

Research Article

Factors Associated With High-Risk Alcohol Consumption Among LGB Older Adults: The Roles of Gender, Social Support, Perceived Stress, Discrimination, and Stigma

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Abstract

Purpose of the Study: Lesbian, gay, and bisexual (LGB) adults have elevated rates of high-risk alcohol consumption compared with heterosexual adults. Although drinking tends to decline with age in the general population, we know little about LGB older adults' drinking. Using 2014 data from Aging with Pride: National Health, Aging, and Sexuality/Gender Study (NHAS), we aimed to identify factors associated with high-risk drinking in LGB older adults.

Design and Methods: A U.S. sample of 2,351 LGB adults aged 50–98 years completed a survey about personal and social experiences, substance use, and health. Multinomial logistic regression was conducted to identify predictors of past-month high-risk alcohol consumption.

Results: Approximately one fifth (20.6%) of LGB older adults reported high-risk drinking, with nonsignificantly different rates between men (22.4%) and women (18.4%). For women, current smoking and greater social support were associated with greater likelihood of high-risk drinking; older age, higher income, recovery from addiction, and greater perceived stress were associated with lower likelihood. For men, higher income, current smoking, and greater day-to-day discrimination were associated with greater likelihood of high-risk drinking; transgender identity and recovery from addiction were associated with lower likelihood.

Implications: Social contexts and perceived drinking norms may encourage higher levels of alcohol consumption in LGB older women, whereas men's drinking may be linked with discrimination-related stress. Prevention and intervention with this population should take into account gender differences and sexual minority-specific risk factors. With future waves of data, we will be able to examine LGB older adults' drinking trajectories over time.

Keywords: Sexual minorities, Minority stress, Risky drinking

Heavy alcohol consumption causes substantial morbidity, mortality, and economic cost in the United States and globally (Rehm et al., 2009, 2014). Approximately one sixth of U.S. adults engage in binge drinking (Kanny, Liu, Brewer, & Lu, 2013), and nearly one tenth of deaths are attributable to alcohol (Stahre, Roeber, Kanny, Brewer, & Zhang, 2014), with adults aged 65 and older at the highest risk of alcohol-attributable death compared with other age

groups (Gonzales et al., 2014). Older adults face elevated sensitivity to and impairment from the effects of alcohol due to age-related changes in body composition and alcohol metabolism (Ferreira & Weems, 2008), which may increase the risks of disease and physical hazard associated with drinking in older age. Moreover, there is evidence that aging Americans are maintaining their alcohol consumption levels later into old age compared with previous

cohorts, potentially augmenting the future incidence of alcohol-related health problems in older adults (Moore et al., 2005). Although moderate alcohol consumption has been associated with reduced risk for disease and mortality (e.g., Ford, Zhao, Tsai, & Li, 2011), carrying heavier drinking habits into older age is associated with substantially increased risk to health and longevity (Holahan et al., 2010).

The health and social burdens associated with alcohol are disproportionately borne by marginalized segments of the population (Schmidt, Mäkelä, Rehm, & Room, 2010), yet little is known about the intersection between older age and sexual minority status with respect to high-risk drinking. The limited available data suggests that lesbian, gay, and bisexual (LGB) men and women over the age of 50 years are more likely to drink excessively compared with their heterosexual peers (Fredriksen-Goldsen, Kim, Barkan, Muraco, & Hoy-Ellis, 2013) and that gay and bisexual older men have higher rates of risky drinking than lesbian and bisexual older women (Fredriksen-Goldsen, Emler, et al., 2013). There is, however, a dearth of evidence regarding predictors of high-risk drinking in LGB older adults and mechanisms by which LGB older adults acquire elevated risk.

The Health Equity Promotion Model (HEPM; Fredriksen-Goldsen, Simoni, et al., 2014) offers an integrative framework for understanding health disparities in LGB people, positing that intersecting social positions, such as sexual identity and older age, each carry unique contextual factors that interplay with one another to create mechanisms of health risk and resilience. Stress and distress resulting from the confluence of multiple marginalized social positions are thought to influence health-related behaviors, as in the case of coping-motivated alcohol consumption (Hatzenbuehler, 2009), whereas social resources may buffer against the effects of discrimination and other stressors on behavior (Pascoe & Smart Richman, 2009). Although these pathways to health have received support in studies of LGB older adult health (Emler, Fredriksen-Goldsen, & Kim, 2013; Fredriksen-Goldsen, Cook-Daniels, et al., 2014), there is little evidence about how they operate specifically in relation to alcohol consumption in this population. Thus, in the present study, we set out to (a) characterize the extent of high-risk drinking in a national sample of LGB older adults; (b) based on the HEPM, identify factors associated with high-risk drinking among LGB older adults, including minority stress, behavioral, and psychosocial factors; and (c) investigate whether predictors of high-risk drinking differ for LGB women and men.

Terminology referring to high-risk drinking is varied in the literature, and definitions of related terms such as heavy drinking, binge drinking, and problem drinking are inconsistent across studies. The National Institute on Alcohol Abuse and Alcoholism (NIAAA, n.d. b) defines risky levels of alcohol consumption in terms of heavy episodic drinking and/or high average weekly alcohol consumption.

Some studies focus on correlates of a particular pattern of risky drinking (e.g., binge drinking) that may differ from other patterns. In this article, because our goal was to provide a broad overview of factors associated with high-risk drinking rather than to distinguish between different patterns of alcohol consumption, we use the term high-risk drinking to encompass various patterns of alcohol consumption that exceed health safety guidelines; these patterns may include binge or heavy episodic drinking, high overall alcohol consumption, or both. It is possible that different patterns of high-risk drinking are associated with different risk factors in LGB older adults, a topic outside the scope of this article but worthy of future study. Moreover, it is important to note that not all people who engage in high-risk drinking experience manifest problems with health or functioning related to their alcohol use; thus, our use of this term does not denote alcohol use disorder (AUD).

