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## Chapter

# Psychological Health Influences of Legal-Marriage and -Partnerships on Same-Sex Couples

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## Abstract

This chapter explores whether Californians in same-sex legal marriages and partnerships reported lower levels of psychological distress than other adult Californians after the 2008 California Supreme Court Decision that legalized same-sex marriage. We pooled 10 years of California Health Interview Survey (CHIS) data and employ a T1-T2 design to approximate a time series design. Dependent variables include overall self-related health, psychological distress, and household income. Independent variables include sexual identity and same-sex spouse. Bi-variate analyses compared self-reported mental and physical health between the two periods. We found decreased reports of poorer health and increased reports of very good health among gay men and lesbian women with legal spouses. Psychological distress decreased for legally coupled gay men and lesbians while increased slightly among unpartnered lesbian women and gay men. Household income increased among coupled lesbian women and gay men and decreased among others. Our project demonstrated positive health influences for Californians with legal same-sex spouses. We recommend future research projects that explore whether and how same- and opposite-sex marriage benefits health, well-being, and prosperity, and for marital status survey questions that are inclusive of sexual and gender identities and elicit the sex/gender of a respondent's spouse.

**Keywords:** same-sex marriage and partnerships, mental health, survey measurement

## 1. Introduction

The U.S. federal government continues to increase the collection of sexual-orientation data in its surveys [1–4], recognizes the need to develop a model for LGBT health that integrates behavioral, environmental, and socioeconomic factors, and intends to develop a framework, “to improve the health and well-being of people, ... enhancing prosperity in the community and for its residents and businesses” [5] Marriage is one social contract long associated with health, longevity, and prosperity for people in such relationships [6–10]. During the period that preceded local, state, and then national legalization of same-sex marriage in the U.S. [11], researchers analyzed secondary data and proposed that such legal recognition could ensure some of the health and financial benefits that opposite-sex married couples have long-enjoyed [9, 12, 13].

Research on effects of state-based same-sex marriage or legal-partnerships found more nuanced results [14–16], for example, increased health insurance coverage among California legally-partnered lesbians compared to heterosexual women with no change among gay men compared to heterosexual men [17]. An Illinois-based study found similar findings among sexual minority women with even more profound effects of insurance coverage among racial/ethnic sexual minority women [18]. Another study found higher odds among legally-partnered California gay men to cite continuous health insurance coverage and regular medical providers than married heterosexual men—yet self-reported poorer health and well-being than heterosexual counterparts [19].

Since 2008, the California Health Interview Survey (CHIS) asked questions on same-sex marriage and legal partnerships [20] to reflect the state's policy progression from requiring employer-sponsored health insurance to same-sex partners in 2005, to locality-based same-sex marriage, to a 2008 State Supreme Court decision that affirmed same-sex marriage. Litigation regarding a statewide ballot initiative led to a suspension of issuing same-sex marriage licenses until 2013 when same-sex marriage licenses were issued once again.

The aim of this article is to explore whether Californians in same-sex legal partnerships and marriages reported lower levels of psychological distress after the 2008 California Supreme Court Decision that legalized same-sex marriage. The stress of homoprejudicial experiences has cumulative negative influences on the actual and perceived mental and physical health among lesbian and gay people [21]. Moreover, there is literature that demonstrates reciprocal links between psychosocial stress, health, and well-being [22, 23].

## **2. Methods**

Our sample includes adult Californians surveyed before and after the California Supreme Court decision (CSCD) in 2008. We obtained data from CHIS for years 2005–2015. Initially fielded biennially, CHIS became a continuous survey in 2011. Administered in five languages, it employs a multi-stage probability design that selects subjects by random-digit dial within geographic strata. Respondents in this analysis include adults ages 18–70 who self-identified as heterosexual, lesbian/gay female, or gay male. CHIS did not ask sexual-identity questions of participants older than 70 [24]. We excluded respondents who said they were bisexual, celibate, non-sexual, or provided no response because the CHIS survey did not ask the sex/gender of a respondent's spouse [19] and thus lacked the ability to safely intuit the sex/gender of each respondent's spouse. CHIS obtained human subject approval for participant recruitment and data collection through the University of California, Los Angeles (UCLA). The National Institutes of Health's Office of Human Subjects Research Protection determined our study to be exempt from review as it involved the study of existing data recorded such that subjects cannot be identified.

