Violence Against Women

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Oscar Bray

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Introduction & Background

- Possible contributors to VAW
  - GDP/economy
  - Women's power (politics, domestic)
  - Alcohol
- Common sense: alcohol induces violent behavior
- Lots of research, lots of gaps
  - Contradictions (is it universal?)
  - Culturally homogenous
  - Victim vs perpetrator
    - Man vs woman?
  - Outdated
  - Small sample sizes

Research Question

How does alcohol use appear to affect the prevalence of violence against women?

Alcohol
- Using data across multiple cultures

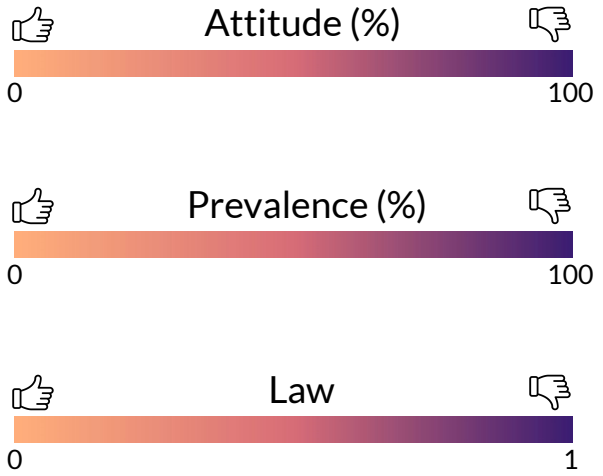
Prevalence
- Individual incidents, seemed more likely to correlate
- Extension: alcohol policies? (eg alcohol affordability)

We thought there would be a *positive* correlation.

Data Source: 2019 OECD study of violence against women

Data Analysis - Data

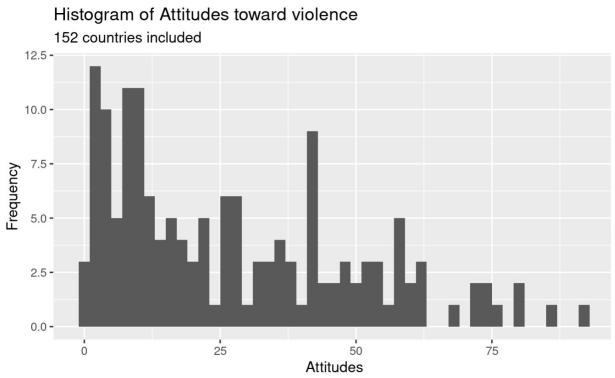
- Attitudes toward violence:
  The percentage of women who agree that a husband/partner is justified in beating his wife/partner under certain circumstances
- Prevalence of violence in the lifetime:
  The percentage of women who have experienced physical and/or sexual violence from an intimate partner at some time in their life
- Laws on domestic violence:
  Whether the legal framework offers women legal protection from domestic violence Laws on domestic violence are presented as values ranging from 0 to 1, where 0 means that laws or practices do not discriminate against women's rights and 1 means laws or practices fully discriminate against women's rights.

