



# Associations between Binge Drinking and Disproportionate Overnight Hospital Admissions and Costs



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## Introduction

- 21.7 % of adults in the U.S. report binge drinking in the past month, the most common pattern of excessive alcohol use in the U.S. causing over 178,000 deaths every year (NIAAA, n.d)
- Excessive drinking cost the U.S. economy about \$249 billion annually, with 77% of costs being attributed to binge drinking (CDC, 2023)
- Lifestyle-related medical expenditures are a considerable proportion of total spending for individuals with alcohol-attributable diagnoses. Individuals spend an additional \$14,918 per year with commercial insurance (Ozluk, Cobb, Sylwestrzak, Raina, & Bailly, 2022)

## Research Questions

- How does the prevalence of binge drinking correlate with disproportionate rates of medical resource use through the model of overnight hospital admissions?
- What are the healthcare cost differences between heavy binge drinkers, moderate binge drinkers and low binge drinkers?
- What demographic factors show a higher rate of hospital admissions in binge drinkers?

## Methods

### Sample

- The sample (n>70,000) was pulled from the 2024 National Survey for Drug Use and Health (NSDUH), an annual nationally representative sample of non-institutionalized and civilian population (12+).
- Study focuses on adolescents and adults meeting the study's criteria for binge alcohol use.

### Measures

- Binge drinking was characterized as drinking five or more drinks on the same occasion for males or four or more drinks on the same occasion for females, as per the CDC definition. A lifetime incidence of binge drinking was coded as a binary category (yes/no) ("Have you ever had 4/5 or more drinks on the same occasion?").
- A variable reflecting quantity of binge drinking was created by assigning a high, moderate to high, moderate, low and very low level of binge drinking in a month.

## Results

### Bivariate

- ANOVA test results showed that those who have experienced even a single incidence of binge drinking in their lifetime spend a higher number of nights admitted in the hospital ( $p=3.81 \times 10^{-4}$ )
- Additionally, those with a higher volume of binge drinking incidence have significantly higher healthcare costs due to increased overnight in hospitals ( $p = 8.34 \times 10^{-6}$ ).

### Multivariate

- Linear regression analysis show that lifetime binge drinking ( $\beta=0.0605$ ,  $p=3.81 \times 10^{-4}$ ) was significantly and positively associated with the number of nights spent at the hospital
- Individuals who have a single incidence of binge drinking in their lifetime spend on average 0.0605 more nights in the hospital in a 30-day period.
- When controlling for income, sex, nicotine dependence and drug abuse, the relationship between nights spent at hospital and lifetime binge drinking is not significant ( $p=9.16 \times 10^{-2}$ ) despite it being significant when controlling individually for all confounders except drug abuse. (See Fig. 1)
- Linear regression analysis suggests that binge drinking intensity is associated with differences in individual healthcare costs. Higher-intensity binge drinking patterns are linked to higher annual costs compared with lower-intensity /non-binge drinking patterns. (See Fig. 2)

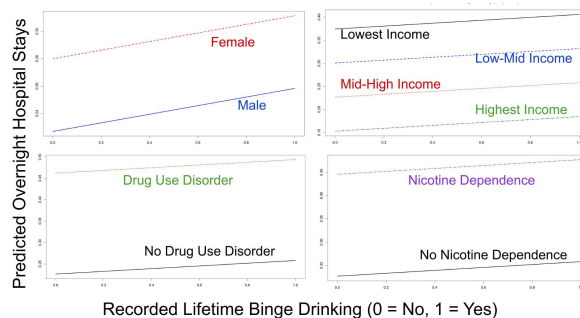


Figure 1: Linear Regression Plot for Recorded Lifetime Binge Drinking against Nights Admitted in Hospital accounting for Moderating Variables

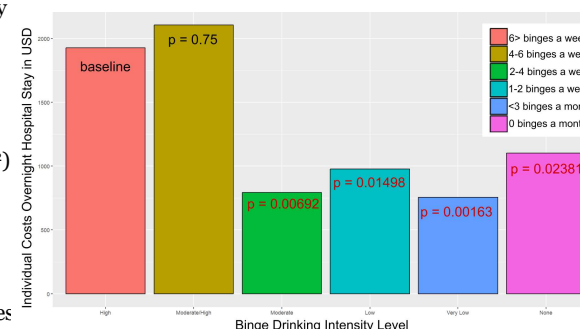


Figure 2: Box Plot for Binge Drinking Intensity Level against Yearly Overnight Hospital Costs with corresponding significance

## Discussion

- Linear regression analyses show that whether someone has binged in their lifetime or not is not significantly associated with increased overnight hospital admissions.
- Binge drinking intensity is significantly associated with healthcare spending. Compared with individuals in the high-intensity binge drinking group, those with very low or no binge drinking incurred around \$800–\$1,200 less per year in overnight hospital stay costs.
- These findings may emphasize that personal healthcare cost and overall hospital burden is substantially higher for individuals who have a high level of binge drinking, highlighting the public health concern of high-risk drinking behaviors, and the opportunity cost of resource-intensive patient care protocols for conditions caused by intense and frequent binge drinking.

## References

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