

Alternative hypothesis Also known as the experimental hypothesis. This is the hypothesis the researcher is trying to support with statistical data by rejecting the null hypothesis.

Assignment errors This is an error that occurs when the assignment of subjects to different groups results in groups that have different characteristics

Associative relationship A correlation between two variables that is not causal (meaning that one variable does not cause the other)

Assumption A principle or statement that is accepted as true based upon logic or reason without proof

Baseline data Data collected before any intervention is performed

Bias Any influence that distorts the results of a study and undermines its validity

Case study a method of research that involves a thorough, in-depth analysis of a research subject

Causal relationship Also called cause-and-effect relationship. A relationship between two variables where the presence or absence of one variable determines the presence or absence of another variable

Central tendency A statistical representation of the 'typical-ness' of a set of scores. Central tendency measurements represent the 'middle' of the score distribution and include the mean, mode, and median.

Cohort design Also called a prospective design, a cohort design is a research design method in which nonexperimental subjects are followed over a period of time to study the outcomes being evaluated.

Confidence interval The expected range in which the actual population will be found, at a given level of confidence or probability

Control group Subjects in an experiment who do not receive the intervention and against whom the effects of treatment can be compared

Convenience sampling Selection of the most easily available subjects as participants in a study

Dependent variable The variable hypothesized to be affected by the independent variable. In experimental research, it is the variable whose outcome is of interest

Ecological validity The degree to which the results of a study have relevance and meaning in a real world setting

Experimental group The subjects in a study who receive the experimental treatment or intervention

External validity The degree to which the results of a study can be generalized to the population

Face validity The degree to which an instrument appears to measure what it purports to measure

False negative A situation in which a diagnostic test indicates that a person does not have a disease when he/she actually does have the disease

False positive A situation in which a diagnostic test indicates that a person has a disease when, in fact, the person does not have the disease

Frequency distribution the way in which scores in a given sample are distributed

Hawthorne effect A condition where the subjects' performance is improved because they are aware that they are being observed or measured. The Hawthorne effect is a form of placebo effect

Hypothesis A statement of predicted relationships between variables or predicted outcomes

Independent variable The variable that is surmised to influence the dependent variable. In experimental research, it is the manipulated treatment variable.

Internal validity The ability of the researcher to attribute differences in the groups or participants to the independent variable

Interval scale A type of measurement scale in which an attribute of a variable is ordered on a scale that has equal distances between points on the scale. The Fahrenheit scale is an example of an interval scale

Intervention In experimental research, it is the experimental treatment or manipulation

Likert scale A five-point response scale use in questionnaires with responses like strongly agree, agree, undecided, disagree, and strongly disagree

Mean The average of a group of scores

Median The middle score, or 50th percentile of a group of scores

Mode The score in a group of scores that occurs the most frequently

Nominal scale A scale in which the values are distinct categories such as male or female, Catholic or Protestant, etc. and have no intrinsic mathematical value

Null hypothesis The hypothesis in a study that asserts that there is no difference between groups or no relationship between variables being examined. If the null hypothesis is rejected, then the alternative hypothesis, which states that there is a difference between groups or a relationship between variables, is accepted

Open-ended question A research question that is answered in the subject's own words and not categorized by a nominal, ordinal, interval, or ratio scale. An example of an open-ended question is, "How did you feel while you were taking the test?"

Ordinal scale A scale in which the values are distinguishable and are ordered by rank, but do not have a meaningful zero point and are not equidistant. An example of an ordinal scale are values such as 1st, 2nd, and 3rd.

Placebo effect The phenomenon in which an otherwise worthless intervention produces an improvement in the subjects' condition or performance because they expect the intervention to have such an effect

Quasi-experimental design An experiment in which the subjects are not selected to receive or not receive the intervention by random means

Random sample A group of cases drawn from the population in such a way that each member of the population has an equal chance of being selected

Ratio scale A scale in which the values are distinctive, ordered, equidistant, and a zero point represents an absence of the quantity. Measurements such as meters, pounds, or kilometers are ratio scales.

Sampling error Error introduced in the study because the sample size is smaller than the population and may not accurately represent it. For example, the average height of a sample may be 5'10" where the average height of the entire population may actually be 5'9"

Sensitivity The proportion of people who test positive for a disease and truly have the disease (true positive)

Specificity The proportion of people who test negative for a disease and truly do not have the disease (true negative)

Type I error When researchers, on the basis of a statistical test, erroneously conclude that there is evidence of an association between two variables when, in fact, there is not

Type II error When researchers, on the basis of a statistical test, erroneously conclude that there is evidence of no association between two variables when, in fact there is

Validity The extent to which a test measures what it intends to measure

Variable A property or value which varies. Factors such as weight, height, age intelligent quotient, etc, are variables.