

The Rise of Sedentary Lifestyle and Alzheimer's Disease Incidence: Avoiding a Wall-E Future

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Rationale

- By **2050**, the number of people age 65 and older with **Alzheimer's dementia** is projected to reach **12.7 million**.
- **Sixth** leading cause of death in the United States
- Regular **physical activity** reduced the risk of developing Alzheimer's disease by **45%** (Hamer, M. and Chida, Y., 2009).

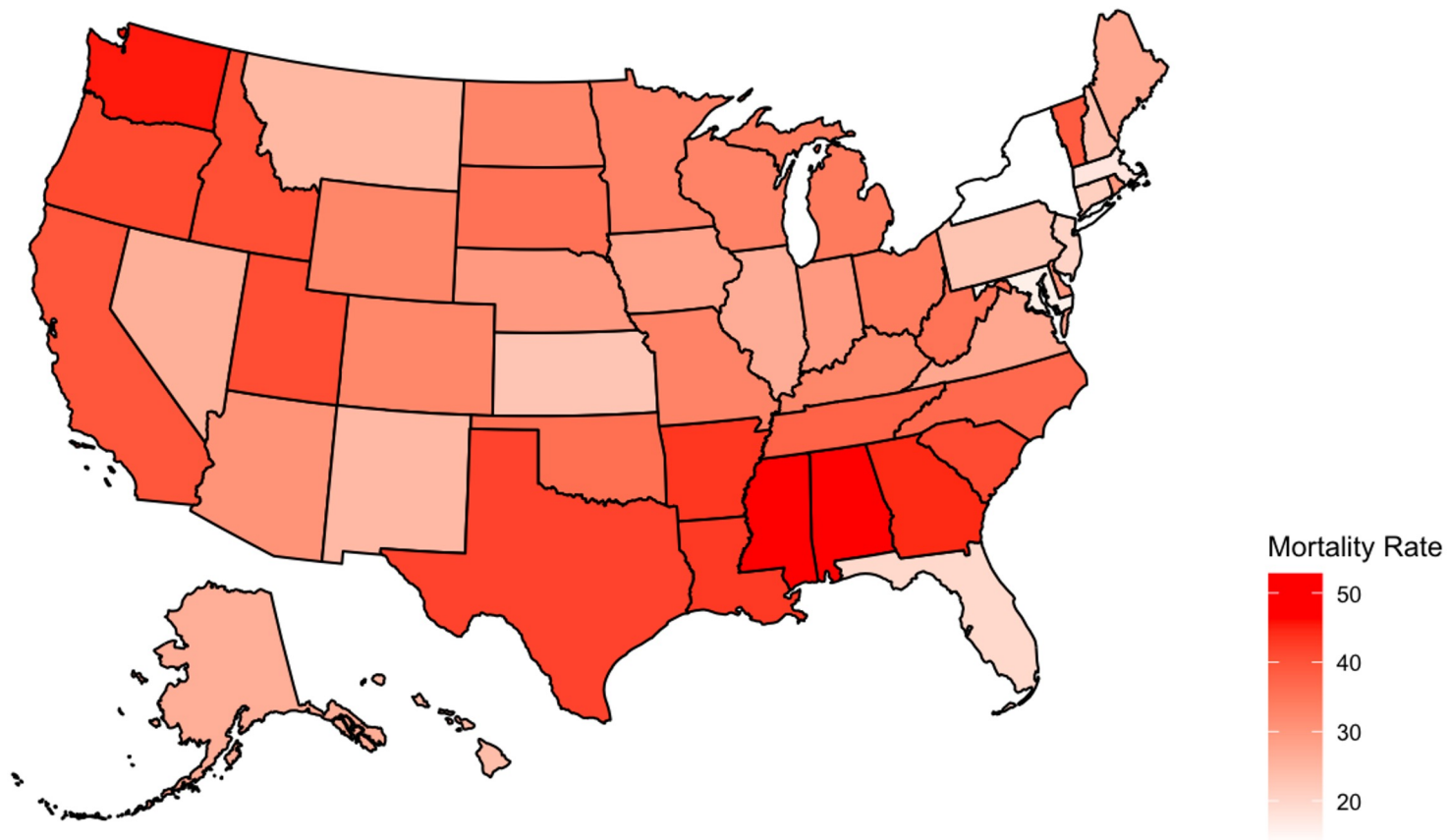
Research Questions

- Do states with a higher percentage of commuters that bike or walk to work have a lower rate of Alzheimer's disease mortality?
- What factors of physical health, like obesity and physical activity, are associated with Alzheimer's mortality rates?
- Interaction?