Prevalence and Correlates of High-Risk Drinking in Sexual Minority Adults

Although little research has examined alcohol use specifically in LGB older adults, sexual minority adults of all ages are at higher risk than heterosexual adults for engaging in high-risk drinking. Cross-sectional U.S. population-based surveys have consistently found elevated rates of high-risk drinking in lesbian and bisexual women compared with heterosexual women (Cochran, Keenan, Schober, & Mays, 2000; Drabble & Trocki, 2005; McCabe, Bostwick, Hughes, West, & Boyd, 2010; Przedworski, McAlpine, Karaca-Mandic, & VanKim, 2014; Ward, Dahlhamer, Galinsky, & Joestl, 2014). There is also evidence that high-risk drinking may not decline with age in lesbian and bisexual women as it does for heterosexual women (Boehmer, Miao, Linkletter, & Clark, 2012; Hughes et al., 2006), though older lesbians may be less likely to have experienced alcohol-associated problems (Parks & Hughes, 2005). Among sexual minority men, there is also evidence from some (Dermody et al., 2014; McCabe et al., 2010; Ward et al., 2014) but not all (Cochran et al., 2000; Drabble, Midanik, & Trocki, 2005) national population-based surveys of higher rates of high-risk drinking compared with heterosexual men.

One well-supported explanation for the elevated rates of high-risk drinking observed among sexual minorities is that marginalized individuals may increase their drinking to cope with the stress of victimization, hostility, and social exclusion (Meyer, 2003). This stress may be multidimensional, stemming from a combination of proximal threats to safety, emotional responses to discriminatory experiences, and internalized stigma about one's marginalized identity (i.e., the adaptation of personal values to be consistent with the surrounding culture's stigma; Herek, Gillis, & Cogan, 2009). Consistent with this explanation, frequency of experiencing sexual orientation-based discrimination has been positively associated with frequency of substance use in gay men (Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008),

as has the expectation of interpersonal rejection due to sexual orientation (Pachankis, Hatzenbuehler, & Starks, 2014). Sexual orientation-based discrimination has also been associated with substance-related problems in lesbian and bisexual women (Lehavot & Simoni, 2011). Furthermore, experiencing discrimination across multiple domains (e.g., sexual orientation in addition to race or gender identity) additively predicts likelihood of high-risk drinking among LGB men and women (McCabe et al., 2010).

Prevalence and Correlates of High-Risk Drinking in Older Adults

Cross-sectional U.S. population-based studies have identified past-year rates of risky drinking at around one tenth of older adults. For example, Merrick and colleagues (2008) found that 9% of a noninstitutionalized Medicare population engaged in high-risk drinking, with more men (16%) than women (4%) drinking excessively. Similarly, among current drinkers aged 60 and older who completed the 2001–2002 National Epidemiological Survey on Alcohol and Related Conditions, 1.17% were high-risk drinkers, and another 9.65% were moderate-risk drinkers (Sacco, Buchholz, & Spitznagel, 2009), with more men than women in both the high- and moderate-risk categories. Alcohol intake decreases over time for the majority of older adults in the general population. For example, using 1992–2006 Health and Retirement Study data from adults aged 50 and older at baseline, Platt, Sloan, and Costanzo (2010) found that alcohol consumption declined over time, on average, but increased for a small high-risk group (2.2%); men were more likely than women to be increasing drinkers.

In addition to male gender, demographic factors associated with older adults' high-risk drinking and, longitudinally, heavier drinking trajectories (i.e., steady or increasing alcohol consumption over time) include younger age, higher income, higher education level, and being white (Merrick et al., 2008; Moore et al., 2005; Sacco et al., 2009). Additional behavioral and contextual risk factors include current smoking, having a history of problem drinking earlier in adulthood, and drinking to cope or reduce stress (Brennan, Schutte, Moos, & Moos, 2011; Sacco, Buchholz, & Harrington, 2014). A history of problem drinking has been associated with increases in alcohol use over time (Platt et al., 2010), but having tried to cut down on drinking or engaged in recovery groups has been associated with lower likelihood of high-risk drinking and alcohol problems in older age (Moos, Schutte, Brennan, & Moos, 2010).

Gender Differences in Predictors of High-Risk Drinking

Although gender differences in factors associated with high-risk drinking have not been extensively examined in older or LGB adult populations, numerous studies have identified gender-specific predictors in the general adult

population. Two constructs central to the HEPM—psychological stress and social resources—have emerged as likely differential predictors of high-risk drinking in men and women. Whereas women may actually decrease their alcohol consumption when required to cope with stressful situations (Sutker, Allain, Brantley, & Randall, 1982), men are likely to self-medicate against stress by increasing their drinking (Nolen-Hoeksema, 2004, 2012). Furthermore, using alcohol to avoid or cope with stress is associated with endorsement of AUD symptoms more strongly in men than in women (Cooper, Russell, Skinner, Frone, & Mudar, 1992).

Women, on the other hand, are more likely than men to cope with stress by seeking social support (Tamres, Janicki, & Helgeson, 2002), which may be protective against high-risk drinking. Perceived social support has been negatively associated with substance abuse in women but not in men (Jackson, 2006), suggesting that women more often utilize social coping resources instead of self-medicating under stressful conditions. Furthermore, compared with men, women expect more negative social ramifications of excessive drinking (Blume, 1991; Gomberg, 1988), which may discourage them from engaging in high-risk drinking (Nolen-Hoeksema, 2004). However, most research on gender-specific alcohol norms focuses on college student populations; drinking norms and their associations with behavior may differ in older adults in ways not yet well understood.

Present Study

The evidence from studies of LGB and older adults suggests that high-risk drinking in LGB older adults may be influenced by a constellation of factors including minority stress, former and current substance use behavior, and gender-specific psychosocial factors. Thus, in the present study, we set out to examine factors cross-sectionally associated with high-risk drinking in the 2014 wave of Aging with Pride: National Health, Aging, and Sexuality/Gender Study (NHAS), a longitudinal survey of LGB and transgender older adults. Based on the HEPM and the literature regarding minority stress and alcohol consumption in LGB adults, we hypothesized that (a) identity stigma and (b) day-to-day discrimination would be positively associated with high-risk drinking in LGB older adults. Additionally, based on findings in the general older adult population regarding current and lifetime substance use behavior, we hypothesized that (c) current smoking would be positively associated with high-risk drinking, and (d) being in recovery from addiction would be negatively associated with high-risk drinking. Finally, based on gender differences in psychosocial risk factors that have been observed, we hypothesized that (e) perceived stress would be positively associated with high-risk drinking in men and negatively associated with high-risk drinking in women, and (f) social support would be negatively associated with high-risk drinking in women.

