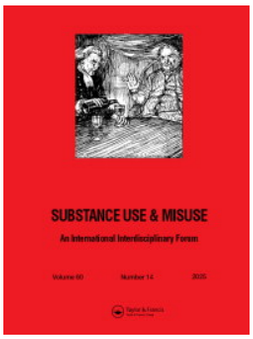

Substance Use & Misuse

ISSN: 1082-6084 (Print) 1532-2491 (Online) Journal homepage: www.tandfonline.com/journals/isum20

Major Depression and Hazardous Alcohol Use in a Spanish Language Survey of Leisure and Hospitality Industry Workers

Perla Palomares, Steven D. Barger, Sumner J. Sydeman & Bethany Khan

To cite this article: Perla Palomares, Steven D. Barger, Sumner J. Sydeman & Bethany Khan (04 Nov 2025): Major Depression and Hazardous Alcohol Use in a Spanish Language Survey of Leisure and Hospitality Industry Workers, Substance Use & Misuse, DOI: 10.1080/10826084.2025.2576645

To link to this article: https://doi.org/10.1080/10826084.2025.2576645

Published online: 04 Nov 2025.

SUBSTANCE USE & MISUSE
https://doi.org/10.1080/10826084.2025.2576645

Taylor & Francis
Taylor & Francis Group

NOTE

Major Depression and Hazardous Alcohol Use in a Spanish Language Survey of Leisure and Hospitality Industry Workers

Perla Palomares[a], Steven D. Barger[a,b], Sumner J. Sydeman[a] and Bethany Khan[c]

[a]Department of Psychological Sciences, Northern Arizona University, Flagstaff, Arizona, USA; [b]Center for Community Health and Engaged Research, Northern Arizona University, Flagstaff, Arizona, USA; [c]Culinary Workers Union Local 226, Las Vegas, Nevada, USA

ABSTRACT

Background: Depression and risky alcohol use are common in vulnerable populations, such as leisure and hospitality workers. While Hispanic workers are overrepresented in the hospitality industry, empirical research on these health burdens among Hispanic workers is limited, particularly workers who prefer to speak Spanish. Given the devastating unemployment following the COVID-19 lockdown, data on health burdens among hospitality industry workers is especially important.

Methods: To assess the impact of pandemic-related unemployment within vulnerable populations, we examined current major depression (MDD) and recent binge drinking among leisure and hospitality workers who completed a survey in Spanish ($N = 373$). We recruited participants from a large Nevada hospitality labor union and included validated measures of depression and binge drinking in our survey.

Results: Current MDD was significantly higher among unemployed (59.6%, 95%CI, 46.9–72.4) versus currently employed (24.1%, 95%CI, 19.3–28.8) participants. Further, overall prevalence of MDD (29.5%, 95%CI, 25.1–34.3) and binge drinking (22.8%, 95%CI, 18.8, 27.3) were higher in our sample than the rates seen in concurrent statewide assessments.

Conclusions: Given the clinically important elevations in depression and hazardous drinking found in our study, greater attention to leisure and hospitality workers is warranted, especially workers of color and workers whose preferred language is not English.

KEYWORDS

COVID-19; alcohol drinking; depression; Hispanic Americans; vulnerable populations

Introduction

The COVID-19 pandemic caused unprecedented job losses. Hardest hit were workers in the leisure and hospitality industry, where unemployment peaked at 39.3% (Falk et al., 2021). Despite subsequent recovery, employment in this sector lagged behind other industries and remained below pre-pandemic levels until December 2023 (Bureau of Labor Statistics, 2024b). Unemployment is associated with a variety of adverse outcomes, including depression (Paul & Moser, 2009) and problematic drinking (Mangot-Sala et al., 2022), both of which increased during the pandemic (Czeisler et al., 2020; Esser et al., 2024). The pandemic has been characterized as a form of trauma that is associated with poor mental health, particularly for persons working in the hospitality industry (Rosemberg, Adams, et al., 2021). Thus, one would expect leisure and hospitality workers in the peri-pandemic period to be at particular risk for depression and problematic alcohol use.

