The effect of social climate on LGBT health and well-being

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Abstract

Substantial evidence exists documenting a range of mental and physical health disparities between LGBT and non-LGBT individuals. Evidence also suggests that stigmatizing social and legal climates associated with attitudes and laws regarding sexual orientation and gender identity likely contribute to poorer LGBT health outcomes. These analyses use data from the Gallup Daily tracking survey, the largest probabilistic sample of LGBT-identified adults in the US, to consider the effect of social climate on LGBT health and well-being. In particular, the analyses consider the potentially distinct impacts of supportive social climates and supportive legal climates. The findings show that LGBT identified Americans report worse emotional health and general health outcomes and evaluate their lives less favorably than their non-LGBT counterparts. Differences persist even when individual and community-level demographic characteristics are considered. While modest, the effect of supportive social climates appears to be greater than that of legal climate in ameliorating LGBT-related health disparities.

Introduction

The United States Federal Government's Healthy People 2020 objectives include a goal to, "improve the health, safety, and well-being of lesbian, gay, bisexual, and transgender (LGBT) individuals" (U.S. Department of Health and Human Services, 2010). Unfortunately, data derived from probability samples that allow researchers to assess whether and how health and well-being differs by sexual orientation or gender identity remains relatively rare (Institute of Medicine, 2011). This has created a substantial scientific gap in our understanding of health disparities that may be associated with sexual orientation and gender identity.

These analyses use new data collected in Gallup's Daily tracking survey that includes a measure of LGBT identity along with a range of health and well-being measures. The analyses consider the degree to which individual-level exogenous characteristics like sex, age, and race/ethnicity, community demographic characteristics, and legal and social climate affect the health and well-being of LGBT identified individuals. Previewing findings, the analyses suggest that a social climate of greater acceptance of LGBT people may have a more observable positive effect on ameliorating LGBT health and well-being disparities than formal legal equality.

Background and Conceptual Framework

Research documents a wide range of differences in health and well-being outcomes between LGBT and non-LGBT populations. Many studies suggest that LGB individuals have poorer mental health outcomes when compared to heterosexuals (Cochran and Mays, 2000; Cochran et al., 2000; Gillman et al., 2001; Cochran et al., 2003; Cochran et al., 2004; Cochran and Mays, 2007; Cochran and Mays, 2009; Bostwick et al., 2010). In a meta-analysis of studies conducted over a several decades, King et al (2008) find that LGB individuals are at higher risk for depression and anxiety disorders when compared to heterosexual individuals. Several studies find relatively high rates of mental health problems among transgender individuals (Clements-Nolle et al., 2001; Mathy 2002a; Mathy 2002b; Bockting et al., 2005; Nutbrock et al., 2010).

Differences in some healthy behaviors and physical health outcomes between LGBT and non-LGBT individuals have also been documented. Studies have shown higher rates of tobacco and alcohol use in LGBT populations (Case et al., 2004; Diamant et al., 2000; Tang et al., 2004; Hughes, 2005; Xavier et al., 2007; Lee et al., 2009; Conron et al., 2010). It is certainly possible that the elevated rates of tobacco use may be associated with increased risks for some cancers, lung, and cardio-vascular disease. HIV rates remain high among men who have sex with men

(MSM), especially African-American MSM (CDC, 2009). Several studies show higher levels of obesity among lesbians when compared to other women (Case et al., 2004; Conron et al., 2010).[1] Denny, et al. (2013) and Liu, et al. (2013) show that individuals in same-sex couples report poorer overall health than their counterparts in different-sex marriages.

The research question motivating this study is: How do the social and legal climates of support for LGBT individuals and their legal equality effect LGBT health and well-being? The Institute of Medicine (2011) analyses of LGBT health and well-being disparities cites four conceptual perspectives that should inform LGBT health research: minority stress; life-course; intersections of race/ethnicity, socioeconomic status, and geographic diversity; and social ecology. The analyses in this study consider these perspectives for analyzing health and well-being of LGBT-identified individuals in a large-scale national survey conducted in the US.

Meyer (2003) articulates the relationship between prejudice and discrimination directed toward minorities and mental health outcomes. He argues that individuals from stigmatized minorities experience both internal and external stressors in their daily lives that go beyond typical negative life stressors. Prejudicial social structures, institutions, and processes beyond the individual contribute to those stressors and are associated with negative mental health outcomes. Multiple studies demonstrate the linkage of sexual orientation-related stigma and negative health outcomes (e.g., Mays and Cochran, 2001; Swim et al., 2009; Szymanski, 2005; Szymanski, 2009) suggest that the perception of discrimination based on sexual orientation is associated with decreased quality of life and poorer mental health outcomes in sexual minorities. Lombardi et al. (2001) and Xavier et al. (2005) demonstrate high levels of discrimination and violence directed toward transgender individuals based on their gender identity.

