The Gerontologist Advance Access published September 11, 2014

THE GERONTOLOGICAL SOCIETY OF AMERICA®

The Gerontologist, 2014, Vol. 00, No. 00, 1–11
doi:10.1093/geront/gnu083
Research Article

Living Arrangement and Loneliness Among Lesbian, Gay, and Bisexual Older Adults

Hyun-Jun Kim, PhD* and Karen I. Fredriksen-Goldsen, PhD

University of Washington, School of Social Work, Seattle, Washington.

*Address correspondence to Hyun-Jun Kim, PhD, University of Washington, School of Social Work, 4101 15th Avenue NE, Box 354900, Seattle, WA 98105. E-mail: hyunjkim@u.washington.edu

Received April 14 2014; Accepted July 14 2014.

Decision Editor: Rachel Pruchno, PhD

Purpose of the Study: Loneliness is a key health risk for older adults. Utilizing the loneliness model, we examine the relationship between living arrangement and loneliness among lesbian, gay, and bisexual (LGB) older adults, taking into consideration potential correlates including social resources and personal constraints.

Design and Methods: We use data from a national survey of LGB adults aged 50 and older (N = 2,444). Types of living arrangement include living with a partner or spouse, living alone, and living with someone other than a partner or spouse.

Results: Compared with LGB older adults living with a partner or spouse, both those living alone and living with others reported higher degrees of loneliness, even after controlling for other correlates. The results of a multivariate regression analysis reveal that social support, social network size, and internalized stigma partially account for the relationship between living arrangement and loneliness.

Implications: Living arrangement was found to be an independent correlate of loneliness among LGB older adults. Targeted interventions are needed to reduce loneliness for those living alone and those living with someone other than a partner or spouse in part by enhancing social resources and reducing risks of internalized stigma. Eliminating discriminatory policies against same-sex partnerships and partnered living arrangements is recommended.

Key words: Psychological Well-being, Social Support, Social Network, Internalized Stigma, Identity Disclosure

The experience of loneliness, as the subjective feeling of lacking social connectedness (de Jong Gierveld & Havens, 2004; Hughes, Waite, Hawkley, & Cacioppo, 2004), deteriorates quality of life. Adults in later life are especially vulnerable to loneliness as they often undergo changes in their intimate relationships in their household due to the loss of loved ones, such as the death of spouses or partners, and the increasing independence of children (de Jong Gierveld & Havens, 2004). Loneliness has been associated with profound health risks, such as cardiovascular disease (Ong, Rothstein, & Uchino, 2012), sleep dysfunction (Cacioppo et al., 2002), physical disability (Perissinotto, Stijacic Cenzer, & Covinsky, 2012), poor mental health (Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006; Golden et al., 2009), and mortality (Perissinotto et al., 2012).

Living arrangement is one of the situational factors that may shape the experience of loneliness and the degree of social isolation or connectedness. In fact, longitudinal studies reveal that living alone (Victor & Bowling, 2012) and changes in living arrangement due to the loss of a partner

© The Author 2014. Published by Oxford University Press on behalf of The Gerontological Society of America. All rights reserved.
For permissions, please e-mail: journals.permissions@oup.com.

Downloaded from http://gerontologist.oxfordjournals.org/ at University of Washington on September 16, 2014

(Aartsen & Jylha, 2011) increase the level of loneliness. On the other hand, having a romantic partner in one's social network plays a protective role against loneliness, especially among older adults (Green, Richardson, Lago, & Schatten-Jones, 2001). Lesbian, gay, and bisexual (LGB) older adults may experience elevated levels of social isolation because of potential barriers to social connectedness, such as ongoing discrimination, stigmatization, and lack of legal recognition of partnerships (Fredriksen-Goldsen, Emlet, et al., 2013), like other marginalized groups in society (Harper & Schneider, 2003). In addition, the elevated likelihood of the loss of a partner due to HIV disease may contribute to a higher rate of living alone among gay men (Genke, 2004).

Indeed, a high prevalence of living alone is observed among LGB older adults. According to population-based studies (Fredriksen-Goldsen, Kim, Barkan, Muraco, & Hoy-Ellis, 2013; Wallace, Cochran, Durazo, & Ford, 2011), about half of older gay and bisexual men and more than a quarter of lesbians and bisexual women live alone compared with less than a fifth of their heterosexual counterparts. Despite the high prevalence of living alone among LGB older adults, little is known regarding the relationship between living arrangement and the experience of loneliness in this population. Grossman and his colleagues (2000) found that LGB older adults living alone are more likely to feel lonely than those living with others. In their study, living arrangement was dichotomized into living alone and living with others; thus, knowledge of whether or not a specific type of co-residence (e.g., living with a partner or spouse or living with others) provides better protection against loneliness is limited.

This article investigates the relationship between loneliness and diverse living arrangements among LGB older adults while comparing those living alone, living with a partner or spouse, and living with someone other than a partner or spouse, and taking into account the potential correlates of loneliness, including social resources and personal constraints.

Living Arrangement, Social and Personal Factors, and Loneliness in Later Life

The loneliness model proposed by de Jong Gierveld (1987, 1998) suggests a multifactorial approach to understand the mechanism by which living arrangement is linked to loneliness through social resources and personal constraints. According to the loneliness model, living arrangement is one of the primary situational factors related to loneliness, especially among older adults. Older adults living alone may be at risk of loneliness because they may lack opportunities for exchanging emotional and instrumental support and may have to find assistance outside their household. On the other hand, living with a partner or spouse may provide an environment where older adults can achieve a greater sense of security and belonging. One study documents that older adults living with a spouse or partner report a lower degree of loneliness than those living with children without a spouse or partner, and those living with other relatives or friends as well as those living alone (Greenfield & Russell, 2011).

However, the relationship between living arrangement and loneliness cannot be simply posited because the perception of loneliness can be influenced by both the social and cultural context (de Jong Gierveld, 1998). For example, in a society in which solitary and autonomous living in later life is more likely to be expected, older adults living alone may feel less lonely (de Jong Gierveld, Dykstra, & Schenk, 2012). Given the historically limited societal and structural supports for same-sex couples, combined with the reality that same-sex cohabitating couples may be at elevated risk of discrimination compared with opposite-sex couples (Merin, 2002), LGB older adults may have adapted to such circumstances by cultivating more autonomous ways of living as well as developed alternative ways of managing nonpartnered living situations, such as seeking alternative means for social connectedness.

