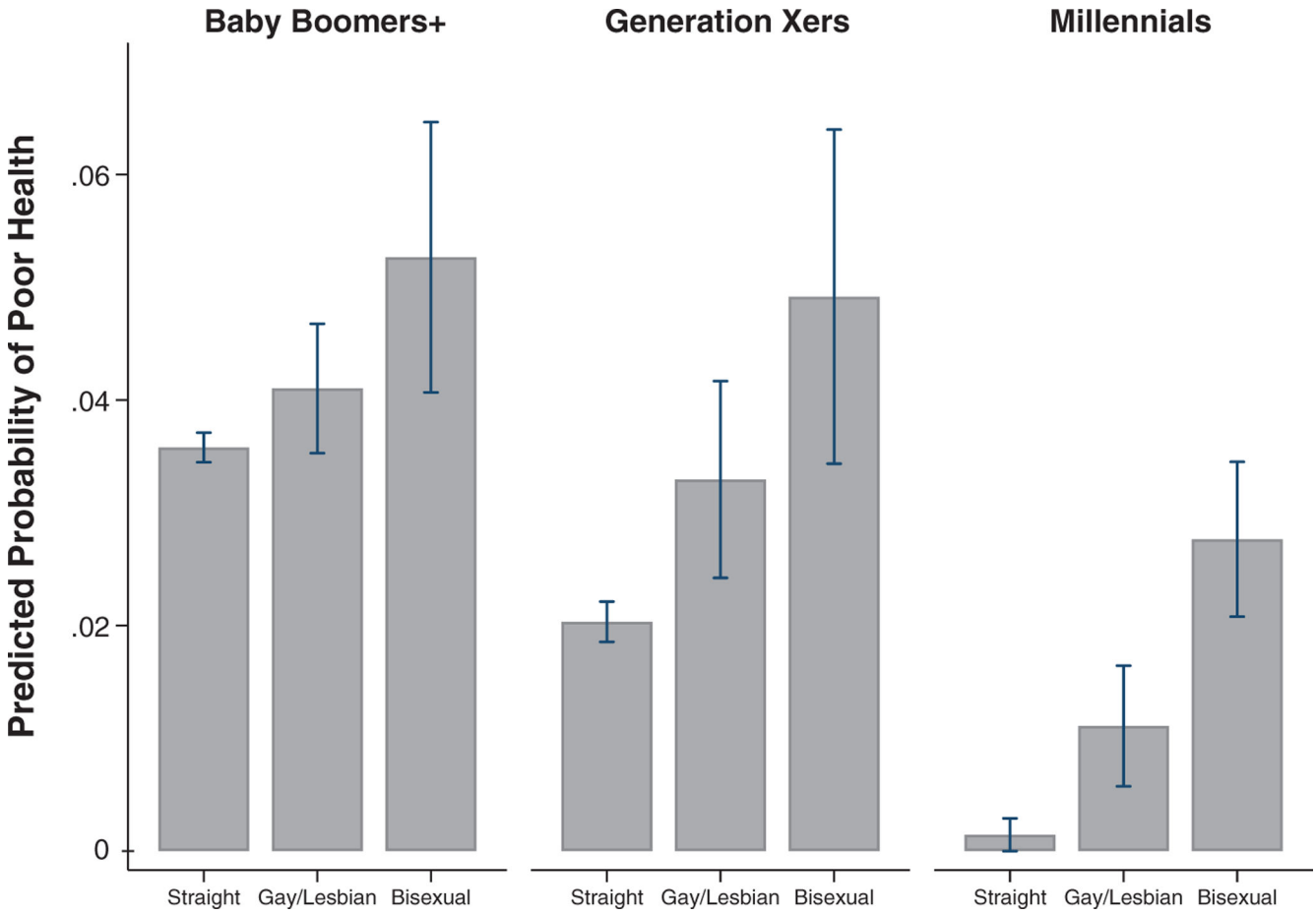

Fig. 4.

