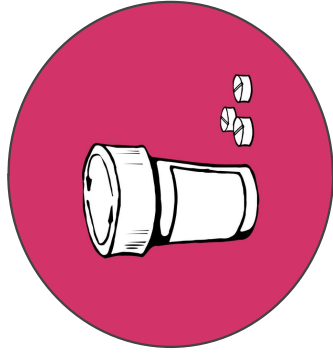




# Drug Overdose Deaths and Alcohol Impaired Driving Deaths

Dennis Campoverde-Lema, Samantha Parras, and Jodie Chen

# Alcohol and Drug Problems in the USA



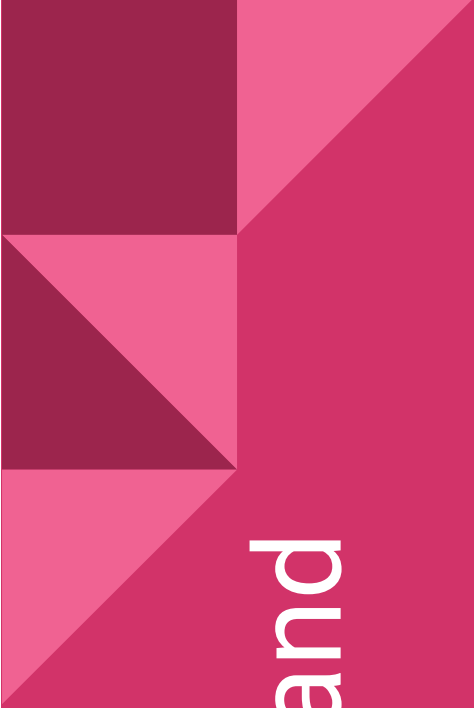
**In 2022, 107,941 drug overdose deaths occurred**

Source: <https://www.cdc.gov/>



**Every day, about 37 people in the United States die in drunk-driving crashes – that's one person every 39 minutes.**

Source: <https://www.nhtsa.gov>



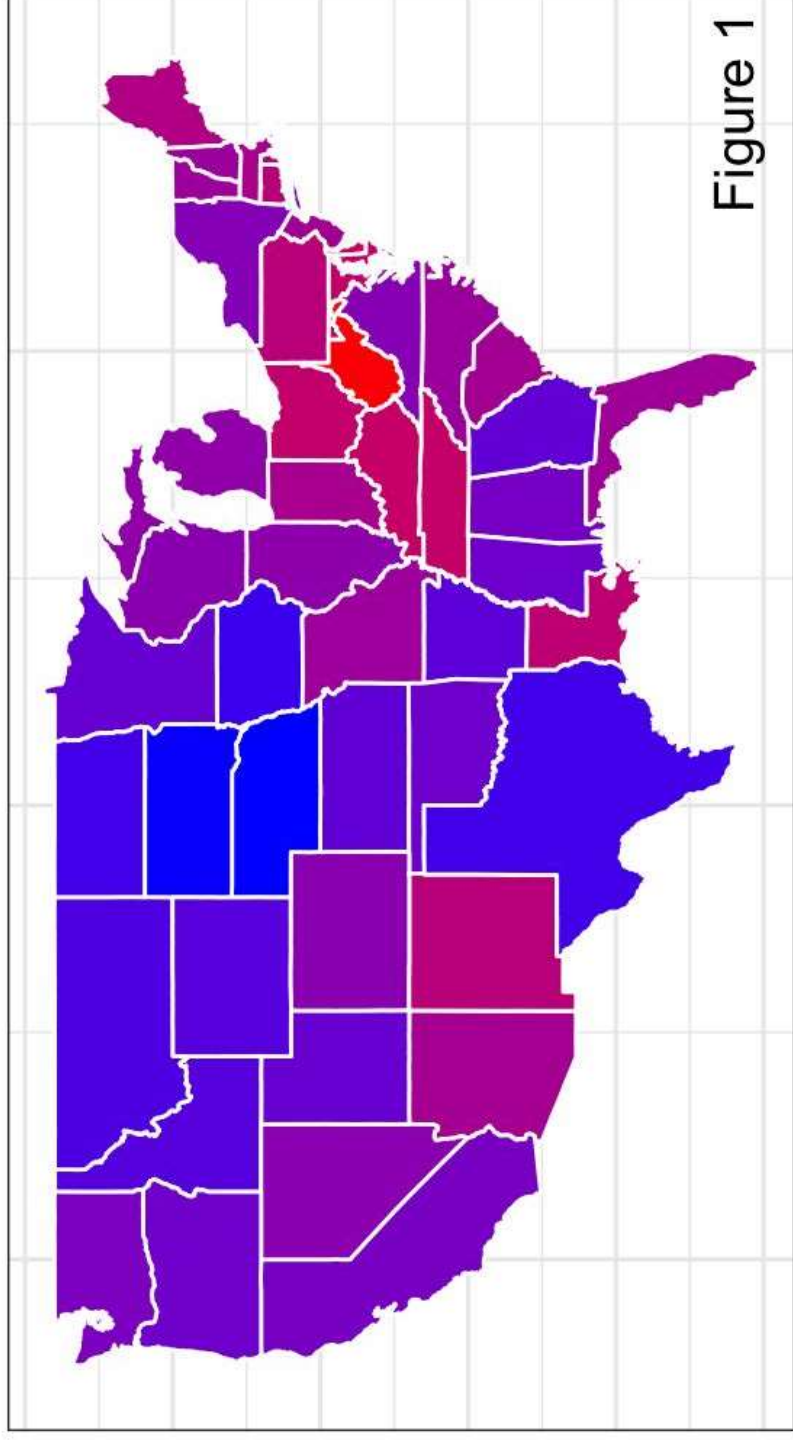
Are there demographic and social factors that are predictors of drug overdose deaths and alcohol-related incidents deaths(e.g., driving accidents)?