Depression and problematic alcohol use, including alcohol use disorder, are highly comorbid in the general population (McHugh & Weiss, 2019; Puddephatt et al., 2022). Despite the likely vulnerability of leisure and hospitality workers to experience these problems, studies of mental health and problematic alcohol use in this sector are scant, with investigations characterized by small qualitative studies of mental health (Hsieh et al., 2016) and larger quantitative studies that used distress checklists rather than validated depression assessments (Kim et al., 2024). We address these limitations by using a validated depression assessment and by using standardized binge drinking definitions. More broadly, researchers in hospitality/tourism and occupational health have made specific calls for more empirical research on the mental health of "neglected" and "surprisingly understudied" ethnic minority groups who work in this industry (Rosemberg, Boutain, et al., 2021; Sönmez et al., 2020). The need to address the gap in ethnic minority representation in the literature is underscored by the fact that Hispanic workers comprise over a quarter of the leisure and hospitality workforce (Bureau of Labor Statistics, 2023). We address this gap by examining the point prevalence of current major depressive disorder (MDD) and 30-day binge drinking, the most common and costly form of hazardous alcohol use (Sacks et al., 2015), among predominantly Hispanic leisure and hospitality workers in Nevada. Further, to address a potential challenge to recruitment of Hispanic individuals in these industries, namely, potential language barriers (Rosemberg,

CONTACT Steven D. Barger steven.barger@nau.edu Department of Psychological Sciences, Northern Arizona University, 1100 South Beaver Street, Building #60, Room #338, Flagstaff, AZ86011, USA.

Boutain, et al., 2021), we offered the survey in Spanish and report on those who chose to complete the Spanish-language version of the survey. The survey was conducted during the latter part of the economic recovery from COVID-19 (2022). We partnered with and recruited participants from the Culinary Workers Union Local 226, the largest labor union in Nevada, representing 60,000 hospitality workers, and which provides no monthly premium, full family health care coverage for over 145,000 Nevadans (https://www.culinaryunion226.org/union). The Culinary Union strategically selects academic partnerships to ensure that the stories, data, and lived experiences of hospitality workers and union members are represented in scientific literature. As the largest organization of union members, working women, immigrant workers, and Latino/a workers in Nevada, the Culinary Union is a trusted messenger in the community. This trusted organizational collaboration, and our use of a Spanish-language survey, fulfills several methodological recommendations to reach understudied ethnic minority workers (Rosemberg, Boutain, et al., 2021). This also contributed to a broader understanding of hospitality workers' experiences and underscores the enduring commitment of the Culinary Union to advocate for the visibility and representation of working-class and immigrant populations in academic research.

Materials and methods

The Director of Communications and Digital Strategy for the Culinary Union (BK) forwarded brief text and email messages to union members providing an introduction to the study and the link to the online survey. All text messages, emails, instructions, and study surveys were provided in both English and Spanish. Existing Spanish language items from CDC surveys were included where available—other items were translated into Spanish and back-translated to English. Invitations to encourage hospitality workers to take the survey were distributed four times in July and August of 2022, along with concurrent postings about the study on union-related social media platforms. Rather than paying participants directly, which could potentially attract fraudulent responses (Sosenko & Bramley, 2022; Stosic et al., 2024), we instead donated a lump sum to the local food bank run out of the Culinary Academy of Las Vegas and the Citizenship Project endorsed by the Culinary Union. This encouraged affinity participation by workers who would know and trust those two non-profits. Culinary Union members received texts and emails from the union directly via an opt-in method, which is a common and frequent method of communication, occurring several times a week. Since hospitality workers may not use their phones while on the job, they typically accessed the survey links on their personal devices during break/meal times, or before and after work. Ninety-five percent of included participants completed the survey in 45 min or less.

Our cross-sectional study assessed sociodemographic characteristics, work force status, union membership, occupation, current major depression, and binge drinking. Depression was classified based upon a validated cut score of >9 on the Patient Health Questionnaire (PHQ-9) (Kroenke et al., 2001). We also calculated depression prevalence with the 2-item PHQ-9 screener (scores > 2) to compare our data to statewide depression assessments conducted in Nevada during July and August 2022 (National Center for Health Statistics, 2024). Past 30-day binge drinking was classified using sex-specific criteria [e.g., consumption of ≥5 drinks for men or ≥4 drinks for women on one or more occasions in the past 30 days (Bohm et al., 2021)]. We also asked an open-ended question about one's current ZIP code as an additional validity check, and conducted sensitivity analyses excluding persons who completed the survey quickly (Stosic et al., 2024). As noted above, analyses were restricted to respondents who completed the survey in Spanish and had non-missing values for binge drinking, employment status, and at least 7 non-missing depression items (see Figure 1).