Marginal predicted probability of reporting poor physical health (i.e., self-rated physical health = poor), by sexual orientation and cohort, and 95% confidence intervals

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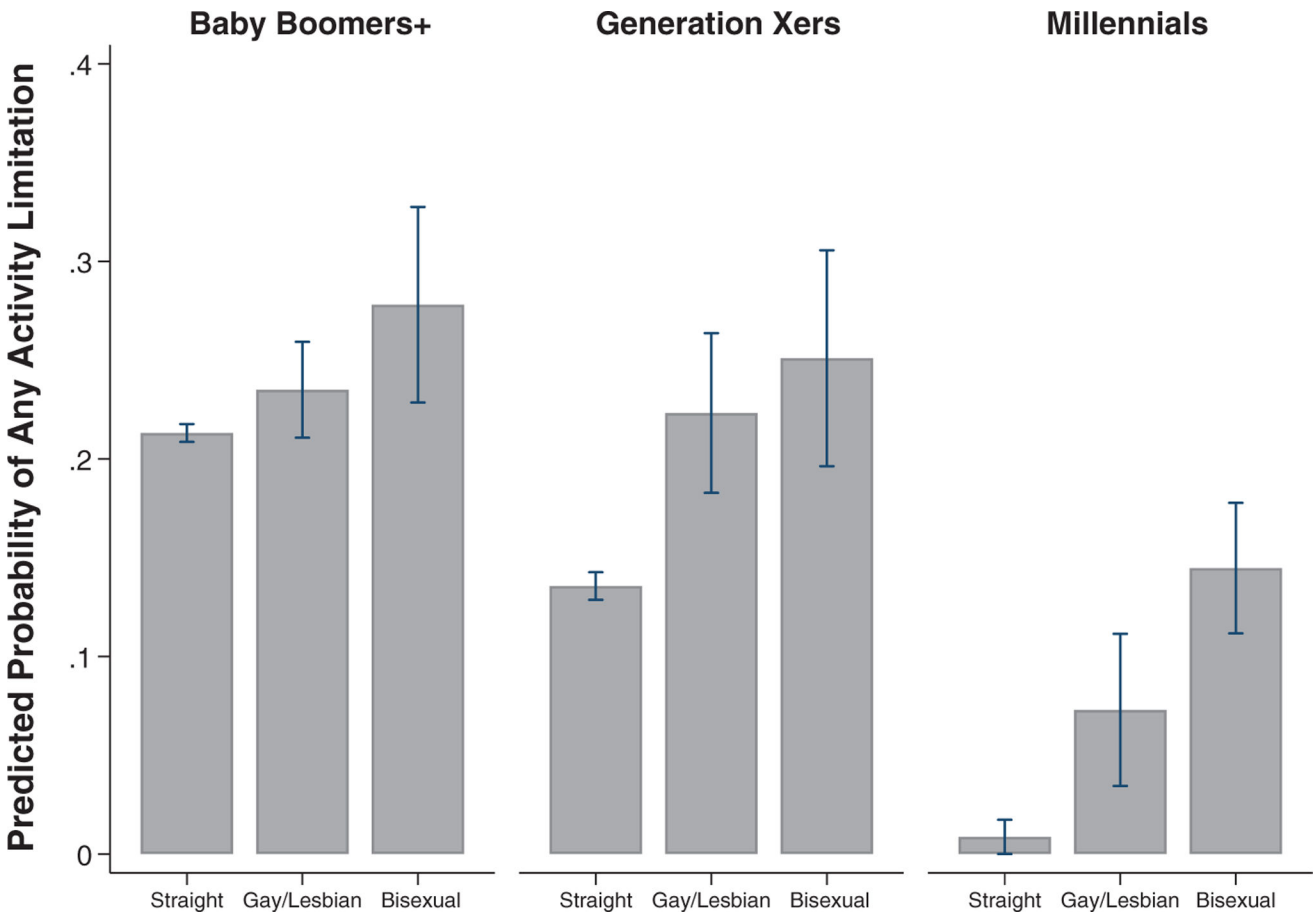

Fig. 5.