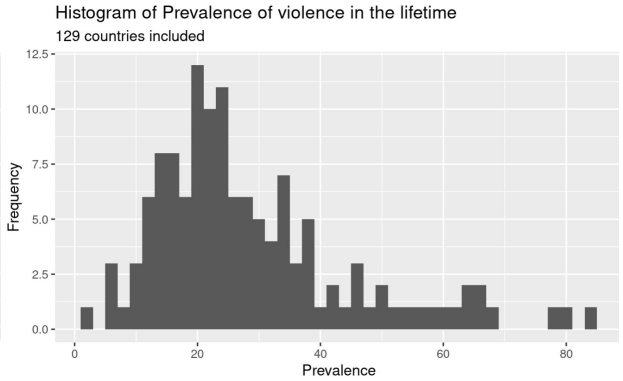


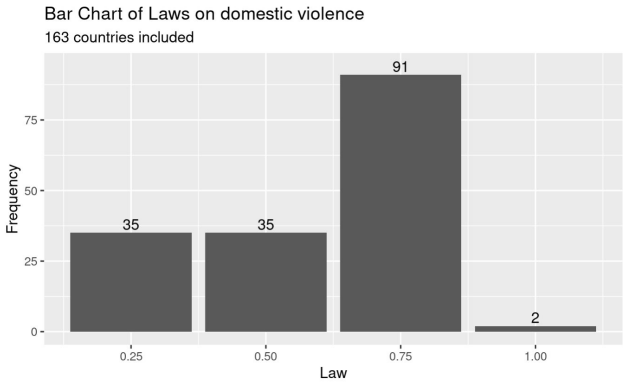
We expect a positive correlation.

Data Source: [2019 OECD study of violence against women]

Data Analysis - Visualization







Country	Attitude	Prevalence	Law
Length:163	Min. : 0.00	Min. : 1.90	Min. :0.250
Class :character	1st Qu.: 8.60	1st Qu.:18.30	1st Qu.:0.500
Mode :character	Median :22.05	Median :24.60	Median :0.750
	Mean :27.52	Mean :28.96	Mean :0.592
	3rd Qu.:42.52	3rd Qu.:35.00	3rd Qu.:0.750
	Max. :92.10	Max. :85.00	Max. :1.000
	NA's :11	NA's :34	

- Categorical
- Imbalance

Data Source: [2019 OECD study of violence against women]

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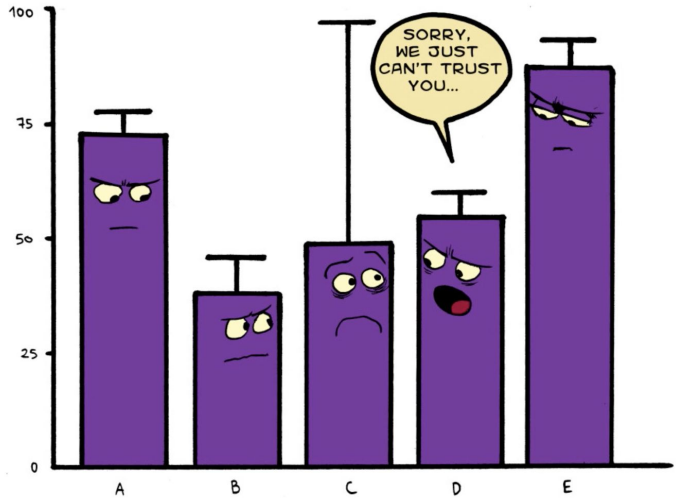