The loneliness model suggests that social factors, including objective and subjective characteristics of social resources and personal constraints, are important determinants of loneliness and may in part account for the relationship between living arrangement and loneliness. Social isolation in a quantitative sense is distinct from the subjective feeling of loneliness (Coyle & Dugan, 2012; Hughes et al., 2004). Objective characteristics of social resources refer to the quantitative aspects of social relationships such as network size and frequency of social contacts. A previous study suggests that the level of contact with family and friends itself does not predict the level of loneliness (Routasalo, Savikko, Tilvis, Strandberg, & Pitkälä, 2006; Russell, 2009). Yet, other evidence shows that older adults with larger social network experience less loneliness (Dykstra, van Tilburg, & Gierveld, 2005; Hawkley et al., 2008).

Qualitative evaluation of social resources, such as perceived social support, has been found to be a more consistent determinant of loneliness. Among older adults, an elevated risk of loneliness is associated with poor quality of social relationships (Hawkley et al., 2008) and a low degree of perceived social support (Cacioppo et al., 2006). A similar finding is observed among LGB older adults; a higher level of satisfaction with the social support they receive is associated with a decreased level of loneliness (Grossman et al., 2000). Existing literature suggests that the relationship between living arrangement and loneliness may be due to those in nonpartnered living arrangements having limited social resources (Schnittker, 2007; Yeh & Lo, 2004).

Downloaded from http://gerontologist.oxfordjournals.org/ at University of Washington on September 16, 2014

There are distinct personal constraints that may also be linked with loneliness among LGB older adults. de Jong Gierveld (1998) emphasizes that personal constraints, such as powerlessness, feelings of rejection, and lack of identity disclosure to others, are related to limited social engagement in the general population, which leads to subjective feelings of loneliness. According to Herek and colleagues (2009), sexual minorities are at risk of accepting and internalizing negative societal values and attitudes. Among LGB older adults, internalized stigma (e.g., internalized homophobia) may limit their capacity for social engagement. Studies found that internalized stigma is associated with potential relationship problems and loneliness (Frost & Meyer, 2009; Jacobs & Kane, 2012).

Concealment is another predictor of loneliness, which may be independent of internalized stigma. Frost and Meyer (2009) argue that although internalized stigma is associated with concealment of one's sexual identity to some extent, concealing or disclosing sexual identity is contingent on both situational and environmental factors. For example, within certain environments, especially a discriminatory one, LGB older adults may conceal their sexual identity regardless of their degree of internalized stigma. Yet, concealing one's sexual identity may also reduce opportunities to strengthen social relationships through the interaction with other LGB individuals (Pachankis, 2008). To our knowledge, no earlier studies have investigated the role of internalized stigma and identity concealment between living arrangement and loneliness among LGB older adults.

Hypotheses

Building on the loneliness model and existing literature, we examine diverse types of living arrangements among LGB older adults and their relationship with loneliness, taking into consideration social resources and personal constraints. We test the following hypotheses, after controlling for background characteristics:

Hypothesis 1: Compared with LGB older adults living with a partner or spouse, those living alone and living with others will demonstrate a higher level of loneliness.

Hypothesis 2: Compared with LGB older adults living with a partner or spouse, those living alone and living with others will demonstrate a smaller network size, a lower level of social support, a higher degree of internalized stigma, and a higher degree of sexual identity concealment.

Hypothesis 3: The variations in loneliness by living arrangement among LGB older adults will be explained by internalized stigma, identity concealment, social network size, and social support.

Design and Methods

Participants

Mail and Internet survey data from 2,560 participants in the *Caring and Aging with Pride* study, conducted through collaborations with 11 agencies across the United States, were collected over a six-month period, June to November 2010 (Fredriksen-Goldsen, Emlet, et al., 2013). Study eligibility included being aged 50 and older and self-identifying as lesbian, gay, bisexual, or transgender. The total *N* for the survey was 2,560. For this analysis, we selected participants who self-identified as lesbian, gay, and bisexual regardless of their gender identity, and responded to the living arrangement question ($N = 2{,}444$). We excluded participants who self-identified their sexual orientation other than lesbian, gay, and bisexual ($n = 92$), such as queer, same-gender loving, etc., because of the insufficient sample size in these groups. All study procedures were reviewed and approved by the University of Washington Institutional Review Board.

Measures

Dependent Variable

Loneliness was measured utilizing the three-item loneliness scale (Hughes et al., 2004). In the questionnaire, participants were asked, "How often do you feel that you lack companionship?"; "How often do you feel left out?"; and "How often do you feel isolated from others?". The scale was developed based on the Revised UCLA Loneliness Scale utilizing exploratory and confirmatory factor analyses (Hughes et al., 2004); satisfactory reliability and concurrent and discriminant validity were confirmed. The summary score ranges from 1 (*hardly ever*) to 3 (*often*). Cronbach's α in this study is .87.

Living Arrangement

Participants were asked, "What is your living arrangement?" and to mark all that apply among the choices of "alone," "with a partner/spouse," "with other family members," and "with nonfamily members." Based on this information, we categorized three groups: those living alone ($n = 1{,}356$), those living with a partner or spouse ($n = 902$; including 34 respondents living with a partner/spouse and others), and those living with someone other than a partner or spouse (family and nonfamily members, $n = 186$). We combined LGB older adults living with other family members ($n = 37$) and those living with nonfamily members only ($n = 149$) due to small sample sizes; preliminary analyses indicated that the levels of loneliness between the two groups were not significantly different.

