

Discussion 1

Hello!



Name: Nicholas Fiore

Occupation: Your TA!

From: Connecticut

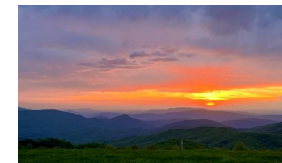
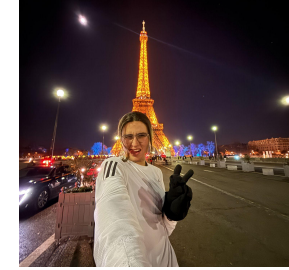
Education: BA in Political Science, Gettysburg College

Policy Interest: National Security

Hobbies: Research methods, data analysis, monkey business, horsing around, chicanery

Elisabeth Doty (she/her)

- **Email:** edoty@virginia.edu
- **Office Hours:** TBD
- **Hometown:** St. Louis, MO (and this will not be the last time I mention it)
- **Undergrad:** BA Environmental Science from UVA
- **Policy Interests:** Civil Rights, Labor/Economic, Climate/Sustainability, Urban... I still haven't figured it out :)
- **Ask Me About:** Ultimate frisbee or my Nalgene



Office Hours Schedule

Professor Tello-Trillo: **Wednesday 1:30 - 3PM in Garrett Hall 101**

Elisabeth Doty: **TBD**

Nicholas Fiore: **TBD**

RMDA 1 Review

Health and Sanitation

Suppose you are interested in the effects of sanitation and hygiene recommendations on children's health. The main recommendation is to wash hands for about 20 seconds. You find that those who follow the recommendations have worse health outcomes than those who do. The following are potential hypothesis that could explain the fact above. How would you change the following statements to make sure they could be explaining the fact above?

- The water they are using is contaminated.
- There is no effect of handwashing on health outcomes.
- The kids who tend to wash their hands tend to be the kids with worse health outcomes

Fish Oil

Many people around the world take fish oil supplements, which are rich in Omega-3 fatty acids, to improve their cardiac health. In the early 1970s, researchers found that Inuits living in Greenland had lower cholesterol levels than Inuits living in other countries. They posited that a fish-heavy diet in Greenland was a key reason for this difference. Today, the supplements are available over-the-counter and are relatively cheap, and this has contributed to their popularity. Yet, more recent evidence – including a large-scale [randomized controlled trial](#) described in a [New York Times article](#) – has cast some skepticism over the effectiveness of fish oil supplements.

- 1. Why might those who take fish oil supplements live longer than those who do not take them even if fish oil has no causal effect on cardiac health?**
- 2. Why might we expect selection bias to go the other way? Provide one specific reason why those who take fish oil supplements could die earlier than those who do not take them even if fish oil has no causal effect on cardiac health.**

Given:

$D_i = 1\{\textit{individual } i \textit{ consumed fish oil supplement}\}$

$Y_i = \textit{years of life of individual } i$

$Y_i^1 = \textit{years of life of individual } i \textit{ if consumed fish oil}$

$Y_i^0 = \textit{years of life of individual } i \textit{ if not consumed fish oil}$

Express the following phrase in conditional expectation notation: “the average years of life of all individuals in the data”

Express the following phrase in conditional expectation notation: “the average years of life of individuals consuming fish oil”

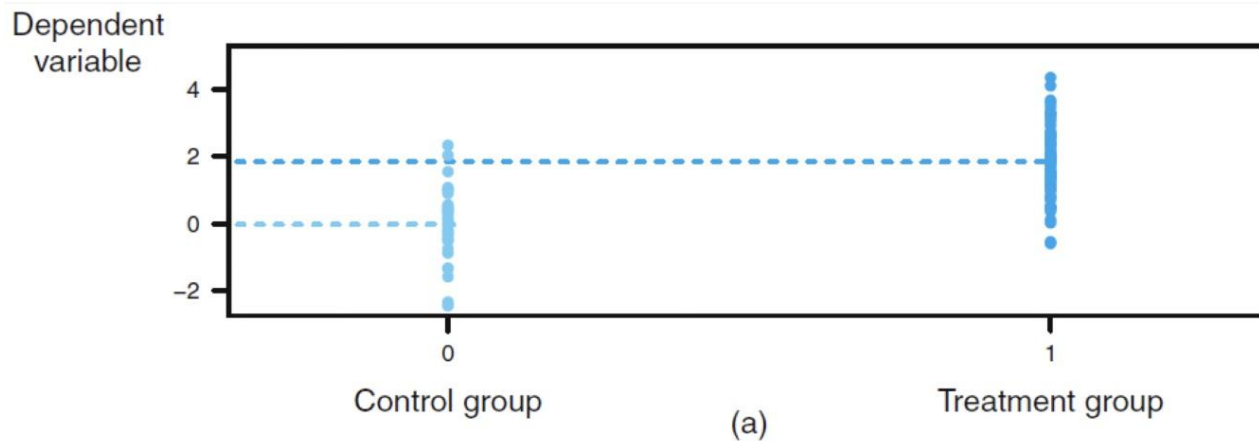
What does the following notation mean in words? $E[Y_i^1 - Y_i^0]$

