Samples, populations and sampling techniques

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Core ideas

A population is the wider group the researcher wants to understand.

A sample is the smaller group of participants who actually take part in the study.

Representative samples make it easier to generalise findings to the wider population.

Opportunity sampling uses people who are available, making it practical but often biased.

Random sampling gives each member of the population an equal chance of selection if a full sampling frame is available.

Sampling technique affects bias, ethics, time, cost and how confidently findings can be applied beyond the study.

Key terms

Population: The wider group the researcher wants to draw conclusions about.

Sample: The participants who actually take part in a study.

Sampling technique: The method used to choose participants.

Representative sample: A sample that reflects important features of the wider population.

Opportunity sample: A sample chosen because participants are available.

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Continued

Random sample: A sample where each population member has an equal chance of selection.

Sampling bias: A sample problem that makes some people more likely to be included than others.

Generalisability: How far findings apply beyond the sample studied.

Volunteer sampling: Recruiting participants who choose to respond to an invitation; also called self-selecting sampling.

Further detail and evidence

Volunteer (self-selecting) sampling recruits people who respond to an invitation or advertisement. It is practical and participants may be motivated, but volunteers may differ from non-volunteers, limiting generalisability.

Random sampling selects from the target population by chance. Random allocation instead assigns already-recruited participants to experimental conditions; these are separate procedures.

Define the target population and the sampling frame. Random sampling selects people from that frame; opportunity sampling recruits available people; volunteer/self-selection sampling uses responses to an invitation. Random allocation happens later and assigns participants to conditions.

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Applying the ideas

Milgram recruited volunteers through advertisements/direct mail. Andrade recruited available panel members after another experiment, then randomly allocated them. A school sample may be practical but exclude children who do not attend those schools. Large numbers alone do not remove selection bias.

Worked example: Choose a sampling technique for a quick school stress survey and justify it. Opportunity sampling would be practical for a quick school stress survey because the researcher could ask students who are available at lunch or in a common area. This would save time and make data collection easier. A limitation is sampling bias because available students may not represent all students in the school.

Worked example: Compare a sample with a population using a psychology example. If a researcher wants to understand exam anxiety in all Year 12 students at a school, that full group is the population. If 40 Year 12 students complete the questionnaire, those 40 students are the sample. The sample is easier to study, but conclusions are stronger if it represents the wider population well.

Evaluation and connections

A random sample can still be affected by nonresponse or an incomplete frame. Volunteers may differ in motivation and relevant traits. Generalisation depends on the sample, target population, setting and task. Describe the actual recruitment information rather than assuming a technique not reported.