Design and Methods

Participants

A geographically diverse sample of LGB and transgender men and women aged 50 and older was recruited via community agencies and social network chain referral to participate in a longitudinal survey study about their experiences, health, and well-being. The 2014 survey, which was conducted between November 2014 and April 2015, was offered electronically or on paper and compensation of \$20 was provided. Of the 2,450 survey respondents, data from 2,351 lesbian-, gay-, or bisexual-identified respondents were included in the current analysis. Because some hypotheses were about differences between men and women, data from participants who did not identify their gender ($N = 2$) or who identified their gender as something other than male or female ($N = 64$) were excluded. Another 33 participants' data were excluded because there was insufficient data to determine whether they engaged in high-risk drinking. The 99 excluded participants did not differ demographically from those who were included, with the exception that excluded participants were significantly more likely to be transgender.

Measures

30-Day Drinking Status

Participants were asked whether they had consumed any alcohol in the past 30 days and, if so, the number of days on which they drank, average number of standard drinks they consumed on days when they drank, and largest number of drinks they consumed in any day. Based on their responses, they were classified as high-risk drinking, low-risk drinking, or nondrinking. Consistent with the guidelines from the [National Institute on Aging \(NIA, 2015\)](#) and [NIAAA \(n.d. a, n.d. b\)](#), high-risk drinking was defined as either having consumed more than 7 standard drinks per week on average and/or having consumed more than 3 drinks on any day (for women of all ages and men aged 65 and older) or having consumed more than 14 standard drinks per week and/or 4 drinks on any day (for men aged 65 and younger). Low-risk drinking was defined as having consumed alcohol in the past 30 days at levels that did not meet the high-risk criteria, and nondrinking was defined as reporting no alcohol consumption in the past 30 days.

Identity Stigma

Participants responded to four items regarding negative feelings about their sexual identity ([Fredriksen-Goldsen & Kim, 2017](#)): "I feel ashamed of myself for being LGBT," "I feel that being LGBT is a personal shortcoming for me," "I wish I weren't LGBT," and "I feel that being LGBT is embarrassing," rating their agreement with each on a Likert scale (0 = *Strongly disagree*, 5 = *Strongly agree*). The mean rating across items was used as a summary score with higher scores indicating greater identity stigma ($\alpha = .75$).

Day-to-Day Discrimination

Day-to-day discrimination, experiences of unfair treatment that may occur on a regular basis, was assessed with six items ([Fredriksen-Goldsen & Kim, 2017](#); adapted from [Williams, Yu, Jackson, & Anderson, 1997](#)) asking participants how often in their day-to-day lives they experienced each of six types of discrimination, for example, "You experience an unfriendly or hostile environment" (0 = *Never*, 5 = *Almost every day*). The mean rating across items was used as a summary score with higher scores indicating more frequent day-to-day discrimination ($\alpha = .90$).

Current Smoking

Participants were asked whether they had smoked at least 100 cigarettes in their entire lives and, if so, whether they now smoked cigarettes "every day, some days, or not at all." Those who indicated smoking every day or some days were coded as current smokers (1), whereas those who had smoked fewer than 100 lifetime cigarettes or currently did not smoke at all were coded as nonsmokers (0).

Addiction Recovery

Participants were asked, "Are you recovering from alcohol or drug addiction?" Responses were coded as binary (0 = *No*, 1 = *Yes*).

Social Support

Social support was measured with the four-item version of the Medical Outcome Study Social Support Survey ([Gjesfjeld, Greeno, & Kim, 2008](#); [Sherbourne & Stewart, 1991](#)), which asks how often various types of social support are available when needed, for example, "Someone to help with daily chores if you were sick." Each item was rated on a Likert scale (0 = *Never*, 4 = *Very often*) and the mean rating across items was used as a summary score with higher scores indicating greater social support ($\alpha = .88$).

Perceived Stress

Perceived stress was measured with the four-item Perceived Stress Scale ([Cohen, Kamarck, & Mermelstein, 1983](#)), which contains items regarding frequency of stressful feelings, for example, "How often have you felt that you were unable to control the important things in your life?" Each item was rated on a Likert scale (0 = *Never*, 4 = *Very often*), positively worded items were reverse coded, and the mean rating across items was used as a summary score with higher scores indicating greater perceived stress ($\alpha = .81$).

Data Analysis

Data analysis was performed in Mplus Version 7.4 ([Muthén & Muthén, 1998–2015](#)). Multinomial logistic regression was conducted to identify predictors of past-month high-risk and low-risk drinking relative to nondrinking. To test hypotheses about gender differences, gender (male/female) was applied as a grouping variable. Transgender

participants who identified as male or female were grouped with their self-identified gender. Maximum likelihood estimation with robust standard errors was used to compute estimates, and Wald tests were used to evaluate the significance of differences between estimated relative risk ratios.

In order to reduce sampling bias and increase the generalizability of the findings, we applied survey weights to statistical analyses. Survey weights were computed utilizing three external probability samples' data as benchmarks following two-step postsurvey adjustment, as has been applied to other types of nonprobability samples (Lee, 2006; Lee & Valliant, 2009). In the first step, the Aging with Pride: NHAS sample was combined with the National Health Interview Survey (NHIS) sample ascertaining sexual orientation by sexual identity, and we computed the probability of being selected from the NHIS versus the Aging with Pride: NHAS sample by using a logistic regression model with age, sex, sexual orientation, Hispanic ethnicity, race, education, region, and home ownership as covariates. In the second step, we further calibrated the weights for those in same-sex partnerships, another indicator of sexual orientation. The population totals by age, race/ethnicity, gender, education, marital status, and region were estimated from the NHIS, the American Community Survey (ACS), and the Health and Retirement Study (HRS). See Fredriksen-Goldsen and Kim (2017) for detailed information regarding the postsurvey adjustment procedures.