### **2.1 Dependent variable**

#### *2.1.1 Psychological distress*

CHIS has fielded the Kessler 6-item (K6) scale to assess nonspecific psychological distress since 2005 [25]. The K6 measures symptoms during the past 30 days: felt nervous, hopeless, restless or fidgety, worthless, depressed, and felt that everything

was an effort—using Likert scales from 0 representing none of the time, to 4 representing all the time. The K6 scale is summed with scores of 0 representing lowest, and 24 representing the highest psychological distress level. Dichotomized moderate mental distress is defined as the sum of K6 scores at or above 5, the optimal lower threshold indicative of moderate mental distress [13]. The K6 continuous measure and the dichotomized moderate mental distress scores have demonstrated reliability and validity in population datasets, including CHIS [26, 27]. We used the dichotomous measure given our small subsample of married and partnered same-sex couples.

## 2.2 Independent variables

### 2.2.1 Sexual identity

CHIS participants self-reported as, “straight or heterosexual, as gay, lesbian or homosexual, bisexual, or other.”

### 2.2.2 Legal marriage and partnership

CHIS asked all participants the standard marital question, “Are you now married, living with a partner in a marriage-like relationship, widowed, divorced, separated, or never married?” The response options do not include same-sex marriage or legal partnership. Previous research has shown that lesbian/gay women and gay men under-report marriage and legal partnership when responding to standard marital status questions [19]. To address under-report of marriage and to reflect the 2008 CSCD, CHIS asked all participants who reported having sex with someone of the same sex within the preceding 12 months whether that sexually-active respondent had a legal same-sex spouse or domestic partner. In addition to legally-partnered and married, we consolidated remaining status into *other*, a category including unmarried people who may be divorced, widowed, never-married, or living with a partner without legal recognition. We also constructed a binary variable for married/legally-partnered to increase the power of the data to find statistically significant results. There is no way to separate married and legally-partnered for data prior to 2009 because of questionnaire wording. In 2009, revised question wording distinguished married from legally-partnered. We compared percent of moderate psychological distress between married and legally-partnered lesbian women and gay men and found no statistical difference. Therefore, we collapsed married/legally-partnered as one group for our analyses in order to compare pre to post CSCD.

### 2.2.3 Statistical analyses

We performed all statistical analyses using CHIS data pooled from survey years 2005–2015 and weighted to the California population. Lesbian/gay women and gay men were compared to their heterosexual counterparts on sociodemographic variables. Data collected before 2008 were considered prior to the CSCD and data collected in 2008 and later were considered after the legal decision. The proportion of the sample experiencing moderate mental distress was plotted over time by gender, sexual identity, and couple status. Joinpoint analysis tested if trends in moderate psychological distress changed at specific years. Joinpoint uses weighted least squares to fit the trend model, using the inverse of the standard error as the weight variable.

Bi-variate and logistic regression analyses compared psychological distress using the K6 scale between the periods before and after the CSCD. Bi-variate analyses were replicated only for lesbian/gay women and gay men and compared stress levels between those legally married or partnered as compared with those not. Independent variables of the logistic regression included the main effects of sexual identity, marriage/legal partnership and the timing of CSCD (before or after) and all the two-way interaction effects (i.e., sexual identity x marriage/legal partnership, sexual identity x timing of CSCD, marriage/legal partnership x timing of CSCD) and the three-way interaction effect of the three variables (i.e., sexual identity x marriage/legal partnership x timing of CSCD) while adjusting for the following sociodemographics: Race, marital/partnered status, children in home, education, work status, income, geography, age. The conditional adjusted odds ratios compare the odds of reporting moderate mental health distress for that specific group pre- versus after-CSCD while holding all other variables constant.

