

Week 6 Day 1

Stat140-04

Example 1: Better than aspirin?

A very large study showed that aspirin reduced the rate of first heart attacks by 44%. A pharmaceutical company thinks they have a drug that will be more effective than aspirin, and plans to do a randomized clinical trial to test the new drug.

(a) State the null and alternative hypothesis.

(b) The group using the new drug had somewhat fewer heart attacks than those in the aspirin group.

- If the result is statistically significant, what can you conclude?

- If the result is NOT statistically significant, what can you conclude?

Example 2: Marriage

In 1960, census results indicated that the age at which American men first married had a mean of 23.3 years. It is widely suspected that young people today are waiting longer to get married. We want to find out if the mean age of first marriage has increased during the past 40 years.

(a) **State the null and alternative hypothesis.**

(b) **We plan to test our hypothesis by selecting a random sample of 40 men who married for the first time last year. The men in our sample married at an average age of 24.2 years.**

- If the result is statistically significant, what can you conclude?

- If the result is NOT statistically significant, what can you conclude?

On your own

Come up with a situation where you want to establish a claim based on data.

- What parameter(s) are you interested in?
- What would the null and alternative hypotheses be?
- What type of data would lead you to believe the null hypothesis is probably not true?