Marginal predicted probability of reporting any activity limitation (i.e., activity limitation = yes), by sexual orientation and cohort, and 95% confidence intervals

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Table 1

Unweighted Frequencies of Sexual Orientation by Cohorts, NHIS 2013–2018

	Cohorts			
Sexual Orientation	**Baby Boomers+**	**Generation Xers**	**Millennials**	**Total**
Straight	88,073	43,969	43,636	175,678
Gay/Lesbian	1,237	907	1,000	3,144
Bisexual	347	375	1,015	1,737
Total	89,657	45,251	45,651	180,559

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Table 2

Weighted descriptive statistics by sexual orientation and cohorts, NHIS 2013–2018 (N = 180,559)

	Baby Boomers+			Generation Xers			Millennials		
	Straight	**Gay/Lesbian**	**Bisexual**	**Straight**	**Gay/Lesbian**	**Bisexual**	**Straight**	**Gay/Lesbian**	**Bisexual**
Psychological Distress (mean K6 score)	2.47	3.02^{a}	3.82^{a}	2.67^{b}	3.81^{a,b}	6.02^{a,b}	2.67^{b}	4.07^{a,b}	6.03^{a,b}
Frequency of Depression (%)									
Never	62.54	48.44^{a}	42.28^{a}	61.83^{b}	46.30^{a}	27.56^{a,b}	63.17^{b}	40.69^{a,b}	23.43^{a,b}
A few times per year	23.53	28.42^{a}	32.49^{a}	23.66	31.71^{a}	27.13	22.75^{b}	28.47^{a}	32.22^{a}
Monthly	4.85	7.63^{a}	7.09	5.99^{b}	7.26	14.75^{a,b}	6.54^{b}	13.89^{a,b}	15.38^{a,b}
Weekly	4.88	9.63^{a}	7.49^{a}	4.83	9.87^{a}	10.14^{a}	5.10	10.46^{a}	18.89^{a,b}
Daily	4.21	5.88^{a}	10.65^{a}	3.69^{b}	4.86	20.42^{a,b}	2.44^{b}	6.48^{a}	10.09^{a}
Frequency of Anxiety (%)									
Never	44.78	33.02^{a}	16.21^{a}	38.95^{b}	26.96^{a,b}	12.18^{a}	37.20^{b}	23.50^{a,b}	36.77^{b}
A few times per year	30.81	31.29	25.96^{a}	30.39	28.74	17.48^{a,b}	28.85^{b}	27.51	24.74^{a}
Monthly	7.32	10.44^{a}	9.43^{a}	9.79^{b}	10.25	15.54^{a,b}	11.34^{b}	11.40	11.41
Weekly	8.56	12.68^{a}	23.55^{a}	11.23^{b}	15.58^{a}	29.38^{a}	13.59^{b}	20.17^{a,b}	9.43^{a,b}
Daily	8.53	12.56^{a}	24.85^{a}	9.64^{b}	18.47^{a,b}	25.43^{a}	9.01^{b}	17.42^{a,b}	17.66^{a,b}
Self-rated Physical Health (%)									
Poor	5.06	4.78	6.72	2.30^{b}	2.97^{b}	6.75^{a}	0.59^{b}	0.83^{b}	1.64^{a,b}
Fair	15.24	15.23	18.36	8.14^{b}	11.15^{a,b}	11.61^{a,b}	4.38^{b}	5.82^{a,b}	9.98^{a,b}
Good	30.83	26.99^{a}	32.77	26.07^{b}	25.17	31.90^{a}	19.96^{b}	22.91^{a,b}	30.81^{a}
Very good	31.00	32.20	28.75	34.18^{b}	33.03	29.92	35.19^{b}	36.01	35.19^{b}
Excellent	17.87	20.81^{a}	13.41^{a}	29.30^{b}	27.69^{b}	19.82^{a,b}	39.88^{b}	34.42^{a,b}	22.39^{a,b}
Any Activity Limitation (%)									
No	70.46	70.53	63.16^{a}	88.92^{b}	81.56^{a,b}	75.03^{a,b}	94.28^{b}	90.60^{a,b}	82.99^{a,b}
Yes	29.54	29.47	36.84^{a}	11.08^{b}	18.44^{a,b}	24.97^{a,b}	5.72^{b}	9.40^{a,b}	17.01^{a}