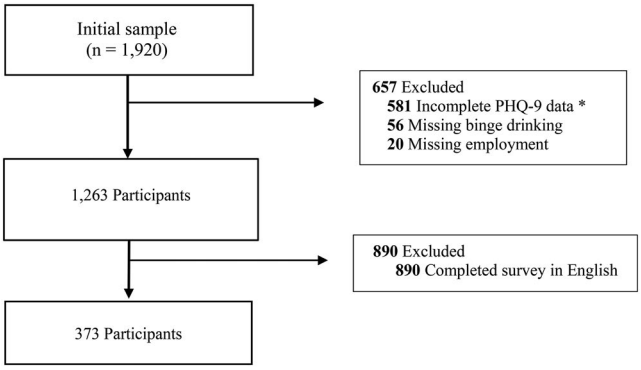

Figure 1. Flow diagram for leisure and hospitality workers study.
PHQ-9: Patient Health Questionnaire 9.
*PHQ-9 scored if 9 of 9 non-missing; if 8 of 9 non-missing then valid depression score if PHQ-9 total is not equal to 7, 8, or 9; if 7 of 9 non-missing then valid depression score if PHQ-9 total is not equal to 4–9.

We report point prevalence for current MDD and binge drinking overall, by sex, and by current employment status. We further compare MDD and 30-day binge drinking to 2022 Nevada estimates (Centers for Disease Control and Prevention, 2024). These estimates came from the Household Pulse Survey, which assessed depression in Nevada adults using the PHQ-2 depression scale during July 27–August 8, 2022 (National Center for Health Statistics, 2024). This data collection wave occurred entirely within the data collection period for our study, providing a temporally aligned comparator. Analyses were conducted using Stata 18 (Stata Corp.). The study was approved by the Northern Arizona Institutional Review Board (#1915776-2), and all participants provided informed consent before beginning the survey.

Results

The majority of the 373 participants were currently employed (84.7%), labor union members (81.7%), and the modal occupation was guest room attendant (37.3%) (Table 1). Hispanic ethnicity was endorsed by 96.8% of persons responding to the ethnicity question, with 76% reported speaking mostly or exclusively Spanish at home (Table 1). Current MDD was 29.5% (95%CI, 25.1–34.3) overall and was significantly higher for women (34.3%, 95%CI, 28.4–40.1) versus men (19.3%,

Table 1. Sample sociodemographic and health characteristics.

Characteristic	%	*N*
Participants		373
Age years, mean (*SD*)	51.3	9.4
Gender		
Female	68.1	254
Male	31.9	119
Hispanic ethnicity		
No	1.1	4
Yes	87.7	327
Missing	11.3	42
What language(s) do you usually speak at home?		
Only Spanish	29.8	111
More Spanish than English	46.7	174
Both equally	18.5	69
More English than Spanish	4.3	16
Only English	0.3	1
Missing	0.5	2
Race		
American Indian/Alaska Native	0.5	2
Asian	0.3	1
Native Hawaiian/Pacific Islander	0.3	1
Black/African American	1.1	4
White	46.4	173
Other	37.5	140
Multiracial	6.7	25
Marital status		
Married	59.0	220
Widowed	16.9	63
Divorced	2.4	9
Separated	4.6	17
Never married	7.5	28
Living with a partner	7.8	29
Missing	1.9	7
Education level		
< High school	25.7	96
High school diploma	35.1	131
Some college	17.2	64
College graduate or higher	15.3	57
Missing	6.7	25
Work force status		
Employed	84.7	316
Unemployed	5.6	21
Homemaker	2.4	9
Student	0.8	3
Retired	2.4	9
Unable to work	4.0	15
Union membership		
Culinary Workers Union	77.7	290
Bartenders Union	4.0	15
Non-union	3.2	12
None of the above	11.5	43
Missing	3.5	13
Occupational category		
Guest room attendant/housekeeping	37.3	139
Cocktail server	0.8	3
Food server	4.8	18
Bartender	5.6	21
Porter	5.6	21
Bell person	0.5	2
Cook	8.8	33
Kitchen worker	0.8	3
Laundry worker	8.3	31
Other	26.0	97
Missing	1.3	5
Depression[a]		
No (PHQ-9 < 10)	70.5	263
Yes (PHQ-9 ≥ 10)	29.5	110
Binge drinking[b]		
No	77.2	288
Yes	22.8	85

