

Experiments

- ⊕ The main advantage of performing experiments is that they allow us, using statistics, to infer if the independent variables causes the change in the dependent variable

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Experiments and Random Assignment

- ⊕ In true experiments the participants must be randomly assigned to the various conditions
 - ⊕ If they are not randomly assigned, there may be a systematic difference between the participants in one condition and the participants in another condition
 - ⊕ Then, we could not tell if the independent variable, or the differences in the participants caused the change in the dependent variable

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Quasi-Experiments

- ⊕ A *quasi-experiment* is similar to a real experiment except that the participants have been assigned to the various groups based on some characteristic of the participant
 - ⊕ E.g., participants are assigned to one of two groups based on whether they are male or female
- ⊕ Such variables are called *subject variables*

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Quasi-Experiments

- ⊕ A researcher assigned students into one of two groups -- whether they over 8 years of age or 8 years or less. They were asked to repeatedly recite the alphabet backwards until they did it perfectly. The number of recitations of the alphabet was recorded.
- ⊕ If there is a difference in the number of recitations, can we say it is because of the difference in age?

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Quasi-Experiments

- ⊕ Because there is no random assignment of participants in quasi-experiments, there can be no statements of causality

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Samples

- ⊕ The *population* is the group of all people or objects that we are interested in
 - ⊕ Humans are often the population of interest in psychology studies
 - ⊕ Smaller populations are possible -- all the students in one particular class of introductory statistics
- ⊕ Usually the entire population cannot be studied. Why?

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Samples

- ⊕ In most research, a subset of the population called the *sample* is selected
- ⊕ If the sample is selected so that each member of the population has an equal chance of being selected (called a *random sample*), and
- ⊕ if the sample is sufficiently large, then
- ⊕ whatever we learn about the sample will probably also be true of the population

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Types of Statistics

- ⊕ Statistics allow us to summarize, discover relations, and infer if two or more groups are different
- ⊕ Different types of statistics are used for each of these main purposes
 - ⊕ Descriptive
 - ⊕ Inferential

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