One way in which the analyses in this study consider the minority stress perspective is that one of the dependent variables used is an emotional health index that is based on a series of questions largely designed to capture the experience of day-to-day stressors like anger, worry, and sadness. Respondents are asked about their experiences of the day preceding the interview. The emotional health index is described in more detail in the Data and Methodology section.

[1] For a more thorough review of literature on LGBT health and well-being, see Institute of Medicine (2011).

As the data used in the analyses are cross-sectional, the models used to predict LGBT health and well-being cannot truly consider a life course perspective. However, they do take individual characteristics including sex, age, race/ethnicity, and educational attainment into consideration when assessing the degree to which LGBT identity affects health and well-being.

The independent variables of greatest interest relative to the research question posed for this study will focus on the social ecology that minority stress theory suggests comes into play to impact minority health and well-being. Three sets of variables will consider social ecology. Community characteristics including age, race/ethnicity, and socio-economic status will be included as independent variables. However, the main variables of interest in the models will attempt to tease out possible differences in the impact of legal and social climate on LGBT health. Legal climate will be assessed via state-level laws regarding anti-discrimination and legal relationship status for same-sex couples. Social climate will be proxied by considering the percent of voters in the respondent's county who supported President Obama in the 2012 election. More detailed explanations of all of these variables are included in the Data and Methodology section.

The analyses will include both bivariate and multivariate approaches. Bivariate analyses will largely consider differences in health and well-being by LGBT identity between respondents in states with LGBT supportive legal climates and in states without such supportive laws and between respondents who live in counties with high electoral support for President Obama and those in counties with low support.

The multivariate model will predict health and well-being conditioned on a vector of individual demographic characteristics, community demographic characteristics, LGBT identity, state legal climate, and county social climate. To assess possible differential impact of legal and social climate on LGBT individuals relative to their non-LGBT counterparts, those variables will be interacted with LGBT identity.

In general, existing literature would hypothesize that LGBT identified individuals would show a stronger (and positive) relationship between LGBT supportive legal and social climates and health and well-being. For example, Meyer (2007) summarizes this relationship and describes an extensive literature documenting LGB experiences of prejudice and discrimination and the harmful effect that these experiences have on their health and well-being. An emerging

literature considers the specific impact of legal equality, to date largely on LGB individuals. Riggle, et al. (2010a) suggest that LGB individuals who live in areas with inclusive nondiscrimination policies perceive fewer negative messages and more positive messages in the environment, experience higher levels of social support, and lower levels of internalized homophobia. Riggle et al. (2010b) find that legal relationship recognition has health and well-being benefits for same-sex couples. Rostosky et al. (2010) show that statewide voter initiatives designed to ban same-sex couple access to marriage are associated with an array of stressors for LGB individuals.

A new contribution of this study is the consideration of potentially different impacts of legal and social climate. The continuing evidence of socio-economic and health disparities by sex and race or ethnicity in the US shows that formal legal equality does not always produce social equality and remedy disparities. As such, I hypothesize that to the extent that the independent variables used in the models can separately measure these constructs (which are no doubt strongly related), the measure of social acceptance of LGBT individuals will have a larger impact on LGBT health and well-being than the existence of legal statutes that support LGBT equality.

Data and Methodology

Data sources

The analyses rely on four data sources:

- Gallup Daily tracking survey responses collected from June through December, 2012
- Census 2010 SF-1, Zip Code Tabulation Area
- National Gay and Lesbian Task Force, state laws regarding same-sex relationship recognition and anti-discrimination statutes
- US county-level election data from 2012 presidential election as reported by David Leip's Atlas of US Presidential elections

Gallup Daily tracking survey

The Gallup Daily tracking survey measures political and social attitudes, health and well-being, and demographic characteristics, including LGBT identity, of adults in the US.[2] The survey interviews approximately 1,000 adults each night and the analyses in this paper are based on a total sample of 206,188 adults who were interviewed from June through December 2012. Interviews are conducted in both English and Spanish using computer-assisted telephone

[2] For detail on survey methodology, see Gallup (2011-2013).

interviews with randomly selected respondents who are age 18 or older and include cell phone users. Respondents are from all fifty states and the District of Columbia. The survey methods include all live interviews. Sampling includes listed landline interviewing and wireless phone sampling that incorporates wireless-only and wireless-mostly households. A random selection method is used to choose respondents within households.

Data are weighted to account for differences in selection probabilities and nonresponse. In addition, Gallup weights the data to match population characteristics as reported by the US Census Bureau. Characteristics considered in the weighting include age, sex, region, gender, education, ethnicity, and race, as well as population density of self-reported location. The weighting procedure also takes into account phone status (e.g., cell phone only, dual user cell phone mostly with unlisted landline). The sample represents approximately 90% of the U.S. adult population. By comparison, Gallup suggests that typical landline-only methodologies represent less than 70% of the adult U.S. population. The survey response rate has averaged about 11%.

