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Mental health and social connection among older lesbian and bisexual women

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ABSTRACT

Objective: To assess differences in psychosocial and mental health outcomes between older lesbian and bisexual women compared to heterosexual women.

Design: Cross sectional study.

Setting: The study was carried out in the California Teachers Study, a prospective cohort study.

Participants: Self-identified heterosexual ($n = 35{,}846$), lesbian ($n = 710$), and bisexual ($n = 253$) women 50 years of age and older were enrolled.

Measurements: Validated questionnaires were used to measure social connection, overall happiness, and depression. Logistic regression modeling was used to estimate odds ratios (OR) and 95% confidence intervals (CI) comparing lesbian and bisexual women separately to heterosexual women in relation to psychosocial and mental health outcomes.

Results: After controlling for age and marital status, older bisexual women were significantly more likely to report lack of companionship (OR = 2.00; 95% CI, 1.30–3.12) and feeling left out (OR = 2.33; 95% CI, 1.36–3.97) compared to older heterosexual women. The odds of reporting feeling isolated from others was significantly higher in lesbian (OR = 1.56; 95% CI, 1.06–2.30) and bisexual women (OR = 2.30; 95% CI, 1.37–3.87) than in heterosexual women. The OR (95% CI) for reporting not being very happy overall was 1.96 (CI, 1.09–3.52) in bisexual women and 1.40 (0.92–2.14) in lesbian women compared to heterosexual women. The likelihood of reporting diagnosed depression was significantly higher in lesbian women (OR = 1.65; 95% CI, 1.38–1.97) and bisexual women (OR = 2.21; 95% CI, 1.67–2.93) compared to heterosexual women.

Conclusion: Inclusion of lesbian and bisexual women in aging research is essential to understand their unique mental and other health needs, including those specific to bisexual women.

Key words: depression, aging

Introduction

People who are lesbian, gay, bisexual, transgender, and queer (LGBTQ) or from other sexual and gender minority groups experience substantial mental and other health disparities relative to heterosexual, cisgender people (Patterson *et al.*, 2020). These health disparities have been explained by the chronic exposure to minority-related stressors, including stigmatization and discrimination, that LGBTQ people face across the life course (e.g., self-stigma, expectations of rejection, anti-LGBTQ institutional policies) (Patterson *et al.*, 2020). According to the Williams Center, an estimated

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4.5% of adults in the United States identifies as LGBT (approximately 11,343,000 individuals) (Conron & Goldberg, 2020), a proportion which has been increasing (Gay and Lesbian Medical Association and LGBT Health Experts, 2001; Patterson *et al.*, 2020). Improvements in data collection on sexual orientation and gender identity (SOGI) in surveys, registries, and other sources will continue to improve these estimates.

Although published literature on health disparities experienced by sexual and gender minority individuals continues to grow, much more research is needed to advance health equity among LGBTQ populations, including understanding unique health needs across subgroups by age and gender. As noted in a recent National Academies of Sciences, Engineering, and Medicine (NASEM) report (Patterson *et al.*, 2020), LGBTQ populations should not be considered as a single monolithic group, given that disparities and inequities are not uniformly experienced by all subgroups who identify as LGBTQ. Older sexual and gender minority people represent an understudied group in biomedical research. It is estimated that there will be more than 5 million LGBTQ individuals aged 50 years and older in the United States by 2030 (Flatt *et al.*, 2022; Fredriksen-Goldsen, Kim, *et al.*, 2013). Some older LGB individuals may have identified as heterosexual or exclusively partnered with people of the same gender, with or without periodic same-gender sexual relationships (Yarns *et al.*, 2016). Older age often involves loss of independence as well as the loss of loved ones (Quinn *et al.*, 2011), which can impact mental health and feelings of loneliness for people regardless of sexual orientation or gender.

