



M1-05: Experimental Design

Part of the "Basics of Data Science with Python" Learning Badge

Video Walkthrough: <https://discovery.cs.illinois.edu/m1-05/>

Another Experimental Design Example

One day, while scrolling through Facebook, I came across an article entitled: "The Secret to a Long Marriage is Drinking Together." It stated that couples who drink together, stay together. Over 2,000 couples were involved, and they found that couples who reported drinking alcohol together even just a few times each year were less likely to get on each others' nerves and more likely to have a positive outlook on their marriage. The study highlighted that what's most important isn't how much the couples drink, but whether they BOTH drink. If both partners drank, they were more likely to have a happier marriage than if just one of them drank.

- a) Based only on the information above, this study is an example of
- b) What can we conclude from this study?
- i) We see that there is an association between drinking alcohol together and happy marriages, however, we aren't sure if there is a causal relationship- there could be other variables confounding the data.
 - ii) Drinking alcohol together causes couples to stay together! Steve and I should drink together as much as possible if we want to remain happy in our marriage.
 - iii) Drinking alcohol and happy marriages are not related to each other at all.
 - iv) When one partner drinks and the other doesn't, it causes marital problems.

Based only on the info below, state whether the following are confounders, causal links, or neither:

- Shared Interests- Couples with shared interests are both more likely to drink together and to engage in other activities together that lead to happier marriages.
- Endorphins- Alcohol releases endorphins making you feel happier which leads to happier marriages.
- Commitment - Marital happiness depends on a strong commitment from both partners to continually work on resolving their problems rather than running away from them.