PHQ-9: Patient Health Questionnaire-9. Totals may not sum exactly to 100% because of rounding.
[a]Depression was assessed with the PHQ-9 (Kroenke et al., 2001).
[b]Binge drinking was classified as 5 or more drinks in 1 sitting during the past 30 days for men and 4 or more drinks in a sitting for women.

95%CI, 12.2–26.4), prevalence difference = 14.9% (95%CI, 5.7–24.1, $p<0.01$). Current MDD was also significantly higher among unemployed (59.6%, 95%CI, 46.9–72.4) versus currently employed (24.1%, 95%CI, 19.3–28.8) participants, prevalence difference = 35.6% (95%CI, 22.0–49.2, $p<0.001$). Binge drinking was also prevalent (22.8%, 95%CI, 18.8, 27.3), with nominally higher rates for men (28.6%, 95%CI, 20.5–36.7) versus women (20.1%, 95%CI, 15.2, 25.0, $p=0.07$). However, there were no differences in binge drinking between unemployed (22.8%, 95%CI, 11.9–33.7) and employed (22.8%, 95%CI, 18.2–27.4) participants ($p>0.99$). Depression and binge drinking estimates were virtually identical when excluding participants who completed the survey quickly, i.e., in <5 ($N=3$) or 8 min ($N=25$) (Stosic et al., 2024).

We used the Household Pulse Survey (HPS) to obtain depression prevalence estimates in Nevada (National Center for Health Statistics, 2024) during the time frame of our data collection. The HPS used the PHQ-2 to assess depression. The prevalence of depression in Nevada was 21.3% (95%CI, 16.8–26.4) during this time, whereas PHQ-2 derived current MDD in our sample was 28.7% (95%CI, 24.3–33.5). State-specific samples sizes for the HPS are unpublished, but assuming the same effective HPS sample size as our survey, this 7.4% (95%CI, 1.2–13.6) difference is statistically significant ($z=2.22$, $p=0.02$). This comparison remains statistically significant if the state sample size is as few as 223 observations ($p=0.046$). The statewide rate of current binge drinking in the 2022 Nevada Behavioral Risk Factor Surveillance System (Centers for Disease Control and Prevention, 2024) was 17.6% (95%CI, 15.5–19.6; $N=2{,}808$), whereas in our sample it was 22.8% (95%CI, 18.8–27.3). This 5.2% (95%CI, 0.7–9.7) prevalence difference was also statistically significant, $z=2.45$, $p=0.015$).

Discussion

We examined the prevalence of hazardous drinking and current major depression during the COVID-19 pandemic post-lockdown phase among leisure and hospitality industry workers who were predominantly Hispanic and Spanish speaking, all of whom completed their survey in Spanish. We found high percentages of binge drinking and major depression, with MDD especially pronounced among unemployed persons and women. Overall prevalence for both outcomes were higher than statewide estimates, revealing a substantial health burden in this understudied and vulnerable subgroup. Elevated rates of binge drinking are particularly noteworthy given that lower binge drinking has been observed among Hispanics who complete public health surveys in Spanish versus in English (Pearson et al., 2009).

Despite the elevated health risks observed here, we note that labor union membership might protect health because members had continuous full-family health insurance coverage and other support arrangements throughout the pandemic. Legal work status is also required to work in the highly regulated gaming industry, so morbidity observed in our data likely underestimates the burden among non-unionized leisure and hospitality workers.

Our use of volunteers, nonprobability sampling, and the cross-sectional design are study limitations. We could not verify the identities of participants directly, but we minimized the potential for dishonest responding by recruiting via active union member listservs, through which the union, which is a trusted information source, regularly engages with opted-in subscribers. We used a validated depression assessment and compared that assessment to statewide CDC surveys collected at the same time as our data collection, although for one of those comparisons, we had to make an assumption about the Nevada sample size. Other study features supporting data integrity include reasonable survey completion times and Nevada zip codes reported by a majority (93%) of respondents. The lack of individual financial incentives should also have minimized dishonest responding (Sosenko & Bramley, 2022).