Results

Weighted estimates of demographic characteristics of LGB older adults are summarized in Table 1. One fifth (20.6%) of LGB older adults had engaged in high-risk drinking in the past month, with no significant difference in proportions of men (22.4%) and women (18.4%).

Multivariate logistic regression results are displayed in Table 2. Because nondrinking was the reference category, all estimates indicate the relative risk of being a low- or high-risk drinker relative to being a nondrinker, with relative risk ratios greater than 1 indicating greater likelihood of being a low- or high-risk drinker.

Demographic Characteristics

Younger age was associated with high-risk drinking among women and low-risk drinking among men. Race/ethnicity other than non-Hispanic white and sexual orientation other than gay or lesbian were both associated with low-risk drinking among women, but not with high-risk drinking. Lower-income women were more likely to engage in high-risk drinking than those with a household income > 200% of the federal poverty level, whereas lower-income men were less likely to engage in high-risk drinking compared with higher-income men. Among men, identifying as transgender was associated with lower odds of being in either drinking category.

Table 1. Participant Characteristics

Characteristic	Mean (SD) or %			<i>p</i> ^a
	Total (unweighted <i>N</i> = 2,351)	Women (46.0%)	Men (54.0%)	
Age in years	61.6 (8.2)	61.3 (7.5)	61.8 (8.8)	.32
Race/ethnicity: NHW	78.2%	77.1%	79.2%	.48
Education > high school graduation	73.9%	76.9%	71.3%	.12
Income > 200% FPL	71.9%	74.5%	69.6%	.12
Sexual orientation				
Gay or lesbian	75.1%	70.0%	79.4%	<.01
Bisexual	16.6%	17.3%	16.1%	.67
Other	8.3%	12.7%	4.5%	<.01
Transgender	11.3%	15.4%	7.9%	<.01
Day-to-day discrimination	0.9 (0.9)	0.9 (0.9)	0.9 (0.9)	.58
Identity stigma	0.6 (1.4)	0.4 (1.1)	0.7 (1.6)	<.01
Current smoker	13.7%	12.2%	15.1%	.26
Recovering from addiction	14.6%	10.9%	17.7%	<.01
Social support	2.7 (1.1)	2.8 (1.1)	2.6 (1.2)	<.01
Perceived stress	1.4 (0.8)	1.3 (0.8)	1.4 (0.8)	.13
30-Day drinking status				
Nondrinking	32.1%	33.6%	30.8%	.38
Low-risk drinking	47.3%	48.0%	46.8%	.73
High-risk drinking	20.6%	18.4%	22.4%	.16

Note: FPL = federal poverty level; NHW = non-Hispanic white. All estimates were computed using survey weights.

^aSignificance of difference between women and men.

Table 2. Multinomial Logistic Regression Models Predicting Low- and High-Risk Drinking

Variable	Women				Men			
	Low-risk drinking (<i>n</i> = 469)		High-risk drinking (<i>n</i> = 156)		Low-risk drinking (<i>n</i> = 605)		High-risk drinking (<i>n</i> = 312)	
	RRR	95% CI	RRR	95% CI	RRR	95% CI	RRR	95% CI
Age ^a	0.99	0.96, 1.01	0.95	0.92, 0.98	0.97	0.96, 0.99	1.01	0.99, 1.03
Race/ethnicity: NHW	0.52	0.29, 0.93	0.76	0.35, 1.65	1.07	0.61, 1.86	1.04	0.55, 1.97
Education: >high school	1.43	0.79, 2.58	2.03	0.88, 4.65	1.34	0.80, 2.24	1.30	0.73, 2.31
Income: >200% FPL ^a	0.94	0.54, 1.62	0.43	0.20, 0.93	0.97	0.62, 1.52	2.10	1.29, 3.42
Sexual orientation: gay or lesbian	0.50	0.29, 0.86	0.53	0.27, 1.05	0.64	0.38, 1.07	1.31	0.68, 2.49
Transgender	0.66	0.32, 1.36	0.75	0.30, 1.91	0.24	0.10, 0.61	0.27	0.09, 0.80
Day-to-day discrimination	1.03	0.79, 1.34	1.06	0.76, 1.50	1.16	0.89, 1.52	1.46	1.10, 1.92
Identity stigma	1.16	0.85, 1.59	1.19	0.82, 1.71	0.87	0.71, 1.07	1.06	0.85, 1.32
Current smoker	0.60	0.29, 1.25	2.87	1.34, 6.12	0.62	0.33, 1.16	1.90	1.03, 3.51
Recovering from addiction ^a	0.08	0.04, 0.19	0.10	0.04, 0.23	0.12	0.07, 0.23	0.39	0.22, 0.70
Perceived stress	0.60	0.43, 0.84	0.65	0.42, 0.99	0.73	0.54, 0.97	0.88	0.62, 1.25
Social support	1.22	0.99, 1.51	1.60	1.20, 2.12	1.33	1.11, 1.60	1.08	0.90, 1.30

Note: CI = confidence interval; FPL = federal poverty level; NHW = non-Hispanic white; RRR = relative risk ratio. Bold typeface indicates effect with 95% CI not containing 1. All estimates were computed using survey weights.

^aWald tests showed significant ($p < .05$) differences in RRRs between high-risk women and high-risk men.

Hypotheses 1 and 2: Minority Stress Factors

In partial support of Hypothesis 1, day-to-day discrimination was positively associated with high-risk drinking for men, but not for women. Contrary to Hypothesis 2, identity stigma was not significantly associated with drinking for either gender.

Hypotheses 3 and 4: Behavioral Factors

Being a current smoker was strongly associated with high-risk drinking for both men and women, consistent with Hypothesis 3. In support of Hypothesis 4, being in recovery from drug or alcohol addiction was associated with lower likelihood of high-risk drinking for both men and women. A Wald test indicated that the negative association between recovery from addiction and high-risk drinking was stronger for women than for men.

Hypotheses 5 and 6: Psychosocial Factors

Hypothesis 5 was partially supported: No significant associations emerged between perceived stress and high-risk drinking for men, but perceived stress was associated with lower likelihood of high-risk drinking for women. Although there was a significant association between social support and high-risk drinking in women (Hypothesis 6), it was not in the expected direction: The higher a woman's social support, the more likely she was to be a high-risk drinker.