Published reports on the unique health concerns among LGB people aged 50 years and older indicate that they experience more isolation and stress, and are more likely than heterosexual, cisgender individuals to report living alone (Flatt *et al.*, 2022; Fredriksen-Goldsen, Kim, *et al.*, 2013). In an early review article, Friend (Friend, 1989) reported that older lesbian and gay people who conform to many of the heterosexist assumptions of what it means to be older and gay experience loneliness, depression, and isolation. Unique forms of isolation are experienced by older LGB individuals due to estrangement from family members and difficulties meeting partners, as dating ideals are often geared toward younger individuals (Ryan *et al.*, 2010; Slevin and Linneman, 2010). It has been also reported that LGB adults aged 50 and older experience more depressive and anxiety disorders and suicidal ideation compared to heterosexual adults (Fredriksen-Goldsen, Emlet, *et al.*, 2013; Fredriksen-Goldsen, Kim, *et al.*, 2013), and that these may be more frequent among bisexual compared to gay and lesbian individuals (Fredriksen-Goldsen *et al.*, 2017a; Fredriksen-Goldsen and Kim, 2017).

Research specific to mental and overall health among older sexual minority women—who may have unique needs and experiences at the intersection of their gender, age, and sexual orientation—is limited. Indeed, aging research has tended to overlook the role of sexual orientation in well-being and health among older women (Jabson Tree *et al.*, 2021). Although limited, published reports indicate differences between older lesbian and bisexual women and heterosexual women in mental health-related outcomes. For example, Fredriksen-Goldsen *et al.*, reported that sexual minority women 50 years and older had greater risk for smoking and excessive drinking (Fredriksen-Goldsen, Kim, *et al.*, 2013), each of which has been connected to sexual minority-related stress and coping among LGBTQ individuals (Felner *et al.*, 2020). Lytle and colleagues (Lytle *et al.*, 2018) similarly found sexual orientation disparities in mental health among lesbian and bisexual women aged 45–80 years, relative to heterosexual women.

Given the limited published reports on mental health and psychosocial wellbeing among older lesbian and bisexual women, our study used data from the California Teachers Study to assess differences in social connection, overall happiness, and diagnosed depression separately for lesbian and bisexual women compared to heterosexual women aged 50 years and older. Given the potential differences in life experiences of lesbian and bisexual women, which could lead to differences in mental health and psychosocial measures (Moagi *et al.*, 2021), it is important to conduct disaggregated analysis by sexual orientation. As a secondary analysis, social connection was examined as a confounding factor in the relationship between sexual orientation and overall happiness, given the existing evidence of greater social isolation and loneliness experienced among older sexual minority adults.

Methods

Study population

The California Teachers Study (CTS) was founded in 1995–1996 when 133,477 public school professionals (primarily teachers or administrators), ages 22–104 years, agreed to participate by responding to an initial self-administered questionnaire (Savage *et al.*, 2020). Following baseline data collection, additional data were collected through five self-administered questionnaires (between years 1997

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and 2019). The original focus of the CTS was on breast cancer outcomes and related risk factors. However, data collected in the CTS maintains a broader emphasis on women's health. The base study population for the present analysis on sexual orientation includes 36,814 participants aged 50 years and older, who responded to the sixth questionnaire (2017–2019). We subsequently excluded five individuals who identified as transgender given that we would not be able to conduct analysis on such a small sample. The study has been approved by the local Institutional Review Boards of the participating institutions. CTS participants provided informed consent at the time of enrollment.

Data collection

Demographics and sexual orientation

Information on date of birth, race, and ethnicity was derived from the baseline questionnaire administered in 1995–1996. The 2017–2019 survey was the first CTS survey that included SOGI information and included the following questions (responses) based on a validated questionnaire (Tate *et al.*, 2013): (1) *Which of the following best represents how you think of yourself (straight, lesbian or gay, bisexual, other, don't know/not sure, prefer not to answer);* (2) *Which sex were you assigned at birth (female, male, intersex, prefer not to answer);* (3) *Please mark the gender identity that best describes you currently (female, male, transgender, intersex, other, prefer not to answer)*. Household annual income and marital status information was also collected in the 2017–2019 survey.