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	Baby Boomers+			Generation Xers			Millennials		
	Straight	**Gay/Lesbian**	**Bisexual**	**Straight**	**Gay/Lesbian**	**Bisexual**	**Straight**	**Gay/Lesbian**	**Bisexual**
Sociodemographic Covariates									
Age (mean)	64.75	60.43[a]	62.14[a]	42.70[b]	43.10[a,b]	42.03[a,b]	26.26[b]	26.24[b]	24.94[a,b]
Female (%)	53.34	45.99[a]	52.90	51.14[b]	45.56[a]	69.67[a,b]	49.49[b]	45.32[a]	74.86[a,b]
Survey year (%)									
2013	17.75	19.09	12.86[a]	16.61[b]	14.92[b]	16.26	14.08[b]	14.50[b]	9.27[a]
2014	17.34	18.26	17.16	16.56[b]	17.80	12.75[a]	15.30[b]	13.34[b]	11.60[a,b]
2015	16.85	16.91	16.72	16.70	16.18	13.59	15.96[b]	15.94	13.14[a]
2016	16.67	15.50	18.51	16.59	14.72	20.45[a]	17.10[b]	16.10	17.08
2017	15.83	15.67	20.11[a]	16.56[b]	19.51[a,b]	17.65	18.32[b]	20.51[b]	22.64[a]
2018	15.56	14.58	14.64	16.98[b]	16.87	19.31	19.24[b]	19.61[b]	26.28[a,b]
Race/ethnicity (%)									
Non-Hispanic White	74.31	80.12[a]	77.05	60.27[b]	65.43[a,b]	63.85[b]	57.29[b]	54.15[a,b]	66.91[a,b]
Non-Hispanic Black	10.38	7.48[a]	8.69	12.26[b]	11.54[b]	11.38	13.76[b]	18.84[a,b]	11.80
Hispanic	9.84	8.96	7.79	18.99[b]	17.56[b]	16.25[b]	21.19[b]	20.09[b]	16.16[a,b]
Other	5.46	3.44[a]	6.47	8.48[b]	5.47[a,b]	8.52	7.76[b]	6.92[b]	5.13[a]
Region (%)									
Northeast	18.96	21.43[a]	20.30	17.18[b]	18.61	17.71	16.00[b]	16.64[b]	14.25[b]
North Central/Midwest	22.41	16.12[a]	23.33	21.80[b]	17.18[a]	21.06	23.02[b]	20.70[b]	24.39
South	37.04	32.51[a]	33.44	36.68	38.85[b]	30.02[a]	36.37[b]	36.77[b]	32.80[a]
West	21.59	29.94[a]	22.92	24.33[b]	25.36[b]	31.22[a,b]	24.61[b]	25.90[b]	28.56[a,b]
Nativity (%)									
Born outside of United States	15.60	8.16[a]	14.49	24.89[b]	16.19[a,b]	20.72[b]	17.23[b]	8.83[a]	7.77[a,b]
U.S.-born	84.33	91.84[a]	85.51	74.98[b]	83.81[a,b]	79.28[b]	82.68[b]	91.17[a]	92.23[a,b]
Missing	0.07	0.00	0.00	0.13[b]	0.00	0.00	0.09	0.00	0.00