### 3. Results

A total of 192,460 individuals were included in the analysis, with 6995 participants identifying as lesbian/gay women and gay men. **Table 1** displays socio-demographics of lesbian, gay, and heterosexual individuals before and after the CSCD. There is an overall increase in non-white populations regardless of sexual orientation and a notable increase in reports of legal married/partnered lesbian women and gay men. Before 2008, only 11 percent of lesbian/gay female and gay male Californians reported being legally married/partnered. That percentage rose to 26.5% after the state Supreme Court decision. Among heterosexuals, marriage slightly declined, from 57.2% before the ruling versus 51.8% after the decision. **Table 1** also reports the mean distress score for sexual identity group pre versus post CSCD and shows that lesbian women and gay men reported higher scores of moderate distress than their heterosexual counterparts.

**Table 2** provides descriptive results expressly for lesbian women and gay men by marital/partnered status pre versus post-CSCD. Employment was stable among married/partnered respondents, but unemployment increased among others. Household income increased among married/partnered respondents but decreased among others. Notably, the percentage of respondents who had a child in the home decreased from 51 to 36% among married/partnered lesbian and gay respondents. Mean scores of moderate mental distress decreased for married or legally partnered but increased for other following the CSCD.

We explored the relationship the 2008 CSCD on self-reported moderate psychological distress among legally married or partnered and other respondents by sexual identity. A higher percentage of Lesbian women and gay men reported rates of distress than heterosexual counterparts. There was no change in the proportion of lesbian women and gay men who experienced moderate mental psychological distress before and after the CSCD. However, this result changes when we compare those who are legally partnered or married compared to other relationship status. Legally married or partnered lesbian women and gay men were half as likely to report moderate psychosocial distress after the CSCD [OR, 0.52] as compared to prior to the CSCD. In contrast, moderate psychological distress remained relatively unchanged among other lesbian women and gay men [1.04], married heterosexuals [0.94] and other heterosexuals [0.94]. These results and their 95% confidence intervals (CIs) for statistically significant relationships appear in **Table 3**.

We conducted Joinpoint analyses to determine if moderate psychological distress decreased at specific years. **Figure 1** displays percent of respondents

	Total				Lesbian women and gay men				Heterosexual			
	Pre-CSCD		Post-CSCD		Pre-CSCD		Post-CSCD		Pre-CSCD		Post-CSCD	
	n	wgt %	n	wgt %	N	wgt %	n	wgt %	n	wgt %	n	wgt %
Sample size pPercentage)	76,979	24.1	115,481	75.9	2575	19.3	4420	80.7	74,404	24.3	111,061	75.7
RACEETHN: Race/Ethnicity												
Latino	15,730	32.8	27,270	36.1	365	24.6	909	33.3	15,365	33.1	26,361	36.3
Asian/PI/AI/AN	7974	13.6	12,654	14.7	150	9.1	279	10.5	7824	13.7	12,375	14.9
African American	3574	5.7	5378	5.7	112	6.2	205	5.2	3462	5.7	5173	5.7
White	47,385	46.2	67,116	41.1	1832	56.8	2842	47.3	45,553	45.9	64,274	40.8
Other	2316	1.6	3063	2.4	116	3.3	185	3.6	2200	1.6	2878	2.3
MARITDPN: Marital or domestic partnered status												
Married/Legally Partnered	42,382	55.7	61,386	50.7	275	11.1	1280	26.5	42,107	57.2	60,106	51.8
Other	34,597	44.3	54,095	49.3	2300	88.9	3140	73.5	32,297	42.8	50,955	48.2
Gender												
Women	45,131	58.6	66,412	57.5	1275	49.5	2251	50.9	43,856	58.9	64,161	57.8
Men	31,848	41.4	49,069	42.5	1300	50.5	2169	49.1	30,548	41.1	46,900	42.2
KIDCNTD: Have child aged 0–17 in household												
Yes	30,992	48.8	39,566	43.7	466	22.0	837	24.8	30,526	49.6	38,729	44.5
No	45,987	51.2	75,915	56.3	2109	78.0	3583	75.2	43,878	50.4	72,332	55.5
DEGREE00: Educational attainment												
<High School Education	7294	15.8	12,372	15.5	118	7.6	252	10.2	7176	16.0	12,120	15.7
High School Diploma or Some College	38,141	51.1	55,929	49.0	1062	48.0	1973	48.6	37,079	51.2	53,956	49.0