# Data

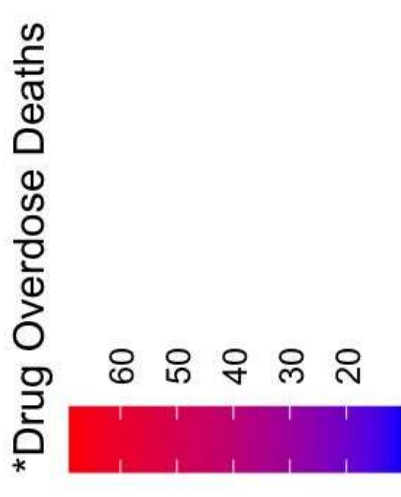
- **Source:** 2024 County Health Rankings
- **Response Variables:** Drug Overdose Deaths and Alcohol Impaired Driving Deaths
- **Social Factors:**
  - Unemployment
  - Median Income
  - Disconnected Youth
  - Social Associations
  - High School Graduation
- **Demographic Factors:**
  - 65 and older
  - Female
  - Non Hispanic Black
  - Alaska Native/ Native American

# West Virginia Leads US in Drug Overdose

## Drug Overdose Deaths by State

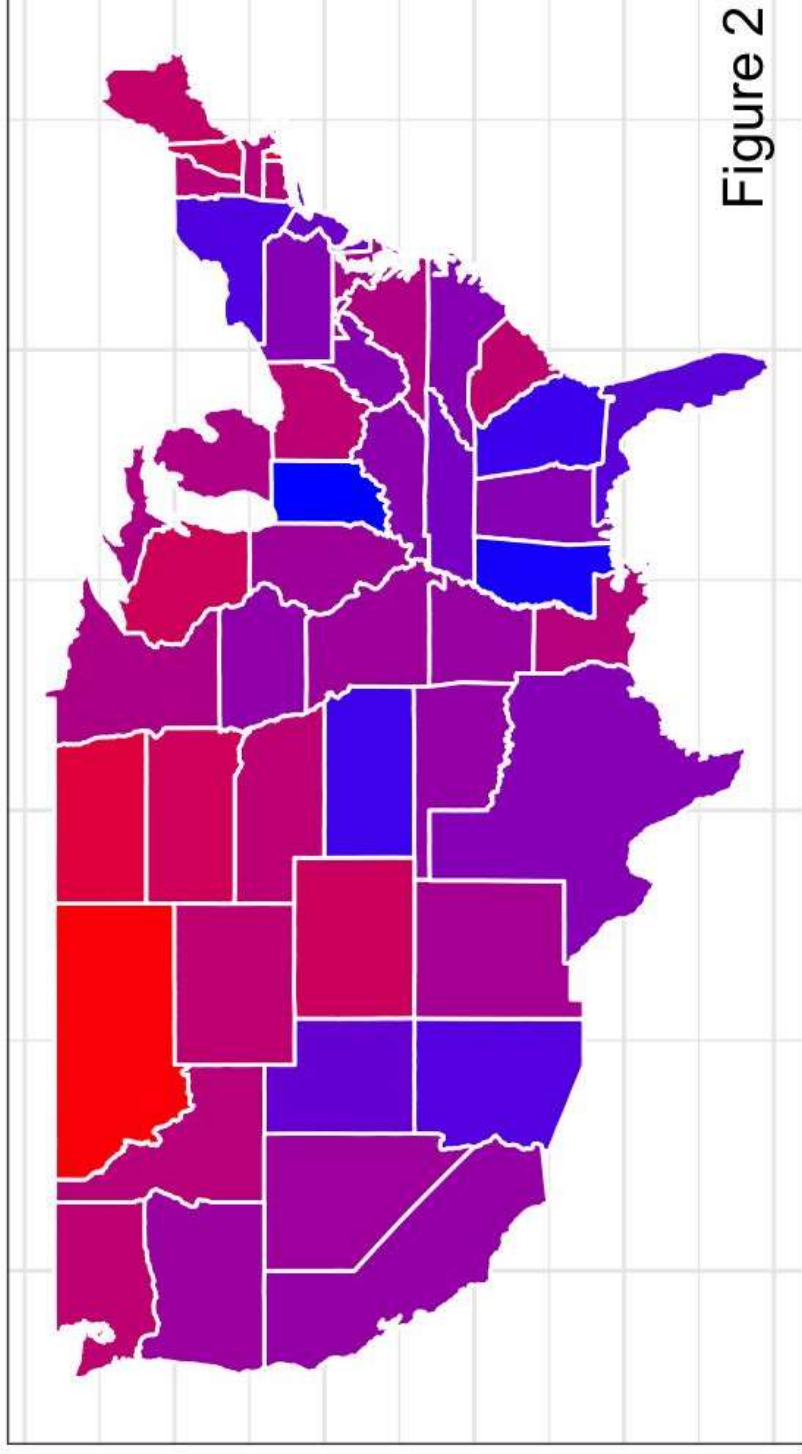


*\*Per 100,000 population*



# Montana baby are you good...

# Alcohol Impaired Driving Deaths by State



\*Percentage of motor vehicle crash deaths with alcohol involvement.