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	Baby Boomers+			Generation Xers			Millennials		
	Straight	**Gay/Lesbian**	**Bisexual**	**Straight**	**Gay/Lesbian**	**Bisexual**	**Straight**	**Gay/Lesbian**	**Bisexual**
Marital status (%)									
Different-sex married	58.39	8.25^{a}	27.16^{a}	62.93^{b}	7.39^{a}	28.52^{a}	29.14^{b}	2.30^{a,b}	11.88^{a,b}
Same-sex married	0.01	18.99^{a}	4.45^{a}	0.00^{b}	23.77^{a,b}	3.94^{a}	0.00^{b}	9.68^{a,b}	0.65^{a,b}
Different-sex cohabiting	3.05	0.96^{a}	4.50	7.04^{b}	0.86^{a}	11.23^{a,b}	12.20^{b}	0.78^{a}	13.75^{b}
Same-sex cohabiting	0.04	22.74^{a}	4.52^{a}	0.06	25.75^{a}	3.08^{a}	0.06	19.49^{a}	1.74^{a,b}
Divorced	15.92	12.32^{a}	25.77^{a}	12.61^{b}	5.93^{a,b}	25.92^{a}	3.19^{b}	1.69^{a,b}	4.16^{b}
Widowed	13.16	2.99^{a}	9.72	0.88^{b}	0.33^{b}	0.75^{b}	0.13^{b}	0.14^{b}	64.31^{a,b}
Never married	6.31	31.84^{a}	20.07^{a}	12.66^{b}	34.70^{a}	24.37^{a}	51.64^{b}	64.13^{a,b}	3.52^{a,b}
Missing	3.11	1.91^{a}	3.79	3.81^{b}	1.27^{a}	2.19	3.63^{b}	1.79^{a}	11.88^{a,b}
Education (%)									
<High school	13.74	5.87^{a}	7.72^{a}	11.77^{b}	7.43^{a}	11.10	11.19^{b}	6.51^{a}	13.07^{b}
High school graduate	27.24	15.54^{a}	16.89^{a}	22.21^{b}	17.24^{a}	16.20^{a}	24.5^{b}	21.48^{a,b}	26.41^{b}
Some college	28.26	28.21	34.47^{a}	28.29	24.52^{a}	32.61	36.04^{b}	40.83^{a,b}	38.00
College graduate	30.17	50.08^{a}	40.80^{a}	37.28^{b}	50.54^{a}	40.09	28.03^{b}	31.18^{a,b}	22.51^{a,b}
Missing	0.58	0.30	0.12	0.45^{b}	0.27	0.00	0.24^{b}	0.00	0.00
Poverty (%)									
No	84.52	88.81^{a}	82.14	85.34^{b}	88.15^{a}	77.71^{a}	79.22^{b}	79.65^{b}	70.60^{a,b}
Yes	8.58	8.36	15.28^{a}	10.3^{b}	8.09^{a}	20.67^{a}	16.49^{b}	17.48^{b}	25.78^{a,b}
Missing	6.90	2.83^{a}	2.58^{a}	4.35^{b}	3.76	1.62^{a}	4.3^{b}	2.87^{a}	3.62
Employment (%)									
Employed	43.58	54.01^{a}	50.73^{a}	79.72^{b}	79.72^{b}	64.94^{a,b}	72.05^{b}	75.51^{a,b}	66.99^{a,b}
Unemployed	1.97	3.19^{a}	2.14	3.95^{b}	4.28	12.37^{a,b}	6.91^{b}	7.59^{b}	10.28^{a,b}
Not in labor force	54.42	42.79^{a}	47.13^{a}	16.27^{b}	15.97^{b}	22.69^{a,b}	21.02^{b}	16.90^{a,b}	22.73^{b}
Missing	0.03	0.00	0.00	0.06^{b}	0.03	0.00	0.02	0.00	66.99^{a,b}

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[a] $p < .05$, comparing with straight individuals within cohort.

[b] $p < .05$, comparing with Baby Boomers+ within sexual orientation group.

