

Correlational Designs

- Correlational Design- Research design that examines the extent to which two variables are associated.
- If two things are correlated, they relate to each other.
- Correlations can be positive, zero, or negative
 - Positive- As the value of one variable changes, the other goes in the same direction.
 - Zero- The variables don't go together
 - Negative- As the value of one variable changes, the other goes in the opposite direction.
- Correlation coefficients range in value from -1.0 to 1.0
 - -1.0 is a perfect negative correlation
 - +1.0 is a perfect positive correlation
 - Values lower than 1.0 indicate a less than perfect correlation coefficient.
- Scatterplot- A grouping of points on a two-dimensional graph in which each dot represents a single person's data.
- Illusory Correlation- The perception of a statistical association between two variables where none exists.
- Experimental designs permit cause-and-effect inferences.
- In correlational designs the differences among participants are measures, whereas in experimental designs they're created.
- An experiment consists of two ingredients:
 - Random assignment of participants to conditions
 - Random Assignment- The experimenter randomly sorts participants into one of two groups.
 - Experimental Group- Receives the manipulation
 - Control Group- Doesn't receive the manipulation
 - Random selection deals with how we initially choose our participants, whereas random assignment deals with how we assign our participants after we've already chosen them
 - Manipulation of an independent variable
 - Independent Variable- The variable the experimenter manipulates.
 - Dependent Variable- The variable that the experimenter measures to see whether this manipulation has had an effect.
 - Operational Definition- A scientist's working definition of what they're measuring.
- Confounding Variable- Refers to any difference between the experimental and control groups other than the independent variable.

- Placebo Effect- Improvement resulting from the mere expectation of improvement.
- Patients must remain blind to the condition to which they've been assigned.
- Nocebo Effect- Harm resulting from the mere expectation of harm.
- Experimenter Expectancy Effect/Rosenthal Effect- Occurs when researchers' hypotheses lead them to unintentionally bias the outcome of a study.
- Double Blind- Neither researchers nor participants know who's in the experimental or control group.
- Demand Characteristics- Cues that participants pick up from a study that allow them to generate guesses regarding the researcher's hypotheses.

Ethical Issues in Research Design

- Informed Consent- Informing research participants of what is involved in a study before asking them to participate.
- Debriefing- A process whereby researchers inform participants what the study was about.

Statistics: The Language of Psychological Research

- Statistics- The application of mathematics to describing and analyzing data.
- Descriptive Statistics- Numerical characterizations that describe data.
 - Central Tendency- Measure of the "central" scores in a data set, or where the group tends to cluster.
 - Mean- Average; a measure of central tendency
 - Median- Middle score in a data set; a measure of central tendency
 - Most frequent score in a data set; a measure of central tendency
 - Variability- Measures of how loosely or tightly bunched scores are.
 - Range- Difference between the highest and lowest scores; a measure of dispersion.
 - Standard Deviation- Measure of dispersion that takes into account how far each data point is from the mean.
- Inferential Statistics- Mathematical methods that allow us to determine whether we can generalize findings from our sample to the full populations.
- A statistically significant result is believable; it's probably a real difference in our sample.
- Practical Significance- Real world importance

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Evaluating Psychological Research

- Consider the source
- Watch out for excessive sharpening and leveling
 - Sharpening- The tendency to exaggerate the gist, or central message, of a study.

- o Leveling- The tendency to minimize the less central details of a study.
- Can be misled by seemingly “balanced” coverage of a story.
 - o Sometimes causes pseudosymmetry, the appearance of a scientific controversy where none exists.
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