

Causal Inference in R: Introduction

2020-07-29 (updated: 2021-10-21)

```
> who_are_we(c("lucy", "malcolm"))
```



🌐 <https://www.lucymcgowan.com/>



🌐 <https://www.malco.io/>

The three practices of analysis

- 1 Describe
- 2 Predict
- 3 Explain

Normal regression estimates associations. But we want **counterfactual, causal** estimates:

What would happen if **everyone** in the study were exposed to x vs if **no one** was exposed.

For causal inference, we need to make sometimes unverifiable assumptions.

Today, we'll focus on the assumption of **no confounding**.

Tools for causal inference

- 1 Causal diagrams
- 2 Propensity score weighting
- 3 Propensity score matching

Other tools for causal inference

- 1 Randomized trials
- 2 G-methods & friends
- 3 Instrumental variables & friends

RStudio Cloud:
<https://bit.ly/causal-r-cloud>

Resources

Causal Inference: Comprehensive text on causal inference. Free online.

The Book of Why: Detailed, friendly intro to DAGs and causal inference. Free online.

Mastering 'Metrics: Friendly introduction to IV-based methods