Psychosocial and mental health outcomes

The 2017–2019 questionnaire included information using existing validated questionnaires on social connection (Hughes *et al.*, 2004) and overall happiness (Schoenborn *et al.*, 1981). Survey questions included the following: *How often do you feel* (1) *that you lack companionship?* (2) *left out?* (3) *isolated from others? (often, some of the time, hardly ever or never)* and *All in all, how happy are you these days? (very, somewhat, not very)*. Participants were also asked whether a health professional had ever told them that they had depression (*yes, no*).

Statistical analysis

We conducted bivariate analysis and used Chi-square and Kruskal-Wallis chi-squared tests to assess differences in social connection, happiness, and depression among sexual orientation groups (lesbian, bisexual and heterosexual). Using results from the bivariate analysis, we dichotomized the responses for social connection (often vs. some of the time and hardly ever/never) and overall happiness (not very happy vs. somewhat happy and very happy). Logistic regression was used to estimate odds ratios (OR) and 95% confidence intervals (95% CI) to evaluate the associations between self-reported psychosocial and mental health measures as dependent outcome variables and sexual orientation as an independent predictor. We considered age, marital status, race and ethnicity, and household income as potential covariates and included these in the final models if these were statistically significant ($p < 0.05$) in bivariate analysis. Race and ethnicity were not considered for inclusion given that the study sample is almost entirely non-Hispanic white (>90%), and the negligible variation of these variables across sexual orientation. Secondarily, we explored the potential confounding effects of social connection in the association between sexual orientation and happiness. All analyses were conducted using SAS (Cary, NC) in the CTS Researcher Platform (Lacey *et al.*, 2020).

Results

Participants

Table 1 provides descriptive characteristics of the 36,809 study participants, of whom 253 (0.7%) identified as bisexual, 710 (1.9%) identified as lesbian, and the remaining 35,846 (97.4%) as heterosexual. The mean age (range) of the study sample was 71.3 (range, 50–104) years. Heterosexual women were slightly older than bisexual and lesbian women, and the sample was largely made up of non-Hispanic white participants, with no substantial differences in self-reported sexual orientation by race and ethnicity. The proportion of women who reported never being married was highest among lesbian, followed by bisexual, and lowest among heterosexual participants. Bisexual women had the highest percentage of being divorced and lesbian women had the lowest proportion. There were negligible household income differences across the three sexual orientation groups.

Associations between social connection and mental health with sexual orientation

Table 2 presents results of bivariate analysis between social connection, mental health measures and sexual orientation among this sample of older women. Associations with social connection measures show that compared to heterosexual women, lesbian and bisexual women were significantly more likely to report feeling lack of companionship ($p = 0.0008$), feeling left out ($p = 0.003$), and feeling

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Table 1. Characteristics of participants aged 50 years and older according to self-reported sexual orientation in the California Teachers Study, $N = 36{,}809$

	HETEROSEXUAL ($N = 35{,}846$)	LESBIAN ($N = 710$)	BISEXUAL ($N = 253$)
Age, years (mean, SD)	71 ± 9.3	69 ± 9.0	70 ± 9.2
Race and ethnicity			
Asian	1298 (3.7%)	18 (2.6%)	*
Hispanic	1407(4.0%)	28 (4.1%)	11 (4.5%)
Black	679 (1.9%)	*	*
Non-Hispanic White	31,660 (90%)	642 (93%)	223 (91%)
Marital status			
Never married	1866 (5.2%)	144 (21%)	38 (15.3%)
Married/living with partner	22,861 (64%)	460 (66%)	132 (53%)
Divorced	4747 (13%)	60 (8.6%)	55 (22%)
Separated	256 (0.7%)	*	*
Widowed	5879 (17%)	30 (4.3%)	20 (8.0%)
Household income			
<$75,000	9457 (30%)	186 (27%)	87 (37%)
$75,000–99,999	7036 (22%)	156 (23%)	53 (23%)
100,000–199,999	11,984 (38%)	267 (39%)	81 (35%)
≥ 200,000	2823 (9%)	71 (10%)	13 (6%)

*Data suppressed due to small sample.

isolated from others ($p < 0.0001$). Significant differences were shown for percentage of participants who reported overall greater happiness ($p < 0.0001$), with heterosexual women reporting a higher proportion of being very happy compared to lesbian or bisexual women. The proportion of heterosexual women who reported being diagnosed with depression was significantly lower than that among lesbian or bisexual women ($p < 0.0001$). For the covariates of interest, significant associations were shown for all variables except household income ($p = 0.08$) and race and ethnicity ($p = 0.05$).

