

Select Reading Question Responses (3/2)

In the study of statistics do statisticians prefer the reliability of a prospective study or a retrospective study? Are they thought of in two different ways? Or compared?

Prospective studies are probably “better” in that their results might be more reliable, but they might also be prohibitive in terms of resources. For example, you’ll probably have to pay the participants in a prospective study over the course of the entire study, while you might only need to pay participants in a retrospective study once. Maybe you only have the budget to do a retrospective study. Or maybe you might decide to do a retrospective study first and use that to decide if it’s worth doing a more expensive prospective study.

Referring to the principles of experimental design in section 1.4.1, I’m curious as to what parameters make for a “sufficiently large sample” described under the Replication principle. There was an example of examining mercury content in the population of swordfish in the Atlantic, where they examined a sample population of only 60 swordfish. In pertinence to all experiments though, how would you go about determining what a “sufficient sample” size is?

This is a great question, and one we’ll be able to come back to later after we’ve developed a bit of mathematical machinery. For the time being, we can say the following: if you start off by quantifying “how strong” you want the evidence provided by your study to be, it’s possible to figure out quantitatively how big a sample size you would need to get evidence that’s that “strong.”

Regarding the ethics of experiments, how are medical trials and experiments still allowed and social experiments not? I am very familiar with the Stanford prison experiment, but I read that the main argument has to do with considering the benefit of future patients, and I feel like a similar argument could be made for social experiments. So why is one seen as more ethical than the other?

Another great question, and one I don’t really have an answer to. It would be very interesting to know what ethics philosophers have to say about this!