	Total				Lesbian women and gay men				Heterosexual			
	Pre-CSCD		Post-CSCD		Pre-CSCD		Post-CSCD		Pre-CSCD		Post-CSCD	
	n	wgt %	n	wgt %	N	wgt %	n	wgt %	n	wgt %	n	wgt %
College Degree or Above	31,544	33.1	47,180	35.5	1395	44.4	2195	41.2	30,149	32.7	44,985	35.3
WRKST_R: Working status recode												
Employed	54,253	74.4	71,344	69.1	1865	77.0	2734	68.7	52,388	74.3	68,610	69.1
Unemployed, Looking For Work	2050	3.7	7345	8.3	93	3.7	391	10.6	1957	3.7	6954	8.2
Unemployed, Not Looking For Work	20,676	21.8	36,792	22.6	617	19.3	1295	20.6	20,059	21.9	35,497	22.7
HHINCOME: Household Income												
Household Income Under 350% FPL	32,480	48.8	57,242	55.2	992	39.6	2124	50.9	31,488	49.1	55,118	55.4
Household Income Greater Than or Equal To 350% FPL	44,499	51.2	58,239	44.8	1583	60.4	2296	49.1	42,916	50.9	55,943	44.6
GEOGRAPHY: Geography												
Metro	71,430	97.7	105,968	97.8	2376	98.1	4059	98.1	69,054	97.7	101,909	97.8
Non-Metro	5549	2.3	9513	2.2	199	1.9	361	1.9	5350	2.3	9152	2.2
SELF_HEALTH: Self Health												
Poor	3335	3.6	5614	3.6	155	4.5	251	4.1	3180	3.5	5363	3.6
Fair	9647	13.9	16,890	15.1	329	13.8	700	17.4	9318	13.9	16,190	15.0
Good	21,385	30.0	33,532	30.3	698	28.0	1312	29.8	20,687	30.1	32,220	30.3
Very Good	25,423	31.5	36,987	31.6	833	31.9	1425	31.2	24,590	31.4	35,562	31.7
Excellent	17,189	21.1	22,458	19.4	560	21.8	732	17.6	16,629	21.1	21,726	19.4
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
AGE_DERIVED: Age												
Mean (Standard Error)	41.07	0.02	41.83	0.03	38.66	0.40	37.83	0.40	41.14	0.03	42.01	0.03

	Total				Lesbian women and gay men				Heterosexual			
	Pre-CSCD		Post-CSCD		Pre-CSCD		Post-CSCD		Pre-CSCD		Post-CSCD	
	n	wgt %	n	wgt %	N	wgt %	n	wgt %	n	wgt %	n	wgt %
K6SUM: K6Sum												
Mean (Standard Error)	3.61	0.02	3.66	0.03	4.84	0.13	5.06	0.13	3.57	0.02	3.60	0.03
PSY_INDICATOR: Psychological distress indicator												
Mean (Standard Error)	0.30	0.00	0.30	0.00	0.43	0.02	0.44	0.02	0.29	0.00	0.29	0.00
POORFAIR_HEALTH: Poor/Fair Health												
Poor/Fair	0.17	0.00	0.19	0.00	0.18	0.01	0.21	0.01	0.17	0.00	0.19	0.00

**Table 1.** Psychological health influences and the 2008 California supreme court decision: Descriptive statistics for California adults 18–70, by sexual identity.