Individual measures

Beginning in June 2012, the tracking survey added the question, "Do you, personally, identify as lesbian, gay, bisexual, or transgender?" For these analyses, LGBT individuals are those who answered yes to this question (n=6,004) and non-LGBT individuals are those who answered no (n=190,086).[3] In total, 3.5% of adults identified as LGBT.

These analyses consider three measures of health and well-being. The Emotional Health Index (EHI) is a mean of the sum of the following ten items (each coded one for positive outcomes and zero for negative outcome) which begin with the question, "Now, please think about yesterday, from the morning until the end of the day. Think about where you were, what you were doing, who you were with, and how you felt."

1. Were you treated with respect all day yesterday?
2. Did you smile or laugh a lot yesterday?
3. Did you learn or do something interesting yesterday?

Respondents are then asked, "Did you experience the following feelings during a lot of the day yesterday? How about"

4. Enjoyment;

[3] An additional 1,171 respondents answered "Don't know" and 8,925 declined to answer the question.

5. Physical pain;
6. Worry;
7. Sadness;
8. Stress;
9. Anger;
10. Happiness?

The mean is divided by ten and rounded to the nearest whole number, so the resulting index is scaled with ordinal values from 0-10 with zero representing the lowest levels of emotional health and ten the best.

The second measure addresses general health and is based on responses to the question "Would you say your own health, in general, is excellent, very good, good, fair, or poor?" The variable is coded on a 1-5 scale with one being poor and 5 being excellent.

The third measure is a life evaluation index based on responses to two questions measuring current and predicted assessments of respondents' evaluation of their life. The first question is, "Please imagine a ladder with steps numbered from zero at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?" The second question asks, "On which step do you think you will stand about five years from now?" Responses are recoded to a binary variable in which individuals are considered to be "thriving" and given a value of one if they chose numbers ranging from 7-10 for both questions.

Individual demographic characteristics included in the multivariate models include age, sex, educational attainment, and race/ethnicity. For the later, all racial classifications are non-Latino/a and Latinos and Latinas are classified as such regardless of racial identification.

Community demographic measures

The Gallup data include respondent zip codes. The Census 2010 SF-1 file provides aggregate demographic characteristics for Zip Code Tabulation Areas (ZCTA) that largely correspond to zip codes. The following characteristics were merged onto individual respondents in the Gallup data:

- Median age

- Percent non-white
- Median personal income
- Percent with a college degree

The merge yielded positive matches for 98% of respondent zip codes in the Gallup data.

State legal climate

States were divided into three categories designed to capture the degree to which state laws are supportive of LGBT rights. Three types of laws were considered: legal marriage for same-sex couples; non-marital legal recognition for same-sex couples (e.g., civil unions, domestic partnership); and anti-discrimination statutes that prohibit discrimination based on sexual orientation and/or gender identity.[4] States were classified on a 0-3 point scale as follows:

0. No LGBT supportive laws: AK, AL, AR, AZ, FL, GA, ID, IN, KS, KY, LA, MI, MO, MS, MT, NC, NE, ND, OH, OK, PA, SC, SD, TN, TX, UT, VA, WV, WY
1. Non-marital relationship recognition or an anti-discrimination statute: CO, MN, NM, RI, WI
2. Non-marital relationship recognition and an anti-discrimination statute: CA, DE, HI, IL, NJ, NV, OR
3. Marriage equality and an anti-discrimination statute: CT, DC, IA, MA, MD, ME, NH, NY, VT, WA

Social climate as measured by election results

County-level election data from the 2012 presidential election provide a measure of broad social climate and acceptance of LGBT people.[5] Data from the national exit polls suggest that nearly three-quarters of Obama voters supported marriage rights for same-sex couples compared to just one quarter of Romney supporters, so voting patterns are clearly correlated with broad support for LGBT rights and presumably social acceptance. County-level support for President Obama was divided into quartiles as follows:

1. 5.8-38.8%
2. 38.8-49.7%
3. 49.7-59.0%

[4] State laws were based on issue maps developed by the National Lesbian and Gay Task Force, which can be accessed at: http://www.thetaskforce.org/reports_and_research/issue_maps

[5] County-level election results were purchased from Dave Leip's Atlas of US Presidential Election, which can be accessed at http://uselectionatlas.org/.