Downloaded from http://gerontologist.oxfordjournals.org/ at University of Washington on September 16, 2014

Social Resources

We employed a four-item social support scale (Gjesfjeld, Greeno, & Kim, 2008), which is an abbreviated version of the 18-item Medical Outcome Study Social Support Survey (Sherbourne & Stewart, 1991), to evaluate participants' perception regarding how often someone is available to provide emotional or instrumental support. The summary score ranges from 1 to 4, with higher scores indicating greater social support (Cronbach's α = .85). Social network size was assessed by asking participants how many people, such as friends, family members, colleagues, and neighbors, they interact with (including talk to, visit with, exchange phone calls or emails with) in a typical month. We calculated the total size of the social network and categorized by quartiles, with 1 indicating small social network (the bottom 25%) and 4 a large social network (the top 25%). This measure evaluates *global* networks including peripheral ties, which are important among older adults particularly for age-specific life events, such as retirement and bereavement (Wrzus, Hanel, Wagner, & Neyer, 2013). In addition, a larger global network indicates a higher chance of obtaining diversified resources related to their quality of life (Erickson, 2003).

Personal Constraints

In order to measure internalized stigma, we modified a five-item scale from the homosexual stigma scale (Liu, Feng, & Rhodes, 2009). Participants were asked to rate the extent to which they agree or disagree with each of the following statements: "I wish I weren't lesbian, gay, bisexual or transgender"; "I have tried to not be lesbian, gay, bisexual or transgender"; "If someone offered me the chance to be completely heterosexual or not transgender, I would accept the chance"; and "I feel that being lesbian, gay, bisexual or transgender is a personal shortcoming for me." The summary score ranges from 1 to 4, with higher scores indicating higher levels of internalized stigma (Cronbach's α= .78). Sexual identity concealment to community was measured with four items from the Outness Inventory scale (Mohr & Fassinger, 2000). Participants were asked whether their current or most recent supervisor, neighbors, faith community, and primary physician know or have known their sexual identity, and the summary score ranges from 1 (*definitely know*) to 4 (*definitely do not know*); Cronbach's α = .84.

Background Characteristics

These included age (in years), household income (0 = above or at 200% of the federal poverty level (FPL), 1 = below 200% FPL), and education (0 = some college or more, 1 = high school or less). Sexual orientation by gender was coded as lesbian (the reference group), gay man, bisexual woman, and bisexual man. Race/ethnicity was categorized into non-Hispanic White (the reference group), non-Hispanic African American, Hispanic, and Other. Chronic conditions, potentially correlated with living arrangement (Hays, 2002), were measured by asking participants whether they had ever been told by a doctor that they had the following conditions: high blood pressure, high cholesterol, heart attack, angina, stroke, cancer, arthritis, diabetes, asthma, or HIV/AIDS. We summed and coded the number of chronic health conditions into 0, 1, 2, and 3 or more chronic conditions as other health studies suggest (Chen, Baumgardner, & Rice, 2011).

Statistical Analysis

Analyses were performed using STATA/IC for Windows (Version 11.2). One-way analysis of variance (ANOVA) tests and Pearson's chi-squared tests were used to examine the distributions of background characteristics by living arrangement. Second, linear regression analyses, while controlling for background characteristics (age, sexual orientation, income, education, race/ethnicity, and chronic conditions), were applied to test hypotheses 1 and 2, the association of living arrangement with loneliness and social resources (social support and social network size) and personal constraints (identity concealment and internalized stigma), while coding those living with a partner or spouse as the reference group. Next, we tested a series of linear regression models in order to examine the contribution of each of the social and personal factors in the prediction of loneliness, after controlling for background characteristics. Lastly, both living arrangement and social and personal factors were added to a linear regression model in order to examine their unique contributions to loneliness (hypothesis 3). Statistical significance of standardized coefficients was interpreted. No multicollinearity issues were detected in the multivariate linear regression models.

Findings

Of the LGB older adult participants, 55.5% (n = 1,356) were living alone, 36.9% (n = 902) were living with a partner or spouse, and 7.6% (n = 186) were living with someone other than a partner or spouse. Background information of the participants is described by the types of living arrangements in Table 1, and the results indicate that the distributions of age, sexual orientation, income, education, and race/ethnicity differ by types of living arrangement. Those living alone are older than the other groups. Gay and bisexual men are more likely to live alone than lesbian and bisexual women; bisexual women are more likely to live with others than the other sexual orientation groups. Both those living alone and living with others are more likely

Downloaded from http://gerontologist.oxfordjournals.org/ at University of Washington on September 16, 2014

than those living with a partner or spouse to be at or below 200% FPL and to have received a high school or less education. Non-Hispanic Whites are more likely to to live with a partner or spouse than the other racial/ethnic groups. Living arrangement and the number of chronic conditions are not associated.

Loneliness, Social Resources, and Personal Constraints by Living Arrangements

As Table 2 demonstrates, living arrangement is significantly associated with the level of loneliness among LGB older adults, when controlling for age, sexual orientation, income, education, race/ethnicity, and chronic conditions. When compared with the level of loneliness for those living with a partner or spouse, the levels for those living alone and living with others are significantly higher. Additional analysis indicates that the levels of loneliness are similar between those living alone and living with others.

Second, we examined the distributions of social resources and personal constraints by type of living arrangements, when controlling for age, sexual orientation, income, education, race/ethnicity, and chronic conditions (Table 2). LGB older adults living alone, when compared with those living with a partner or spouse, show a lower level of social support and a smaller social network size. Although the social network sizes are not different between those living with others and those living with a partner or spouse, those living with others show a lower level of social

Table 1. Background Characteristics by Living Arrangement

	Total %	Living with a partner/ spouse (n = 902), %	Living alone (n = 1,356), %	Living with others (n = 186), %	Significance test
Age, years, *M* (*SD*)	66.68 (9.00)	65.11 (8.75)	67.92 (8.93)	65.24 (9.34)	$F = 29.65^{***}$
Sexual orientation					$\chi^2 = 68.13^{***}$
Lesbian	32.99	40.71	27.68	34.41	
Gay man	60.00	54.28	67.94	51.61	
Bisexual woman	3.57	2.78	3.25	9.68	
Bisexual man	3.44	2.22	4.13	4.30	
Income, ≤200% FPL	29.89	15.30	37.18	48.54	$\chi^2 = 147.59^{***}$
Education, ≤high school	7.69	4.78	9.50	8.65	$\chi^2 = 17.13^{***}$
Race/ethnicity					$\chi^2 = 14.22^{*}$
White, non-Hispanic	86.83	89.12	85.58	84.86	
African American, non-Hispanic	3.45	2.33	4.44	1.62	
Hispanic	4.27	3.66	4.51	5.41	
Other	5.46	4.88	5.47	8.11	
No. of chronic conditions, *M* (*SD*)					$\chi^2 = 3.68$
0	16.12	17.52	15.34	15.05	
1	26.19	26.16	25.81	29.03	
2	24.74	25.83	25.74	25.27	
3 or more	31.96	30.49	33.11	30.65	

