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Authors

LaRowe, Lisa
Miller, Angela
Shah, Sachin
[et al.](#)

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Hazardous Alcohol Use Among Community-Dwelling Older Adults With Persistent or Recurrent Pain: Findings From the Health and Retirement Study

Lisa R. LaRowe, PhD,^{1,2,*} Angela Miller, MA,¹ Sachin J. Shah, MD, MPH,^{1,2} and Christine S. Ritchie, MD, MSPH^{1,2,} 

¹Mongan Institute Center for Aging and Serious Illness, Massachusetts General Hospital, Boston, Massachusetts, USA.

²Department of Medicine, Harvard Medical School, Boston, Massachusetts, USA.

*Address correspondence to: Lisa R. LaRowe, PhD. E-mail: llarowe@mgh.harvard.edu

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Abstract

Background: Although pain and alcohol use are highly prevalent and associated with deleterious health outcomes among older adults, a paucity of literature has examined hazardous drinking among older adults with pain. We aimed to examine the prevalence of hazardous drinking among a nationally representative sample of older adults with persistent or recurrent pain.

Methods: We conducted cross-sectional analyses of data collected from the 2018 wave of the Health and Retirement Study. Participants included 1 549 community-dwelling adults aged ≥ 65 with persistent or recurrent pain (ie, clinically significant pain present at 2 consecutive survey waves).

Results: More than one-quarter of older adults with persistent or recurrent pain reported regular alcohol use (\geq weekly), nearly half of whom reported hazardous patterns of drinking. Specifically, 32% reported excessive drinking (ie, >2 drinks per day for older men; >1 drink per day for older women), and 22% reported binge drinking (ie, ≥ 4 drinks on one occasion). Exploratory analyses revealed a high prevalence of hazardous drinking among the subsample of older adults who used opioids (47%).

Conclusions: Hazardous alcohol use—including both excessive and binge drinking—is common among older adults with persistent or recurrent pain, including those who take opioids. Given that hazardous drinking can complicate pain management and increase the risk for adverse opioid effects (eg, overdose), the current findings underscore the importance of assessing and addressing hazardous patterns of alcohol use among older adults with persistent or recurrent pain.

Keywords: Addiction, Comorbidity, Nationally representative, Substance use

Chronic pain (pain that persists or recurs for more than 3 months) affects nearly one-third of older adults (1), and has been associated with increased risk for functional and cognitive impairment, and decrements in quality of life (2). A recently adapted biopsychosocial model of chronic pain for older adults highlights the role of biobehavioral factors, such as alcohol use, in the experience, impact, and treatment of pain in this population (3). Indeed, alcohol is the most commonly used substance among older adults (4), with more than half of U.S. adults aged 65 and older reporting past-year alcohol consumption and a growing proportion engaging in hazardous alcohol consumption (ie, patterns of drinking that increase risk of harmful consequences) (5). However, there is a paucity of literature examining alcohol use among older adults with chronic pain—a population that warrants special consideration.

Among general adult samples (age ≥ 18), approximately one-quarter of patients with chronic pain report engaging in hazardous alcohol consumption (6). Pain can be a potent motivator of drinking behavior (7), and 27% of individuals

with chronic pain report using alcohol for pain relief (8). Despite the high prevalence of chronic pain among older adults and evidence that pain may lead to greater drinking behavior, information on hazardous patterns of alcohol use in this population is limited. For example, although the 2020–2025 Dietary Guidelines for Americans recommend that older adults limit alcohol intake to ≤ 2 drinks per day for men and ≤ 1 drink per day for women, it is unclear how many older adults with chronic pain exceed these limits. Moreover, although there is evidence that heavy episodic drinking (ie, binge drinking) is common and associated with negative health-related effects among older adults (9), additional work is still needed to clarify the prevalence of binge drinking among older adults with chronic pain, specifically.

