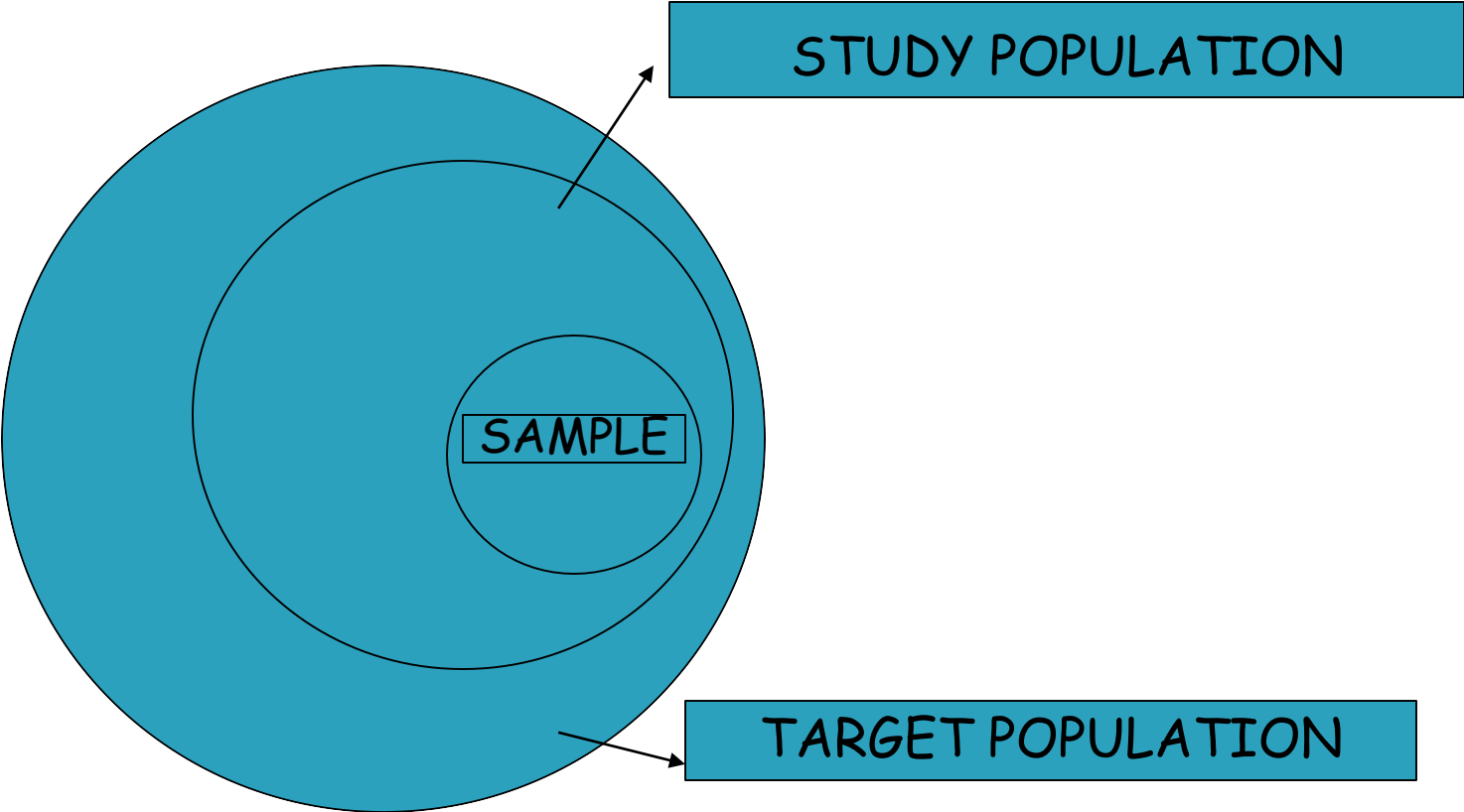


What is Sampling? Explain Sampling Techniques & Sample Types

What is Sampling?

The process of selecting a number of individuals for a study in such a way that the individuals represent the larger group from which they were selected



➤ A **sample** is “a smaller (but hopefully representative) collection of units from a population used to determine truths about that population” (Field, 2005)