### \*Alcohol Driving Deaths

45%

40%

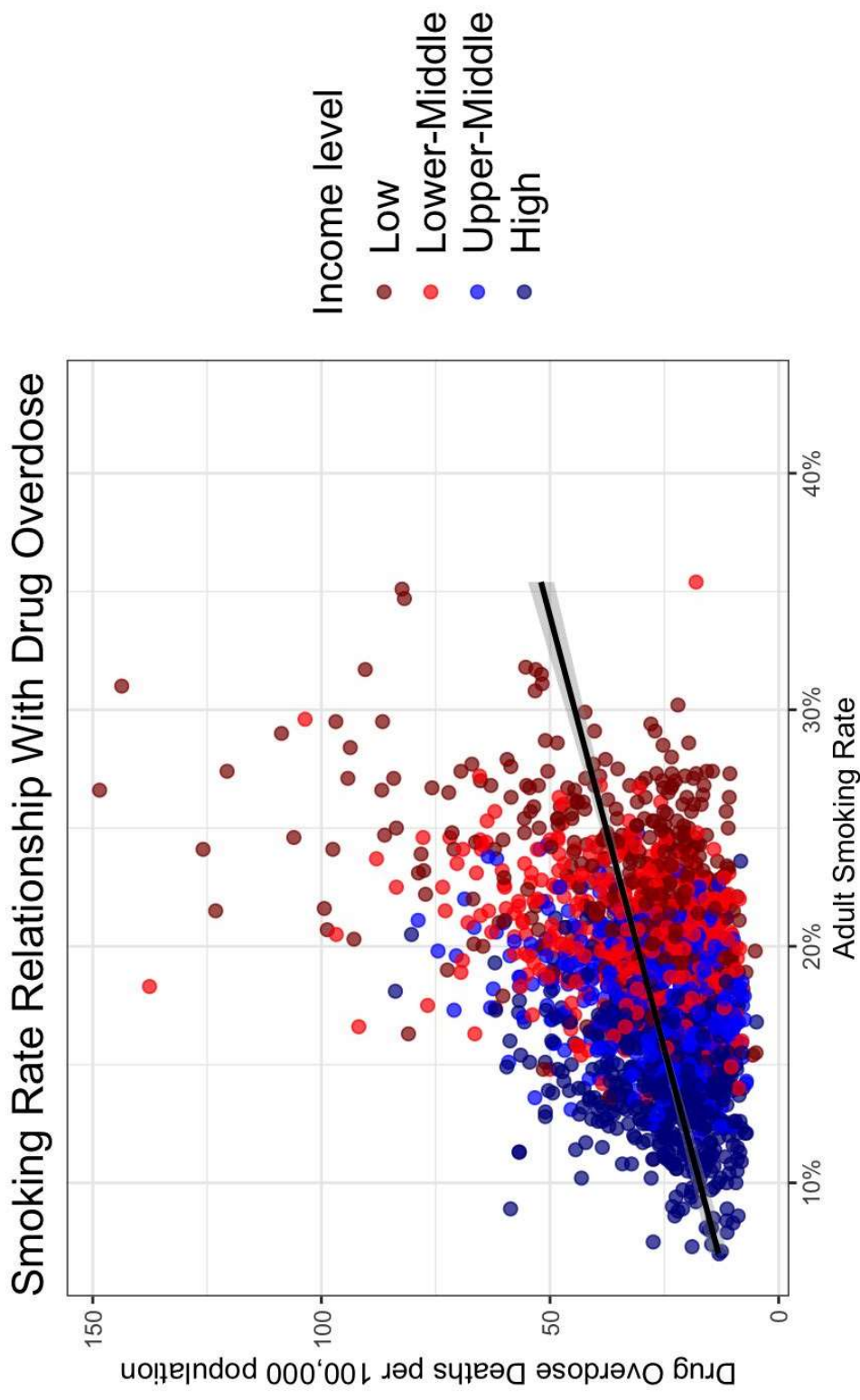
35%

200%

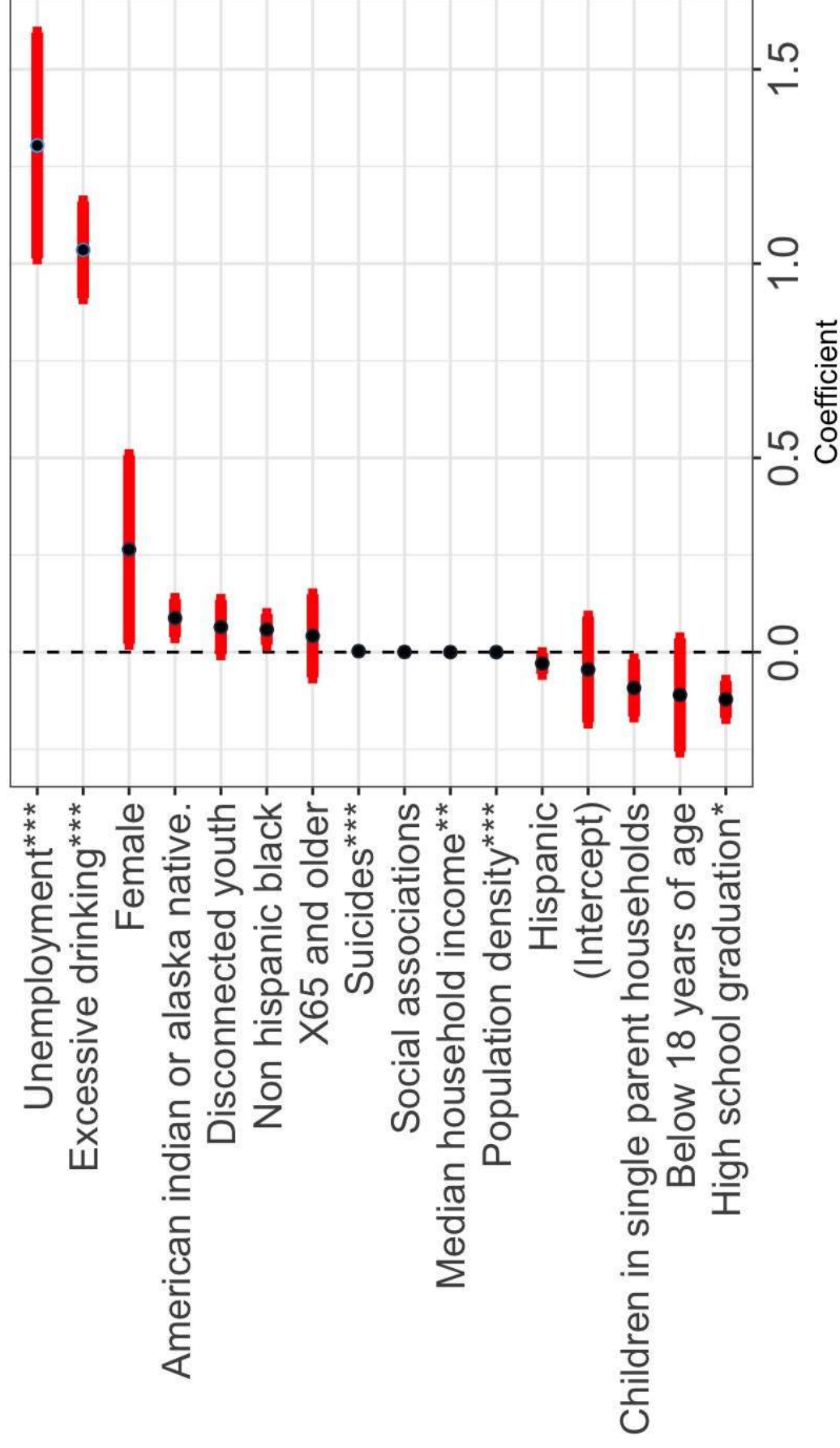
050/

3

# There is a link between higher adult smoking rates and increased drug overdose deaths

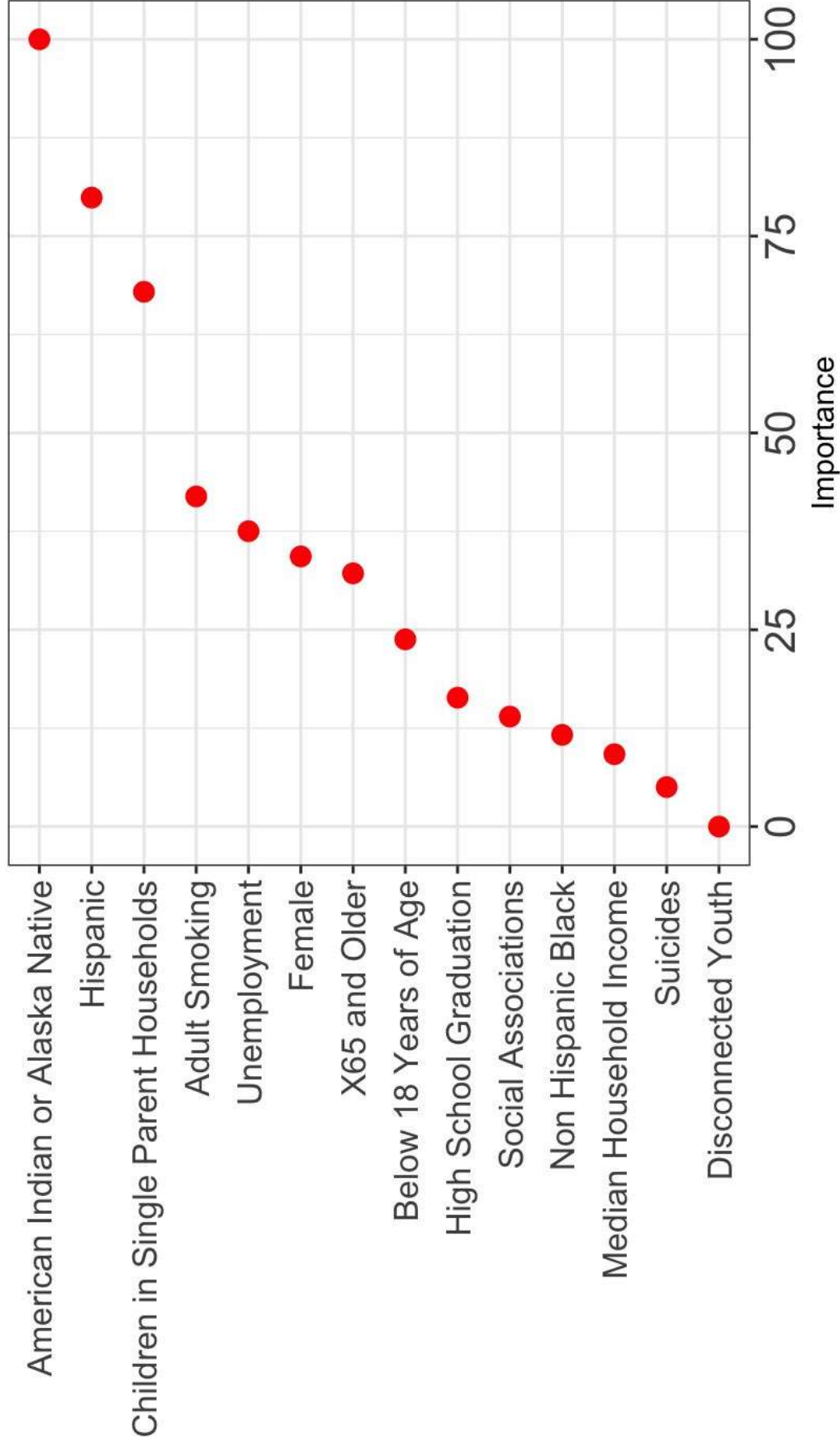