	Married/legally partnered				Other			
	Pre-CSCD		Post-CSCD		Pre-CSCD		Post-CSCD	
	n	wgt %	N	wgt %	n	wgt %	N	wgt %
Sample size (percentage)	275	9.1	1280	90.9	2300	22.5	3140	77.5
Gender								
Women	184	66.9	763	59.6	1091	47.4	1488	47.4
Men	91	33.1	517	40.4	1209	52.6	1652	52.3
RACEETHN: Race/ethnicity								
Latino	54	31.1	215	27.7	311	23.7	694	35.3
Asian/PI/AI/AN	38	15.4	84	8.9	112	8.4	195	11.1
African American	4	0.6	29	2.6	108	6.9	176	6.2
White	169	50.8	908	57.7	1663	57.5	1934	43.6
Other	10	2.1	44	3.1	106	3.5	141	3.9
KIDCNTD: Have child aged 0–17 in household								
Yes	135	50.9	362	35.6	331	18.4	475	20.9
No	140	49.1	918	64.4	1969	81.6	2665	79.1
DEGREE: Educational attainment								
<High school education	16	9.5	62	7.1	102	7.4	190	11.3
High school diploma or Some college	117	42.8	455	39.7	945	48.6	1518	51.8
College degree or above	142	47.7	763	53.2	1253	44.0	1432	36.9
WRKST_R: Working status recode								
Employed	194	72.6	858	72.3	1671	77.5	1876	67.5
Unemployed, looking for work	9	4.1	58	5.1	84	3.6	333	12.6
Unemployed, not looking for work	72	23.3	364	22.6	545	18.8	931	19.9
HHINCOME: Household Income								
Household income under 350% FPL	113	44.3	390	32.8	879	39.1	1734	57.4
Household income greater than or equal to 350% FPL	162	55.7	890	67.2	1421	60.9	1406	42.6
GEOGRAPHY: Geography								
Metro	250	97.4	1185	98.4	2126	98.2	2874	98.0
Non-metro	25	2.6	95	1.6	174	1.8	266	2.0
SELF_HEALTH: Self Health								
Poor	11	4.4	54	3.0	144	4.5	197	4.4
Fair	36	15.5	183	14.1	293	13.6	517	18.6
Good	85	32.3	349	28.6	613	27.5	963	30.2
Very Good	89	27.8	445	36.5	744	32.4	980	29.2
Excellent	54	20.1	249	17.8	506	22.1	483	17.6
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
AGE_DERIVED: Age								
Mean (standard error)	40.64	1.04	44.01	0.65	38.41	0.42	35.61	0.43

	Married/legally partnered				Other			
	Pre-CSCD		Post-CSCD		Pre-CSCD		Post-CSCD	
	n	wgt %	N	wgt %	n	wgt %	N	wgt %
K6SUM: K6Sum								
Mean (standard error)	5.09	0.38	4.14	0.22	4.81	0.14	5.40	0.17
PSY_INDICATOR: Psychological distress indicator								
Mean (standard error)	0.50	0.05	0.33	0.03	0.43	0.02	0.48	0.02
POORFAIR_HEALTH: Poor/Fair Health								
Poor/Fair	0.20	0.04	0.17	0.02	0.18	0.01	0.23	0.02