We assessed two major chronic disease determinants identified by the CDC (www.cdc.gov/cdi), using a novel sampling strategy to access a hard-to-reach population. The observed prevalence of these outcomes, current major depression and binge drinking, reveals an important public health concern. The potential scope of this concern is suggested by the size of the industry—leisure and hospitality employed 9.9% of the US workforce in 2023 (Bureau of Labor Statistics, 2024a), and Hispanics comprise 25.9% of employees in this sector (https://www.bls.gov/cps/cpsaat18.htm). Additionally, non-unionized Hispanic workers in this industry are vulnerable due to minority status, generally lower wages, and fewer job protections, in contrast to the unionized workers in our sample who enjoy higher wages and have job protections. Thus, these data provide a unique snapshot of health risk within an important but rarely studied demographic sampled from a large, diverse Nevada labor union. We speculate that our sample is reasonably representative of the Hispanic and predominantly Spanish-speaking leisure and hospitality workforce in Nevada, a workforce which is somewhat unique in the U.S. Future research that embeds health research, engagement, and education, and incorporates the numerous other languages spoken by workers in this industry would improve understanding of health risks and inform prevention efforts for leisure and hospitality workers.

Declaration of interest

The authors declare that they have no conflict of interest. The authors alone are responsible for the content and writing of the article.

Funding

This work was funded by Max de Montel Williamson Memorial Fund at Northern Arizona University.

ORCID

Steven D. Barger http://orcid.org/0000-0002-8296-0974
Sumner J. Sydeman http://orcid.org/0000-0001-8599-2333

Data availability statement

The consent form did not have a provision for data sharing, so these data are not available to members outside of the research team.

References

Bohm, M. K., Liu, Y., Esser, M. B., Mesnick, J. B., Lu, H., Pan, Y., & Greenlund, K. J. (2021). Binge drinking among adults, by select characteristics and state—United States, 2018. *MMWR. Morbidity and Mortality Weekly Report*, *70*(41), 1441–1446. https://doi.org/10.15585/mmwr.mm7041a2

Bureau of Labor Statistics (2023). *Labor force statistics from the current population survey*. Retrieved September 20, 2024, from https://www.bls.gov/cps/cpsaat18.htm

Bureau of Labor Statistics (2024a). *Employment by major industry sector*. U.S. Bureau of Labor Statistics. Retrieved October 11, 2024, from https://www.bls.gov/emp/tables/employment-by-major-industry-sector.htm

Bureau of Labor Statistics (2024b). *Labor force statistics from the current population survey*. Retrieved September 20, 2024, from https://data.bls.gov/timeseries/LNU04032241?amp%253bdata_tool=XGtable&output_view=data&include_graphs=true

Centers for Disease Control and Prevention (2024). *BRFSS web enabled analysis tool*. Retrieved September 20, 2024 from https://nccd.cdc.gov/weat/#/

Czeisler, M. É., Lane Rashon, I., Petrosky, E., Wiley, J. F., Christensen, A., Njai, R., Weaver, M. D., Robbins, R., Facer-Childs, E. R., Barger, L. K., Czeisler, C. A., Howard, M. E., & Rajaratnam, S. M. W. (2020). Mental health, substance use, and suicidal ideation during the COVID-19 pandemic—United States, June 24–30, 2020. *MMWR. Morbidity and Mortality Weekly Report*, *69*(32), 1049–1057. https://doi.org/10.15585/mmwr.mm6932a1

Esser, M. B., Sherk, A., Liu, Y., & Naimi, T. S. (2024). Deaths from excessive alcohol use—United States, 2016–2021. *MMWR. Morbidity and Mortality Weekly Report*, *73*(8), 154–161. https://doi.org/10.15585/mmwr.mm7308a1

Falk, G., Carter, J., Nicchitta, I., Nyhof, E., & Romero, P. (2021). *Unemployment rates during the COVID-19 pandemic: In brief* (R46554). Congressional Research Service. https://crsreports.congress.gov/product/pdf/R/R46554/9

