WRITING CENTER

Selecting a Sample

To gain insight into your research question, you need to collect enough data. This means that you need a large enough sample size for your results to be meaningful.

What is a Sample?

A sample is a subset of individuals taken from your population of interest. This subset of individuals are the participants in your study. For example, let's say you are interested in examining how older brothers treat their younger sisters. Your population of interest is brothers who have younger sisters. However it is not possible to recruit all of the older brothers and younger sisters in the entire population; for your study, you would take, from the population, a smaller group of older brothers with younger sisters. This smaller group is your "subset," or sample.

How many people make up a sample?

The size of your sample varies based on two related but separate things:

1. The type of research you are conducting
2. The size/amount of change you are trying to detect in your sample.

Types of Research

The goal of **qualitative studies** is to obtain a detailed account of an individual's thoughts and experiences.

Sample

The data in qualitative studies are typically rich, in-depth descriptions of an individual's perspective. The goal is to have enough people in your sample to give varied accounts but not so many that themes become repetitive. This is called "saturation."

Size. Typically, the sample size for these studies is 10-15 people.

The goal of **quantitative studies** is to determine the relationship between variables.

Sample

Sample size in quantitative studies depends on the types of relationships you are examining between variables (that is, type of analysis that you will run to answer your research question). Your job is ensuring that you have enough participants to allow you to accurately detect whether these relationships exist.

The following are general guidelines for **sample sizes** based on research design and analysis.

1. Examining **differences between two or more groups** (such as a t-test or ANOVA), requires at least 30 participants per group.

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2. Examining **relationships among continuous variables require** at least 50 participants.
3. Running **Chi square tests** requires at least 20 participants.

The goal of **mixed methods studies** is to use both qualitative and quantitative methods to provide a richer and more systematic analysis of the data than doing only one type of study. For example, you may use qualitative methods to get more detail about a quantitative finding, or you may use quantitative methods in addition to qualitative to obtain more systematic numerical data to analyze.

Magnitude of Change Detected

Effect size is the magnitude of change, which is calculated by the differences in means and standard error, or the correlation between variables.

Generally, the more participants in a study, the smaller the amount of change that can be detected. This is typically an advantage for researchers, as they are often interested in showing that a relationship of some magnitude exists between their variables of interest.

Power Calculation

To find sample size based on effect size, you must do a power calculation. Power calculations are complex and there are many online power calculators but it is important to understand the details of power and what it means for your study.

Power is the probability that you detect an effect when one exists (that is, you reject the null hypothesis when the null hypothesis is not true). A power of .8, for example, means that there is an 80% chance that the effect exists. As a researcher you decide, in advance, which level of power you need for your study.

Power is related to the sample size, desired effect size, and significance level of your study. Because you can set power, desired effect size, and the significance level of your study in advance of collecting data, a power calculation can be used to find the sample size needed for your study in advance of the study as well.

Power calculators can be found here: G*Power