Factors Associated With Low-Risk Drinking

Being a current smoker, greater day-to-day discrimination (for men), and greater social support (for women),

although all associated with high-risk drinking, were not associated with low-risk drinking. Being in recovery from drug or alcohol addiction, on the other hand, was associated with lower likelihood of low-risk drinking for both men and women; those in recovery tended to be nondrinkers. For men, greater social support and lower perceived stress, although not associated with high-risk drinking, were associated with low-risk drinking.

Discussion

LGB adults have high rates of high-risk drinking, yet little is known about the intersection between older age, sexual minority status, and alcohol consumption. In this study, a national survey of LGB older adults informed by the HEPM, we investigated factors associated with risk for and protection from high-risk drinking in a population characterized by multiple marginalized statuses. We discovered profiles of risk that shared similarities with, and differed in key ways from, those that have been observed in the general older adult and LGB adult populations. We also observed substantial gender differences in predictors of high-risk drinking. These findings illuminate patterns of common and unique factors associated with risky drinking among LGB older adults.

We found evidence that, particularly for men, day-to-day experiences of discrimination were associated with high-risk drinking, consistent with the minority stress hypothesis that some may drink to cope with the chronic stress of exposure to marginalization and hostility. This finding may partially explain why the rates of high-risk drinking we observed—one fifth of LGB older adults—were substantially higher than have been observed in national studies of the general

older adult population. A given individual may experience discrimination related to more than one stigmatized characteristic, and LGB older adults have at least two characteristics (older age and sexual minority status) that are commonly targets of discrimination. Interestingly, we did not find an accompanying effect of identity stigma on risk for excessive alcohol consumption. Although we cannot conclude causality from our cross-sectional data, one possible explanation is that the association between day-to-day discrimination and drinking behavior among men may be more related to proximal distress than to long-standing negative self-appraisal. Moreover, although neither perceived stress nor social support was associated with high-risk drinking in men, lower perceived stress and greater social support were associated with low-risk drinking, suggesting that gay and bisexual older men likely drink moderately in social contexts and this drinking may not be coping motivated.

As hypothesized, among LGB older women, greater perceived stress predicted lower likelihood of high-risk drinking. Moreover, although levels of day-to-day discrimination for LGB older women were similar to those for men, day-to-day discrimination did not significantly predict high-risk drinking in women. Taken together, these findings suggest that women may use different strategies to respond to stress than do men in this population. Based on evidence in the general older adult population, we hypothesized that turning to supportive social relationships would be a common strategy among women; unexpectedly, however, we found a positive association between women's social support and high-risk drinking. This finding suggests that the social network structures of LGB older women likely influence social support dynamics and behavior in unique ways, and are worthy of further study with respect to drinking habits. For example, there is evidence that sexual minority women's social activities often occur in contexts that may facilitate or encourage higher levels of alcohol consumption, such as bars and parties (Trocki, Drabble, & Midanik, 2005). Moreover, whereas heterosexual women appear to be protected from excessive drinking by the anticipation of negative social repercussions (Nolen-Hoeksema, 2004), injunctive and descriptive drinking norms may operate differently within the social networks of sexual minorities. There is evidence, for example, that the more tolerant injunctive norms toward substance use observed among sexual minority men and women partially explain the link between sexual orientation and substance use (Cochran, Grella, & Mays, 2012). Furthermore, among young sexual minority women, perceiving that sexual minority women generally drink more than their heterosexual peers predicted increased alcohol consumption over time (Litt et al., 2015). How perceived drinking norms influence behavior among older sexual minority women, however, remains to be studied; among older adults generally, the limited evidence suggests that perceived drinking norms do influence drinking (e.g., Preston & Goodfellow, 2006). Further research is needed to understand this finding and

its implications both for LGB older women and the general older adult population.

Several additional findings highlight the importance of considering gender differences in high-risk drinking; in fact, being a current smoker was the only risk factor we found to be consistent across genders. Older age was protective against high-risk drinking for women but not for men, suggesting that LGB women more consistently stop or reduce their drinking as they age; men are at elevated risk of continuing to drink heavily. In addition, the negative association between recovery from addiction and high-risk drinking was larger for women than for men: Although both genders tended to be nondrinkers if they were in recovery, this effect was stronger for women. Household income predicted high-risk drinking oppositely for women and men: Compared with those living in poverty, women with higher incomes were less likely to engage in high-risk drinking whereas men with higher incomes were more likely. The gender differences we observed suggest that contextual factors that influence drinking (e.g., settings in which drinking occurs and norms surrounding alcohol consumption) differ meaningfully between LGB older women and men. Prevention programs and efforts to identify LGB older adults who are high-risk drinkers may benefit from taking these different profiles into account, and additional research will help to further delineate these differences. Moreover, health care and social service professionals should carefully screen for alcohol-associated problems in LGB older adults and be aware that effective points of intervention to reduce drinking may differ for different subgroups of LGB older adults.

Because the current study involved only the first wave of data from an ongoing longitudinal study, the limitations of cross-sectional data apply. Future waves of data will allow us to examine changes in LGB older adults' drinking across time and their temporal associations with predictors. We were also limited in our ability to investigate to what extent, and for whom, higher levels of alcohol consumption are associated with health problems or impaired functioning. The operationalization of high-risk drinking that we used is somewhat conservative and likely captures a heterogeneous array of drinkers, ranging from those who experience no discernable problems to those with alcohol dependence. We did not directly measure alcohol-related problems or symptoms of AUD, nor did we assess whether individuals' past-month alcohol use was reflective of their typical drinking habits. In future studies, information about drinking motives, drinking contexts, details about historical or current problems with addiction, negative consequences of alcohol use, and medications that may interact with alcohol would be beneficial to further understanding variations in older adults' alcohol-related risk. From a methodological perspective, it would also be useful in future research to examine whether different definitions of what constitutes a "risky" level of drinking produce different findings about associated risk factors. Additionally, because we did not have a heterosexual

comparison group in this study, we could not directly compare risk factors for LGB and heterosexual older adults and thus could not conclude whether the risk factors we observed were specific to sexual minority older adults.