Hsieh, Y.-C., Apostolopoulos, Y., & Sönmez, S. (2016). Work conditions and health and well-being of Latina hotel housekeepers. *Journal of Immigrant and Minority Health*, *18*(3), 568–581. https://doi.org/10.1007/s10903-015-0224-y

Kim, P. C., Cochran, C., Bai, B., Bhandari, N., Khan, B., Keyoung, E. S., & Shen, J. J. (2024). Increasing emotional distress and use of health services among hospitality industry workers during and after the COVID-19 lockdown. *Ethnicity & Disease*, *34*(2), 75–83. https://doi.org/10.18865/ed.34.2.75

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Mangot-Sala, L., Smidt, N., & Liefbroer, A. C. (2022). Disentangling the association between alcohol consumption and employment status: Causation, selection or confounding? *European Journal of Public Health*, *32*(6), 926–932. https://doi.org/10.1093/eurpub/ckac141

McHugh, R. K., & Weiss, R. D. (2019). Alcohol use disorder and depressive disorders. *Alcohol Research: Current Reviews*, *40*(1), 01. https://doi.org/10.35946/arcr.v40.1.01

National Center for Health Statistics (2024). U.S. Census Bureau, Household Pulse Survey, 2020–2024. Anxiety and Depression (July 27–August 8, 2022). Retrieved February 28, 2024, from https://www.cdc.gov/nchs/covid19/pulse/mental-health.htm

Paul, K. I., & Moser, K. (2009). Unemployment impairs mental health: Meta-analyses. *Journal of Vocational Behavior*, *74*(3), 264–282. https://doi.org/10.1016/j.jvb.2009.01.001

Pearson, W. S., Dube, S. R., Nelson, D. E., & Caetano, R. (2009). Differences in patterns of alcohol consumption among Hispanics in the United States, by survey language preference, Behavioral Risk Factor Surveillance System, 2005. *Preventing Chronic Disease*, *6*(2), A53. https://www.ncbi.nlm.nih.gov/pubmed/19288996

Puddephatt, J. A., Irizar, P., Jones, A., Gage, S. H., & Goodwin, L. (2022). Associations of common mental disorder with alcohol use in the adult general population: A systematic review and meta-analysis. *Addiction*, *117*(6), 1543–1572. https://doi.org/10.1111/add.15735

Rosemberg, M. S., Adams, M., Polick, C., Li, W. V., Dang, J., & Tsai, J. H. (2021). COVID-19 and mental health of food retail, food service, and hospitality workers. *Journal of Occupational and Environmental Hygiene*, *18*(4–5), 169–179. https://doi.org/10.1080/15459624.2021.1901905

Rosemberg, M. S., Boutain, D. M., & Hsin-Chun Tsai, J. (2021). Occupational health research beyond the work setting: Inclusive inquiry with ethnic minority and immigrant workers. *Ethnicity & Health*, *26*(8), 1242–1260. https://doi.org/10.1080/13557858.2019.1612517

Sacks, J. J., Gonzales, K. R., Bouchery, E. E., Tomedi, L. E., & Brewer, R. D. (2015). 2010 national and state costs of excessive alcohol consumption. *American Journal of Preventive Medicine*, *49*(5), e73–e79. https://doi.org/10.1016/j.amepre.2015.05.031

Sönmez, S., Apostolopoulos, Y., Lemke, M. K., & Hsieh, Y.-C. (2020). Understanding the effects of COVID-19 on the health and safety of immigrant hospitality workers in the United States. *Tourism Management Perspectives*, *35*, 100717. https://doi.org/10.1016/j.tmp.2020.100717

Sosenko, F. L., & Bramley, G. (2022). Smartphone-based respondent driven sampling (RDS): A methodological advance in surveying small or 'hard-to-reach' populations. *PLOS One*, *17*(7), e0270673. https://doi.org/10.1371/journal.pone.0270673

Stosic, M. D., Murphy, B. A., Duong, F., Fultz, A. A., Harvey, S. E., & Bernieri, F. (2024). Careless responding: Why many findings are spurious or spuriously inflated. *Advances in Methods and Practices in Psychological Science*, *7*(1), 25152459241231581. https://doi.org/10.1177/25152459241231581