4. 59.1-93.4%

Analytic strategy

Analyses will include both bivariate and multivariate approaches. All will be conducted using the Stata svy command with Gallup population weights. In the bivariate analyses, comparisons of means of the three health and well-being measures are made between LGBT and non-LGBT individuals at the two ends of the spectrum in terms of state legal climate and between the first and fourth quartiles of electoral support for Obama (as representations of the two ends of the spectrum in terms of social climate). T-tests will compare LGBT and non-LGBT differences but also compare the difference in differences across the legal and social climate groupings. A t-test of the "difference in difference" comparisons assesses if the association of health and well-being measures with legal and social climate measures vary between LGBT and non-LGBT respondents.

Multivariate analyses are designed to consider the degree to which legal and social climate interact to affect LGBT health and well-being. Four models will be estimated for each of the three health and well-being measures. All models include covariates that measure respondent sex, age, race/ethnicity, and educational attainment along with zip code level measures of median age, percent non-white, median personal income, and percent with a college degree. Model 1 will test if differences in LGBT identity are associated with differences in health and well-being by including an indicator variable for LGBT identity. Model 2 will consider legal climate by adding a set of interaction terms between LGBT identity and state legal climate measures. Model 3 will consider social climate by adding a set of interaction terms between LGBT identity and the county-level vote for Obama to the covariates described in Model 1. Model 4 will include all interactions in Models 2 and 3 and thus test the joint effect of legal and social climate on LGBT health and well-being.

For the models using the emotional health index and general health measures as dependent variables, the estimation will use an ordered logit specification. For the models where the bivariate life evaluation measure (described in the models as "thriving") is the dependent variable, a logit specification will be used. In all cases, coefficients are reported as odds-ratios.

Bivariate analyses

Across the full sample, the bivariate analyses suggest that LGBT individuals report lower levels of emotional health and general health than their non-LGBT counterparts (see Table 1, Panel 1). Non-LGBT individuals have a mean emotional health index (0-10 scale, 10 being the best) of 7.95 compared to 7.39 for LGBT individuals, a difference of more than 7%. Mean general health (1-5 scale, 5 being the best) is 3.51 in non-LGBT individuals compared to 3.34 in their non-LGBT counterparts. This represents a 17% difference in the two groups. No differences in the life evaluation measure of the extent to which individuals are thriving are observed between LGBT and non-LGBT respondents.

The bivariate results suggest a strong association between social climate (as measured by electoral support for Obama) and LGBT health and well-being and a much weaker connection associated with legal climate. In general, health and well-being measures are better for both LGBT and non-LGBT individuals in states with better legal climates for LGBT people and for those who live in counties with strong electoral support for President Obama (see Table 1, Panels 2 and 3).

Regardless of legal and social climate, LGBT individuals generally report worse health and well-being outcomes than their non-LGBT counterparts. The exception is that they are slightly more likely to be thriving if they live in a county with strong support for Obama (significant at $p<0.10$). Also, the differences in that measure between LGBT and non-LGBT respondents by state legal climate are not significant. Across all other health and well-being measures, the difference in means between LGBT and non-LGBT individuals by legal and social climate are significant and LGBT respondents fare worse.

For both LGBT and non-LGBT individuals, health and well-being outcomes are higher for those in states with LGBT supportive legal climates when compared to those living in states with no LGBT supportive laws. Similarly, mean outcomes in both groups are higher if respondents live in counties with strong support for Obama.

To assess if there is a potentially different association between legal and social climate between LGBT and non-LGBT respondents, Table 1 shows the results of testing the “difference in difference” for the two groups. Put differently, the test considers if the differences in levels of health and well-being observed in LGBT supportive legal and social climates are proportionally

larger for LGBT than for non-LGBT individuals. The findings suggest that social climate is much more associated with improved LGBT health and well-being than is legal climate.

When comparing those in states by the legal climate, the only measure where LGBT respondents report a proportionally larger improvement in their health and well-being when compared to improvement in their non-LGBT counterparts is the emotional health index (significant at $p<0.10$). However, when comparing between those living in counties with low and high support for Obama, LGBT individuals report significantly higher differences ($p<0.05$) across all three health and well-being measures when compared to differences in their non-LGBT counterparts.

To put the magnitude of differences in context, the mean emotional health index of LGBT individuals who live in counties with high electoral support for Obama is 5.3% higher than the index of those in counties with low support for Obama (7.57 versus 7.19, respectively). The comparable difference in non-LGBT individuals is just 1.1% (7.97 versus 7.89, respectively). For general health, the mean difference is 8.5% higher for LGBT individuals compared to 3.7% for non-LGBT respondents. LGBT respondents report a 28.8% difference in the life evaluation measure suggesting that they are thriving compared to a 17.3% difference among non-LGBT individuals.

Multivariate analyses

The multivariate analyses estimate four models using each of the three health and well-being measures as dependent variables. All control for respondent individual demographic characteristics along with demographics of the population living in the respondent's zip code (as described in the Methodology section). All models are estimated using logistic regression and coefficients are reported as odds-ratios.