The primary goal of this article is to examine the prevalence of 2 distinct and clinically important patterns of hazardous alcohol use—excessive drinking (ie, exceeding recommended daily alcohol use limits) and binge drinking (ie, consuming 4 or more drinks in a single occasion)—among a nationally

representative sample of older adults with persistent or recurrent pain. Given that alcohol use may be particularly problematic among those who are prescribed opioid analgesics (eg, due to drug–drug interactions), an exploratory aim of this work was to examine hazardous drinking among older adults with recent opioid use.

Method

This study is reported following the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist (Supplementary Table 1).

Design and Cohort

We conducted cross-sectional analyses of data collected during the 2018 wave (administered from April 2018–June 2019) of the Health and Retirement Study (HRS) (10), which is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan. The HRS is a nationally representative study of older Americans (age ≥ 50) who undergo detailed in-person or telephone interviews every 2 years from cohort entry until dropout or death (11). If a participant is unable to complete an interview because of physical or cognitive impairment, the interview may be conducted with a proxy (eg, a family member). The HRS sampling methods utilize a multistage area probability design involving geographic stratification and clustering, and oversampling of certain demographic groups (African American and Hispanic older adults) to create a cohort that is nationally representative of U.S. older adults. Researchers can use sample weights to account for differential probabilities of selection and differential nonresponse in each wave.

To create the study cohort, we included community-dwelling participants who were at least 65 years old and reported clinically significant pain across 2 consecutive study waves (indicating the presence of persistent or recurrent pain); therefore, participants must have completed both the 2016 and 2018 waves to be included in these analyses. Moreover, we limited analyses to participants who completed the alcohol and opioid use measures. Therefore, the final sample consisted of 1 549 participants. A flow diagram depicts reasons for ineligibility at each stage (Supplementary Figure 1).

Measures

Sociodemographic factors

HRS interview data captured participants' self-reported age, gender, race, ethnicity, and education status.

Pain status

At each HRS wave, participants are asked, "Are you often troubled with pain?" and those who respond "yes" are then asked, "How bad is the pain most of the time: mild, moderate, or severe?" To be included in the current analyses, participants had to report being troubled by moderate or severe pain during both the 2016 and 2018 interviews. This criterion was chosen to capture participants who experience persistent or recurrent pain, and is consistent with prior work using the HRS data to examine persistent pain (12).

Alcohol use variables

Alcohol use status

The question, "Do you ever drink any alcohol beverages such as beer, wine, or liquor?" was used to assess current alcohol use. Response options included "yes," "no," and "never have used alcohol." We considered participants who responded "no" or "never have used alcohol" to be nonusers of alcohol. Participants who responded "yes" were then asked to indicate how many days per week they had drunk alcohol on average over the past 3 months. Consistent with prior work (13), we considered participants who reported drinking \geq weekly to be regular alcohol users. We considered those who reported drinking $<$ weekly to be nonregular alcohol users.

Hazardous alcohol use

Two different patterns of hazardous drinking were assessed: excessive drinking (ie, exceeding the 2020–2025 Dietary Guidelines for Americans recommendations to limit alcohol intake to 2 drinks per day or less in older men and 1 drink per day or less in older women) and binge drinking (ie, consuming 4 or more alcoholic beverages on one occasion). Regular alcohol users were asked to indicate how many drinks they had typically consumed on days when they drank and the number of days in which they have had 4 or more drinks on one occasion over the past 3 months. We classified those who exceeded recommended daily limits as engaging in excessive drinking, and those who reported having 4 or more drinks on a single occasion in the past 3 months as engaging in binge drinking. Finally, we considered those who were classified as either engaging in excessive drinking or binge drinking to have engaged in hazardous alcohol use over the past 3 months.

Past three-month opioid exposure

Participants were asked if they had taken any opioid pain medications (eg, Vicodin, OxyContin, codeine, and morphine) in the past 3 months (yes/no).