Low sample sizes of gender minority participants prohibited us from examining transgender men and women separately from nontransgender men and women. Evidence is scarce regarding rates of high-risk drinking specifically in transgender people, yet as a highly marginalized and victimized population transgender people likely face at least comparable, and possibly higher, levels of risk for alcohol-related problems compared with nontransgender sexual minorities (Hughes & Eliason, 2002). At the same time, in the present study, being transgender was associated with nondrinking among men after controlling for other factors. Risk and protective factors, particularly those specifically associated with being a sexual or gender minority, may differ for transgender LGB people and deserve further study with larger samples.

We identified several important predictors of high-risk drinking in LGB older adults, yet many dimensions of LGB older adults' experiences that likely influence their drinking patterns have yet to be investigated. For instance, there is evidence that excessive drinking in sexual minorities is linked with their higher rates of lifetime physical and sexual abuse (Drabble, Trocki, Hughes, Korcha, & Lown, 2013; Hughes, Johnson, Steffen, Wilsnack, & Everett, 2014), constructs that were outside the scope of the present study. Furthermore, structural factors such as stigmatizing laws and policies may broadly influence risk for excessive drinking by exacerbating chronically stressful social conditions and decreasing access to health-related support and services (Hatzenbuehler, McLaughlin, Keyes, & Hasin, 2010; Meyer, 2003). The progression of such policies across time presents opportunities to learn how changing conditions may affect behavioral trajectories. Future waves of data will enable continued longitudinal investigation of LGB older adults' alcohol consumption within the context of socially and structurally changing times.

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References

- Blume, S. B. (1991). Sexuality and stigma: The alcoholic woman. *Alcohol Health & Research World*, *15*, 139–146.
- Boehmer, U., Miao, X., Linkletter, C., & Clark, M. A. (2012). Adult health behaviors over the life course by sexual orientation. *American Journal of Public Health*, *102*, 292–300. doi:10.2105/AJPH.2011.300334
- Brennan, P. L., Schutte, K. K., Moos, B. S., & Moos, R. H. (2011). Twenty-year alcohol-consumption and drinking-problem trajectories of older men and women. *Journal of Studies on Alcohol and Drugs*, *72*, 308–321. doi:10.15288/jsad.2011.72.308
- Cochran, S. D., Grella, C. E., & Mays, V. M. (2012). Do substance use norms and perceived drug availability mediate sexual orientation differences in patterns of substance use? Results from the California Quality of Life Survey II. *Journal of Studies on Alcohol and Drugs*, *73*, 675–685. doi:10.15288/jsad.2012.73.675
- Cochran, S. D., Keenan, C., Schober, C., & Mays, V. M. (2000). Estimates of alcohol use and clinical treatment needs among homosexually active men and women in the U.S. population. *Journal of Consulting and Clinical Psychology*, *68*, 1062–1071. doi:10.1037/0022-006X.68.6.1062
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*, 385–396. doi:10.2307/2136404
- Cooper, M. L., Russell, M., Skinner, J. B., Frone, M. R., & Mudar, P. (1992). Stress and alcohol use: Moderating effects of gender, coping, and alcohol expectancies. *Journal of Abnormal Psychology*, *101*, 139–152. doi:10.1037/0021-843X.101.1.139
- Dermody, S. S., Marshal, M. P., Cheong, J., Burton, C., Hughes, T., Aranda, S., & Friedman, M. S. (2014). Longitudinal disparities of hazardous drinking between sexual minority and heterosexual individuals from adolescence to young adulthood. *Journal of Youth and Adolescence*, *43*, 30–39. doi:10.1007/s10964-013-9905-9
- Drabble, L., Midanik, L. T., & Trocki, K. (2005). Reports of alcohol consumption and alcohol-related problems among homosexual, bisexual and heterosexual respondents: Results from the 2000 National Alcohol Survey. *Journal of Studies on Alcohol and Drugs*, *66*, 111–120. doi:10.15288/jsa.2005.66.111
- Drabble, L., & Trocki, K. (2005). Alcohol consumption, alcohol-related problems, and other substance use among lesbian and bisexual women. *Journal of Lesbian Studies*, *9*, 19–30. doi:10.1300/J155v09n03_03
- Drabble, L., Trocki, K. F., Hughes, T. L., Korcha, R. A., & Lown, A. E. (2013). Sexual orientation differences in the relationship between victimization and hazardous drinking among women in the National Alcohol Survey. *Psychology of Addictive Behaviors*, *27*, 639–648. doi:10.1037/a0031486
- Emler, C. A., Fredriksen-Goldsen, K. I., & Kim, H.-J. (2013). Risk and protective factors associated with health-related quality of life among older gay and bisexual men living with HIV disease. *The Gerontologist*, *53*, 963–972. doi:10.1093/geront/gns191
- Ferreira, M. P., & Weems, M. K. S. (2008). Alcohol consumption by aging adults in the United States: Health benefits and detriments. *Journal of the American Dietetic Association*, *108*, 1668–1676. doi:10.1016/j.jada.2008.07.011
- Ford, E. S., Zhao, G., Tsai, J., & Li, C. (2011). Low-risk lifestyle behaviors and all-cause mortality: Findings from the National Health and Nutrition Examination Survey III Mortality Study. *American Journal of Public Health*, *101*, 1922–1929. doi:10.2105/AJPH.2011.300167
- Fredriksen-Goldsen, K. I., Cook-Daniels, L., Kim, H.-J., Erosheva, E. A., Emler, C. A., Hoy-Ellis, C. P., & Muraco, A. (2014). Physical and mental health of transgender older adults: An at-risk and underserved population. *The Gerontologist*, *54*, 488–500. doi:10.1093/geront/gnt021