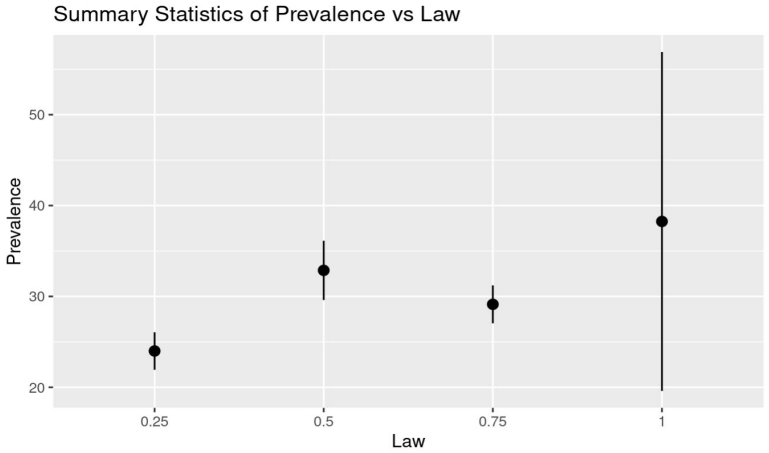

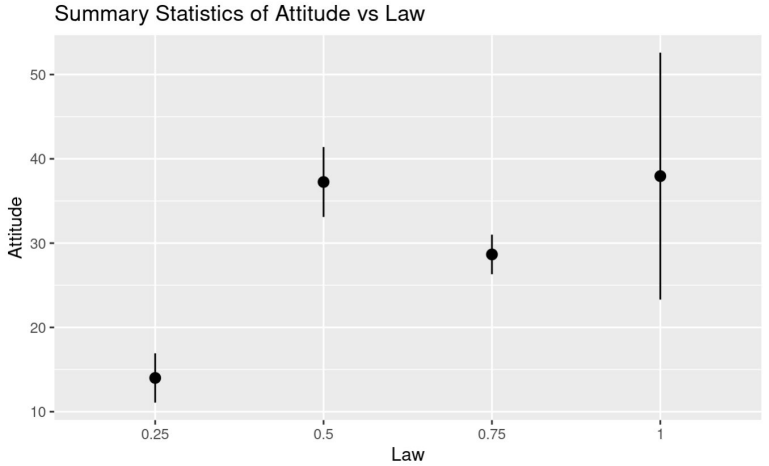

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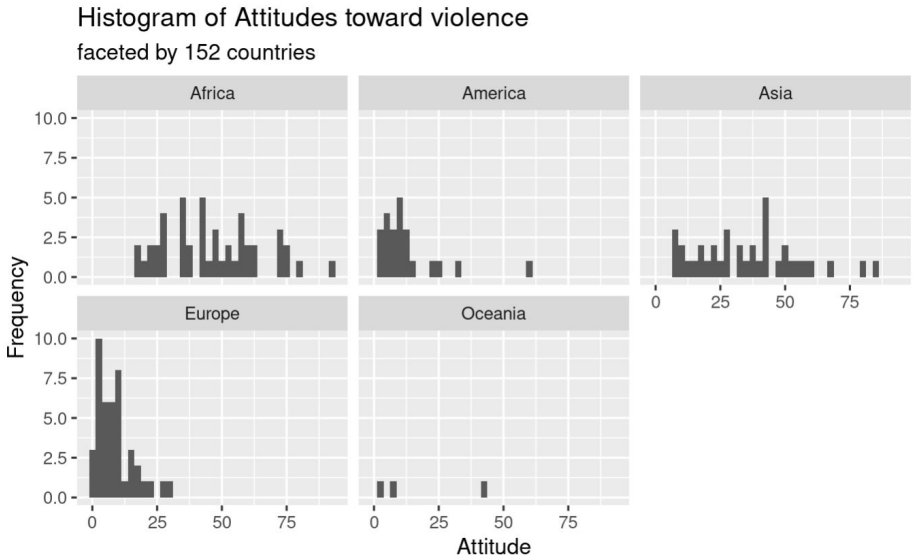