Data Analytic Plan

We conducted statistical analyses using SAS 9.4 (SAS Institute, Inc., Cary, NC). In all statistical models, we accounted for the complex survey design of the HRS (ie, sampling strata, clusters, and weights). First, we examined sociodemographic characteristics among the total sample and among participants in each alcohol use status group (ie, no alcohol use, nonregular alcohol use, and regular alcohol use). We calculated the weighted prevalence of sociodemographic characteristics and associated 95% confidence intervals, and we used chi-square tests to determine whether sociodemographic characteristics varied as a function of alcohol use status. Second, we examined the weighted prevalence of hazardous alcohol use (ie, any hazardous alcohol use, excessive drinking, and binge drinking) and associated 95% confidence intervals among participants who reported regular alcohol use. Third, we used logistic regression to test whether participants with past 3-month opioid exposure were less likely to engage in hazardous alcohol use.

Results

Participant Characteristics

Participants included 1 549 community-dwelling adults aged 65 and older with persistent or recurrent pain. Table

Table 1. Sociodemographic Characteristics of Community-Dwelling Adults 65 Years and Older With Chronic Pain, Weighted to Estimate National Prevalence, 2018

Characteristic	Total	No Alcohol Use	Nonregular Alcohol Use	Regular Alcohol Use
	Prevalence (95% CI)	Prevalence (95% CI)	Prevalence (95% CI)	Prevalence (95% CI)
Gender*				
Female	63.4 (60.7–66.0)	68.1 (64.3–72.0)	64.1 (55.9–72.3)	52.7 (47.4–58.0)
Race				
White/Caucasian	83.7 (81.13–86.25)	81.3 (77.5–85.2)	84.9 (79.5–90.3)	88.1 (84.6–91.7)
Black/African American	10.0 (8.0–11.9)	11.3 (8.5–14.1)	10.1 (5.4–14.9)	7.0 (4.3–9.7)
Other	6.3 (4.5–8.2)	7.4 (4.4–10.4)	5.0 (1.8–8.2)	4.9 (2.4–7.4)
Ethnicity*				
Hispanic	9.0 (5.6–12.3)	10.7 (5.8–15.6)	9.8 (5.9–13.6)	4.9 (2.7–7.0)
Education*				
Less than GED/HS	17.3 (14.3–20.4)	22.5 (18.2–26.8)	12.3 (7.1–17.5)	9.1 (6.5–11.7)
GED/HS	57.4 (54.3–60.5)	57.2 (52.9–61.5)	60.5 (51.9–69.1)	56.1 (49.5–62.7)
More than GED/HS	25.2 (22.2–28.3)	20.3 (16.6–23.9)	27.2 (20.5–33.9)	34.8 (27.6–42.1)
	Mean (95% CI)	Mean (95% CI)	Mean (95% CI)	Mean (95% CI)
Age	74.1 (73.7–74.6)	74.3 (73.8–74.9)	74.6 (73.5–75.6)	73.5 (72.6–74.4)

Notes: *n* = 1 participant did not provide information on ethnicity and was excluded from prevalence estimate.

GED = General Educational Development; HS = high school diploma.

*Indicates difference as a function of alcohol use status at *p* < .01 significance level.

Table 2. Alcohol Use Among Community-Dwelling Adults Aged 65 Years and Older With Chronic Pain, Weighted to Estimate National Prevalence, 2018

	Total
	% (95% CI)
No alcohol use	57.8 (54.1–61.5)
Nonregular alcohol use	15.3 (12.9–17.7)
Regular alcohol use	26.9 (24.0–29.8)

1 displays sociodemographic characteristics across the sample, and Table 2 displays alcohol use status, weighted to be nationally representative. Nearly two-thirds of the sample (63.4%) was female, and the majority identified as White/Caucasian (83.7%) and reported at least a high school diploma or General Educational Development (GED; 82.7%).