Table 3 presents unadjusted and multivariable-adjusted associations between measures of social connection and mental health comparing lesbian to heterosexual women. Results of multivariable modeling adjusting for age and marital status show that compared to heterosexual women, lesbian participants were more likely to report feeling isolated from others (OR = 1.56; 95% CI, 1.06–2.30) as well as being diagnosed depression (OR = 1.65; 1.38–1.97). Lesbian participants were also more likely to report feeling left out and unhappy than heterosexual women, but the results were not statistically significant. As shown in Table 4, bisexual women were twice as likely to report feeling lack of companionship (OR = 2.00; 95%, 1.30–3.12) and more than twice as likely of feeling left out (OR = 2.32; 95% CI, 1.36–3.97), isolated from others (OR = 2.30; 95% CI, 1.37–3.87), and having diagnosed depression (OR = 2.21; 95% CI, 1.67–2.93) compared to heterosexual women. The likelihood of reporting not being very happy overall was significantly higher in bisexual women as compared to heterosexual women (OR = 1.96; 95% CI, 1.09–3.52).

Happiness and sexual orientation: confounding effects of social connection

We assessed possible confounding by measures of social connection in the association between happiness and sexual orientation (see Supplementary Table). When comparing bisexual to heterosexual women, inclusion of each of the measures of social connection resulted in attenuation in the ORs, which was greatest when 'feeling left out' was included in the model (OR = 1.37; 95% CI, 0.70–2.67). Among lesbian women, although the association with overall happiness was not statistically significant after adjustment for age and marital status, this was most attenuated when 'feeling isolated' was included in the model (OR = 1.19; 95% CI, 0.75–1.88).

Discussion

The present study assessed differences in self-reported feelings of loneliness, isolation, lack of happiness and diagnosed depression between lesbian and bisexual women compared to heterosexual women aged 50 years and older. Results show that women who identify as lesbian or bisexual reported a higher proportion of a clinical depression diagnosis and lower overall happiness compared to heterosexual women. Lesbian and bisexual participants

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Table 2. Bivariate analysis between social connection, happiness, and depression and covariates by sexual orientation in older women

	HETEROSEXUAL ($N = 35,846$)	LESBIAN ($N = 710$)	BISEXUAL ($N = 253$)	P-VALUE*
Outcome variables				
Social connection				
Lack of companionship				
Hardly ever or never	25,076 (72 %)	504 (74%)	156 (64%)	0.0008
Some of the time	8182 (24%)	151 (22%)	65 (27%)	
Often	1335 (3.9%)	28 (4.1%)	24 (9.8%)	
Feeling left out				
Hardly ever or never	26,043 (77%)	515 (76%)	166 (69%)	0.003
Some of the time	7039 (21%)	139 (21%)	60 (25 %)	
Often	735 (2.2%)	20 (3%)	15 (6.2%)	
Isolated from others				
Hardly ever or never	27,637 (81%)	528 (78%)	165 (68%)	<0.0001
Some of the time	5589 (16%)	125 (18%)	60 (25%)	
Often	809 (2.4%)	26 (3.8 %)	16 (6.6%)	
Overall happiness				
Very happy	21,617 (63%)	381 (56%)	124 (52%)	<0.0001
Somewhat happy	11,760 (34%)	276 (41%)	104 (44%)	
Not very happy	774 (2.3%)	22 (3.2%)	11 (4.6%)	
Diagnosed depression	5465 (17%)	168 (26%)	73 (33 %)	<0.0001
Covariates				
Age, years (mean, SD)	71 ± 9.3	69 ± 9.0	70 ± 9.2	<0.0001
Race and ethnicity				
Asian	1298 (3.7%)	18 (2.6%)	8 (3.3%)	0.05
Hispanic	1407(4.0%)	28 (4.1%)	11 (4.5%)	
Black	679 (1.9%)	**	**	
Non-Hispanic White	31,660 (90%)	642 (93%)	223 (91%)	
Marital status				
Never married	1866 (5.2%)	144 (21%)	38 (15%)	<0.0001
Married/living with partner	22,861 (64%)	460 (66%)	132 (53%)	
Divorced	4747 (13%)	60 (8.6%)	55 (22%)	
Separated	256 (0.7%)	**	**	
Widowed	5879 (17%)	30 (4.3%)	20 (8.0%)	
Household income				
<$75,000	9457 (30%)	186 (27%)	87 (37%)	0.08
$75,000–99,999	7036 (22%)	156 (23%)	53 (23%)	
100,000-199,999	11,984 (38%)	267 (39%)	81 (35%)	
≥ 200,000	2823 (9%)	71 (10%)	13 (6%)	

