

Sampling in Research

by Sophia Tutorial



WHAT'S COVERED

This tutorial will cover the topic of sampling in psychological research. Our discussion breaks down as follows:

1. Population and Samples
2. Sampling Error
 - a. Random Error
 - b. Biased Sample
3. Sampling Techniques
 - a. Random Sample
 - b. Representative Sample

1. Population and Samples

When creating or examining any form of psychological research, it's important to identify exactly what **population** is being studied within that research. Population is a category of people that are being studied.

Often, the population being discussed within psychological research is the generalized idea of all human beings--basically everybody and their general mental processes. However, sometimes psychological research is more specific so that those populations would be a bit smaller.

↪ **EXAMPLE** For example, certain research might target infant girls; this would be one population. Or, it might focus on middle-aged men or businessmen between 20 and 24 years of age, which is a different population.

Ideally, when conducting research about a certain population, you would want to test everyone within that population to provide the best results. Realistically, though, you can't test everybody, especially if you're talking about everyone in the entire world.

This is when we decide to take a **sample**, which is a small selection of people from a population. The population is the bigger group and we simply take a selection of them. The researcher uses the results from the research on the sample to make statements about the population as a whole. It's important to get accurate, appropriate samples so that you can get the correct results to apply to the population as a whole.

**Population**

All of the members of a category of people (or things)

Sample

A small selection of people from a population

2. Sampling Error

Now, a sampling error is when there is some result in the study that is changed or affected as a result of the sample that was chosen. Meaning, the correct results were not achieved because the people being studied weren't necessarily representative of the population.

There are two types of sampling errors:

- Random Error
- Biased Sample

2a. Random Error

Random error refers to normal errors that occur regardless of the research and the methods. In other words, there is always some random sampling error within studies; it simply can't be helped.

Generally, random sampling errors affect the results when the groups of people that are being used are too small. Therefore, the differences within those people become more drastic as a result of the small size. This is why it's important to note, when talking about research, that bigger is better--statistically speaking. The more people you have, the better your results within the study.

2b. Biased Sample

The second type of sampling error is **biased sample**, which refers to when the differences in a sample make it inaccurately representative of the population itself. This is something specific that happens, which invalidates the results themselves.

➞ **EXAMPLE** Suppose, for example, you are conducting a study about memory in people as a whole, and you decide to study college students, who are more likely to go out and drink on a Friday night. If your experiment is the next day, on a Saturday morning, then your population is more likely to have impaired memory during that time. As you can see, the sample that you chose is going to affect the results, so it is inaccurate for everybody as a whole. Therefore, it's important to make sure that you consider these things when you create or review psychological research.

**Biased Sample**

A sample that is not representative of the population

3. Sampling Techniques

There are many different techniques that researchers use to select samples, that prevent biased samples from occurring. We will explore two of the main ones today.

3a. Random Sample

The first technique is to choose a random sample, which means using a random technique to select participants from the entire population as a whole. For example, if we could put everybody into a machine and have it spit out a few random people or names, then that would likely be the most ideal way to select a sample of a population.

This is because it eliminates the chance for bias within the person who is choosing people from a certain group. All the differences tend to cancel out when we choose randomly from a big enough sample of the population statistically. The more people we have, the less chance we have of having a biased sample.

Even so, it is difficult because not everyone from a population is available. If we put everybody from the U.S. into a machine and have it spit out names, not everybody would decide to do it. Only certain people would actually respond. Therefore, researchers are often constrained by these realistic situations and problems, so they need to work with what is available to them.

This is why it is also important that we replicate research over and over in order to gather many different sources of information to see if the results of the research are actually true.

3b. Representative Sample

Besides random sampling, which, as mentioned, is one of the most ideal but not necessarily realistic techniques, there is the **representative sample**.

A representative sample is a sample of the population that is chosen specifically to more accurately represent the population as a whole. In this manner, researchers can identify particular aspects of what they want to test or what would affect the research. That way, they can weed out those kinds of people that would provide an inaccurate response.

It's also possible to choose from particular subgroups, making it a proportional representation. This means that instead of relying on chance, you can make sure that you get the right numbers of certain types of people.

🔗 **EXAMPLE** For example, you may want a certain percentage of males or females within your groups to ensure that you have the right proportion to the actual population.

So, while there can still be unforeseen factors within a representative sample, it is another way to help to control for any kinds of errors.



TERM TO KNOW

Representative Sample

A sample that mimics the characteristics of the population



SUMMARY

Today we learned about sampling in research and the importance of identifying the **population** that is being studied. Because psychological research tends to be more specific--and it's unrealistic to test

everyone in the whole population--researchers select a smaller **sample** of people from the population to study, then use those results to make statement about the population as a whole. Sometimes, **sampling errors** occur, which means that the correct results were not achieved because of the sample chosen. There are two types of sampling errors: **random error** and **biased sample**.

We also learned about two **sampling techniques** that researchers use to prevent sampling errors from occurring: selecting a **random sample**, and a **representative sample**.

Good luck!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR ERICK TAGGART.



TERMS TO KNOW

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Representative Sample

A sample that mimics the characteristics of the population

Sample

A small selection of people from a population