Model 1 assesses the effect of LGBT identity on health and well-being, controlling for individual and community characteristics. For all three measures, LGBT identity is associated with poorer outcomes. The mean emotional health index of LGBT respondents is an estimated 0.68 times that of the index for non-LGBT respondents (see Table 2). The mean general health measure for LGBT individuals is 0.70 times that of their non-LGBT counterparts (see Table 3). LGBT individuals are 0.89 as likely as non-LGBT individuals to be thriving based on their their current and future evaluation of their lives (see Table 4).

Model 2 considers the differential effects of state legal climate on health and well-being of LGBT individuals by adding interactions of LGBT identity with the state legal climate measure (as described in the Data and Methodology section) to Model 1. Consistent with the findings in the bivariate analyses, the multivariate models suggest no significant disparate impact of state legal climate on LGBT respondents where compared to their non-LGBT counterparts. Coefficients on the LGBT and state legal climate interaction do suggest a progressively positive impact of supportive laws on LGBT emotional health and sense of thriving, but none of the associations are statistically significant. The effect of state legal climate on general health is even more ambiguous with limited evidence that more LGBT supportive laws are associated with better self-reported general health in LGBT people.

Model 3 assesses the differential effects of social climate, as measured by county-level electoral support for President Obama in the 2012 election, by adding interactions of LGBT identity with measures of the election outcome (as described in the Data and Methodology section) to Model 1. Consistent with findings in the bivariate analyses, the multivariate models suggest a modest positive association between social climate and LGBT health and well-being outcomes. As compared to those living in counties in the lowest quartile of electoral support for Obama, LGBT respondents in the third and fourth quartiles of Obama support have mean emotional health indices that are 1.19 and 1.18 times higher than the differences observed in non-LGBT individuals (significant at the $p<0.10$ level). While general health of LGBT individuals disproportionately improves as support for Obama increases when compared to improvement in non-LGBT individuals, none of the interaction coefficients are significant for this measure. Relative to respondents living in counties in the lowest quartile of Obama electoral support, LGBT respondents residing in counties in the highest quartile of that support are more likely to report that they are thriving by a factor that is 1.2 times higher than the same comparison among non-LGBT respondents (significant at $p<0.10$).

The last model estimated (Model 4) includes all interactions in Models 2 and 3. Findings show no significant effects of the interaction of LGBT identity with state legal climate and only very modest effects of social climate, once the legal climate is taken into account. Of all of the interactions across all three health and well-being outcomes, there were only two significant (at the $p<0.10$ level) coefficients and both were associated with the social climate measure of Obama electoral support. Relative to respondents living in counties in the lowest quartile of Obama electoral support, LGBT respondents residing in counties in the third quartile of that

support are more likely to report a mean emotional health index that is 1.18 times higher than the same comparison among non-LGBT respondents (p=0.096). The odds-ratio on the interaction of LGBT identify with the fourth quartile of Obama support is 1.17 with a p-value that is nearly significant at 0.102. In the estimations predicting general health, the odds-ratio for the interaction of LGBT identity and the fourth quartile of Obama support is 1.2 (p=0.073), meaning the difference in reported general health in 1.2 times greater among LGBT people than non-LGBT people when comparing those in counties with the lowest and highest levels of support for Obama.

Discussion

There are several limitations to these analyses related to measurement. The first is the measurement of LGBT identity. The Gallup data groups LGBT-identified individuals all into one category. The rationale for the single-item question lies partly in the premise that the LGBT grouping has explicit political, cultural, and social meaning in US legal policy and social discourse. However, the impact of legal and social climate as well as disparities in health and well-being may differ substantially between those who identify as LGBT based on their sexual orientation and those who identify based on their gender identity. Further, there may also be disparate outcomes and incomes for lesbians and gay men compared to bisexuals (Rogers et. al, 2003; Page, 2004). If this is true, these findings may be muting or hiding differential impacts of legal and social climate on sub-groups of LGBT individuals.

There may also be substantive differences in the relationship of health and well-being to sexual orientation identity as compared to sexual behavior or attraction, two other common methods of identifying lesbian, gay, and bisexual individuals. Pathela, et al. (2006) note that demographic and behavioral characteristics differ between groups measured by sexual orientation and those measured by sexual behavior. This becomes particularly important in these analyses if identity and disclosure of identity is, in itself, an indicator of better health and well-being. If this is true, the analyses may understate health and well-being disparities by sexual orientation.

A second issue of measurement relates to the degree to which the county-level electoral support for President Obama actually captures social climate and acceptance toward LGBT people, distinct from legal climate. This is certainly an imprecise measure. However, evidence suggests that nationally, Obama support is strongly correlated with at least one type of LGBT acceptance, support for legalizing marriages of same-sex couples. But there may be substantial local

variation in the degree to which Obama support correlates with accepting attitudes toward LGBT people.