➤ The **sampling frame**

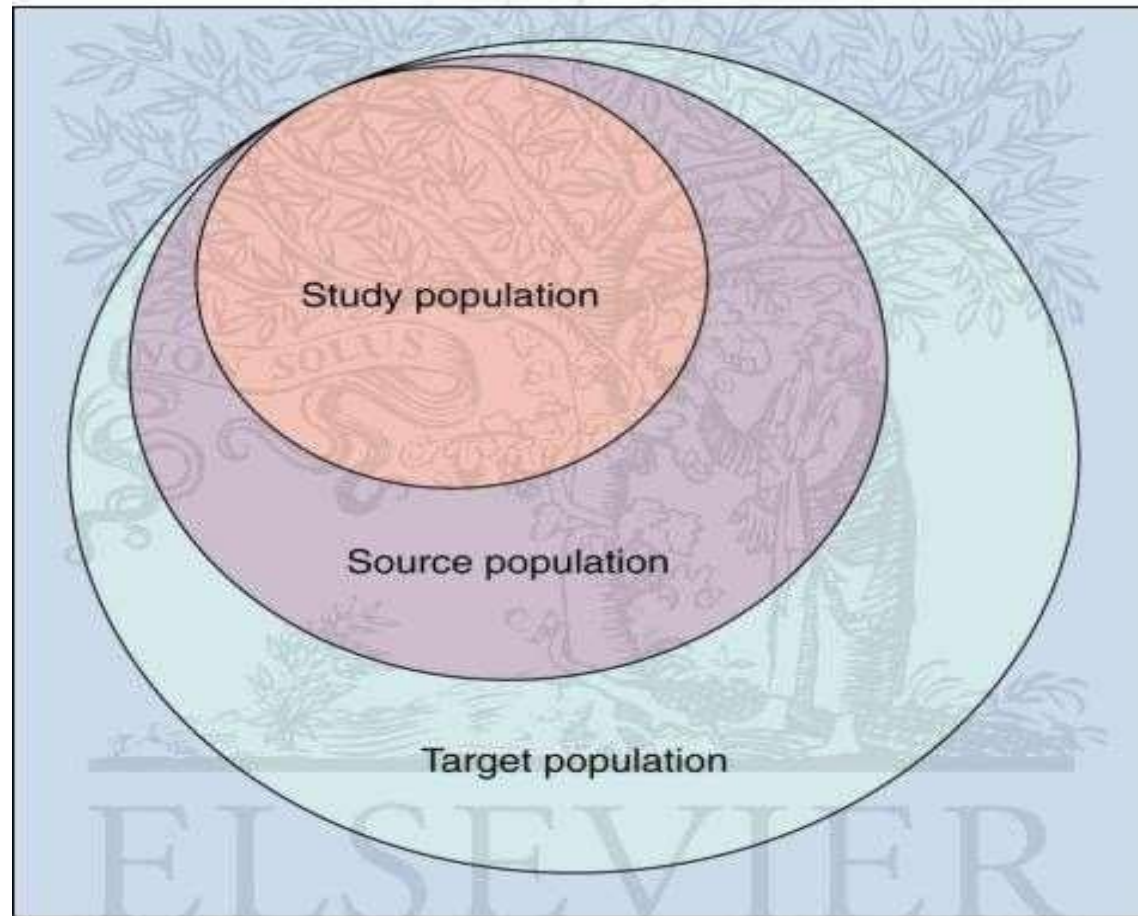
A list of all elements or other units containing the elements in a population.

Population...

...the larger group from which individuals are selected to participate in a study

Target population

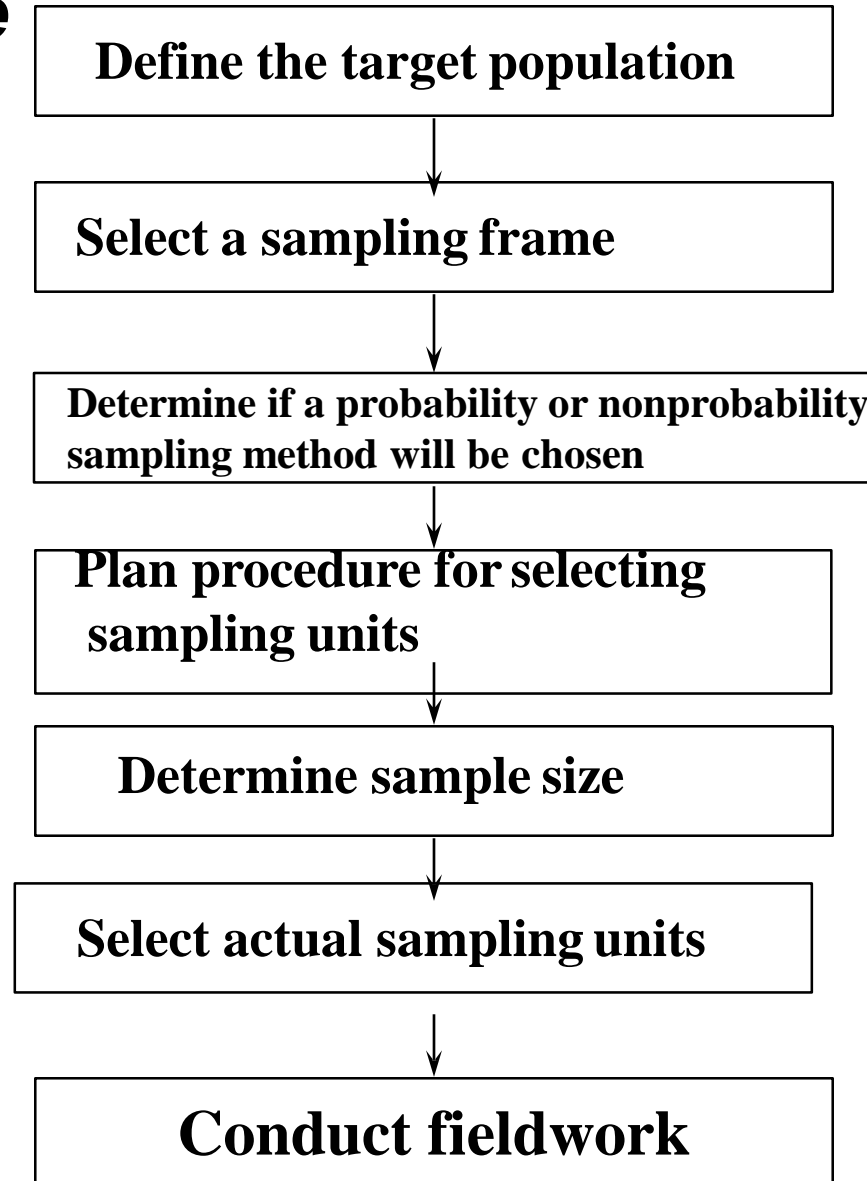
A set of elements larger than or different from the population sampled and to which the researcher would like to generalize study findings.