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Table 3

Estimated cohort trends of sexual orientation differences in mental health

	Psychological Distress (coefficients)		Depression (odds ratios)		Anxiety (odds ratios)	
	Model 1	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Sexual Orientation (0 = straight)						
Gay/Lesbian	1.185***	0.611**	2.048***	1.648***	1.922***	1.579***
Bisexual	2.514***	1.139***	3.457***	2.083***	2.685***	1.539*
Cohort (0 = Baby Boomer +)						
Generation Xer	−0.204***	−0.225***	0.905**	0.901**	0.945	0.938*
Millennial	−1.163***	−1.199***	0.560***	0.549***	0.686***	0.676***
Sexual Orientation × Cohort						
Gay/Lesbian × Generation Xer		0.702**		1.075		1.292
Gay/Lesbian × Millennial		0.911***		1.569**		1.350*
Bisexual × Generation Xer		1.541**		1.669*		1.674*
Bisexual × Millennial		1.658***		1.825***		1.945**
Sociodemographic Covariates						
Age	−0.042***	−0.042***	0.984***	0.984***	0.978***	0.978***
Female	0.460***	0.458***	1.436***	1.435***	1.566***	1.564***
Survey year (0 = 2013)						
2014	−0.218***	−0.217***	0.846***	0.847***	0.850***	0.850***
2015	0.066	0.066	0.936	0.936	0.905***	0.905***
2016	0.045	0.045	0.903**	0.903**	0.927*	0.927*
2017	0.179***	0.179***	1.036	1.035	1.091*	1.091*
2018	0.399***	0.398***	1.138***	1.137***	1.215***	1.215***
Race/ethnicity (0 = non-Hispanic White)						
Non-Hispanic Black	−0.479***	−0.481***	0.650***	0.649***	0.566***	0.565***
Hispanic	−0.409***	−0.409***	0.696***	0.696***	0.667***	0.667***
Other	−0.321***	−0.322***	0.742***	0.741***	0.674***	0.674***

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	Psychological Distress (coefficients)		Depression (odds ratios)		Anxiety (odds ratios)	
	Model 1	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Region (0 = Northeast)						
North Central/Midwest	0.140**	0.140**	1.098*	1.097*	1.101**	1.100**
South	−0.003	−0.004	0.998	0.997	0.988	0.987
West	0.223***	0.224***	1.262***	1.261***	1.257***	1.257***
Nativity (0 = U.S.-born)						
Born outside of United States	0.301***	0.299***	1.223***	1.221***	1.314***	1.313***
Missing	−0.293	−0.293	0.804	0.805	1.270	1.272
Marital status (0 = different-sex married)						
Same-sex married	−0.361	−0.255	0.897	0.981	0.713*	0.739*
Different-sex cohabiting	0.693***	0.699***	1.417***	1.424***	1.270***	1.273***
Same-sex cohabiting	0.074	0.124	1.283	1.336*	0.973	0.990
Divorced	1.086***	1.090***	1.711***	1.713***	1.344***	1.346***
Widowed	0.508***	0.506***	1.361***	1.360***	1.127***	1.126***
Never married	0.349***	0.354***	1.356***	1.364***	1.087***	1.089***
Missing	0.236**	0.240**	1.129*	1.132*	0.991	0.993
Education (0 = less than high school)						
High school graduate	−0.404***	−0.404***	0.902**	0.901**	0.964	0.964
Some college	−0.489***	−0.487***	0.894***	0.894***	1.066*	1.067*
College graduate	−0.900***	−0.895***	0.826***	0.828***	1.113***	1.115***
Missing	−0.044	−0.043	0.920	0.918	1.111	1.110
Poverty (0 = no)						
Yes	1.084***	1.083***	1.461***	1.461***	1.335***	1.335***
Missing	−0.366***	−0.369***	0.764***	0.763***	0.714***	0.714***
Employment (0 = employed)						
Unemployed	1.576***	1.574***	1.851***	1.849***	1.558***	1.558***
Not in labor force	1.019***	1.019***	1.522***	1.522***	1.273***	1.273***
Missing	−0.030	−0.029	0.841	0.842	1.048	1.047

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	Psychological Distress (coefficients)		Depression (odds ratios)		Anxiety (odds ratios)	
	Model 1	**Model 2**	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Constant	4.196***	4.220***				
Cut 1			1.085	1.074	0.391***	0.388***
Cut 2			4.146***	4.106***	1.482***	1.467***
Cut 3			7.530***	7.458***	2.513***	2.490***
Cut 4			19.574***	19.390***	6.492***	6.433***
N	180,559	180,559	101,390	101,390	101,490	101,490