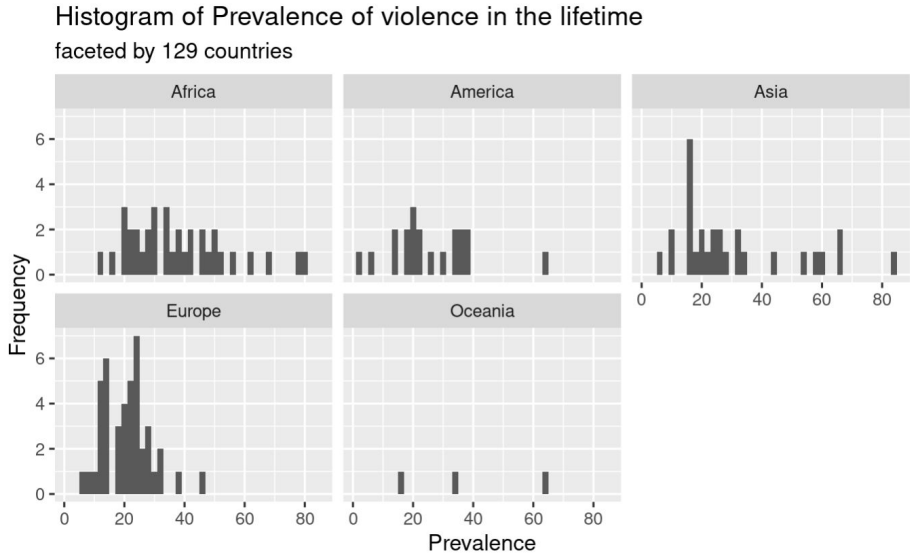

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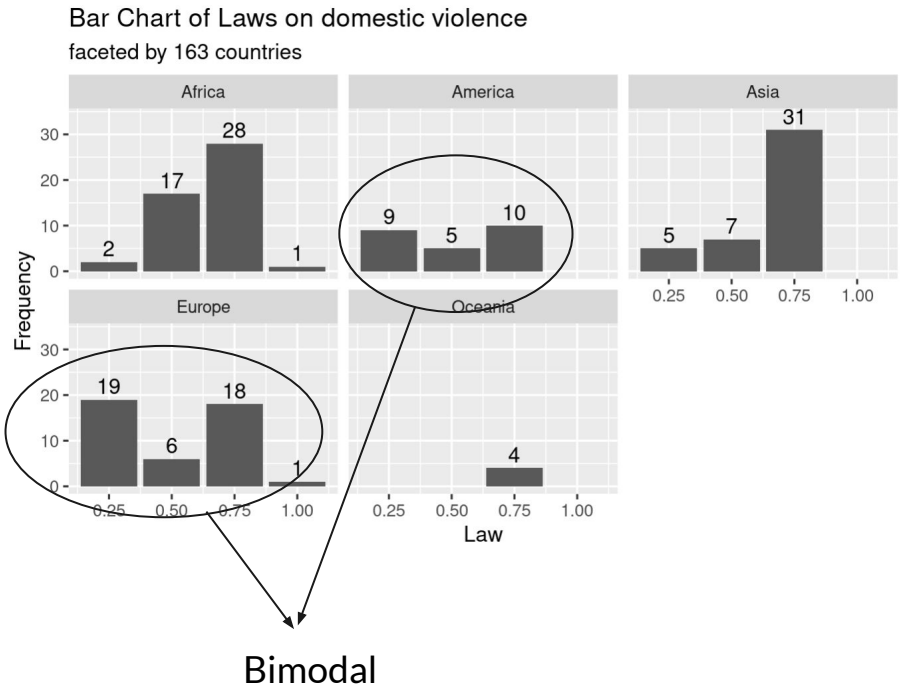
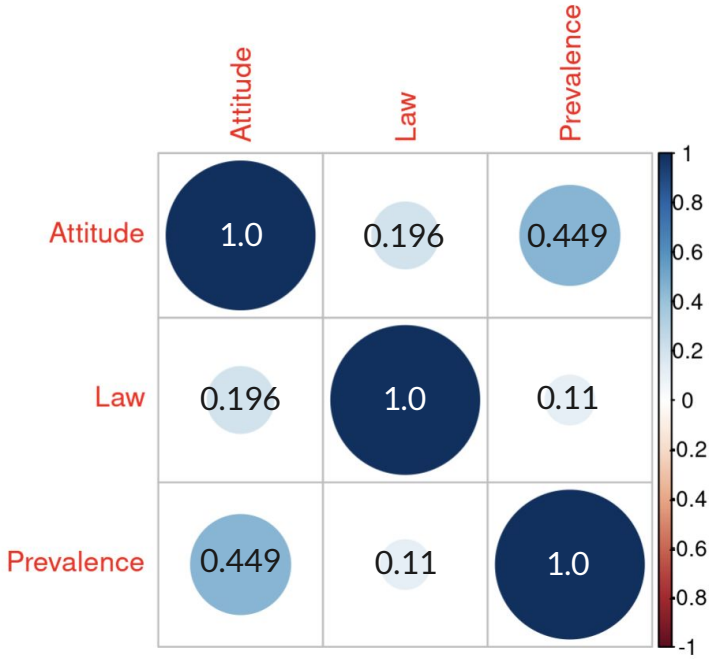


