

opioIDENTITY of America

Ashira Mawji, Alison Ortiz Dimas, Chae Young Seo

Professor Katherine Correia, Assistant Professor of Statistics

Amherst College



The Opioid Crisis: Defying Gravity

“a public health emergency”

Economic cost of **\$504 billion** in a year (2015)

42,249 deaths from opioid-related overdoses (2016-17)

2.1 million people with opioid *use* disorders (2016-17)



Game Plan: Operation Overlooked

Identify overlooked variables

Evaluate their relationship with the opioid crisis

Analyze their effect on specific subpopulations



Step 1: Identify overlooked variables

- ▶ Political party in power (proportions of Democratic/Republican representatives in the House of Representative)
- ▶ Altitude (feet)
- ▶ Minimum wage (USD)
- ▶ Veterans: total (count), disabled (%), unemployed (%), impoverished (%)
- ▶ Veterinarians (count)



Step 2: Evaluate their potential influence on the opioid crisis

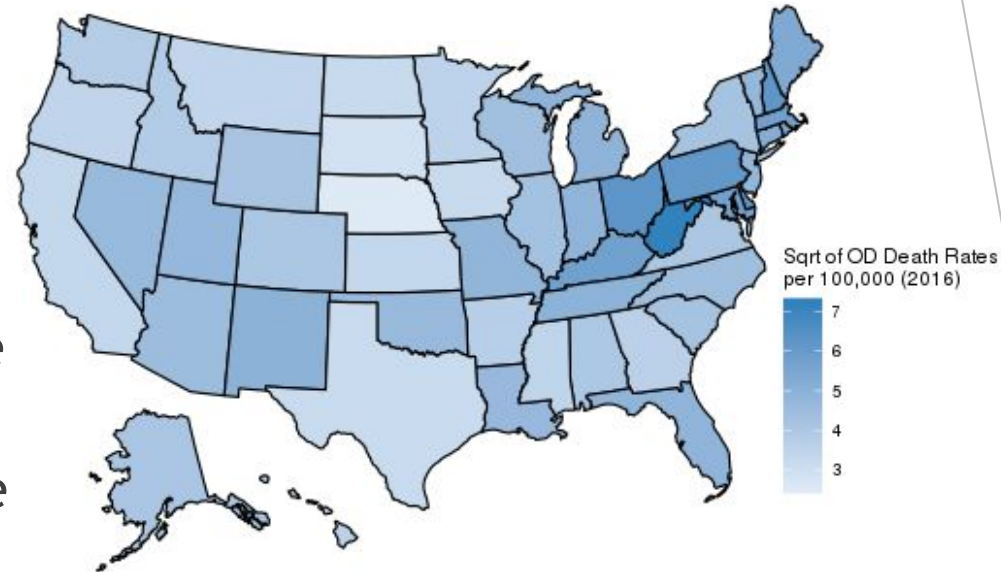
- ▶ Political party in power → how state government is managing opioid crisis based on the dominant political ideologies
- ▶ Altitude → respiratory depression (direct cause of opioid-related deaths)
- ▶ Minimum wage → ability to purchase opioids
- ▶ Veterans: disabled, unemployed, impoverished → source of prescription opioids
- ▶ Veterinarians → source of synthetic opioids