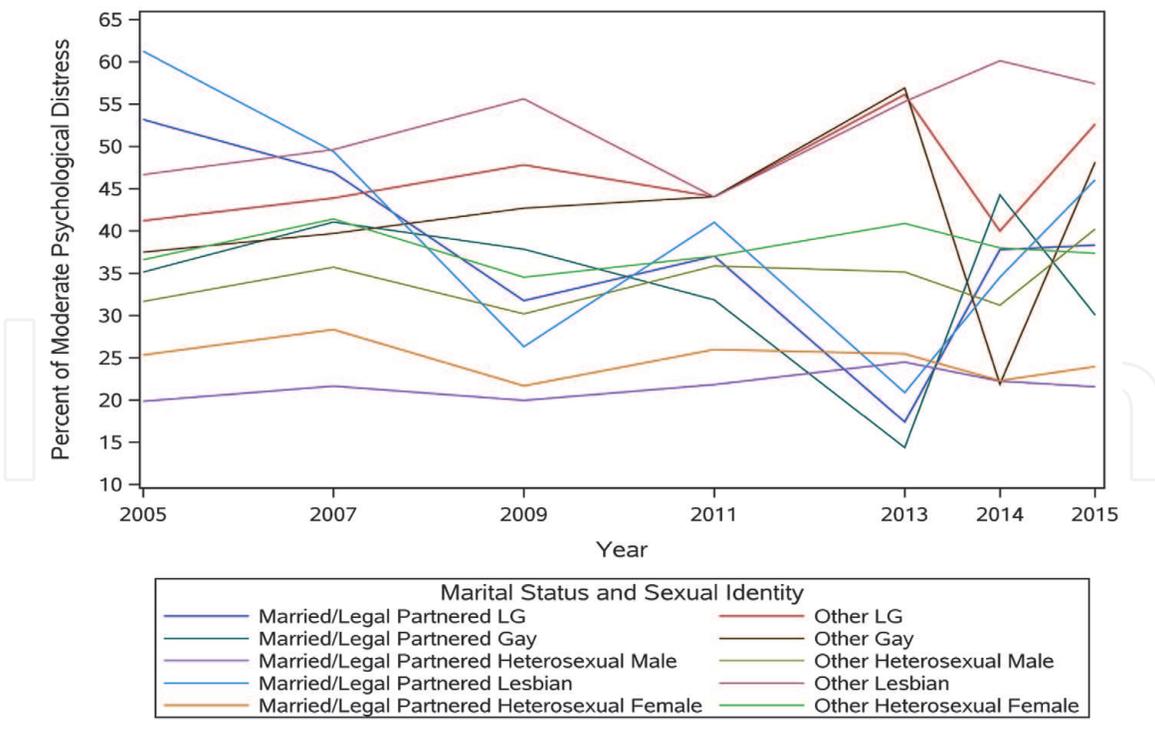
**Table 2.**  
 Descriptive statistics for lesbian women and gay men by marital/partnered status.

	All Lesbian and Gay individuals		All Heterosexual individuals	
	Pre-CSCD	Post-CSCD	Pre-CSCD	Post-CSCD
	<b>Full sample of adults to compare lesbian/gay female, gay male, and heterosexual married/legally-partnered and otherwise single</b>			
Number of respondents	2575	4420	74,404	111,061
Percent married or legally partnered	11.1%	26.5%	57.2%	51.8%
Psychological Distress mean and standard deviation Kessler 6-item (K6) continuous score (0–24)	4.84 (0.13)	5.06 (0.13)	3.57 (0.02)	3.60 (0.03)
Percent reporting at least moderate mental distress (yes/no) K6 score of > = 5	43%	44%	29%	29%
<b>Sub-set of only adults who are lesbian and gay to compare between those married/legally-partnered and otherwise single</b>				
Number of respondents	279	1280	2300	3140
Psychological distress mean and standard deviation Kessler 6-item (K6) continuous score (0–24)	5.09 (0.38)	4.14 (0.22)	4.81 (0.14)	5.40 (0.17)
Percent reporting at least moderate mental distress (yes/no) K6 score of > = 5	50%	33%	43%	48%
Conditional adjusted odds ratio & 95% CI of moderate mental distress Post-CSCD vs. Pre-CSCD		0.52 (0.33, 0.82)		1.04 (0.85, 1.29)

Data in cells represent sample sizes, percentage married, mean and standard deviation for continuous version of the Kessler 6-item scale and percent reporting moderate mental distress (score of 5 or higher on the Kessler scale).