- Fredriksen-Goldsen, K. I., Emlert, 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. *The Gerontologist*, *53*, 664–675. doi:10.1093/geront/gns123
- Fredriksen-Goldsen, K. I., and Kim, H.-J. (2017). The science of conducting research with LGBT older adults—An introduction to Aging with Pride: National Health, Aging, and Sexuality/Gender Study. *The Gerontologist*, *57*, S1–S14. doi:10.1093/geront/gnw212.
- Fredriksen-Goldsen, K. I., Kim, H.-J., Barkan, S. E., Muraco, A., & Hoy-Ellis, C. P. (2013). Health disparities among lesbian, gay, and bisexual older adults: Results from a population-based study. *American Journal of Public Health*, *103*, 1802–1809. doi:10.2105/AJPH.2012.301110
- Fredriksen-Goldsen, K. I., Simoni, J. M., Kim, H.-J., Lehavot, K., Walters, K. L., Yang, J., & Muraco, A. (2014). The Health Equity Promotion Model: Reconceptualization of lesbian, gay, bisexual, and transgender (LGBT) health disparities. *American Journal of Orthopsychiatry*, *84*, 653–663. doi:10.1037/ort0000030
- Gjesfeld, C. D., Greeno, C. G., & Kim, K. H. (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
- Gomberg, E. S. L. (1988). Alcoholic women in treatment: The question of stigma and age. *Alcohol and Alcoholism*, *23*, 507–514. doi:10.1300/j251v08n02_08
- Gonzales, K., Roeber, J., Kanny, D., Tran, A., Saiki, C., Johnson, H., & Geiger, S. D. (2014). Alcohol-attributable deaths and years of potential life lost – 11 states, 2006–2010. *Morbidity and Mortality Weekly Report (MMWR)*, *63*, 213–216. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6310a2.htm?s_cid=mm6310a2_w
- Hatzenbuehler, M. L. (2009). How does sexual minority stigma “get under the skin”? A psychological mediation framework. *Psychological Bulletin*, *135*, 707–730. doi:10.1037/a0016441
- Hatzenbuehler, M. L., McLaughlin, K. A., Keyes, K. M., & Hasin, D. S. (2010). The impact of institutional discrimination on psychiatric disorders in lesbian, gay, and bisexual populations: A prospective study. *American Journal of Public Health*, *100*, 452–459. doi:10.2105/AJPH.2009.168815
- Hatzenbuehler, M. L., Nolen-Hoeksema, S., & Erickson, S. J. (2008). Minority stress predictors of HIV risk behavior, substance use, and depressive symptoms: Results from a prospective study of bereaved gay men. *Health Psychology*, *27*, 455–462. doi:10.1037/0278-6133.27.4.455
- Herek, G. M., Gillis, J. R., & Cogan, J. C. (2009). Internalized stigma among sexual minority adults: Insights from a social psychological perspective. *Journal of Counseling Psychology*, *56*, 32–43. doi:10.1037/a0014672
- Holahan, C. J., Schutte, K. K., Brennan, P. L., Holahan, C. K., Moos, B. S., & Moos, R. H. (2010). Late-life alcohol consumption and 20-year mortality. *Alcoholism: Clinical and Experimental Research*, *34*, 1961–1971. doi:10.1111/j.1530-0277.2010.01286.x
- Hughes, T. L., & Eliason, M. (2002). Substance use and abuse in lesbian, gay, bisexual, and transgender populations. *The Journal of Primary Prevention*, *22*, 263–298. doi:10.1023/A:1013669705086
- Hughes, T. L., Johnson, T. P., Steffen, A. D., Wilsnack, S. C., & Everett, B. (2014). Lifetime victimization, hazardous drinking, and depression among heterosexual and sexual minority women. *LGBT Health*, *1*, 192–203. doi:10.1089/lgbt.2014.0014
- Hughes, T. L., Wilsnack, S. C., Szalacha, L. A., Johnson, T., Bostwick, W. B., Seymour, R., & Kinnison, K. E. (2006). Age and racial/ethnic differences in drinking and drinking-related problems in a community sample of lesbians. *Journal of Studies on Alcohol*, *67*, 579–590. doi:10.15288/jsa.2006.67.579
- Jackson, T. (2006). Relationships between perceived close social support and health practices within community samples of American women and men. *The Journal of Psychology*, *140*, 229–246. doi:10.3200/JRPL.140.3.229-246
- Kanny, D., Liu, Y., Brewer, R. D., & Lu, H. (2013). Binge drinking – United States, 2011. *Morbidity and Mortality Weekly Report*, *62*, 77–80. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/su6203a13.htm>
- Lee, S. (2006). Propensity score adjustment as a weighting scheme for volunteer panel web surveys. *Journal of Official Statistics*, *22*, 329–349.
- Lee, S., & Valliant, R. (2009). Estimation for volunteer panel web surveys using propensity score adjustment and calibration adjustment. *Sociological Methods & Research*, *37*, 319–343. doi:10.1177/0049124108329643
- Lehavot, K., & Simoni, J. M. (2011). The impact of minority stress on mental health and substance use among sexual minority women. *Journal of Consulting and Clinical Psychology*, *79*, 159–170. doi:10.1037/a0022839
- Litt, D. M., Lewis, M. A., Rhew, I. C., Hodge, K. A., & Kaysen, D. L. (2015). Reciprocal relationship over time between descriptive norms and alcohol use in young adult sexual minority women. *Psychology of Addictive Behaviors*, *29*, 885–893. doi:10.1037/adb0000122
- McCabe, S. E., Bostwick, W. B., Hughes, T. L., West, B. T., & Boyd, C. J. (2010). The relationship between discrimination and substance use disorders among lesbian, gay, and bisexual adults in the United States. *American Journal of Public Health*, *100*, 1946–1952. doi:10.2105/AJPH.2009.163147
- Merrick, E. L., Horgan, C. M., Hodgkin, D., Garnick, D. W., Houghton, S. F., Panas, L., & Blow, F. C. (2008). Unhealthy drinking patterns in older adults: Prevalence and associated characteristics. *Journal of the American Geriatrics Society*, *56*, 214–223. doi:10.1111/j.1532-5415.2007.01539.x
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, *129*, 674–697. doi:10.1037/0033-2909.129.5.674
- Moore, A. A., Gould, R., Reuben, D. B., Greendale, G. A., Carter, M. K., Zhou, K., & Karlamangla, A. (2005). Longitudinal patterns and predictors of alcohol consumption in the United States. *American Journal of Public Health*, *95*, 458–465. doi:10.2105/AJPH.2003.019471
- Moos, R. H., Schutte, K. K., Brennan, P. L., & Moos, B. S. (2010). Late-life and life history predictors of older adults' high-risk alcohol consumption and drinking problems. *Drug and Alcohol Dependence*, *108*, 13–20. doi:10.1016/j.drugalcdep.2009.11.005
- Muthén, L. K., & Muthén, B. O. (1998–2015). *Mplus user's guide* (7th ed.). Los Angeles: Muthén & Muthén.