Weighted results indicate that over 42% of older adults with persistent or recurrent pain reported past-year alcohol use. More specifically, nearly 27% reported regular alcohol consumption, and another 15% reported nonregular use. Alcohol use status differed by gender, ethnicity, and education level, with lower proportions of female gender, Hispanic ethnicity, and lower levels of education observed among those who reported regular alcohol use (*ps* < .01).

Hazardous Alcohol Use

As shown in Table 2, 42.5% of regular drinkers aged 65 years and older with persistent or recurrent pain reported hazardous alcohol use (ie, excessive drinking or binge drinking). Almost one-third (32.1%) of older adults with chronic

pain reported drinking at levels that exceeded recommended limits, and nearly one-quarter (22.4%) reported at least one binge drinking episode in the past 3 months.

Differences in Hazardous Alcohol Use as a Function of Past Three-Month Opioid Exposure

As shown in Table 3, older adults with persistent or recurrent pain who reported taking an opioid pain medication at least once in the past 3 months (vs those who did not) were no less likely to report engaging in hazardous alcohol use. Specifically, 47.6% of those who reported using opioids at least once in the past 3 months reported hazardous patterns of alcohol use, compared to 40.0% of those who did not (*p* > .05).

Discussion

This study examined patterns of hazardous alcohol use among a nationally representative sample of older adults with persistent or recurrent pain. Results indicated that over one-quarter of older adults with persistent or recurrent pain consume alcohol regularly, with nearly half of these individuals engaging in hazardous patterns of drinking (ie, excessive and/or binge drinking). More specifically, almost one-third of older adults who have persistent or recurrent pain and drink regularly report consuming alcohol in quantities that exceed recommended limits, and nearly one-fourth report recent binge drinking. These findings are consistent with evidence that a large proportion of older adults engage in potentially dangerous patterns of drinking (5), and extend prior work by demonstrating that hazardous alcohol use—including both excessive and binge drinking—is also common among U.S. older adults with persistent or recurrent pain.

Table 3. Hazardous Alcohol Use Among Regular Drinkers Aged 65 Years and Older With Persistent or Recurrent Pain by Opioid Use Status, Weighted to Estimate National Prevalence, 2018

	Total	Opioid Use	No Opioid Use	Opioid Use Versus No Opioid Use (ref.)
	% (95% CI)	% (95% CI)	% (95% CI)	
Any hazardous drinking	42.5 (36.3–48.6)	47.6 (37.4–57.7)	40.0 (31.4–48.5)	OR = 1.4 (95% CI: 0.8–2.4)
Excessive drinking	32.1 (26.7–37.6)	28.2 (17.8–38.6)	34.0 (26.2–41.9)	OR = 0.8 (95% CI: 0.4–1.5)
Binge drinking	22.4 (16.5–28.8)	29.3 (18.8–39.8)	19.1 (12.2–25.9)	OR = 1.8 (95% CI: 0.9–3.4)

These findings are particularly concerning given that hazardous alcohol use can contribute to greater pain severity, pain-related physical impairment, and the exacerbation of chronic pain over time (14,15). Indeed, prior work has demonstrated that excessive/binge drinking can lead to the development and worsening of pain via increased risk of falls and traumatic injury, pathological changes to neural structures (eg, central amygdala, prefrontal cortex, and insula), and central opioid deficiency (15). In addition, alcohol may interfere with pain treatments (eg, alcohol–opioid cross-tolerance may reduce the analgesic effects of opioid pain medications) (14). Older adults may also be at risk of experiencing detrimental alcohol-related effects at comparatively low doses, given the unique challenges faced by this population (eg, high rates of multimorbidity/polypharmacy (16,17)). Moreover, both pain and hazardous alcohol use are associated with poor aging-related outcomes (eg, functional/cognitive impairment) (2,18), and it is likely that the confluence of pain and hazardous alcohol use confer greater health risks than either condition alone.

