

Research Minute

Sampling in Human Research

Issue 6

Sandra Burge, Ph.D.

What is a sample? A *sample* is a subset of people who are studied to gain information about a larger *population*.

Random sampling is the method of drawing a portion of the population such that each member of the population has an equal chance of being elected. There are several ways to sample randomly.

Probability sampling refers to methods that use random techniques to select samples.

Why use random sampling? If randomly selected, the group is more likely to represent the population. Random sampling minimizes investigator bias (‘cherry picking’) related to subject selection. Also, if unexpected biases are present that can affect research outcomes, random sampling randomly distributes that bias across control and intervention groups.

Nonprobability sampling techniques do not use random selection. Yet they can be useful in various research designs.

Types of Probability Sampling Types of Nonprobability Sampling

Simple Random Sampling.

Each member of the study population has an equal chance of being selected.

Example: To randomly sample your patient population in a clinic, randomly select chart numbers from the entire list of charts.

Systematic Sampling.

Create a list of the population, randomly choose a starting place in the list, and randomly choose an interval to sample.

Example: To sample your clinic visits, randomly choose a start time (e.g. Oct 11 at 10:30 am) and randomly choose an interval (e.g. every 6th patient).

Stratified Sampling.

Identify “strata” in your population; these are people you must have in your research project.

Example: To assure yourself that your sample will have Anglos and Hispanics and males and females, randomly select from 4 subgroups: Anglo men, Anglo women, Hispanic men, Hispanic women.

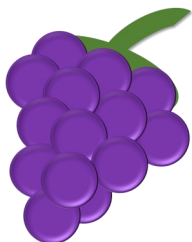
Cluster Sampling.

Identify clusters in the population and select clusters at random. Include all members in the cluster.

Example: To sample FM residents, randomly select residency programs (clusters), then include all (or randomly selected) residents within each program in your sample.

Multistage Sampling.

A hybrid of Cluster Sampling, one identifies clusters, randomly selects clusters, and randomly selects subjects within clusters.



Caution: Never never use the term ‘convenience sample’ in a research manuscript or proposal!

Tip. If you introduce randomness—randomly select a start time and randomly select an interval, this becomes “Systematic Sampling.”

Example: To pilot test a survey, seek equal numbers of males, females, Spanish- and English speakers to provide balanced feedback about the survey.

Note: This is used in qualitative research methods, for long interviews and focus groups.

Tip. This strategy is especially useful for identifying populations who engage in illegal behavior or who are otherwise hard to locate, like homeless populations.

Convenience Sampling.

This is cherry-picking. Selects subjects based on their availability or desired qualities.

Consecutive Sampling.

Select subjects as they appear on a list, or as they walk in the door.

Quota Sampling.

Identify strata that “represent” the population and (nonrandomly) select subjects that fill in your quota.

Purposive Sampling.

Deliberately select subjects based on their ability to provide good information, or to represent typical cases, dissimilar views, or extreme cases of a phenomenon.

Snowball Sampling.

Subjects in the study help the investigator identify more subjects with similar characteristics.