Note: $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table 2. The Distributions of Loneliness and Social and Personal Factors by Living Arrangements and the Results of Linear Regression Analyses

	Living with a partner/spouse		Living alone		Living with others	
	M (*SD*)	β	*M* (*SD*)	β	*M* (*SD*)	β
Loneliness	1.39 (.51)	Ref	1.93 (.66)	.39***	1.88 (.70)	.16***
Social resources						
Social support	3.59 (.56)	Ref	2.80 (.76)	−.47***	2.98 (.68)	−.17***
Social network size	2.71 (1.08)	Ref	2.35 (1.11)	−.12***	2.58 (1.14)	−.02
Personal constraints						
Identity concealment	1.31 (.62)	Ref	1.60 (.80)	.17***	1.50 (.76)	.06*
Internalized stigma	1.37 (.48)	Ref	1.52 (.60)	.11***	1.50 (.60)	.06*

Note: The linear regression analyses controlled for age, sexual orientation, income, education, race/ethnicity, and chronic conditions. $^{*}p < .05$. $^{***}p < .001$.

Downloaded from http://gerontologist.oxfordjournals.org/ at University of Washington on September 16, 2014

support. Both LGB older adults living alone and living with others are more likely to conceal their sexual identity and have higher levels of internalized stigma than those living with a partner or spouse.

Predictors of Loneliness

Models 1–4 in Table 3 indicate that social resources and personal constraints are significant predictors of loneliness among LGB older adults, after controlling for age, sexual orientation, income, education, race/ethnicity, and chronic conditions. Loneliness is negatively associated with social support (β = −.59; $p < .001$) and social network size (β = −.24; $p < .001$), and positively associated with identity concealment (β = .13; $p < .001$) and internalized stigma (β = .25; $p < .001$); and the standardized regression coefficients indicate that social support has a stronger influence on loneliness than social network size, identity concealment, and internalized stigma.

In the full model, we examine whether the social and personal factors account for the variations in loneliness by living arrangement utilizing a linear regression model, including social support, social network size, identity concealment, and internalized stigma as well as living arrangement and background characteristics. The results indicate that although each of the variables related to social resources and personal constraints independently account for variance in loneliness, the association between living arrangement and loneliness remains significant even after controlling for these factors. In the full model, social support, network size, and internalized stigma remain significant, whereas identity concealment does not. LGB older adults living alone and living with others are more likely to experience loneliness than those living with a partner or spouse after controlling for social resources and personal constraints and background characteristics. Among background characteristics, age is negatively associated with loneliness. Lower household income, being non-Hispanic White, and more chronic conditions are associated with a higher level of loneliness. The total proportion of the variance in loneliness explained by the model is 45% ($p < .001$).

Table 3. Linear Regression of Loneliness on Social and Personal Factors and Living Arrangement

	Model 1	Model 2	Model 3	Model 4	Full model
	β	β	β	β	β
Living arrangements					
Living with partner/spouse	—	—	—	—	(ref)
Living alone	—	—	—	—	.13***
Living with others	—	—	—	—	.09***
Social resources					
Social support	−.59***	—	—	—	−.50***
Social network size	—	−.24***	—	—	−.11***
Personal constraints					
Identity concealment	—	—	.13***	—	−.01
Internalized stigma	—	—	—	.25***	.12***
Background characteristics					
Age	−.12***	−.13***	−.14***	−.12***	−.14***
Sexual orientation					
Lesbian	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
Gay man	.00	.08***	.09***	.05*	−.03
Bisexual woman	.01	.04	.03	.02	−.01
Bisexual man	.02	.07**	.05*	.03	.01
Income, ≤ 200% FPL	.10***	.19***	.23***	.23***	.07***
Education, ≤ high school	−.01	.01	.01	.02	−.01
Race/ethnicity					
White, non-Hispanic	(Ref)	(Ref)	(Ref)	(Ref)	(Ref)
African American, non-Hispanic	−.02	−.02	−.02	.00	−.03
Hispanic	−.03	−.01	−.01	−.01	−.03
Other	−.02	.00	.00	.00	−.02
Chronic conditions	.06***	.05*	.07**	.06**	.05**
R^2	.40***	.13***	.10***	.14***	.45***

Note: *$p < .05$. **$p < .01$. ***$p < .001$.

Downloaded from http://gerontologist.oxfordjournals.org/ at University of Washington on September 16, 2014

Discussion

Loneliness is a key health risk among older adults, and it has been documented that living alone is a situational factor contributing to heightened levels of loneliness (Victor & Bowling, 2012). Although the higher prevalence of living alone among LGB older adults has been reported in population-based studies (Fredriksen-Goldsen, Kim, et al., 2013; Wallace, Cochran, Durazo, & Ford, 2011), little is known about the association between living arrangement and loneliness in this population. This study finds that 56% of the LGB older adult participants are living alone. Based on the loneliness model as the guiding conceptual framework, the findings highlight that living arrangement along with social resources and personal constraints are significant predictors of loneliness among LGB older adults.

Whereas many previous studies of loneliness have dichotomized living arrangement simply into living alone and living with others, in this study we distinguish between living with a partner or spouse and living with others. Given the social context that living with a same-sex partner or spouse has been historically and socially stigmatized within the dominant society, LGB older adults, unlike heterosexual older adults, may be more likely to choose to live alone or with others in order to reduce the chance of being a target of discrimination and social marginalization. Thus, it is important to examine whether cohabiting with a partner or spouse among LGB older adults truly provides protection against loneliness in comparison with those living with others as well as those living alone. The data support this hypothesis, even after controlling for background characteristics.