The way in which the election data differentiate from the legal climate variable is that they are at the county level compared to state-level laws. An advantage of the county-level election data is that it provides a more geographically confined measurement of social climate than state-level statutes. This raises another possible interpretation for the finding that the county-level Obama support variable appears to have more effect on LGBT health and well-being than state legal climate. It is almost certainly true that broad social acceptance of LGBT individuals in part leads to more LGBT supportive legal climates at the state level. However, that acceptance could vary substantially across a state, especially between rural and urban areas. The interpretation that social climate has a stronger impact than legal climate may in part be a function of the fact that legal climate is measured at a much higher level of geography, so effects may be more diffused.

Despite limitations, these analyses offer important new information about LGBT health and well-being. The data offer a rare example of a very large nationally representative sample that measures LGBT identity, a range of demographic characteristics, and multiple health and well-being measures. This sample size allows for consideration of variation in state and sub-state legal and social climate. The findings demonstrate a very clear disparity between self-reported health and well-being of LGBT and non-LGBT individuals, even when exogenous characteristics like sex, age, and race/ethnicity are taken into account. LGBT respondents report lower levels of emotional health, general health, and evaluate their lives at a lower level of satisfaction than their non-LGBT counterparts. This is generally true regardless of legal or social climate.

These analyses also offer an opportunity to consider the joint effects of legal and social climates associated with sexual orientation and gender identity on LGBT identified individuals. While findings are far from robust, they do suggest that legal equality alone may not be sufficient to remedy clear self-reported health and well-being disparities between LGBT and non-LGBT individuals. Broader (and more geographically confided) social acceptance and support for LGBT people have a stronger effect in reducing health and well-being disparities.

Table 1. Bivariate analyses of health and well-being measures, by LGBT identity, LGBT-supportive legal climate, and support for Obama in 2012 election.

Panel 1. Full sample

	All	Non-LGBT	LGBT	p>|t|
Emotional Health Index (0-10)	7.93	7.95	7.39	0.000
N	201,189	185,892	5,899	
General health (1-5)	3.49	3.51	3.34	0.000
N	205,919	189,876	5,996	
Thriving (0/1)	0.53	0.53	0.52	0.687
N	193,363	178,935	5,806	

Panel 2. State-level LGBT legal climate

	No relationship recognition or anti-discrimination laws			Marriage equality and anti-discrimination laws			
	Non-LGBT	LGBT	p>|t|	Non-LGBT	LGBT	p>|t|	Diff in diff p>|t|
Emotional Health Index (0-10)	7.93	7.33	0.000	7.98	7.57	0.000	0.088
N	108,579	3,170		29,459	1,075		
General health (1-5)	3.47	3.28	0.000	3.61	3.43	0.000	0.827
N	110,861	3,215		30,144	1,090		
Thriving (0/1)	0.52	0.50	0.103	0.54	0.55	0.619	0.212
N	104,251	3,114		28,580	1,059		

Panel 3. County-level support for Obama in 2012 presidential election

	Lowest quartile of Obama support			Highest quartile of Obama support			
	Non-LGBT	LGBT	p>|t|	Non-LGBT	LGBT	p>|t|	Diff in diff p>|t|
Emotional Health Index (0-10)	7.89	7.19	0.000	7.97	7.57	0.000	0.014
N	42,721	1,108		43,011	1,914		
General health (1-5)	3.44	3.21	0.000	3.56	3.48	0.012	0.011
N	47,703	1,119		43,978	1,954		
Thriving (0/1)	0.49	0.46	0.207	0.57	0.59	0.093	0.043
N	44,615	1,086		41,686	1,900		

Table 2. Regression estimations predicting emotional health index.