Bimodal



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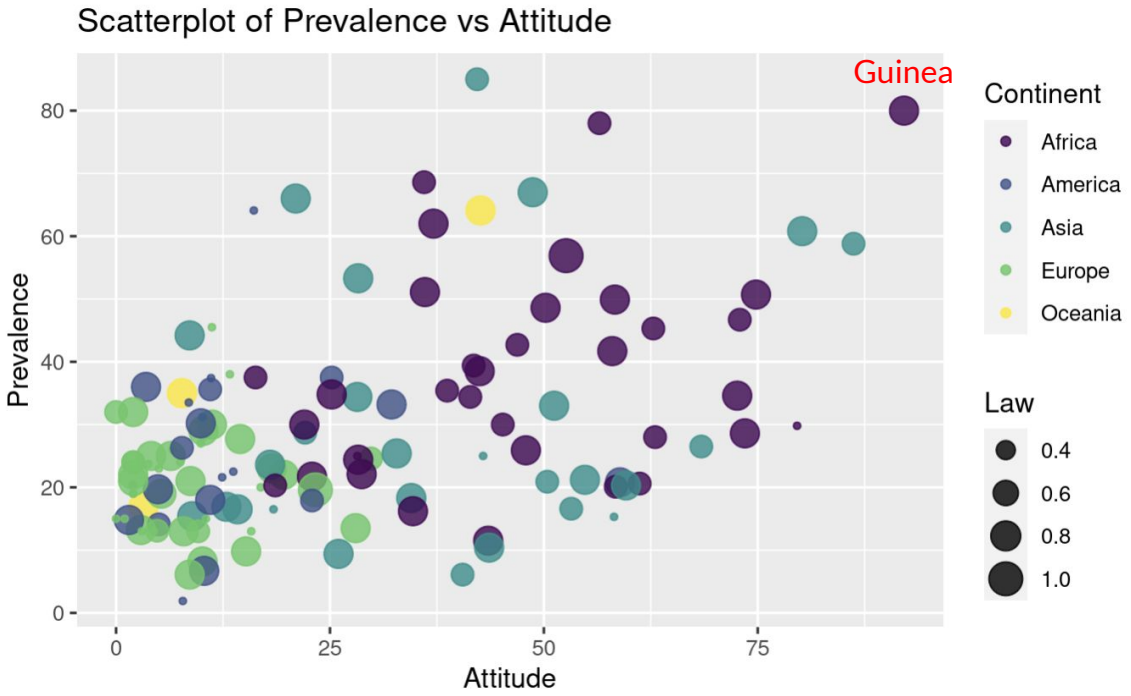

Data Source: The World Bank

Data Analysis - Regression

Total alcohol consumption per capita (liters of pure alcohol, projected estimates, 15+ years of age)

World Health Organization, Global Health Observatory Data Repository (apps.who.int/ghodata).