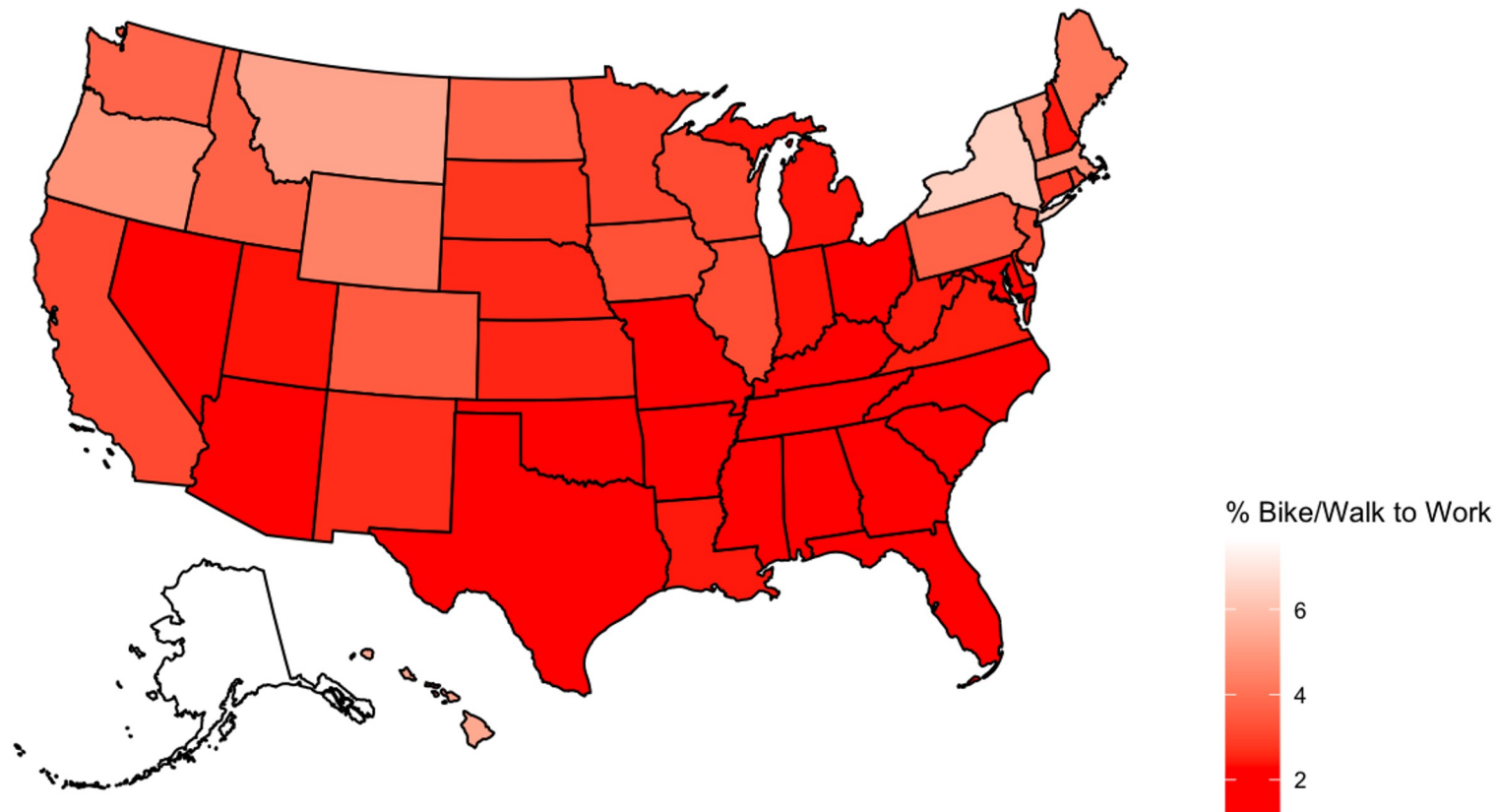
Data

- **Alzheimer's mortality rates** were adjusted according to age distribution and population size
- Commuter data from the **United States Census**
- Obesity, physical activity, and Alzheimer's mortality data from the **CDC**