Purpose of Sampling

To gather data about the population in order to make an inference that can be generalized to the population

Stages in the Selection of a Sample



Quantitative Sampling

Purpose – to identify participants from whom to seek some information

□ Issues

- Nature of the sample (random samples)
- Size of the sample
- Method of selecting the sample

□ Important issues

- Representation – the extent to which the sample is representative of the population
- Generalization – the extent to which the results of the study can be reasonably extended from the sample to the population
- Sampling error
The chance occurrence that a randomly selected sample is not representative of the population due to errors inherent in the sampling technique

- Important issues (continued)
 - Sampling bias
 - Some aspect of the researcher's sampling design creates bias in the data.
 - Three fundamental steps
 - Identify a population
 - Define the sample size
 - Select the sample

Types of Sampling

```
graph TD; A[Types of Sampling] --> B[Probability Samples]; A --> C[Non Probability Samples];
```

Probability
Samples

Non
Probability
Samples

Random Samples

- Known as probability sampling
- Best method to achieve a representative sample
- Four techniques
 1. Random
 2. Stratified random
 3. Cluster
 4. Systematic

1. Random sampling

Selecting subjects so that all members of a population have an equal and independent chance of being selected

❖ Advantages

1. Easy to conduct
2. High probability of achieving a representative sample
3. Meets assumptions of many statistical procedures

❖ Disadvantages

1. Identification of all members of the population can be difficult
2. Contacting all members of the sample can be difficult

□ Random sampling (continued)

◦ Selection process

- Identify and define the population
- Determine the desired sample size
- List all members of the population
- Assign all members on the list a consecutive number
- Select an arbitrary starting point from a table of random numbers and read the appropriate number of digits

2. **Stratified random sampling**

- The population is divided into two or more groups called strata, according to some criterion, such as geographic location, grade level, age, or income, and subsamples are randomly selected from each strata.

□ Stratified random sampling (continued)

○ Advantages

- More accurate sample
- Can be used for both proportional and non-proportional samples
- Representation of subgroups in the sample

○ Disadvantages

- Identification of all members of the population can be difficult
- Identifying members of all subgroups can be difficult

- Stratified random sampling (continued)
 - Selection process
 - Identify and define the population
 - Determine the desired sample size
 - Identify the variable and subgroups (i.e., strata) for which you want to guarantee appropriate representation
 - Classify all members of the population as members of one of the identified subgroups

3. Cluster sampling

- The process of randomly selecting intact groups, not individuals, within the defined population sharing similar characteristics
- Clusters are locations within which an intact group of members of the population can be found
 - Examples
 - Neighborhoods
 - School districts
 - Schools
 - Classrooms

□ Cluster sampling (continued)

○ Advantages

- Very useful when populations are large and spread over a large geographic region
- Convenient and expedient
- Do not need the names of everyone in the population

○ Disadvantages

- Representation is likely to become an issue

□ Cluster sampling (continued)

○ Selection process

- Identify and define the population
- Determine the desired sample size
- Identify and define a logical cluster
- List all clusters that make up the population of clusters
- Estimate the average number of population members per cluster
- Determine the number of clusters needed by dividing the sample size by the estimated size of a cluster
- Randomly select the needed numbers of clusters
- Include in the study all individuals in each selected cluster

4. **Systematic sampling**

- Selecting every K^{th} subject from a list of the members of the population
- Advantage
 - Very easily done
- Disadvantages
 - subgroups
 - Some members of the population don't have an equal chance of being included

Non-probability samples

(Random): allows a procedure governed by chance to select the sample; controls for sampling bias.

Non Random Sampling Methods

1. Convenience sampling
2. Purposive sampling
3. Quota sampling

1. Convenience sampling:

the process of including whoever happens to be available at the time

...called “accidental” or “haphazard”
sampling

2. Purposive sampling:

the process whereby the researcher selects a sample based on experience or knowledge of the group to be sampled

...called “judgment” sampling

3. Quota sampling

the process whereby a researcher gathers data from individuals possessing identified characteristics and quotas

THANK YOU