* Chi-Square test was conducted for categorical variables and Kruskal-Wallis Chi-Squared Test for ordinal variables; ANOVA for continuous variable.
** Data suppressed due to small sample.

reported lower levels of social connectedness, including feeling left out and isolated, and lacking companionship than heterosexual women. These results fill an important gap in the literature given the scarcity of data specific to older bisexual women.

Our findings contribute to the limited literature on mental health and social connectedness among older lesbian and bisexual women. The prevalence of a depression diagnosis in the present study among lesbian (27%) and bisexual (34%) women was considerably higher than that previously reported among women 50 years of age and older in the United States (16.3% in 2017 and 16.9% in 2018) (Substance Abuse and Mental Health Services Administration, 2019), but similar to the prevalence we observed among heterosexual women (16.9%). A recent review describing mental health challenges experienced by sexual and gender minority individuals reported that LGB adults experience more depressive and anxiety disorders than heterosexual individuals (Moagi *et al.*, 2021). Data from the Behavioral Risk Factor Surveillance System showed higher odds of mental distress and depression among lesbian and bisexual women aged 65 and older compared to heterosexual women, but the results were not statistically significant (Seelman, 2019). The higher rates of depression are likely due to minority stressors based on the hypothesis that

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Table 3. Association between social connection, happiness, and depression for lesbian compared to heterosexual older women

	NO. (%)	UNADJUSTED ODDS RATIO (95% CONFIDENCE INTERVAL)	ADJUSTED ODDS RATIO* (95% CONFIDENCE INTERVAL)
Lack of companionship**			
Heterosexual ($n = 35,380$)	1379 (3.9%)	1.00	1.00
Lesbian ($n = 703$)	29 (4.1%)	1.06 (0.73–1.54)	0.96 (0.66–1.41)
Feeling left out**			
Heterosexual ($n = 34,589$)	763 (2.2%)	1.00	1.00
Lesbian ($n = 694$)	21 (3.0%)	1.38 (0.89–2.15)	1.26 (0.81–1.97)
Isolated from others**			
Heterosexual ($n = 34,817$)	835 (2.4%)	1.00	1.00
Lesbian ($n = 699$)	28 (4.0%)	**1.70 (1.16–2.50)**	**1.56 (1.06–2.30)**
Feeling unhappy***			
Heterosexual ($n = 34,926$)	798 (2.3%)	1.00	1.00
Lesbian ($n = 699$)	24 (3.4%)	**1.52 (1.01–2.30)**	1.40 (0.92–2.14)
Diagnosed depression			
Heterosexual ($n = 33,324$)	5619 (16.9%)	1.00	1.00
Lesbian ($n = 667$)	174 (26.1%)	**1.74 (1.46–2.07)**	**1.65 (1.38–1.97)**

*Adjusted for age and marital status.
**Comparing often vs. some of the time/hardly ever or never.
***Comparing not very happy vs. somewhat happy/very happy.
Bold text indicates statistical significance.