	Model 1		Model 2		Model 3		Model 4	
	Odds-ratio	p<|t|	Odds-ratio	p<|t|	Odds-ratio	p<|t|	Odds-ratio	p<|t|
Female	**0.84**	0.000	**0.84**	0.000	**0.84**	0.000	**0.84**	0.000
Age 30-49	**0.79**	0.000	**0.79**	0.000	**0.79**	0.000	**0.79**	0.000
Age 50-64	**0.87**	0.000	**0.87**	0.000	**0.87**	0.000	**0.87**	0.000
Age 65+	**1.51**	0.000	**1.51**	0.000	**1.50**	0.000	**1.50**	0.000
Some college	**1.20**	0.000	**1.20**	0.000	**1.20**	0.000	**1.19**	0.000
College graduate	**1.44**	0.000	**1.44**	0.000	**1.44**	0.000	**1.44**	0.000
Post-graduate	**1.60**	0.000	**1.60**	0.000	**1.60**	0.000	**1.60**	0.000
African-American	**1.38**	0.000	**1.38**	0.000	**1.38**	0.000	**1.38**	0.000
Latino/a	**1.12**	0.000	**1.12**	0.000	**1.12**	0.000	**1.12**	0.000
Asian	**1.10**	0.017	**1.11**	0.010	**1.11**	0.014	**1.11**	0.009
Native American	**1.27**	0.012	**1.26**	0.015	**1.25**	0.024	**1.24**	0.029
Native Hawaiian	**2.12**	0.000	**2.14**	0.000	**2.15**	0.000	**2.17**	0.000
Multi-racial	**0.78**	0.000	**0.78**	0.000	**0.78**	0.000	**0.78**	0.000
Race/ethnicity not designated	**0.91**	0.093	**0.92**	0.095	0.92	0.127	0.92	0.129
Median age (zipcode)	1.00	0.607	1.00	0.849	1.00	0.924	1.00	0.900
% Non-white (zipcode)	**1.00**	0.000	**1.00**	0.004	1.00	0.111	1.00	0.250
Median personal income (zipcode)	**1.00**	0.000	**1.00**	0.000	**1.00**	0.000	**1.00**	0.000
% College degree (zipcode)	1.00	0.704	1.00	0.798	1.00	0.160	1.00	0.223
LGBT identity	**0.68**	0.000	**0.66**	0.000	**0.62**	0.000	**0.62**	0.000
Rel. rec. or Anti-discrimination			**1.08**	0.000			**1.09**	0.000
Civil unions/DPs and Anti-discrimination			**0.97**	0.034			0.98	0.231
Marriage equality and Anti-discrimination			**0.95**	0.002			0.97	0.113
LGBT * Rel. rec. or Anti-discrimination			0.92	0.496			0.88	0.326
LGBT * CU/DPs and Anti-discrimination			1.07	0.401			1.01	0.896
LGBT * Mar eq. and Anti-discrimination			1.13	0.125			1.05	0.578
Obama county vote (2nd quartile)					1.02	0.130	1.03	0.120
Obama county vote (3rd quartile)					0.97	0.117	0.98	0.200
Obama county vote (4th quartile)					**0.93**	0.000	**0.94**	0.001
LGBT * Obama county vote (2nd quartile)					0.99	0.920	0.99	0.902
LGBT * Obama county vote (3rd quartile)					**1.19**	0.067	**1.18**	0.096
LGBT * Obama county vote (4th quartile)					**1.18**	0.053	1.17	0.102

Table 3. Regression estimations predicting general health.

	Model 1		Model 2		Model 3		Model 4	
	Odds-ratio	p<|t|	Odds-ratio	p<|t|	Odds-ratio	p<|t|	Odds-ratio	p<|t|
Female	1.00	0.864	1.00	0.861	1.00	0.824	1.00	0.818
Age 30-49	**0.67**	0.000	**0.67**	0.000	0.67	0.000	**0.67**	0.000
Age 50-64	**0.50**	0.000	**0.50**	0.000	0.50	0.000	**0.50**	0.000
Age 65+	**0.43**	0.000	**0.43**	0.000	0.43	0.000	**0.43**	0.000
Some college	**1.55**	0.000	**1.55**	0.000	1.55	0.000	**1.55**	0.000
College graduate	**2.35**	0.000	**2.35**	0.000	2.35	0.000	**2.35**	0.000
Post-graduate	**2.93**	0.000	**2.93**	0.000	2.93	0.000	**2.93**	0.000
African-American	**0.80**	0.000	**0.80**	0.000	0.80	0.000	**0.80**	0.000
Latino/a	**0.59**	0.000	**0.59**	0.000	0.59	0.000	**0.59**	0.000
Asian	**0.67**	0.000	**0.67**	0.000	0.67	0.000	**0.67**	0.000
Native American	**0.74**	0.002	**0.74**	0.001	0.74	0.001	**0.73**	0.001
Native Hawaiian	0.84	0.322	0.85	0.335	0.81	0.201	0.81	0.212
Multi-racial	**0.68**	0.000	**0.68**	0.000	0.68	0.000	**0.68**	0.000
Race/ethnicity not designated	**0.78**	0.000	**0.78**	0.000	0.79	0.000	**0.79**	0.000
Median age (zipcode)	**1.00**	0.032	**1.00**	0.025	1.00	0.040	**1.00**	0.024
% Non-white (zipcode)	**1.00**	0.000	**1.00**	0.002	1.00	0.001	**1.00**	0.013
Median personal income (zipcode)	**1.00**	0.000	**1.00**	0.000	1.00	0.000	**1.00**	0.000
% College degree (zipcode)	**1.01**	0.000	**1.01**	0.000	1.01	0.000	**1.01**	0.000
LGBT identity	**0.70**	0.000	**0.71**	0.000	0.69	0.000	**0.69**	0.000
Rel. rec. or Anti-discrimination			**1.09**	0.000			**1.09**	0.000
Civil unions/DPs and Anti-discrimination			0.99	0.438			0.99	0.606
Marriage equality and Anti-discrimination			**1.03**	0.036			**1.04**	0.024
LGBT * Rel. rec. or Anti-discrimination			0.96	0.733			0.91	0.458
LGBT * CU/DPs and Anti-discrimination			1.03	0.683			0.97	0.712
LGBT * Mar eq. and Anti-discrimination			0.94	0.441			0.87	0.102
Obama county vote (2nd quartile)					1.03	0.112	1.02	0.261
Obama county vote (3rd quartile)					1.03	0.118	1.01	0.547
Obama county vote (4th quartile)					1.00	0.950	0.98	0.333
LGBT * Obama county vote (2nd quartile)					0.87	0.200	0.89	0.279
LGBT * Obama county vote (3rd quartile)					1.03	0.750	1.08	0.462
LGBT * Obama county vote (4th quartile)					1.14	0.152	**1.20**	0.073