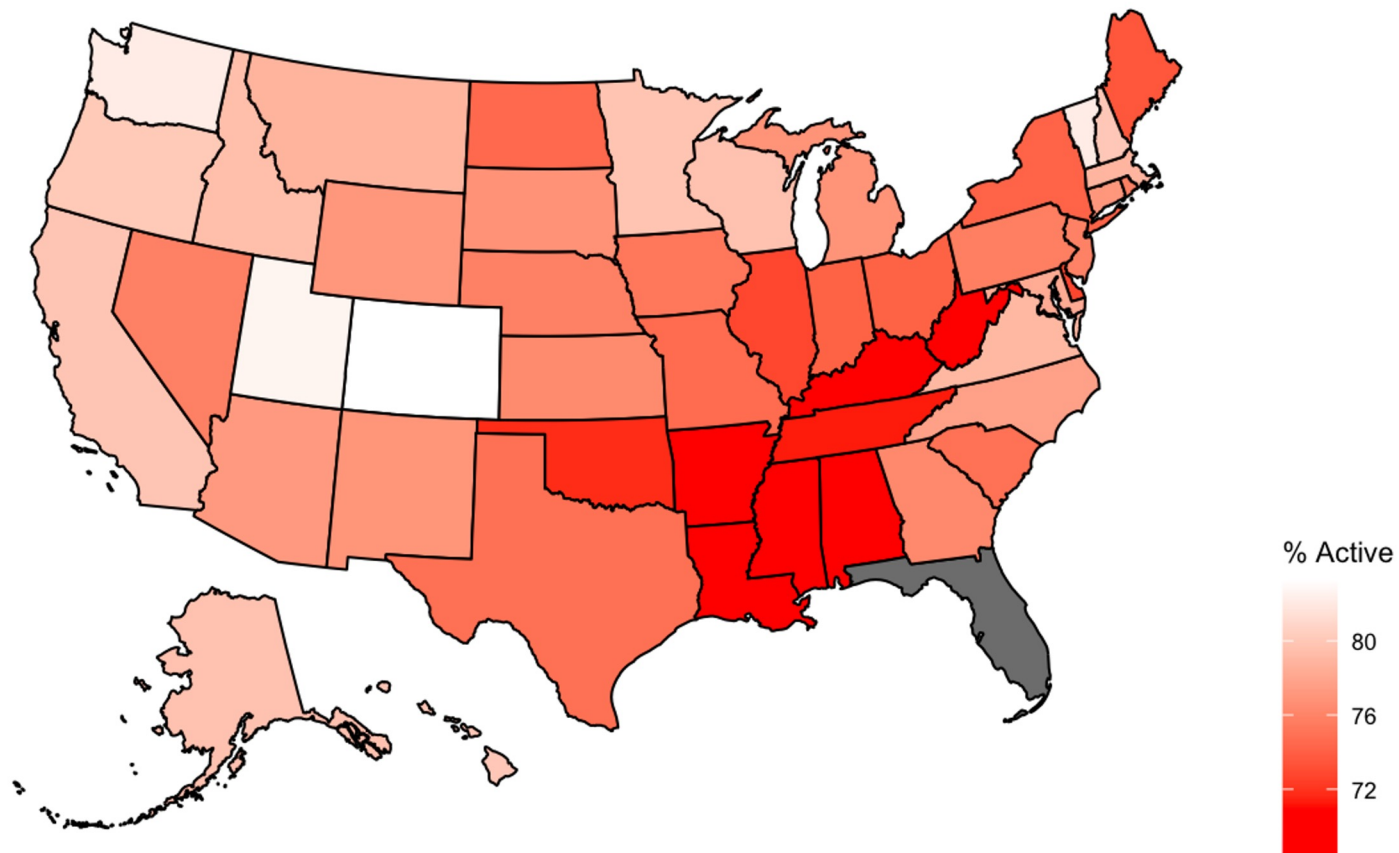
Average Alzheimer's Mortality Rate



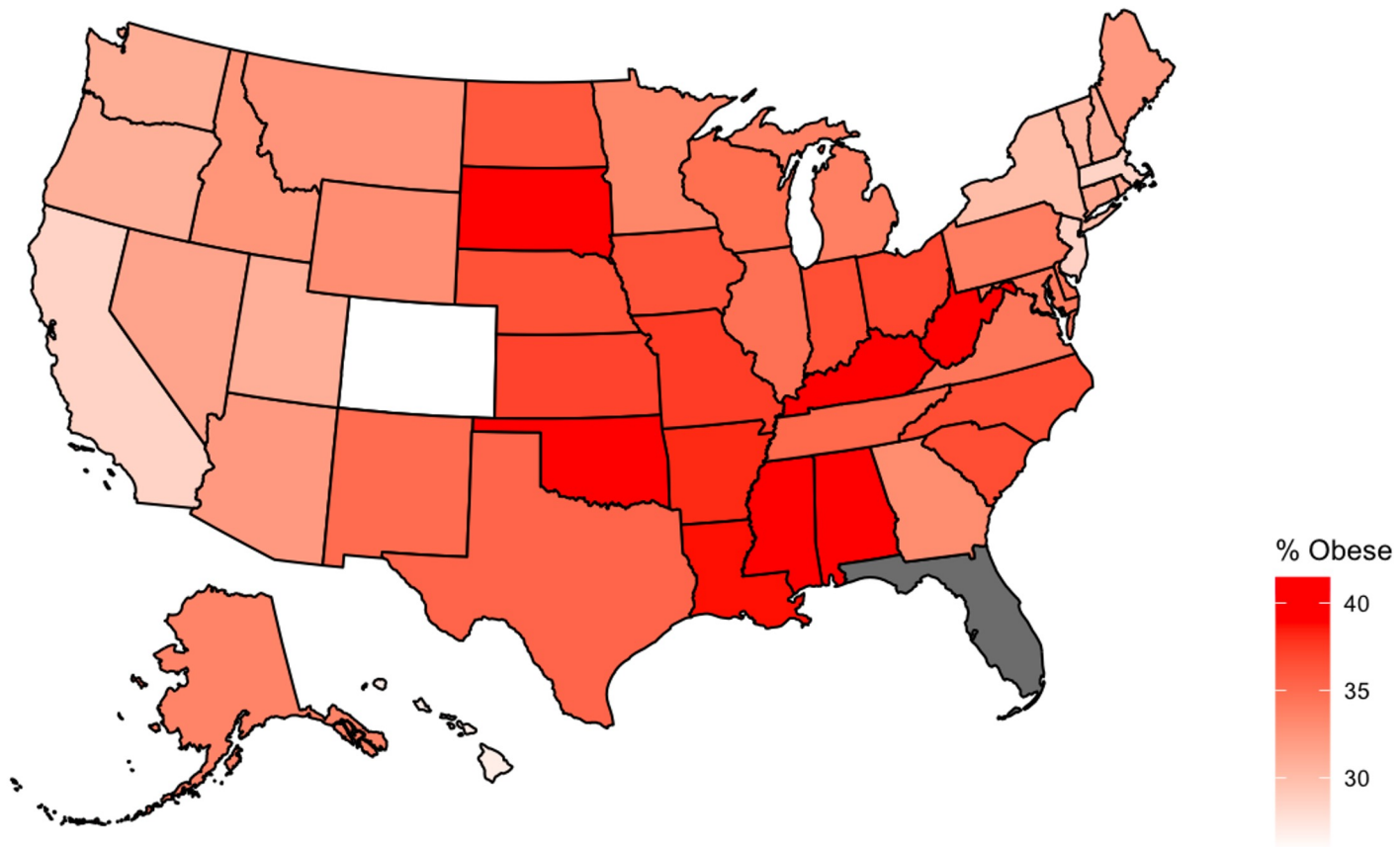