Table 4. Association between social connection, happiness, and depression for bisexual compared to heterosexual older women

	NO. (%)	UNADJUSTED ODDS RATIO (95% CONFIDENCE INTERVAL)	ADJUSTED ODDS RATIO* (95% CONFIDENCE INTERVAL)
Lack of companionship**			
Heterosexual ($n = 35,380$)	1379 (3.9%)	1.00	1.00
Bisexual ($n = 252$)	24 (9.5%)	**2.60 (1.70–3.97)**	**2.00 (1.30–3.12)**
Feeling left out**			
Heterosexual ($n = 34,589$)	763 (2.2%)	1.00	1.00
Bisexual ($n = 248$)	15 (6.1%)	**2.85 (1.69–4.84)**	**2.32 (1.36–3.97)**
Isolated from others**			
Heterosexual ($n = 34,817$)	835 (2.4%)	1.00	1.00
Bisexual ($n = 248$)	16 (6.5%)	**2.81 (1.68–4.68)**	**2.30 (1.37–3.87)**
Feeling unhappy***			
Heterosexual ($n = 34,926$)	798 (2.3%)	1.00	1.00
Bisexual ($n = 246$)	12 (4.9%)	**2.20 (1.22–3.94)**	**1.96 (1.09–3.52)**
Diagnosed depression			
Heterosexual ($n = 33,324$)	5619 (16.9%)	1.00	1.00
Bisexual ($n = 229$)	75 (32.8%)	**2.40 (1.82–3.17)**	**2.21 (1.67–2.93)**

*Adjusted for age and marital status.
**Comparing often vs. some of the time/hardly ever or never.
***Comparing not very happy vs. somewhat happy/very happy.
Bold text indicates statistical significance.

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sexual minority women are exposed to social stress due to their stigmatized social status, which continues to be a relevant factor for all sexual and gender minority populations (Frost and Meyer, 2023).

It has been reported that social isolation and feelings of loneliness are common in older adults of various ages due to the loss of friends, spouse or partner (Ong *et al.*, 2015; National Academy of Sciences, 2020; Tastan *et al.*, 2019; World Health Organization, 2015). In addition, for older LGB individuals, social isolation is further affected by the intersection of sexual orientation and natural aging despite mixed findings in the current literature. One published report showed that lesbian women aged 60–74 years reported higher social support than heterosexual women (Jabson Tree *et al.*, 2021). However, these results are contrary to those reported from an Australian study, which showed no differences in levels of loneliness for lesbian or bisexual women aged 50 years and older compared to heterosexual women, albeit differences were shown for bisexual versus heterosexual men (Lam and Campbell, 2023). Our data show that measures of social connection, as measured by feelings of loneliness and isolation were more common in older lesbian and bisexual women compared to their heterosexual counterparts. This is important given that experiencing social isolation and feelings of loneliness at older age has been shown to be associated with adverse health and well-being (Cornwell and Waite, 2009; Coyle and Dugan, 2012; Golden *et al.*, 2009).

Unique to our data is the measure of self-reported happiness in a sexual minority population. Although this attribute has been conceptualized in diverse ways, it is deemed such a critical component of our well-being that the United States Declaration of Independence mentions the pursuit of happiness as an "unalienable right." Perceived happiness and mental health are interrelated (Attari *et al.*, 2018) and are both important among older adults because they can influence physical functioning and overall health (Veenhoven, 2008). Psychological problems and poor mental health directly impact the feeling of happiness (Brosschot *et al.*, 2006), including among older women (mean age 66.1) (Mahmoodi *et al.*, 2022). Gender differences have been previously reported, noting that older women experience lower levels of happiness compared to older men (Mahmoodi *et al.*, 2022; Pinquart and Sörensen, 2001). Published reports on happiness for sexual and gender minority individuals are scarce. Data from the Women's Health Initiative show that lesbian women aged 60–74 years had a higher score in satisfaction with life than heterosexual women (Jabson Tree *et al.*, 2021). However, lesbian women aged 75 or older reported being less likely to be happy than heterosexual women. Findings from our study show that compared to heterosexual women, lesbian women were 50% more likely and bisexual women were more than twice as likely to report not feeling very happy. When we included measures of social connection in the multivariable model, the associations weakened, suggesting that feelings of social isolation could partly explain the associations. However, the small sample size limits the interpretation of the results.