- National Institute on Aging. (2015). *Older adults and alcohol: You can get help* (NIH Publication No. 11-7350). Retrieved from <http://pubs.niaaa.nih.gov/publications/olderAdults/olderAdults.htm>
- National Institute on Alcohol Abuse and Alcoholism. (n.d. a). *Alcohol & your health: Older adults*. Retrieved from <http://www.niaaa.nih.gov/alcohol-health/special-populations-co-occurring-disorders/older-adults>
- National Institute on Alcohol Abuse and Alcoholism. (n.d. b). *Drinking levels defined*. Retrieved from <http://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking>
- Nolen-Hoeksema, S. (2004). Gender differences in risk factors and consequences for alcohol use and problems. *Clinical Psychology Review*, 24, 981-1010. doi:10.1016/j.cpr.2004.08.003
- Nolen-Hoeksema, S. (2012). Emotion regulation and psychopathology: The role of gender. *Annual Review of Clinical Psychology*, 8, 161-187. doi:10.1146/annurev-clinpsy-032511-143109
- Pachankis, J. E., Hatzenbuehler, M. L., & Starks, T. J. (2014). The influence of structural stigma and rejection sensitivity on young sexual minority men's daily tobacco and alcohol use. *Social Science & Medicine*, 103, 67-75. doi:10.1016/j.socscimed.2013.10.005
- Parks, C. A., & Hughes, T. L. (2005). Alcohol use and alcohol-related problems in self-identified lesbians. *Journal of Lesbian Studies*, 9, 31-44. doi:10.1300/J155v09n03_04
- Pascoe, E. A., & Smart Richman, L. (2009). Perceived discrimination and health: A meta-analytic review. *Psychological Bulletin*, 135, 531-554. doi:10.1037/a0016059
- Platt, A., Sloan, F. A., & Costanzo, P. (2010). Alcohol-consumption trajectories and associated characteristics among adults older than age 50. *Journal of Studies on Alcohol and Drugs*, 71, 169-179. doi:10.15288/jsad.2010.71.169
- Preston, P., & Goodfellow, M. (2006). Cohort comparisons: Social learning explanations for alcohol use among adolescents and older adults. *Addictive Behaviors*, 31, 2268-2283. doi:10.1016/j.addbeh.2006.03.005
- Przedworski, J. M., McAlpine, D. D., Karaca-Mandic, P., & VanKim, N. A. (2014). Health and health risks among sexual minority women: An examination of 3 subgroups. *American Journal of Public Health*, 104, 1045-1047. doi:10.2105/AJPH.2013.301733
- Rehm, J., Dawson, D., Frick, U., Gmel, G., Roerecke, M., Shield, K. D., & Grant, B. (2014). Burden of disease associated with alcohol use disorders in the United States. *Alcoholism: Clinical and Experimental Research*, 38, 1068-1077. doi:10.1111/acer.12331
- Rehm, J., Mathers, C., Popova, S., Thavorncharoensap, M., Teerawattananon, Y., & Patra, J. (2009). Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *The Lancet*, 373, 2223-2233. doi:10.1016/S0140-6736(09)60746-7
- Sacco, P., Bucholz, K. K., & Harrington, D. (2014). Gender differences in stressful life events, social support, perceived stress, and alcohol use among older adults: Results from a national survey. *Substance Use & Misuse*, 49, 456-465. doi:10.3109/10826084.2013.846379
- Sacco, P., Bucholz, K. K., & Spitznagel, E. L. (2009). Alcohol use among older adults in the National Epidemiological Survey on Alcohol and Related Conditions: A latent class analysis. *Journal of Studies on Alcohol and Drugs*, 70, 829-838. doi:10.15288/jsad.2009.70.829
- Schmidt, L. A., Mäkelä, P., Rehm, J., & Room, R. (2010). Alcohol: Equity and social determinants. In E. Blas & A. S. Kurup (Eds.), *Equity, social determinants and public health programmes* (pp. 11-29). Geneva, Switzerland: WHO Press. Retrieved from http://www.who.int/social_determinants/tools/EquitySDandPH_eng.pdf#page=21
- 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
- Stahre, M., Roeber, J., Kanny, D., Brewer, R. D., & Zhang, X. (2014). Contribution of excessive alcohol consumption to deaths and years of potential life lost in the United States. *Preventing Chronic Disease*, 11: 130293. doi:10.5888/pcd11.130293
- Sutker, P. B., Allain, A. N., Brantley, P. J., & Randall, C. L. (1982). Acute alcohol intoxication, negative affect, and autonomic arousal in women and men. *Addictive Behaviors*, 7, 17-25. doi:10.1016/0306-4603(82)90020-X
- Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review*, 6, 2-30. doi:10.1207/s15327957pspr0601_1
- Trocki, K. F., Drabble, L., & Midanik, L. (2005). Use of heavier drinking contexts among heterosexuals, homosexuals and bisexuals: Results from a National Household Probability Survey. *Journal of Studies on Alcohol*, 66, 105-110. doi:10.15288/jsa.2005.66.105
- Ward, B. W., Dahlhamer, J. M., Galinsky, A. M., & Joestl, S. S. (2014). Sexual orientation and health among U.S. adults: National Health Interview Survey, 2013. *National Health Statistics Reports*, 77, 1-10.
- Williams, D. R., Yu, Y., Jackson, J. S., and Anderson, N. B. (1997). Racial differences in physical and mental health: Socioeconomic status, stress, and discrimination. *Journal of Health Psychology*, 2, 335-351. doi:10.1177/135910539700200305