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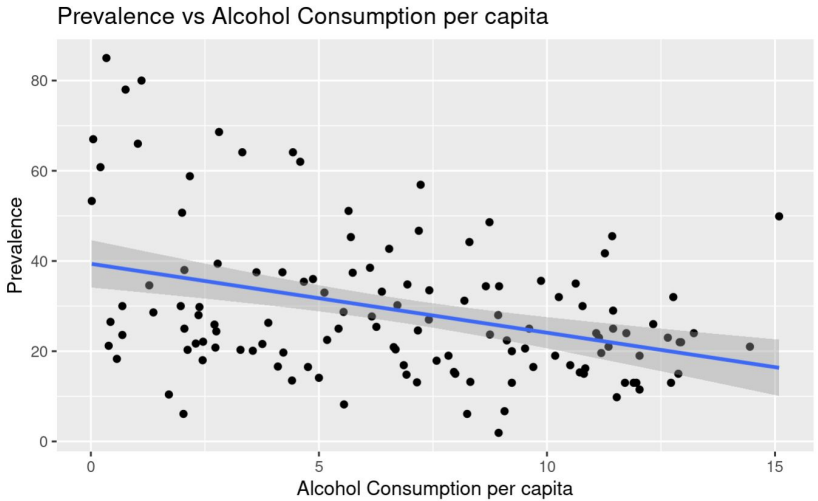


```
 Family: gaussian
  Links: mu = identity; sigma = identity
Formula: Prevalence ~ Alcohol_pc
   Data: df (Number of observations: 128)
  Draws: 4 chains, each with iter = 2000; warmup = 1000; thin = 1;
         total post-warmup draws = 4000

Population-Level Effects:
           Estimate Est.Error l-95% CI u-95% CI Rhat Bulk_ESS Tail_ESS
Intercept     39.29      2.65    34.01    44.47 1.00     3744     2797
Alcohol_pc    -1.52      0.35    -2.21    -0.83 1.00     3758     2639

Family Specific Parameters:
      Estimate Est.Error l-95% CI u-95% CI Rhat Bulk_ESS Tail_ESS
sigma    15.26      0.94    13.52    17.28 1.00     3812     2794

Draws were sampled using sampling(NUTS). For each parameter, Bulk_ESS
and Tail_ESS are effective sample size measures, and Rhat is the potential
scale reduction factor on split chains (at convergence, Rhat = 1).
```

Data Source: The World Bank

Data Analysis - Regression

Poverty headcount ratio at national poverty lines (% of population)

Percentage of the population living below the national poverty line

```
 Family: gaussian
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```

Compared to the earlier estimate, including poverty_headcount_ratio reduced the size of the association by about one-third, or about 33% decrease.

```
 Family: gaussian
  Links: mu = identity; sigma = identity
Formula: Prevalence ~ Alcohol_pc + poverty_headcount_ratio
   Data: df (Number of observations: 118)
  Draws: 4 chains, each with iter = 2000; warmup = 1000; thin = 1;
         total post-warmup draws = 4000

Population-Level Effects:
                        Estimate Est.Error l-95% CI u-95% CI Rhat Bulk_ESS
Intercept                  26.59      4.26    18.13    35.10 1.00     3212
Alcohol_pc                 -0.96      0.37    -1.65    -0.22 1.00     3767
poverty_headcount_ratio     0.33      0.09     0.16     0.50 1.00     3275
                        Tail_ESS
Intercept                   2655
Alcohol_pc                  3002
poverty_headcount_ratio     3185

Family Specific Parameters:
      Estimate Est.Error l-95% CI u-95% CI Rhat Bulk_ESS Tail_ESS
sigma    14.33      0.95    12.61    16.38 1.00     3850     2786