Table 4. Regression estimations predicting thriving (based on current and future life evaluation measures).

	Model 1		Model 2		Model 3		Model 4	
	Odds-ratio	p<|t|	Odds-ratio	p<|t|	Odds-ratio	p<|t|	Odds-ratio	p<|t|
Female	**1.27**	0.000	**1.27**	0.000	**1.27**	0.000	**1.27**	0.000
Age 30-49	**0.65**	0.000	**0.65**	0.000	**0.65**	0.000	**0.65**	0.000
Age 50-64	**0.49**	0.000	**0.49**	0.000	**0.49**	0.000	**0.49**	0.000
Age 65+	**0.44**	0.000	**0.44**	0.000	**0.44**	0.000	**0.44**	0.000
Some college	**1.21**	0.000	**1.21**	0.000	**1.21**	0.000	**1.21**	0.000
College graduate	**1.82**	0.000	**1.82**	0.000	**1.82**	0.000	**1.82**	0.000
Post-graduate	**2.44**	0.000	**2.44**	0.000	**2.44**	0.000	**2.44**	0.000
African-American	**1.32**	0.000	**1.31**	0.000	**1.32**	0.000	**1.31**	0.000
Latino/a	**1.14**	0.000	**1.15**	0.000	**1.14**	0.000	**1.15**	0.000
Asian	0.93	0.165	0.93	0.193	0.93	0.173	0.93	0.207
Native American	0.95	0.628	0.95	0.616	0.95	0.579	0.95	0.575
Native Hawaiian	0.98	0.934	0.98	0.940	0.95	0.807	0.95	0.822
Multi-racial	**0.85**	0.000	**0.85**	0.000	**0.85**	0.000	**0.85**	0.000
Race/ethnicity not designated	0.94	0.313	0.94	0.316	0.95	0.371	0.94	0.366
Median age (zipcode)	1.00	0.537	1.00	0.602	1.00	0.360	1.00	0.388
% Non-white (zipcode)	1.00	0.110	**1.00**	0.064	1.00	0.664	1.00	0.615
Median personal income (zipcode)	**1.00**	0.008	**1.00**	0.004	**1.00**	0.006	**1.00**	0.002
% College degree (zipcode)	**1.01**	0.000	**1.01**	0.000	**1.01**	0.000	**1.01**	0.000
LGBT identity	**0.89**	0.001	**0.85**	0.001	**0.83**	0.022	**0.83**	0.021
Rel. rec. or Anti-discrimination			0.99	0.781			0.98	0.537
Civil unions/DPs and Anti-discrimination			0.97	0.125			0.96	0.058
Marriage equality and Anti-discrimination			0.99	0.496			0.98	0.223
LGBT * Rel. rec. or Anti-discrimination			1.04	0.801			0.98	0.910
LGBT * CU/DPs and Anti-discrimination			1.15	0.126			1.08	0.428
LGBT * Mar eq. and Anti-discrimination			1.09	0.372			1.01	0.932
Obama county vote (2nd quartile)					**1.04**	0.020	**1.05**	0.008
Obama county vote (3rd quartile)					1.02	0.340	1.03	0.137
Obama county vote (4th quartile)					**1.05**	0.035	**1.06**	0.009
LGBT * Obama county vote (2nd quartile)					0.92	0.454	0.91	0.395
LGBT * Obama county vote (3rd quartile)					1.09	0.427	1.07	0.542
LGBT * Obama county vote (4th quartile)					**1.22**	0.051	1.19	0.117

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