Percent of Citizens who Bike or Walk to Work



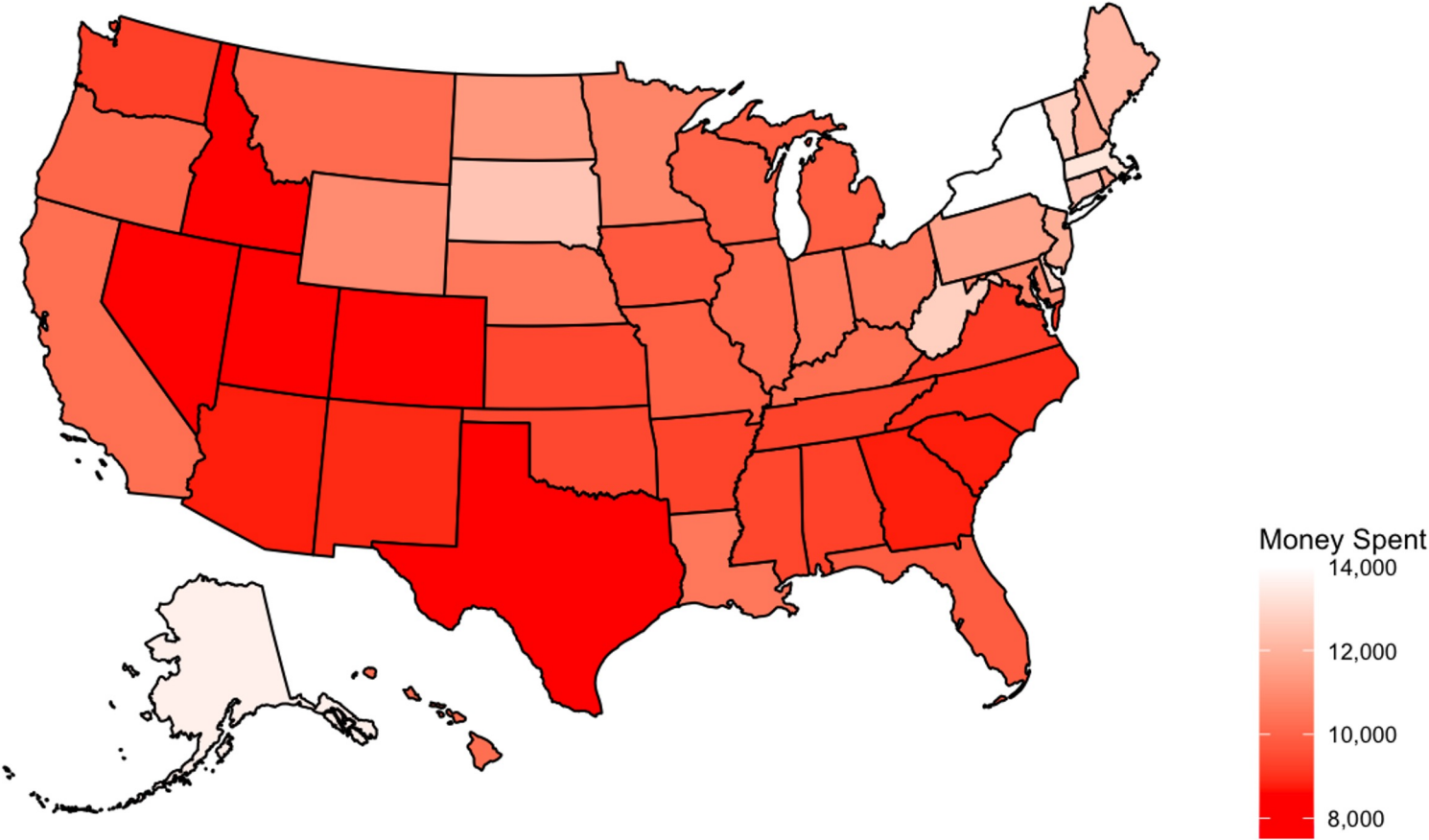
Average Percent of Citizens who are Active