Draws were sampled using sampling(NUTS). For each parameter, Bulk_ESS
and Tail_ESS are effective sample size measures, and Rhat is the potential
scale reduction factor on split chains (at convergence, Rhat = 1).
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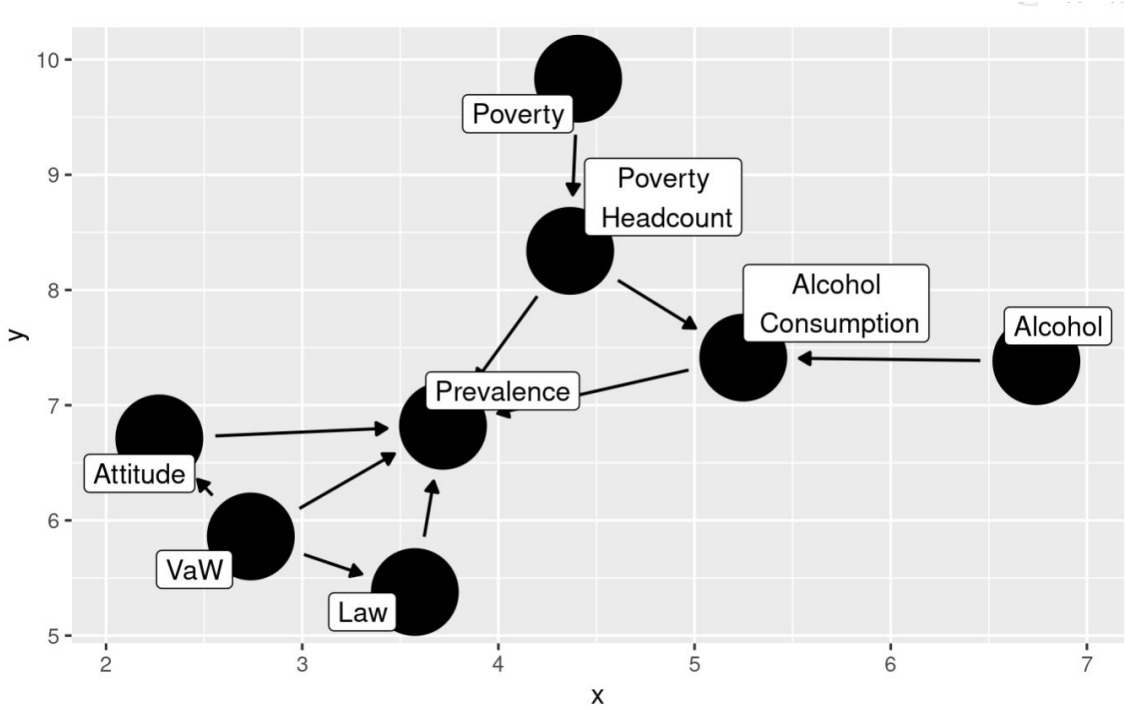
Data Analysis - Causal Diagram

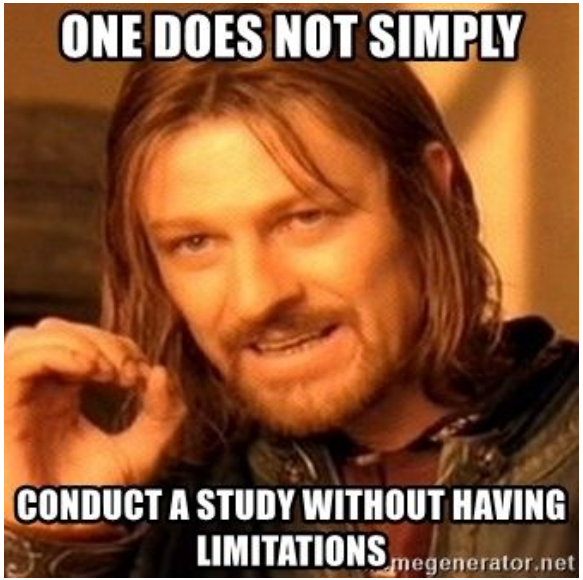


Limitations

Datasets
- Fewer recent figures (COVID?)
- Different levels of recency

Alcohol consumption
- Liters of pure alcohol
  - Who is consuming? What is the distribution?
  - Other measures
- ‘Projected estimates’: how much?
- Our analysis: gender? Victim vs perpetrator?

Multiple measures of poverty
- Poverty lines ($3.20, $1.50 etc)
  - Varies depending on the country
- More holistic picture (Gini index)



Conclusion & Future Work

1. More research is needed! (surprise surprise…)
2. May need to think of other potential measures of alcohol consumption
3. Poverty is a major variable
4. But wait! There's more!

Thank you!

Q&A