* $p < .05$;

** $p < .01$;

*** $p < .001$

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Table 4

Estimated cohort trends of sexual orientation differences in physical health

	Self-rated Physical Health (odds ratios)		Activity Limitation (odds ratios)	
	Model 1	**Model 2**	**Model 1**	**Model 2**
Sexual Orientation (0 = straight)				
Gay/Lesbian	0.789***	0.865	1.424***	1.179
Bisexual	0.542***	0.660***	2.315***	1.594**
Cohort (0 = Baby Boomer +)				
Generation Xer	1.154***	1.158***	0.849***	0.840***
Millennial	1.985***	2.001***	0.306***	0.296***
Sexual Orientation × Cohort				
Gay/Lesbian × Generation Xer		0.895		1.428**
Gay/Lesbian × Millennial		0.845		1.537*
Bisexual × Generation Xer		0.902		1.226
Bisexual × Millennial		0.750*		1.888**
Sociodemographic Covariates				
Age	0.990***	0.990***	1.011***	1.010***
Female	1.048***	1.049***	0.860***	0.859***
Survey Year (0 = 2013)				
2014	1.013	1.013	0.964	0.964
2015	0.948**	0.948**	1.005	1.005
2016	0.945**	0.945**	1.088**	1.088**
2017	0.914***	0.914***	1.098**	1.097**
2018	0.886***	0.887***	1.172***	1.171***
Race/ethnicity (0 = non-Hispanic White)				
Non-Hispanic Black	0.745***	0.746***	1.018	1.017
Hispanic	0.849***	0.849***	0.776***	0.775***
Other	0.778***	0.778***	0.883**	0.882**
Region (0 = Northeast)				
North Central/Midwest	0.893***	0.893***	1.062	1.062
South	0.909***	0.909***	1.017	1.017
West	0.973	0.973	1.082*	1.083*
Nativity (0 = U.S.-born)				
Born outside of United States	0.822***	0.823***	1.764***	1.761***
Missing	0.998	0.998	0.868	0.867
Marital status (0 = different-sex married)				
Same-sex married	1.023	1.003	1.682**	1.734**
Different-sex cohabiting	0.742***	0.740***	1.642***	1.650***

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	Self-rated Physical Health (odds ratios)		Activity Limitation (odds ratios)	
	Model 1	**Model 2**	**Model 1**	**Model 2**
Same-sex cohabiting	1.013	1.007	1.491 *	1.514 **
Divorced	0.732 ***	0.732 ***	2.386 ***	2.391 ***
Widowed	1.029	1.029	1.713 ***	1.714 ***
Never married	0.865 ***	0.864 ***	2.096 ***	2.107 ***
Missing	0.903 **	0.902 **	1.433 ***	1.436 ***
Education (0 = less than high school)				
High school graduate	1.502 ***	1.502 ***	0.747 ***	0.747 ***
Some college	1.863 ***	1.862 ***	0.688 ***	0.689 ***
College graduate	3.031 ***	3.028 ***	0.427 ***	0.428 ***
Missing	0.894	0.893	1.505 ***	1.507 ***
Poverty (0 = no)				
Yes	0.568 ***	0.568 ***	2.076 ***	2.076 ***
Missing	1.042	1.043	0.952	0.950
Employment (0 = employed)				
Unemployed	0.728 ***	0.728 ***	2.378 ***	2.375 ***
Not in labor force	0.521 ***	0.521 ***	6.764 ***	6.771 ***
Missing	1.165	1.166	1.067	1.062
Constant			0.030 ***	0.031 ***
Cut 1	0.015 ***	0.016 ***		
Cut 2	0.085 ***	0.085 ***		
Cut 3	0.444 ***	0.446 ***		
Cut 4	2.173 ***	2.183 ***		
N	182,956	182,956	182,916	182,916

* $p < .05$;

** $p < .01$;

*** $p < .001$