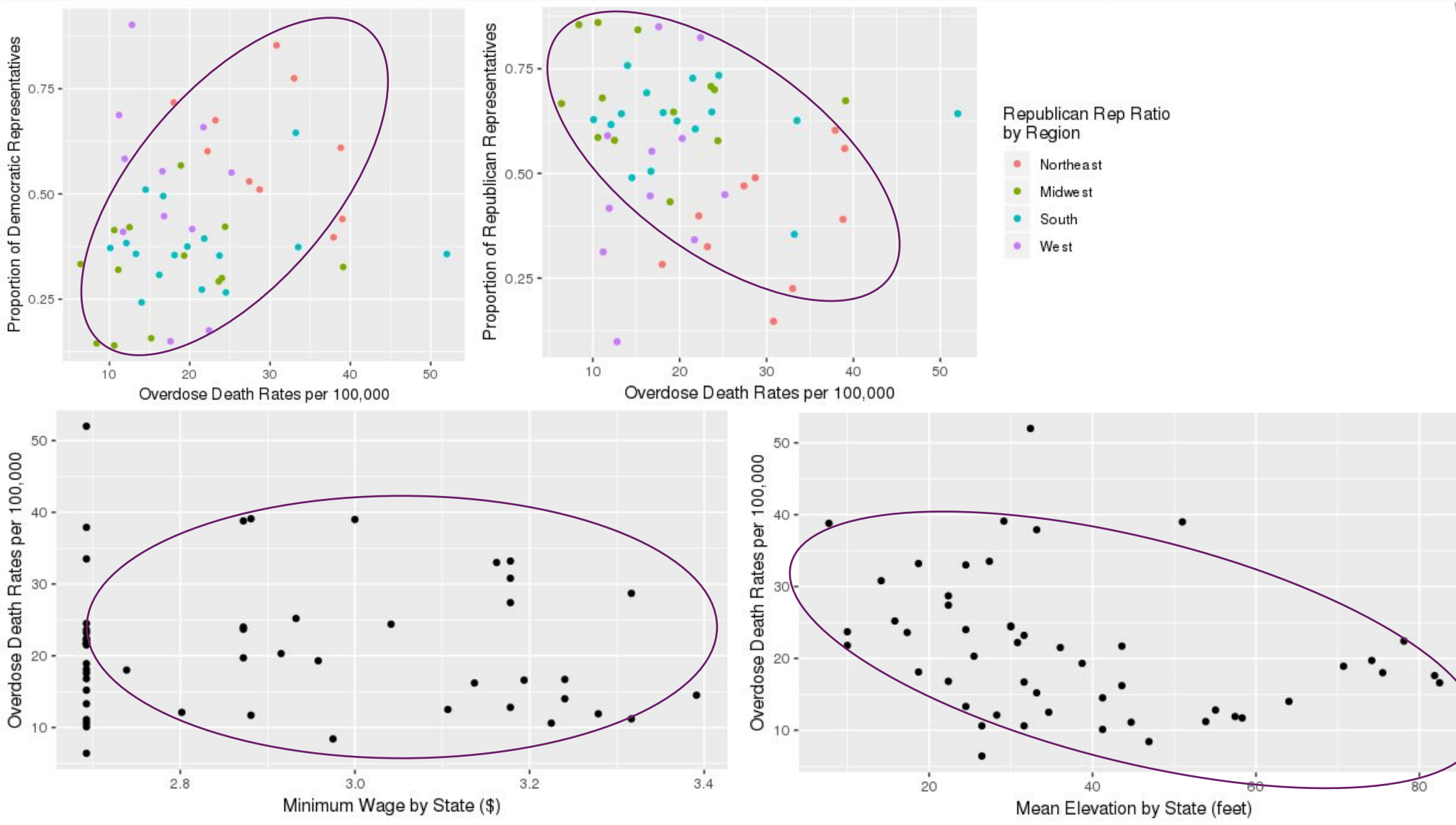
Step 3: Analyze their effect on the opioid crisis by state

Correlation with:

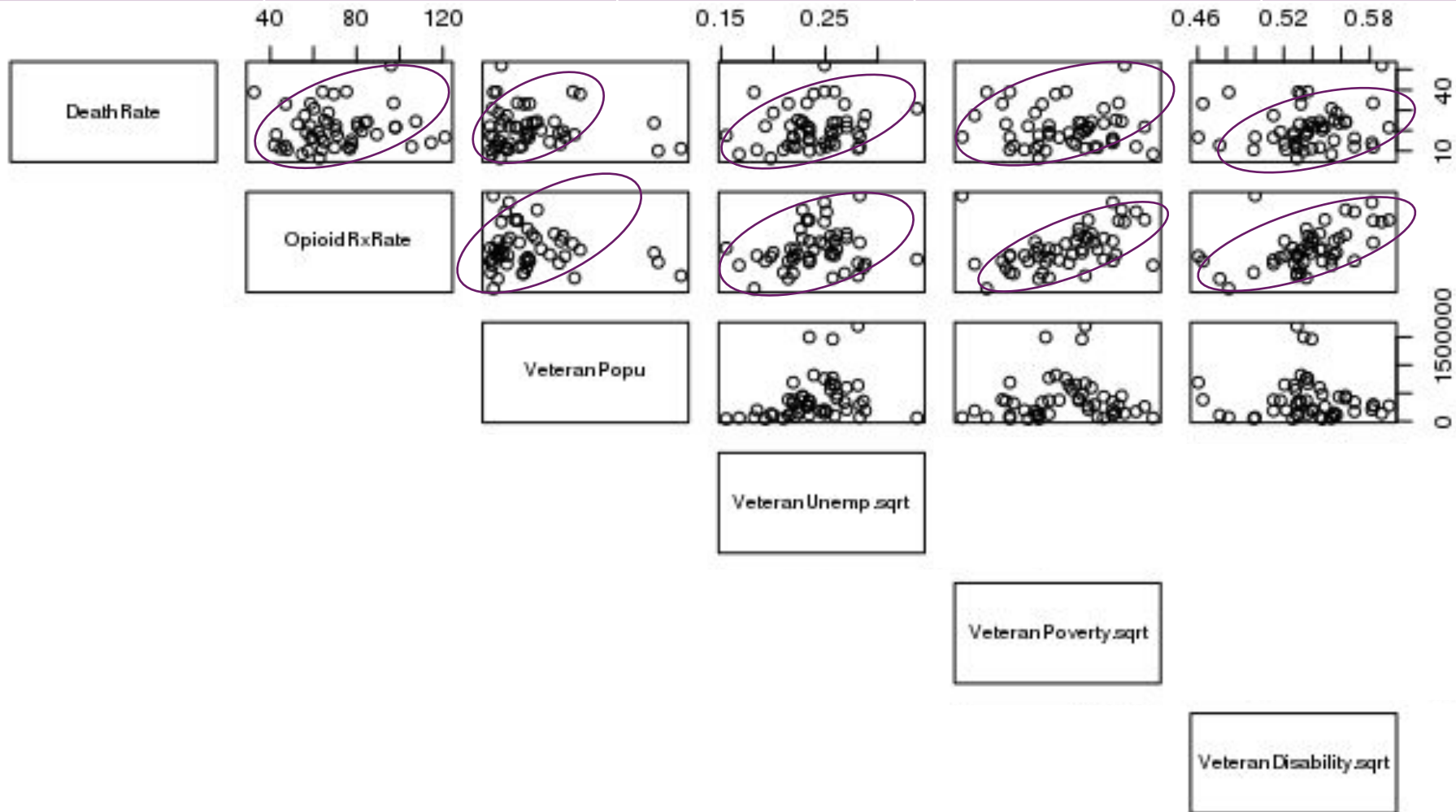
- ▶ Total overdose death rate (per 100,000 people)
- ▶ Opioid-related overdose death rate (per 100,000 people)
- ▶ Heroin-related overdose death rate (per 100,000 people)
- ▶ Synthetic opioid-related death rate (per 100,000 people)
- ▶ Opioid prescription rate (per 100 people)