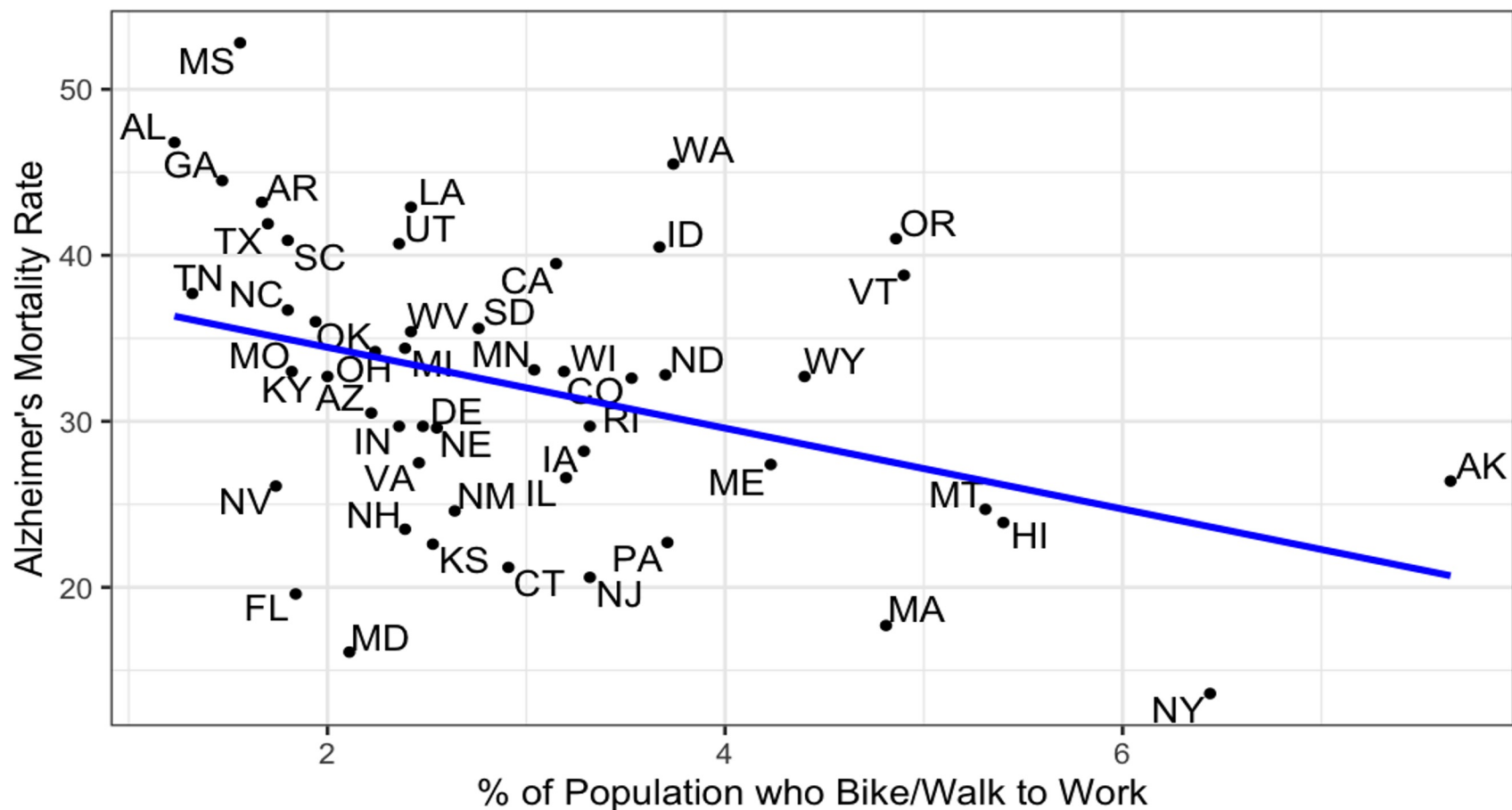
Average Percent of Citizens who are Obese