Published data on health disparities specific to bisexual individuals are limited but point to higher psychological distress and poorer physical health compared to heterosexual individuals (Bostwick *et al.*, 2015; Conron *et al.*, 2010; Fredriksen-Goldsen *et al.*, 2010; Koh and Ross, 2006), including among women 50 years of age and older (Fredriksen-Goldsen *et al.*, 2017b). Although our study was underpowered to detect differences between bisexual and lesbian women, the magnitude of the associations suggests that bisexual women may be at greater risk for adverse mental health and lacking social connectedness than lesbian women. No association was observed for lack of companionship between lesbian and heterosexual women, whereas bisexual women were 2.5 times more likely to report feeling a lack of companionship. Bisexual women reported the highest divorce rate compared to heterosexual and lesbian women, which could be a contributor given prior research consistently reporting associations between marital separation and adverse mental and physical health outcomes (Hald *et al.*, 2022; Hewitt *et al.*, 2012; Sander *et al.*, 2020). For this reason, we controlled for marital status in the multivariable model, but the differences persisted. Although both lesbian and bisexual women were more likely to report feeling left out and isolated from others than their heterosexual counterparts, the ORs were stronger for bisexual women. Similarly, compared to heterosexual women, a lower proportion of bisexual women reported being happy overall and a higher percentage reported having been diagnosed with depression. Findings from the National Health, Aging, and Sexuality/Gender Study (NHAS) suggest that bisexual people aged 50 years and older have poorer health compared with lesbian and gay older adults, which was attributed to psychosocial disadvantages across the life course (Fredriksen-Goldsen and Kim, 2017). Our results offer insight into the importance of reporting data separately for bisexual and lesbian older women to fully understand their unique psychosocial quality of life and health needs.

Although this study includes novel findings, it is not without limitations. Due to the cross-sectional

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design, inferences regarding causation cannot be established. In addition, we relied on self-reported data, including for diagnosis of depression. Since the study sample is made up of women who were active or recently retired teachers and other school administrators in California, the results cannot necessarily be generalized to a broader population of older women. Further, although the results showed trends toward lower proportions of older bisexual women reporting social connection and happiness and higher prevalence of a self-reported clinical diagnosis of depression than older lesbian women, we lacked precision to distinguish these differences due to small numbers.

Results of this study provide evidence of a higher prevalence of self-reported feelings of loneliness, isolation, lack of happiness and diagnosed depression among lesbian and bisexual women aged 50 years and older, as compared to heterosexual women in this age group. While the scientific literature on the health burden of older lesbian and bisexual women has been growing, disaggregated data by sexual orientation subgroup are scarce. Inclusion of lesbian, bisexual, and transgender people in aging research is essential to understand the unique health needs of these populations. In order to do this, SOGI data collection must be prioritized in new and ongoing studies, which is recommended by the Healthy People 2030 objectives (Healthy People 2030; Office of Disease Prevention and Health Promotion, n.d.).

Conflict of interest

The authors have no conflicts of interest to declare.

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Description of authors' roles

ME Martinez designed and planned the study, supervised the analysis, and wrote the paper. JK Felner contributed to the interpretation of the data, and revision of the manuscript. J Shen performed all statistical analysis, helped in the interpretation of the data, and contributed to writing and revision of the paper. C Duffy, C McDaniels-Davidson, and J Nodora contributed with the revision of the manuscript. KE Savage provided administrative support and contributed with the revision of the manuscript. ES Spielfogel contributed to the statistical analysis, provided administrative support, and contributed with the revision of the manuscript. JV Lacey contributed to the analysis and the revision of the manuscript. S Hong contributed to the design and interpretation of the data, and revisions of the manuscript.

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Supplementary material

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