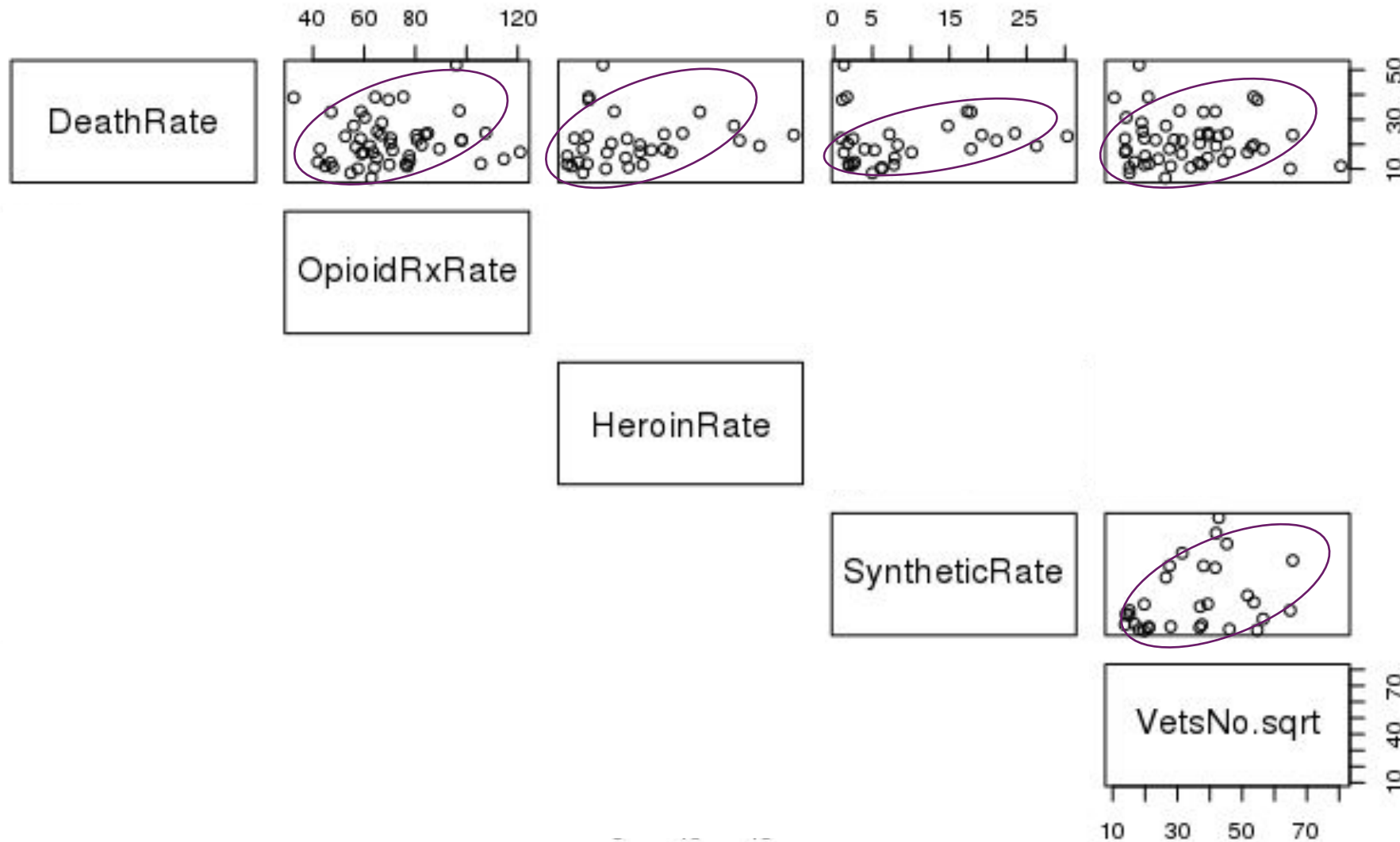
| CORRELATION (R) | Democrats (Proportion) | Republicans (Proportion) | Altitude | Minimum Wage |
|-----------------------|------------------------|--------------------------|------------|--------------|
| Opioid-Related Deaths | 0.1792301 | -0.1792301 | -0.3174252 | -0.07884835 |



| CORRELATION (R) | Prescription Opioid-Related Deaths | Total Veterans | Unemployed Veterans | Impoverished Veterans | Disabled Veterans |
|-----------------------|------------------------------------|----------------|---------------------|-----------------------|-------------------|
| Opioid-Related Deaths | 0.09874413 | -0.07493056 | 0.1713344 | -0.05005902 | 0.0859443 |



| CORRELATION (R) | Prescription Opioid-Related Deaths | Heroin-Related Deaths | Synthetic-Related Deaths | Veterinarians |
|-----------------------|------------------------------------|-----------------------|--------------------------|---------------|
| Opioid-Related Deaths | 0.1331886 | 0.1331886 | 0.09112659 | -0.0716207 |



INFORMED RECOMMENDATIONS