Linear Model for Alcohol Impaired Driving Deaths

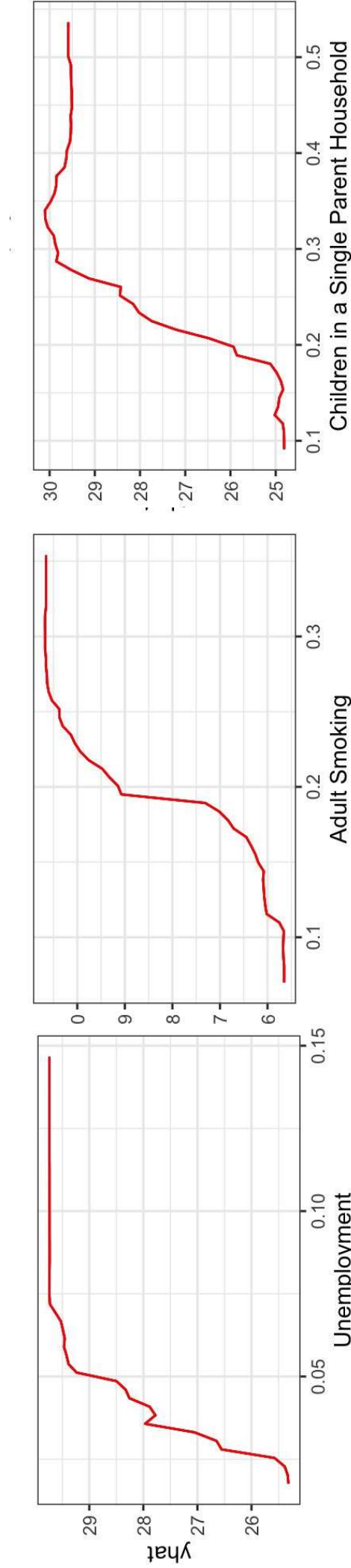




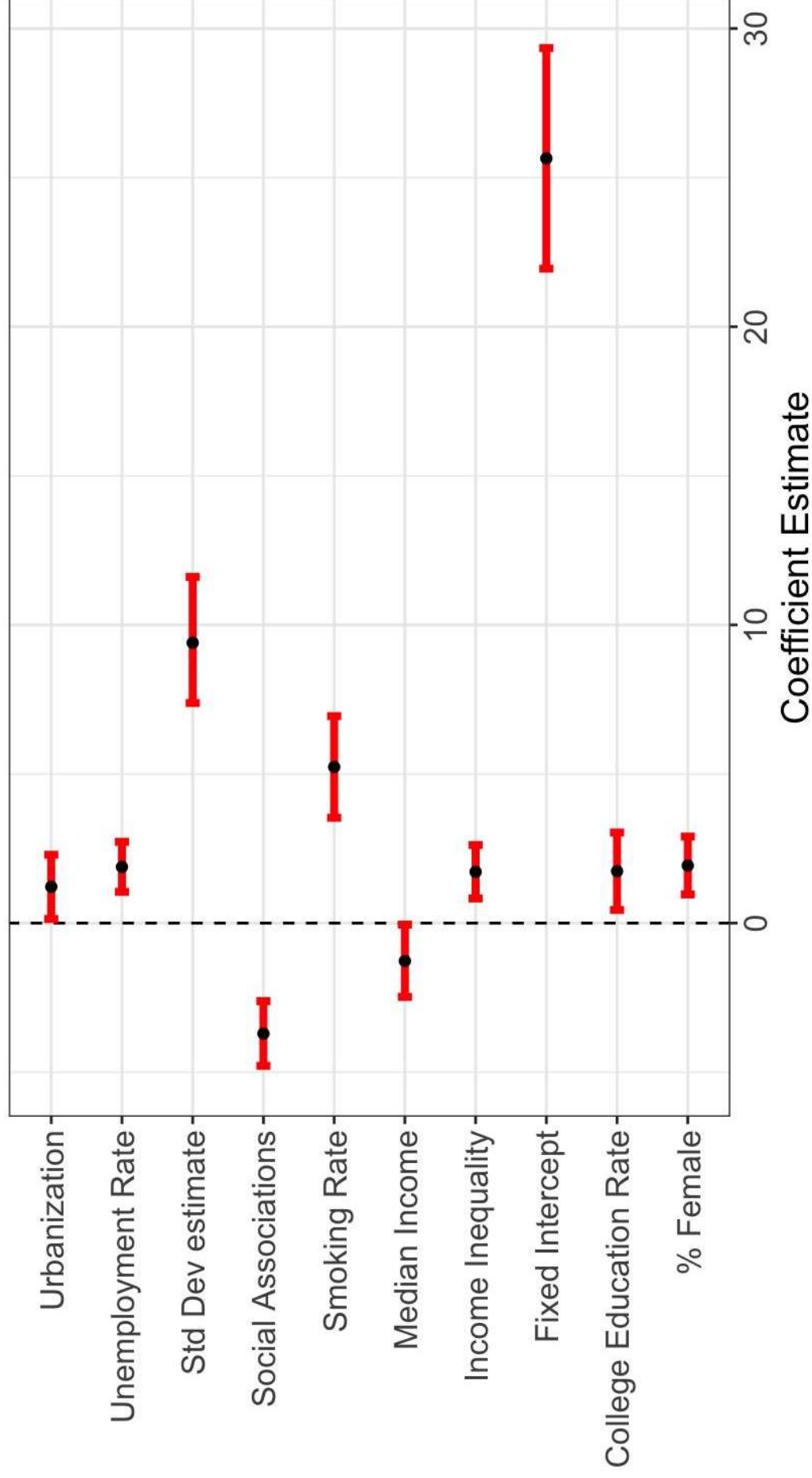
Random Forest Model for Drug Over Dose Deaths



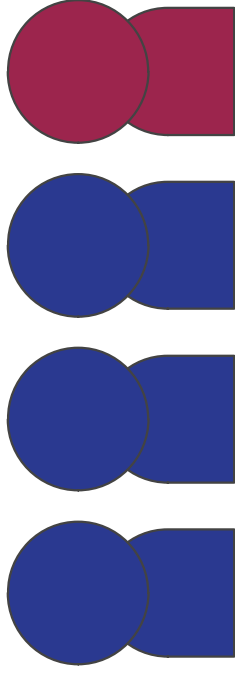
# Top Predictors



Random Intercept Linear Model for Drug Overdose Deaths



# Unemployment is a Risk Factor for Substance Abuse



**27.9% of unemployed Americans had substance use disorder in 2022.**

Source: American Addiction Center

## Potential Solutions

- Career pathways programs
- Summer youth employment programs

# Discussion

## Summary:

- Drug overdoses and alcohol-impaired driving deaths have social predictors, but the data doesn't support any demographic predictors.

## Future Direction:

- Utilize methods like k-nearest neighbors (KNN) or state-based grouping for filling in missing data.
- Analysis on predictors to decrease rising unemployment.

## Limitations:

- Lots of missing data