**Table 3.**  
 Mean scores of psychological distress and percent reporting moderate mental distress pre and post the 2008 California supreme court decision (CSCD) to legalize same-sex marriage: CHIS data 2005–2015.

experiencing at least moderate psychological distress by sexual identity, gender and marital status from 2005 through 2015. Joinpoint analyses were conducted separately for sub-groups by gender, marital status and sexual identity. Distress levels remain relatively stable over time among married and other heterosexual women and among married heterosexual males. Moderate distress percentages dip in 2013 among married/partnered lesbians and gays as a group (lesbians and gays) and



**Figure 1.** Trend of moderate psychological distress by marital status and sexual identity.

separately (married/partnered gays, married partnered lesbians). Distress increased in this same year among other gay men and lesbian women. Distress scores increased from their 2013 levels among married/partnered lesbians and gays in 2014 and decreased only among gay men in 2015, the year of the U.S. Supreme Court decision that legalized same-sex marriage. However, none of these trends were significant as determined by the p-values for each slope in Joinpoint analyses. In addition, there was no significant changing point in terms of year for any of the slopes for moderate psychological distress for any of the sub-groups.

#### 4. Discussion

Before same-sex marriage became legal throughout the United States in 2015, clinical researchers promoted marriage equality as a health promotion strategy for lesbian/gay women and gay men [8, 12, 28]. Others ventured that marriage equality not only would improve lesbian/gay health, but also would benefit society at large [29]. Though our project was more circumscribed, we found some confirmation of our exploratory aim: Many adult Californians in legal same-sex partnerships and marriages reported lower levels of psychological distress than their single counterparts following the CSCD.

The inelegant results in this quasi-natural experiment may be no surprise, as this time period was fraught with instability regarding the state legality of same-sex marriage/partnerships and the stay of issuing same-sex marriage licenses between November 2008 and June 2014. Though Californians in same-sex unions maintained their legal status at the ends of the disputes, during this tumultuous legal period some undoubtedly worried whether their marital status would continue. Engaged same-sex couples were precluded from marriage licenses. Those with same-sex orientations may have experienced stressors related to passage of the state referendum Proposition 8 and the court cases appealing that referendum that abolished marriage for same-sex couples. In sum, this period was uncertain on the

status of same-sex marriage and mental health self-reports fluctuated during periods when the issue's status also changed (**Figure 1, Table 3**). Reports of distress declined over time for legally-married or -partnered lesbian women and gay men while distress increased for their single counterparts. However, the changes in slope were not significant and no single year showed as the changing point when using Joinpoint analyses. In contrast, distress reports among heterosexual women and men remained relatively stable between 2009 and 2015. Our results suggest that marriage may have had a positive influence on mental health for legally-married and -partnered gay and lesbian people even during this turbulent period.

Recent studies posit that people in legal same-sex relationships have higher relationship stability, more financial resources, and better health outcomes than couples who cohabit without legal recognition [19, 30] and that marriage may mitigate minority stress effects among same-sex and other marginalized couples [21]. Our project found lower psychological distress levels among many lesbian/gay women and gay male Californians, though this health benefit was not uniform over time across same-sex marriages or legal partnerships—perhaps a reflection of the time period during which the continued legality of same-sex marriage in California was uncertain. The support we found for our hypothesis, even when the data were collected during a period in which the legality of same-sex marriage was questioned, reinforces a finding of a National Academies report that encourages research to understand the qualities of resilience unique to sexual minorities and how that relates to their overall health [3].

We also found evidence that gay and lesbian CHIS respondents who were legally-married and -partnered were substantively more likely to be employed and to have college educations than those unmarried or not legally partnered. That said, marriage equality in California can find its roots in 2005 legislation that required private employers to extend health insurance benefits to employees' same-sex partners just as the benefits were extended to opposite-sex spouses—a time when same-sex marriage was unlawful. An earlier study found this policy had no influence on gay men but was of great benefit to lesbian women [17]. Our work, in light of previous studies, suggests more research is needed to explore whether and how same- and opposite-sex marriage is associated with benefits to health, well-being, and prosperity across communities.