Overall, this finding is consistent with previous research that has shown the heightened risks of loneliness among older adults in a solitary living arrangement (Perissinotto et al., 2012; Taube, Kristensson, Midlöv, Holst, & Jakobsson, 2013; Yeh & Lo, 2004). In addition, the findings demonstrate that for LGB older adults, living with someone other than a partner or spouse does not provide protection against loneliness to the equivalent degree as living with a partner or spouse, as found in previous studies of older adults in general (Greenfield & Russell, 2011). This finding illustrates the importance of distinguishing diverse types of co-residence in the study of loneliness.

As hypothesized, living arrangement was associated with social resources and personal constraints, which are potential correlates of loneliness. Cohabiting with a partner or spouse may provide an intimate social support network and a more secure and stable relationship, which those living alone may lack. Even though LGB older adults living with others have a similar social network size when compared with those living with a partner or spouse, the quality of social support they receive is not as strong as for those living with a partner or spouse.

A study suggests that older adults living with adult children may experience less loneliness due to the emotional support of their children (Long & Martin, 2000); however, LGB older adults are less likely to have children in their household (Fredriksen-Goldsen, Kim, et al., 2013). Even though the data in this study do not provide household composition of those living with others, evidence from other studies suggests that they are more likely to be friends compared with biological or other legal family members (MetLife, 2010). A qualitative study found that close friends are, more often than not, considered to be family and a primary source of social support among LGBT older adults (de Vries & Hoctel, 2006). Still, the findings in this study suggest that having a partner or spouse in a household may provide more secure feelings of belonging, which may result in lower levels of loneliness. In addition, the findings suggest that those in partnered living arrangements are more likely to have a positive sense of identity and have opportunities to disclose their sexual identity in social relationships. On the other hand, LGB older adults living alone and living with others may lack opportunities to exchange feelings of secured care and, when encountering discrimination, they could be more likely to experience internalized stigma. These findings suggest that such social resources and personal constraints may account for the relationship between living arrangement and loneliness.

However, we found heightened degrees of loneliness among LGB older adults in nonpartnered living arrangements, even after controlling for social resources and personal constraints as well as background characteristics. These findings suggest some additional insights regarding loneliness among LGB older adults. First, for LGB older adults, partnered living arrangements may provide a safe environment where they find a sense of belongingness and attachment despite an ongoing discriminatory social context. In fact, living with a partner or spouse likely has an advantage in protecting against loneliness, over other living arrangements among LGB older adults, independent of social resources and personal constraints. This finding emphasizes the importance of reducing barriers to partnered living arrangements, for example, by promoting marriage equality and other opportunities that can significantly enhance the psychological well-being of LGB older adults.

Second, this study demonstrates that although both social support and social network size are independent and significant determinants of loneliness among LGB older adults regardless of living arrangement and other correlates, social support has a stronger impact on loneliness than social network size. This finding is similar to previous studies among older adults in the general community concluding that

Downloaded from http://gerontologist.oxfordjournals.org/ at University of Washington on September 16, 2014

perceived social support accounts for more variance in measures of psychological distress than the objective evaluation of social connectedness, such as network size (Antonucci, Fuhrer, & Dartigues, 1997). Social network size diminishes with aging partly due to the desire to preserve emotional connectedness with close others (Carstensen, 1992). Thus, the security of, or increase in, the quality of social support regardless of social disconnectedness (e.g., small social network) may be the key for improving psychological well-being (Cornwell & Waite, 2009; Masini & Barrett, 2008; Ryan & Willits, 2007). Still, this study indicates that the influence of social network size on loneliness cannot be ignored among LGB older adults. Previous findings suggest that LGB older adults, despite lack of family-based networking due to lower rates of having children, may have an advantage regarding social connectedness through other types of well-developed social networks (Butler, 2006).

Third, the findings also highlight that there are sexual minority-specific factors contributing to heightened risks of loneliness. Of the personal constraints, in the full model predicting loneliness, internalized stigma was a significant correlate of loneliness. It has been documented that LGB individuals with high levels of internalized stigma have lower rates of intimate relationships (Meyer & Dean, 1998) and lower relationship quality (Balsam & Szymanski, 2005) and are more likely to experience relationship problems, such as a lack of positive relationship with close others and feelings of being left out (Frost & Meyer, 2009). In this study internalized stigma, the negative valuation of their sexual identity, is an important target area for practitioners in order to reduce and prevent loneliness among LGB older adults. On the other hand, concealment of sexual identity within the larger community does not seem to be directly associated with loneliness. Further research is needed to investigate under what circumstances and in what situations concealment or disclosure of one's sexual identity influences the subjective feeling of social connectedness among LGB older adults.

This study reveals important insights regarding the influence of income, age, and chronic conditions on loneliness. About a third of LGB participants report their household income below 200% FPL, which is higher than estimates for both LGB and heterosexual older adults from population-based studies (Fredriksen-Goldsen, Kim, et al., 2013; Wallace, Cochran, Durazo, & Ford, 2011). Although financial resources are important to maintain social connectedness and participation (Hawkley et al., 2008), LGB older adults seem to experience income discrimination relative to educational levels (Fredriksen-Goldsen, Kim, et al., 2013). This study indicates the importance of reducing financial constraints to enhance social connectedness in this population.

The negative association between age and loneliness is an unexpected finding. According to a longitudinal study, the level of loneliness increases with aging because of biological frailty, chronic conditions, and diminishing social integration (Jylha, 2004). As the number of chronic conditions is positively associated with loneliness in this study, a similar longitudinal study will be warranted to further understand the role of changes in chronic conditions along with social relations and social participation in the age effect on loneliness among LGB older adults. In addition, it would be worth considering whether cohort effect associated with historical time (e.g., a time prior to the gay liberation movement when same-sex relationships were severely stigmatized and criminalized) is confounded with age effect in the LGB older adult population.