Individual and Government Money Spent on Healthcare per Capita



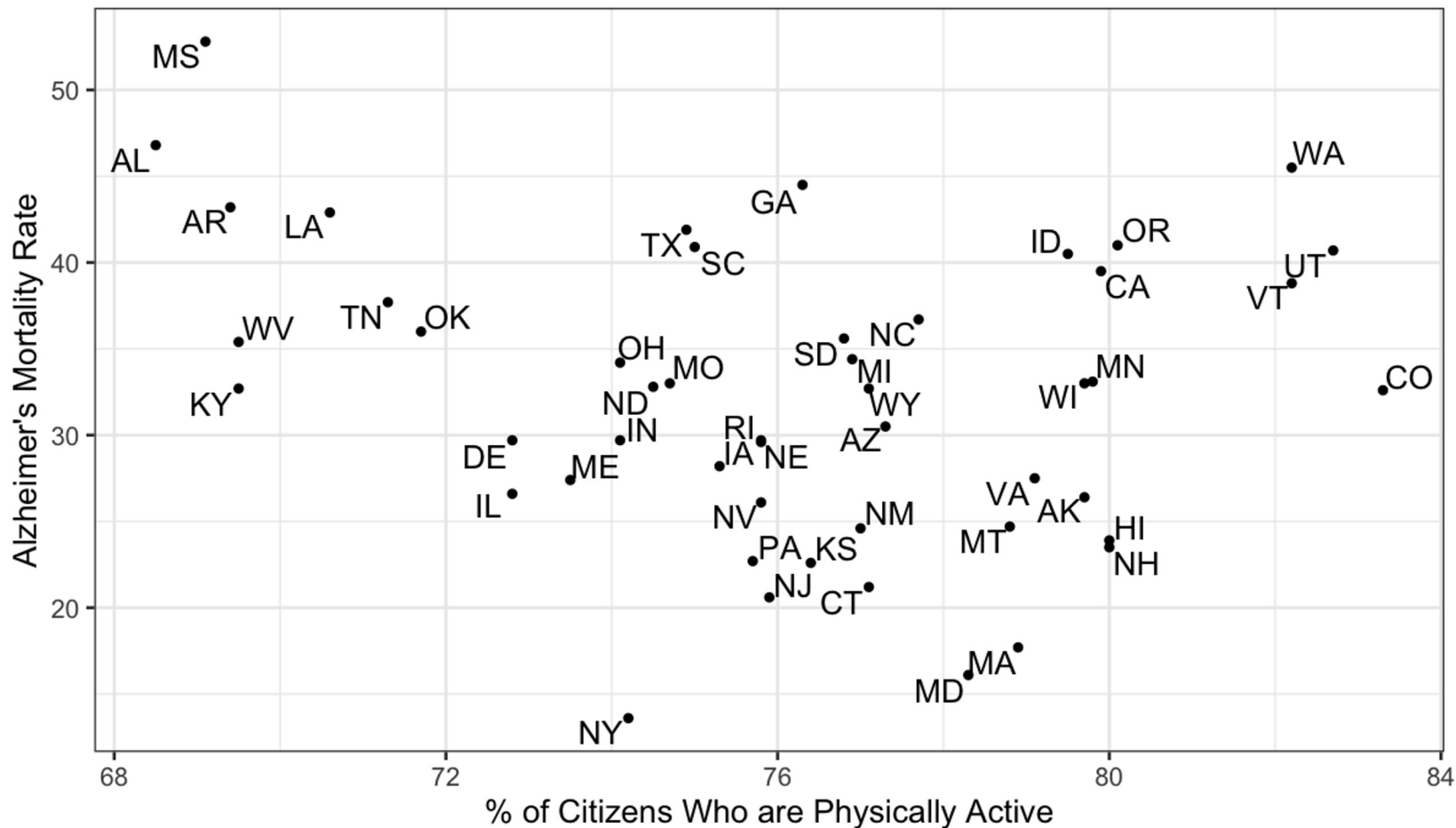
Alzheimer's Mortality Rate and % of Bikers/Walkers By State



