

# **ANA 625: CATEGORICAL DATA METHODS**

**Heavy Alcohol Drinking and Heart  
Disease**

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# Objective

Heavy Alcohol Drinking and Heart Disease by Magnus Aghe



- This study explores the association between **heart disease** and **heavy alcohol drinking**, controlling for age, sex, exercise, race, general health and smoking.

# Background

**Every 33 seconds**, one person dies from heart disease in the United States (CDC).

It is the **leading** cause of death in the United States, affecting most racial groups and genders.

**54%** of heart disease deaths in 2021 were from coronary heart disease (CHD).

Studies show that excessive alcohol use appears to be one of the **risk factors** of heart disease.

But just **how much risk** is associated with excessive alcohol consumption?

**Excessive alcohol drinking** is an umbrella term that includes binge drinking, **heavy drinking**, and drinking by pregnant women or people younger than age 21.

Heavy alcohol consumption (**4 or more standard drinks per day**) is associated with detrimental effects (Piano, 2017).

**Heart disease** arising from long term excessive alcohol use include myocardial infarctions, alcoholic cardiomyopathy, arrhythmias, and coronary heart disease. (JOHN HOPKINS MEDICINE)

# Hypothesis

## NULL HYPOTHESIS:

**There is no relationship between heavy alcohol drinking and heart disease.**



# Methods

## POPULATION OF INTEREST

- All adults aged 18-99 in the United States.

## POPULATION SAMPLE DATA SOURCE

- Behavioral Risk Factor Surveillance System (BRFSS) - 2021
- The BRFSS, conducted by the CDC, is a system of health-related telephone surveys that collect state data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services.
- BRFSS 2021 Sample Size: 438,693
- Complete Case Sample Size: 387,171 (88.3%)

# Methods

## Model

***HEARTDISEASE = f (H\_DRINK, AGE CAT, SEX, EXERCISE, RACE, GENERALHEALTH, SMOKE)***

## Variables

- **Outcome:** Presence of Heart Disease (HEARTDISEASE) [Yes/No]=[1/0]
- **Exposure:** Heavy Drinking (H\_DRINK) [Yes/No]=[1/0]
- **Control:** Age (AGECAT) [18-34,35-54,55+]=[1,2,3]  
Sex (SEX) [Female/Male]=[1/0]  
Exercise (EXERCISE) [No/Yes]=[1/0]  
Race (RACE) [White, Non-Hispanic; Black, Non-Hispanic; Other/Multiracial, Non-Hispanic; Hispanic]=[4/3/2/1]  
Smoker (SMOKE) [Everyday, Somedays, Former, Never]=[4/3/2/1]  
General Health (GENERALHEALTH) [Excellent or Very Good; Good; Fair or Poor]=[1/2/3]

## Statistical Approach

- Pearson chi-squared (association)
- Logistic regression (association and magnitude OR)

# Citations

Centers for Disease Control and Prevention (May 2023). Heart Disease Facts.  
<https://www.cdc.gov/heartdisease/facts.htm#:~:text=Heart%20disease%20is%20the%20leading,groups%20in%20the%20United%20States.&text=One%20person%20dies%20every%2033,United%20States%20from%20cardiovascular%20disease.&text=About%20695%2C000%20people%20in%20the,1%20in%20every%205%20deaths.>

Piano, M.R., (2017). Alcohol's Effects on the Cardiovascular System.  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5513687/>

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<https://www.cdc.gov/alcohol/features/excessive-drinking.html>

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**QUESTIONS?**

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# Thank you!