Although sexual orientation and race/ethnicity are not significantly associated with loneliness in this study, the descriptive statistics in this study suggest some important future research directions. As noted earlier, the valuation of different living arrangement is diverse by social and cultural context (de Jong Gierveld, 2012). In this sample, gay and bisexual men are more likely to live alone than lesbians, and non-Hispanic White LGB older adults are more likely to live with a partner or spouse than LGB older adults of color. These discrepancies in living arrangement may be influenced by differing social and cultural expectations derived from stigmatizing and discriminatory social discourses against same-sex cohabitation. For example, a previous study indicates that gay and bisexual men report higher levels of lifetime discrimination, internalized stigma, and concealment, and a lower level of social resources than lesbian and bisexual women among LGB older adults (Fredriksen-Goldsen, Emlet, et al., 2013). Possibilities of cumulative disadvantages in terms of intersectionality of race/ethnicity and sexual orientation have also been addressed (Kim & Fredriksen-Goldsen, 2011). Hispanic LGB older adults are more likely to report lifetime discrimination and lack of social support than non-Hispanic White LGB older adults (Fredriksen-Goldsen et al., 2011). Further research is needed to understand both shared and unique life experiences among differing sexual and cultural identities in this population and their associations with living arrangement and feelings of loneliness.

Limitations

Although this study highlights important findings regarding the association between living arrangement and loneliness among LGB older adults, several limitations must be considered. Participants in the present study, even though demographically diverse, were sampled from mailing and emailing lists of aging-related agencies, mostly in urban

Downloaded from http://gerontologist.oxfordjournals.org/ at University of Washington on September 16, 2014

areas. In addition, this study utilized cross-sectional survey data, which prevents inferences about causal directions of the observed associations. Future studies would benefit by collecting longitudinal data that examine to what extent living arrangement and other correlates influence the changes in loneliness over time. There are also important unobserved confounding variables that may be associated with loneliness. For example, the relationship quality within a household could account for the relationship between living arrangement and loneliness. Living with someone does not necessarily equate with exchanging emotional support because living with someone can create both positive and negative environments. A previous study found that relationship quality (e.g., mutual understanding, closeness, and acceptance) within an informal caregiving relationship is associated with psychological well-being among LGB adults (Fredriksen-Goldsen, Kim, Muraco, & Mincer, 2009). In addition, social participation, such as volunteering and spiritual/religious participation, which is known as a crucial source of social connectedness among older adults (Cornwell & Waite, 2009), could mediate or moderate the relationship between living arrangement and loneliness.

The measurement of living arrangement may not sufficiently reflect various relationships in this population. For example, "Living Apart Together" (LAT) relationships are more common among gay men; and those in LAT relationships seem to lack instrumental support when compared with those living together (Strohm, Seltzer, Cochran, & Mays, 2009). Also, in future work it will be important to distinguish LGB older adults in legally married relationships from those in other types of partnered relationships. According to Wight and colleagues (Wight, LeBlanc, & Badgett, 2013), LGB adults who are in a legally married relationship receive psychological benefits. Further research needs to examine the psychological and social benefits of legally married partners compared with those partners not legally married.

Conclusions

The findings presented in this paper highlight that although social support, social network size, and internalized stigma are significant correlates of loneliness, both LGB older adults living alone and those living with someone other than a partner or spouse are at risk of loneliness. Both individual and community level interventions need to be developed that aim to reduce loneliness and promote psychological well-being, especially among LGB older adults who live alone, as well as those who live with others besides intimate partners. The strengthening of social resources and the prevention of risks such as internalized stigma have to be addressed in the development of interventions to reduce loneliness among LGB older adults. In order to alleviate feelings of social disconnectedness among LGB older adults, policy makers must also act to eliminate discriminatory practices against LGB partnered living arrangements, including promoting full marriage equality.

Funding

Research reported in this publication was supported by the National Institute on Aging of the National Institutes of Health under Award Number R01AG026526 (K. I. Fredriksen-Goldsen, PI). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

References

Aartsen, M., & Jylha, M. (2011). Onset of loneliness in older adults: Results of a 28 year prospective study. *European Journal of Ageing*, **8**, 31–38. doi:10.1007/s10433-011-0175-7

Antonucci, T., Fuhrer, R., & Dartigues, J. (1997). Social relations and depressive symptomatology in a sample of community-dwelling French older adults. *Psychology and Aging*, **12**, 189–195. doi:10.1037/0882-7974.12.1.189

Balsam, K. F., & Szymanski, D. M. (2005). Relationship quality and domestic violence in women's same-sex relationships: The role of minority stress. *Psychology of Women Quarterly*, **29**, 258–269. doi:10.1111/j.1471-6402.2005.00220.x

Butler, S. S. (2006). Older gays, lesbians, bisexuals, and transgender persons. In B. Berkman (Ed.), *The handbook of social work in health and aging* (pp. 273–281). New York: Oxford University Press. doi:10.1093/acprof:oso/9780195173727.003.0022

Cacioppo, J. T., Hawkley, L. C., Crawford, L. E., Ernst, J. M., Burleson, M. H., Kowalewski, R. B., … Berntson, G. G. (2002). Loneliness and health: Potential mechanisms. *Psychosomatic Medicine*, **64**, 407–417. doi:10.1097/00006842-200205000-00005

Cacioppo, J. T., Hughes, M. E., Waite, L. J., Hawkley, L. C., & Thisted, R. A. (2006). Loneliness as a specific risk factor for depressive symptoms: Cross-sectional and longitudinal analyses. *Psychology and Aging*, **21**, 140–151. doi:10.1037/0882-7974.21.1.140

Carstensen, L. L. (1992). Motivation for social contact across the life span: A theory of socioemotional selectivity. *Nebraska Symposium on Motivation*, **40**, 209–254.

Chen, H. Y., Baumgardner, D. J., & Rice, J. P. (2011). Health-related quality of life among adults with multiple chronic conditions in the United States, behavioral risk factor surveillance system, 2007. *Preventing Chronic Disease*, **8**, A09.