What does the following notation mean in words? $E[Y_i^1 - Y_i^0 \mid D_i = 1]$

Why might the following statement be true? Give one specific reason. $E[Y_i^1 - Y_i^0 \mid D_i = 1] > E[Y_i^1 - Y_i^0]$

Interpreting Coefficients 1

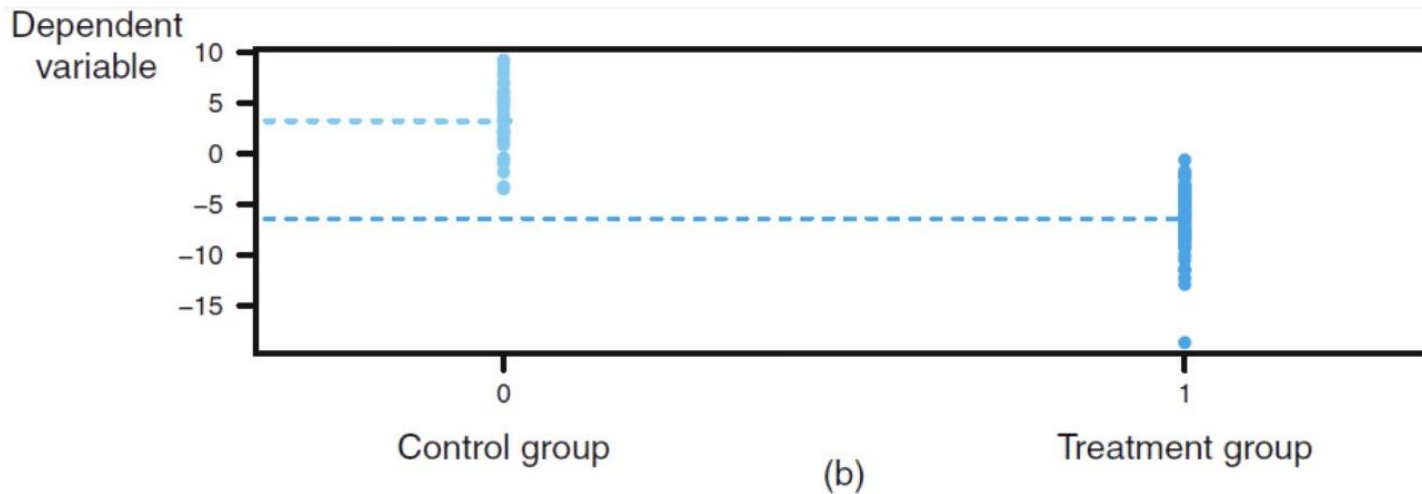
$$Y = a_0 + a_1 \textit{Treatment} + \varepsilon$$



What are the values of \hat{a}_0 and \hat{a}_1 ?

Interpreting Coefficients 1 (Continued)

$$Y = a_0 + a_1 \textit{Treatment} + \varepsilon$$



What are the values of \hat{a}_0 and \hat{a}_1 ?

Interpreting Coefficients 2

In an effort to better understand the effects of “Get-out-the-vote” messages on voter turnout, Gerber and Green (2005) conducted an RCT involving approximately 30,000 individuals in New Haven, CT, in 1998. One of the treatments was randomly assigned in person visits in which a volunteer visited the person's home and encouraged him or her to vote. Table 3 reflects the findings from the RCT.

Table 3: Effects of in-person contact on voting

	Assigned to in-person contact	Not assigned to in-person contact
Actually Contacted	0.28	0.03
Voted in 1998	0.47	0.45

What's the marginal effect of being assigned to in-person contact on voting?

Table 3: Effects of in-person contact on voting

	Assigned to in-person contact	Not assigned to in-person contact
Actually Contacted	0.28	0.03
Voted in 1998	0.47	0.45

Fill in the values in the following table using the table above:

Regressions	Actually Contacted	Voted in 1998
Assigned to in-person contact	β_1	α_1
<i>Constant</i>	β_0	α_0

Interpreting Coefficients 3

What is the sign of each β in the following regression: $Y = \beta_0 + \beta_1 X + \beta_2 X^2$? Use the figure below to answer.