Minority stress theory posits that prejudicial experiences over the lifecourse have a negative impact on the actual and perceived mental and physical health of lesbian/gay people [18, 21, 31]. Full legal protections for sexual- and gender-minorities are incomplete; however, an exploration of the influence of national marriage equality on health issues of the multifaceted, non-exclusively-heterosexual, cis- and transgender people who comprise sexual minorities may be worthwhile.

Studies using future iterations of CHIS can determine whether the mental health benefits we found continue over time and whether other self-reported health benefits emerge. For example, extant research suggests that marriage equality has, at minimum, mental health benefits for non-heterosexual youth for whom suicide is the second most frequent cause of death [32–34].

Additional research projects might explore these questions across U.S. populations beyond California. To explore the implications of minority stress theory more thoroughly, future projects might consider biopsychosocial measures typically associated with stress responses—for example, to explore changes or differences in telomere lengths [35] and/or cortisol levels [36] in addition to self-reported data from single and married lesbian/gay women, gay men, and additional sexual and gender minorities over time. Longitudinal studies in this regard would enhance both understanding and health promotion among sexual minorities.

## **4.1 Limitations**

First, as CHIS is a continuous cross-sectional study, our findings suggest a trend in the populace rather than a change in a discrete set of Californians. Second is that legal partnerships and legal marriage did not convey identical rights and privileges between 2005 and 2008, a period that included concurrent, limited periods of city- and county-based same-sex marriages in California. Moreover, litigation precluded issuance of marriage licenses to same-sex couples between November 2008 and June 2013. Disparate results among legally-partnered, married, and other gay male and lesbian Californians perhaps reflect that uncertainty. Third, we were unable to report results separately by legal same-sex marriage and partnership between 2013 and 2015 though our results nonetheless appear to correspond with the historical events related to this issue during the period. Fourth is the need to exclude bisexually-identified Californians because the survey's order and skip pattern complicate notions of self-identification and self-report of sexual behavior. For example, a bisexually-identified respondent who reported no sex with a same-sex partner in the last 12 months would not have been asked the question of same-sex legal partnership/marriage. Additionally, the partner's sex/gender and sexual orientation were not reported.

This fourth limitation demonstrates that a respondent's reported sexual identity is not necessarily equivalent to that respondent's sexual behavior or to the sex/gender of that individual's spouse—particularly in our era of increasingly fluid sexual and gender identities [37–39] and growing researcher attention to the intersectionality framework to integrate the complexity of individual lived experiences within efforts to improve care and research in health and well-being [40–42]. For a more comprehensive understanding of the influences of sexual identity, gender identity, and marital status on human health and well-being, survey questions may elicit not only the sex/gender identity of a respondent but also of the respondent's spouse, for example, to help determine the influence of same- or opposite-sex marriage on the health of bisexual or transgender people.

Researchers adapting CHIS to account more precisely for same-sex marriage influences could follow the current question on “now married, living with a partner in a marriage-like relationship, widowed, divorced, separated, or never married” [43] by asking whether the spouse/partner referenced in the previous question is the same or opposite sex as the respondent.

There are thorough conversations across and outside the academy that will lead to comprehensive revisions of survey methodologies to measure the identity and behavior of respondents and their respective spouses. In the interim, the California Health Interview Survey (CHIS) provides a best practice on how to design and adapt questions to collect data that can explain the influence of legal marriage and partnerships on health and well-being, including sex/gender and sexual orientation identities [1]. Research and surveillance methodologies occasionally must respond quickly to provide data-driven public health recommendations. This study demonstrates CHIS's ability to explore the health impact of marriage for same-sex couples, and a need for survey questions to elicit information about marital status and the sex/gender of a respondent's spouse inclusive of sexual identities. Such collection is critical for data-driven health recommendations as sexual and gender identities become increasingly fluid and nuanced.

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