Cornwell, E., & Waite, L. (2009). Social disconnectedness, perceived isolation, and health among older adults. *Journal of Health and Social Behavior*, **50**, 31–48. doi:10.1177/002214650905000103

Coyle, C. E., & Dugan, E. (2012). Social isolation, loneliness and health among older adults. *Journal of Aging and Health*, **24**, 1346–1363. doi:10.1177/0898264312460275

de Jong Gierveld, J. (1987). Developing and testing a model of loneliness. *Journal of Personality and Social Psychology*, **53**, 119–128. doi:10.1037/0022-3514.53.1.119

Downloaded from http://gerontologist.oxfordjournals.org/ at University of Washington on September 16, 2014

de Jong Gierveld, J. (1998). A review of loneliness: Concept and definitions, determinants and consequences. *Reviews in Clinical Gerontology*, **8**, 73–80. doi:10.1017/S0959259898008090

de Jong Gierveld, J., Dykstra, P. A., & Schenk, N. (2012). Living arrangements, intergenerational support types and older adult loneliness in Eastern and Western Europe. *Demographic Research*, **27**, 167–199. doi:10.4054/DemRes.2012.27.7

de Jong Gierveld, J., & Havens, B. (2004). Cross-national comparisons of social isolation and loneliness: Introduction and overview. *Canadian Journal on Aging*, **23**, 109–113. doi:10.1353/cja.2004.0021

de Vries, B., & Hoctel, P. (2006). The family-friends of older gay men and lesbians. In N. Teunis & G. Herdt (Eds.), *Sexual Inequalities and Social Justice* (pp. 213–232). Berkeley, CA: University of California Press.

Dykstra, P. A., van Tilburg, T. G., & Gierveld, J. D. (2005). Changes in older adult loneliness: Results from a seven-year longitudinal study. *Research on Aging*, **27**, 725–747. doi:10.1177/0164027505279712

Erickson, B. (2003). Social networks: The value of variety. *Contexts*, **2**, 25–31. doi:10.1525/ctx.2003.2.1.25

Fredriksen-Goldsen, K. I. (2007). *Caregiving with Pride*. Binghamton, NY: Haworth Press.

Fredriksen-Goldsen, K. I., Emlet, C. A., Kim, H. J., Muraco, A., Erosheva, E. A., Goldsen, J., & Hoy-Ellis, C. P. (2013). The physical and mental health of lesbian, gay male, and bisexual (LGB) older adults: The role of key health indicators and risk and protective factors. *Gerontologist*, **53**, 664–675. doi:10.1093/geront/gns123

Fredriksen-Goldsen, K. I., Kim, H.-J., Barkan, S. E., Muraco, A., & Hoy-Ellis, C. P. (2013). Health disparities among lesbian, gay male, and bisexual older adults: Results from a population-based study. *American Journal of Public Health*, **130**, 1802–1809. doi:10.2105/AJPH.2012.301110

Fredriksen-Goldsen, K. I., Kim, H.-J., Emlet, C. A., Muraco, A., Erosheva, E. A., Hoy-Ellis, C. P., … Petry, H. (2011). *The aging and health report: Disparities and resilience among lesbian, gay, bisexual, and transgender older adults*. Seattle, WA: Institute for Multigenerational Health.

Fredriksen-Goldsen, K. I., Kim, H.-J., Muraco, A., & Mincer, S. (2009). Chronically ill midlife and older lesbians, gay men, and bisexuals and their informal caregivers: The impact of the social context. *Sexuality Research and Social Policy*, **6**, 52–64. doi:10.1525/srsp.2009.6.4.52

Frost, D. M., & Meyer, I. H. (2009). Internalized homophobia and relationship quality among lesbians, gay men, and bisexuals. *Journal of Counseling Psychology*, **56**, 97–109. doi:10.1037/A0012844

Genke, J. (2004). Resistance and resilience: Untold story of gay men aging with chronic illnesses. *Journal of Gay & Lesbian Social Services*, **17**, 81–95. doi:10.1300/J041v17n02_05

Gjesfjeld, C., Greeno, C., & Kim, K. (2008). A confirmatory factor analysis of an abbreviated social support instrument: The MOS-SSS. *Research on Social Work Practice*, **18**, 231–237. doi:10.1177/1049731507309830

Golden, J., Conroy, R. M., Bruce, I., Denihan, A., Greene, E., Kirby, M., & Lawlor, B. A. (2009). Loneliness, social support networks, mood and wellbeing in community-dwelling elderly. *International Journal of Geriatric Psychiatry*, **24**, 694–700. doi:10.1002/gps.2181

Green, L. R., Richardson, D. S., Lago, T., & Schatten-Jones, E. C. (2001). Network correlates of social and emotional loneliness in young and older adults. *Personality and Social Psychology Bulletin*, **27**, 281–288. doi:10.1177/0146167201273002

Greenfield, E., & Russell, D. (2011). Identifying living arrangements that heighten risk for loneliness in later life: Evidence from the US National Social Life, Health, and Aging Project. *Journal of Applied Gerontology*, **30**, 524–534. doi:10.1177/0733464810364985

Grossman, A., D'Augelli, A., & Hershberger, S. (2000). Social support networks of lesbian, gay, and bisexual adults 60 years of age and older. *Journal of Gerontology*, **55B**, P171–P179. doi:10.1093/geronb/55.3.P171

Harper, G. W., & Schneider, M. (2003). Oppression and discrimination among lesbian, gay, bisexual, and transgendered people and communities: A challenge for community psychology. *American Journal of Community Psychology*, **31**, 243–252. doi:10.1023/A:1023906620085

Hawkley, L. C., Hughes, M. E., Waite, L. J., Masi, C. M., Thisted, R. A., & Cacioppo, J. T. (2008). From social structural factors to perceptions of relationship quality and loneliness: The Chicago Health, Aging, and Social Relations Study. *Journal of Gerontology Social Sciences*, **63**, S375–384. doi:10.1093/geronb/63.6.S375

Hays, J. C. (2002). Living arrangements and health status in later life: A review of recent literature. *Public Health Nursing*, **19**, 136–151. doi:10.1046/j.1525-1446.2002.00209.x

Herek, G., Gillis, J., & Cogan, J. (2009). Internalized stigma among sexual minority adults: Insights from a social psychological perspective. *Journal of Counseling Psychology*, **56**, 32–43. doi:10.1037/a0014672

Hughes, M., Waite, L., Hawkley, L., & Cacioppo, J. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Research on Aging*, **26**, 655–672. doi:10.1177/0164027504268574