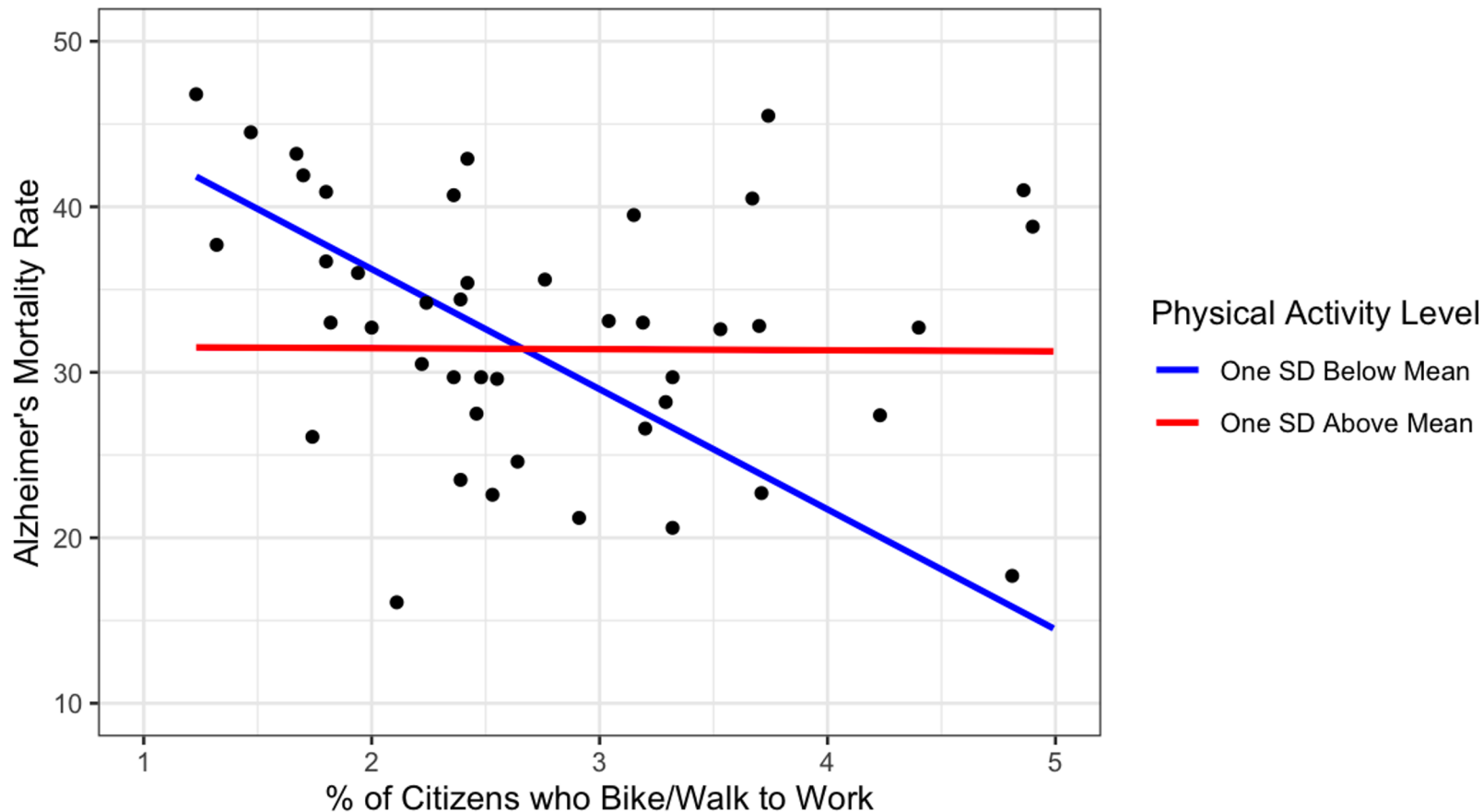
Alzheimer's Mortality Rate and Obesity



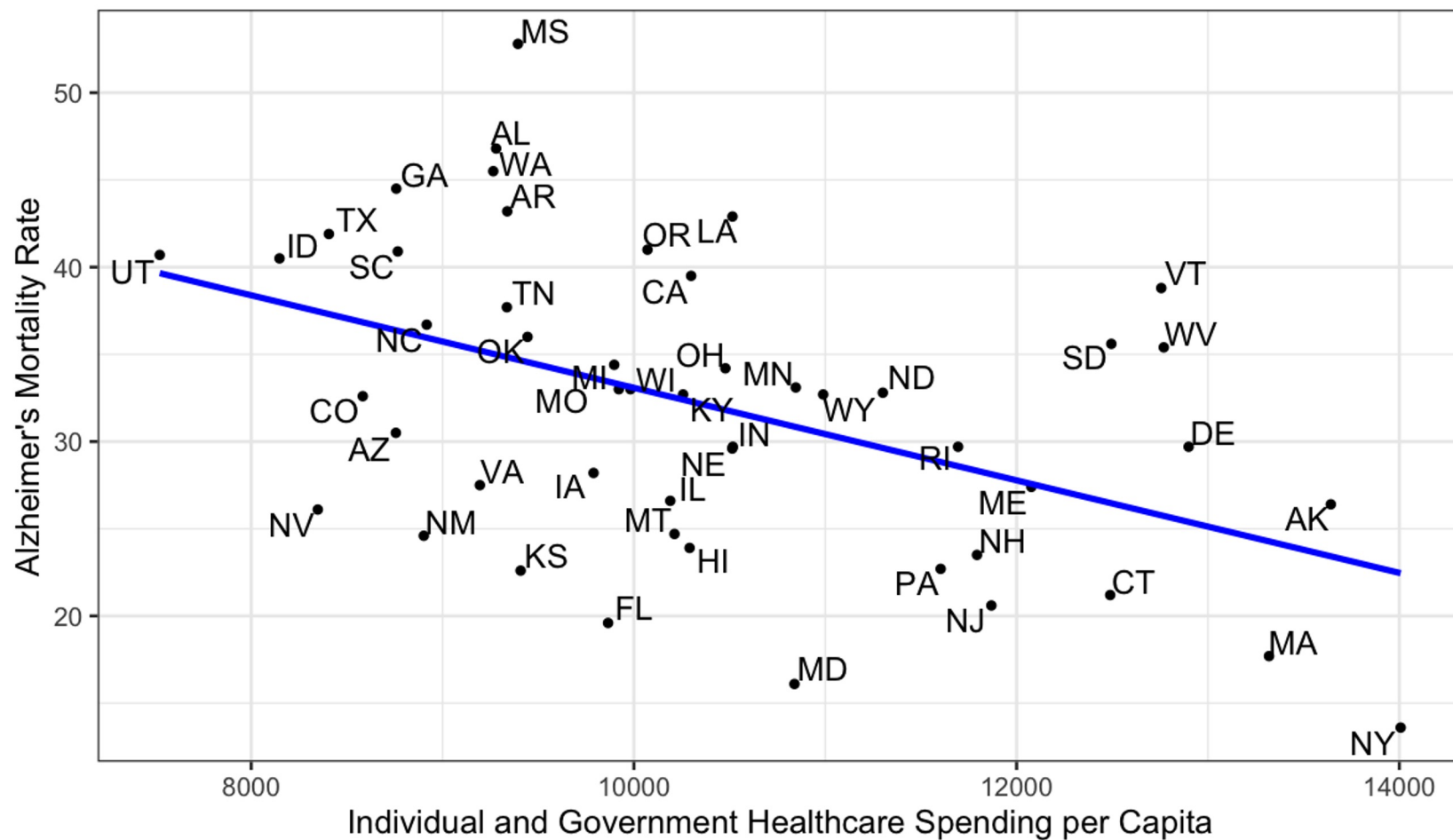
Alzheimer's Mortality Rate and Physical Activity



Exploring the Influence of Biking/Walking to Work and Physical Activity Levels on Alzheimer's Mortality Rates



Alzheimer's Mortality Rate and Healthcare Spending



Correlation Table

term <chr>	rate <dbl>	bike_walk <dbl>	obesity <dbl>	active <dbl>
rate	<i>NA</i>	-0.4197490	0.372123564	-0.2071715
bike_walk	-0.4197490	<i>NA</i>	-0.537279014	0.4552890
obesity	0.3721236	-0.5372790	<i>NA</i>	-0.7425252
active	-0.2071715	0.4552890	-0.742525212	<i>NA</i>

Findings

- **Main effect-** A higher proportion of people who bike or walk to work is associated with a decrease in Alzheimer's mortality rate by state.
- **Interaction-** The magnitude of this effect is stronger for states with higher rates of physical activity.

Future Steps

- **Collect monthly data on commuters**
- **Collect data on each variable by county**
- **Collect physical activity and obesity data in Florida**
- **Analyze other factors that could account for the increase in Alzheimer's disease incidence**

References

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