Third-Variable Problem

For the following, you will be given a headline and some of the "facts" from the article. Do you believe that the data supports the headline? For each, consider three to four "third variables" that may impact/predict/cause the relationship. How could you reword the article to more accurately reflect the study?

1. Headline: "Diet of fish 'can prevent' teen violence.

- Participants were a group of 3-year-olds given an "enriched diet, exercise, and cognitive stimulation." They were compared to a control group who did not go through this same program.
- By age 23 they were 64% less likely than a control group of children not on the program to have criminal records.
- Assume, of course, that the enriched diet included fish.
- Note, also, that the *media* article does not mention what the other kids ate or did.

Does the data support the headline?

What are some "third variable" explanations?

How could you reword the headline?

2. Headline: "Higher beer prices 'cut gonorrhea rates'"

- The research suggests "that raising the price of a six-pack of beer by 20 cents would cut gonorrhea rates by almost 9%"
- Researchers considered gonorrhea rates from 1981 to 1995 among teens and young adults in states that raised the legal drinking age or increased the state beer tax.
- "Of the 36 beer tax increases that we reviewed, gonorrhea rates declined among teens aged 15 to 19 in 24 instances. Among young adults aged 20 to 24, they declined in 26 instances."

Does the data support the headline?

What are some "third variable" explanations?

How could you reword the headline?

Important side note: 1981 is also when the CDC recognized AIDS and HIV; condoms protect against both HIV and gonorrhea.

3. Headline: "Luckiest people 'born in summer'"

- Online public survey (40,000 people)
- Those born in May were most likely to consider themselves lucky; those born in October had most negative views of their life. (Note: The first day of Summer is in late June)
- People who took part in the survey gave their birthdates and rated the degree to which they saw themselves as lucky or unlucky
- The poll found there was a summer-winter divide between people born from March to August and those born from September to February.
- 50% of those born in May considered themselves lucky; 43% of those born in October.
- It isn't clear when the survey took place (i.e., what month)

Does the data support the headline?

What are some "third variable" explanations?

How could you reword the headline?

4. Headline: "Fear of hell makes us richer, Feds say"

- Studied 35 countries including the United States, Japan, and Turkey.
- Found that religion shed some "useful light."
- In countries where large percentage of the population believe in hell, there seems to be less corruption and a higher standard of living.
- For instance, 71% of the U.S. population believe in hell and the country boasts the world's highest per capita income.

Does the data support the headline?

What are some "third variable" explanations?

How could you reword the headline?

SIDENOTE: In class I will show you a graph of compiled data; I am not even sure how they drew this conclusion.

Directionality Problem

For the following three articles, you will read the headline and a few facts from the article. While you should think of potential confounds, I also want you to consider how the "cause" could really be the "effect."

Headline: Social isolation may have a negative effect on intellectual abilities

- "Spending just 10 minutes talking to another person can help you improve your memory and your performance on tests."
- We will focus on their survey data.
- "In one study, they examined ISR survey data to see whether there was a relationship between mental functioning and specific measures of social interaction. The survey data included information on a national, stratified area probability sample of 3,610 people between the ages of 24 and 96. Their mental function was assessed through the mini-mental exam, a widely used test that measures knowledge of personal information and current events and that also includes a simple test of working memory.

  Participants' level of social interactions was assessed by asking how often each week they talked on the phone with friends, neighbors and relatives, and how often they got together.

  After controlling for a wide range of demographic variables, including age, education, race/ethnicity, gender, marital status and income, as well as for physical health and depression, the researchers looked at the connection between frequency of social contact and level of mental function on the mini-mental exam.

  The higher the level of participants' social interaction, researchers found, the better their cognitive functioning. This relationship was reliable for all age groups, from the youngest through the oldest."

Play the devil's advocate here (it will make you rich, anyway); pose an argument for switching the headline to say "Low intellectual abilities may lead to social isolation."

2. Headline: Keeping a Food Diary Doubles Weight Loss, Study Suggests

Ignoring any "facts" from the article, how could you reverse the headline (i.e., what else might the headline say)? What is a rational explanation for the "causality" to be in the opposite direction of the original headline?

3. Headline: "Some types of cancer raise divorce risk"

Ignoring any "facts" from the article, how could you reverse the headline (i.e., what else might the headline say)? What is a rational explanation for the "causality" to be in the opposite direction of the original headline?