Jacobs, R. J., & Kane, M. N. (2012). Correlates of lonliness in midlife and older gay and bisexual men. *Journal of Gay & Lesbian Social Services*, **24**, 40–61. doi:10.1080/10538720.2012.643217

Jylha, M. (2004). Old age and loneliness: Cross-sectional and longitudinal analyses in the Tampere longitudinal study on aging. *Canadian Journal on Aging-Revue Canadienne Du Vieillissement*, **23**, 157–168. doi:10.1353/cja.2004.0023

Kim, H.-J., & Fredriksen-Goldsen, K. I. (2011). Hispanic Lesbians and Bisexual Women at Heightened Risk for Health Disparities. *American Journal of Public Health*. doi:10.2105/AJPH.2011.300378

Liu, H., Feng, T., & Rhodes, A. G. (2009). Assessment of the Chinese version of HIV and homosexuality related stigma scales. *Sexually Transmitted Infections*, **85**, 65–69. doi:10.1136/sti.2008.032714

Long, M., & Martin, P. (2000). Personality, relationship closeness, and loneliness of oldest old adults and their children. *Journal of Gerontology: Psychological Sciences*, **55B**, P311–P319. doi:10.1093/geronb/55.5.P311

Masini, B. E., & Barrett, H. A. (2008). Social support as a predictor of psychological and physical well-being and lifestyle in lesbian, gay,

Downloaded from http://gerontologist.oxfordjournals.org/ at University of Washington on September 16, 2014

and bisexual adults aged 50 and over. *Journal of Gay & Lesbian Social Services*, **20**, 91–110. doi:10.1080/10538720802179013

Merin, Y. (2002). *Equality for same-sex couples: The legal recognition of gay partnerships in Europe and the United States*. Chicago: University of Chicago Press. doi:10.7208/chicago/9780226520339.001.0001

MetLife. (2010). *Still out, still aging: The MetLife study of lesbian, gay, bisexual, and transgender baby boomers*. Westport, CT: MetLife Mature Market Institute.

Meyer, I., & Dean, L. (1998). Internalized homophobia, intimacy, and sexual behavior among gay and bisexual men. In G. Herek (Ed.), *Stigma and sexual orientation: Understanding prejudice against lesbians, gay men, and bisexuals (psychological perspectives on gay and lesbian lives)* (pp. 160–186). Thousand Oaks, CA: Sage.

Mohr, J., & Fassinger, R. (2000). Measuring dimensions of lesbian and gay male experience. *Measurement and Evaluation in Counseling and Development*, **33**, 66–90.

Ong, A. D., Rothstein, J. D., & Uchino, B. N. (2012). Loneliness accentuates age differences in cardiovascular responses to social evaluative threat. *Psychology and Aging*, **27**, 190–198. doi:10.1037/a0025570

Pachankis, J. E. (2008). The psychological implications of concealing a stigma: A cognitive–affective–behavioral model. *Psychological Bulletin*, **133**, 328–345. doi:10.1037/0033-2909.133.2.328

Perissinotto, C. M., Stijacic Cenzer, I., & Covinsky, K. E. (2012). Loneliness in older persons: A predictor of functional decline and death. *Archives of Internal Medicine*, **172**, 1078–1083. doi:10.1001/archinternmed.2012.1993

Routasalo, P. E., Savikko, N., Tilvis, R. S., Strandberg, T. E., & Pitkälä, K. H. (2006). Social contacts and their relationship to loneliness among aged people—A population-based study. *Gerontology*, **52**, 181–187. doi:10.1159/000091828

Russell, D. (2009). Living arrangements, social integration, and loneliness in later life: The case of physical disability. *Journal of Health and Social Behavior*, **50**, 460–475. doi:10.1177/002214650905000406

Ryan, A., & Willits, F. (2007). Family ties, physical health, and psychological well-being. *Journal of Aging and Health*, **19**, 907–920. doi:10.1177/0898264307308340

Schnittker, J. (2007). Look (closely) at all the lonely people: Age and the social psychology of social support. *Journal of Aging and Health*, **19**, 659–682. doi:10.1177/0898264307301178

Sherbourne, C. D., & Stewart, A. L. (1991). The MOS social support survey. *Social Science & Medicine*, **32**, 705–714. doi:10.1016/0277-9536(91)90150-B

Strohm, C. Q., Seltzer, J. A., Cochran, S. D., & Mays, V. M. (2009). "Living Apart Together" relationships in the United States. *Demographic Research*, **21**, 177–214. doi:10.4054/Demres.2009.21.7

Taube, E., Kristensson, J., Midlöv, P., Holst, G., & Jakobsson, U. (2013). Loneliness among older people: Results from the Swedish National Study on Aging and Care—Blekinge. *The Open Geriatric Medicine Journal*, **6**, 1–10. doi:10.2174/1874827901306010001

Victor, C. R., & Bowling, A. (2012). A longitudinal analysis of loneliness among older people in Great Britain. *The Journal of Psychology*, **146**, 313–331. doi:10.1080/00223980.2011.609572

Wallace, S. P., Cochran, S. D., Durazo, E. M., & Ford, C. L. (2011). The health of aging lesbian, gay and bisexual adults in California. *Policy Brief UCLA Center for Health Policy Research*, 1–8. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3698220/

Wight, R. G., LeBlanc, A. J., & Badgett, M. V.L. (2013). Same-sex legal marriage and psychological well-being: Findings from the California Health Interview Survey. *American Journal of Public Health*, **103**, 339–346. doi:10.2105/AJPH.2012.301113

Wrzus, C., Hanel, M., Wagner, J., & Neyer, F. J. (2013). Social network changes and life events across the life span: A meta-analysis. *Psychological Bulletin*, **139**, 53–80. doi:10.1037/A0028601

Yeh, S., & Lo, S. (2004). Living alone, social support, and feeling lonely among the elderly. *Social Behavior and Personality*, **32**, 129–138. doi:10.2224/sbp.2004.32.2.129

Downloaded from http://gerontologist.oxfordjournals.org/ at University of Washington on September 16, 2014