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## Statistical Sampling Techniques

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Statistical sampling techniques are the strategies applied by researchers during the statistical sampling process.

This process is done when the researchers aim to draw conclusions for the entire population after conducting a study on a sample taken from the same population.

The banner features the Explorable logo and the text 'Quiz Time!' at the top. Below are three quiz cards:

- Quiz: Psychology 101 Part 2
- Quiz: Psychology 101 Part 2
- Quiz: Flags in Europe

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## Concerns in Statistical Sampling

### Representativeness

This is the primary concern in statistical sampling. The sample obtained from the population must be representative of the same population.

This can be accomplished by using randomized <sup>[1]</sup> statistical sampling techniques or probability sampling <sup>[2]</sup> like cluster sampling <sup>[3]</sup> and stratified sampling <sup>[4]</sup>.

The reason behind representativeness being the primary concern in statistical sampling is that it allows the researcher to draw conclusions [5] for the entire population. If the sample is not representative of the population, conclusions cannot be drawn since the results that the researcher obtained from the sample will be different from the results if the entire population is to be tested.

## Practicability

Practicability of statistical sampling techniques [6] allows the researchers to estimate the possible number of subjects that can be included in the sample, the type of sampling technique, the duration of the study, the number of materials, ethical concerns, availability of the subjects/samples, the need for the study and the amount of workforce that the study demands.

All these factors contribute to the decisions of the researcher regarding to the study design.

## Sampling Risks

There are two types of sampling risks [7], first is the risk of incorrect acceptance [8] of the research hypothesis and the second is the risk for incorrect rejection [9]. These risks pertain to the possibility that when a test is conducted to a sample, the results and conclusions may be different from the results and conclusions when the test is conducted to the entire population.

The risk of incorrect acceptance pertains to the risk that the sample can yield a conclusion that supports a theory about the population when it is actually not existent in the population. On the other hand, the risk of incorrect rejection pertains to the risk that the sample can yield a conclusion that rejects a theory about the population when in fact, the theory holds true in the population.

Comparing the two types of risks, researchers fear the risk of incorrect rejection more than the risk of incorrect acceptance. Consider this example; an experimental drug was tested for its debilitating side effects. With the risk of incorrect acceptance, the researcher will conclude that the drug indeed has negative side effects but the truth is that it doesn't. The entire population will then abstain from taking the drug. But with the risk of incorrect rejection, the researcher will conclude that the drug has no negative side effects. The entire population will then take the drug knowing that it has no side effects but all of them will then suffer the consequences of the mistake of the researcher.

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### Links

- [1] <https://explorable.com/randomized-controlled-trials>
- [2] <https://explorable.com/probability-sampling>
- [3] <https://explorable.com/cluster-sampling>
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- [5] <https://explorable.com/drawing-conclusions>
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