We also examined the prevalence of hazardous drinking among older adults who reported past 3-month opioid exposure. Given that harmful alcohol–opioid interactions may increase the risk of falls, altered cognitive function, accidents/injuries, overdose, and death, the FDA has recommended that opioid analgesics should not be prescribed to individuals who drink alcohol. However, we found that regular drinkers who reported taking an opioid pain medication in the past 3 months were no less likely to engage in hazardous patterns of drinking than those who have not taken opioids. In fact, nearly half of those who reported taking at least one opioid pain medication in the past 3 months reported hazardous drinking. Prior studies from the general population have revealed that individuals who engage in harmful/hazardous patterns of drinking are more likely to use opioid analgesics (19). That we are seeing similar trends in older adults is even more concerning given that 80% of people over the age of 65 have ≥ 2 chronic conditions (16), and 39% are prescribed ≥ 5 medications (17).

Collectively, findings from this study underscore the importance of assessing and addressing hazardous patterns of alcohol use among older adults with persistent or recurrent pain—especially among those who use opioid analgesics and thus may be at greater risk for detrimental alcohol effects. In addition to reducing the risk of adverse health consequences (eg, functional/cognitive impairment, dangerous alcohol–opioid interactions), alcohol cessation has also been shown to predict reduction in bodily pain (20). Thus, alcohol reduction/cessation should be a component of treatments designed to mitigate the experience and impact of pain among older adults. However, we are not aware of any interventions that

have been tailored to address hazardous alcohol use among older adults with pain. It will be important to develop tailored treatment programs that address unique barriers to alcohol reduction/cessation among this population, including higher rates of multimorbidity, the potential for increased pain sensitivity during periods of alcohol abstinence, and use of alcohol for pain coping. For example, providing older adults with additional pain coping strategies and addressing expectations that alcohol use will relieve pain may reduce alcohol consumption and consequently improve pain- and aging-related outcomes.

Several limitations and directions for future research are worth noting. First, we limited the sample to participants who reported pain that persisted or recurred over 2 consecutive study waves in an attempt to capture those who are more likely to be experiencing chronic (vs acute) pain. Although this classification likely underestimates the prevalence of chronic pain, it focuses on a particularly high-risk group of older adults—those with persistent pain over several years. Future work is needed to assess hazardous alcohol use among individuals who meet IASP criteria for chronic pain (ie, pain that persists or recurs for longer than 3 months). Second, hazardous alcohol use was only assessed among HRS participants who reported regular (\geq weekly) alcohol use. However, even older adults who do not use alcohol regularly may still engage in hazardous drinking patterns. For example, someone may only consume alcohol on 2 occasions per month yet exceed recommended limits and/or binge drink on those occasions. Although this individual would not be classified as engaging in regular alcohol use, this pattern of drinking is nonetheless associated with dangerous health consequences (9). Future work is needed to generalize the current findings to *all* alcohol users, regardless of frequency of use. Third, the HRS definition of binge drinking (ie, consuming 4 or more drinks on a single occasion) differs from the CDC definition (ie, consuming 5 or more drinks on an occasion for men or 4 or more drinks on an occasion for women), thus, future work is still needed to determine the prevalence of binge drinking among older adults with persistent or recurrent pain using the CDC's definition. Fourth, this study was cross-sectional, which precludes causal and temporal interpretation. Previous work has posited that pain and hazardous alcohol use interact in the manner of a positive feedback loop (14), and future studies should examine bidirectional prospective relationships between these conditions among older adults. Finally, all data were collected via self-report, and future work should incorporate more objective measurements of pain, alcohol use, and opioid use (eg, biochemical verification and medical chart review).

In summary, these data demonstrate high rates of hazardous alcohol use among older adults with persistent or recurrent

pain. Given that excessive and binge drinking may exacerbate pain and increase risk for morbidity and mortality, interventions designed to reduce hazardous alcohol use among older adults with persistent or recurrent pain (including those with chronic pain) are sorely needed.

Supplementary Material

Supplementary data are available at *The Journals of Gerontology, Series A: Biological Sciences and Medical Sciences* online.

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Conflict of Interest

None.

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