Research in Abnormal Psychology

Chapter 2

• Research is the systematic search for facts through the use of careful observations and investigations
  – It is the key to accuracy in all fields but it is particularly important in the field of abnormal psychology
    • Theories and treatments that seem reasonable and effective in individual instances may prove disastrous when widely applied
    • Only by fully testing a theory or technique on representative groups of individuals can clinicians evaluate the accuracy, effectiveness, and safety of their ideas and techniques

• Clinical researchers face certain challenges that make their work very difficult:
  – Measuring unconscious motives
  – Assessing private thoughts
  – Monitoring mood changes
  – Calculating human potential
• Clinical researchers must consider different cultural backgrounds, races, and genders of the people they study
• They must always ensure that the rights of their research participants, both human and animal, are not violated
What Do Clinical Researchers Do?

- Clinical researchers try to discover universal laws, or principles, of abnormal psychological functioning:
  - Search for nomothetic understanding
  - General or universal laws or truths
  - Do not typically assess, diagnose, or treat individual clients
  - Rely on the scientific method to pinpoint relationships between variables
  - Use three methods of investigation to form and test hypotheses and to draw broad conclusions...

The Case Study

- Provides a detailed, interpretative description of a person's life and psychological problems
- Can be a source of new ideas about behavior
  - Freud's theories based mainly on case studies
- May offer tentative support for a theory
- May challenge a theory's assumptions
- May inspire new therapeutic techniques
- May offer opportunities to study unusual problems

The Case Study

- Has limitations:
  - Is reported by biased observers
  - Relies on subjective evidence
    - Has low internal validity
  - Provides little basis for generalization
    - Has low external validity
- These limitations are addressed by the two other methods of investigation...
The Correlational Method and The Experimental Method

- Do not offer richness of detail
- Do allow researchers to draw broad conclusions
- Preferred method of clinical investigation
  - Typically involve observing many individuals
  - Researchers apply procedures uniformly
    - Studies can be replicated
    - Researchers use statistical tests to analyze results

The Correlational Method

- Correlation is the degree to which events or characteristics vary with each other
  - The correlational method is a research procedure used to determine the “co-relationship” between variables
- The people chosen for a study are its subjects or participants, collectively called a sample
  - The sample must be representative of the larger population

Describing a Correlation

- Correlational data can be graphed and a “line of best fit” can be drawn
  - Positive correlation (slope is upward and to the right) = variables change in the same direction
  - Negative correlation (downward slope) = variables change in the opposite direction
  - Unrelated (no slope) = no consistent relationship
Positive Correlation

Negative Correlation

No Correlation
Describing a Correlation

- The magnitude (strength) of a correlation is also important
  - High magnitude = variables which vary closely together; fall close to the line of best fit
  - Low magnitude = variables which do not vary as closely together; loosely scattered around the line of best fit

Magnitude of Correlation

Describing a Correlation

- Direction and magnitude of a correlation are often calculated numerically
  - This statistic is the “correlation coefficient,” symbolized by the letter “r”
    - The correlation coefficient can vary from +1.00 (perfect positive correlation) to -1.00 (perfect negative correlation)
    - Sign (+ or -) indicates direction
    - Number indicates magnitude
      - 0.00 = no consistent relationship
  - Most correlations found in psychological research fall far short of “perfect”
When Can Correlations Be Trusted?

- Correlations can be trusted based on a statistical analysis of probability
  - "Statistical significance" means that the finding is unlikely to have occurred by chance
    - By convention, if there is less than a 5% probability that findings are due to chance (p < .05), results are considered "statistically significant" and are thought to reflect the larger population
    - Generally, confidence increases with the size of the sample and the magnitude of the correlation

What Are the Merits of the Correlational Method?

- Advantages of the correlational method:
  - Has high external validity
    - Can generalize findings
  - Can repeat (replicate) studies on other samples

- Difficulties with correlational studies:
  - Lack internal validity
    - Results describe but do not explain a relationship
      - Results say nothing about causation

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Special Forms of Correlational Research

• There are two special forms of correlational study:
  – Epidemiological studies
    • Reveal the incidence and prevalence of a disorder in a particular population
      – Incidence = number of new cases that emerge in a given period
      – Prevalence = total number of cases in a given period
  – Longitudinal studies
    • Researchers observe the same individuals on many occasions over a long period

The Experimental Method

• An experiment is a research procedure in which a variable is manipulated and the manipulation’s effect on another variable is observed
  – Manipulated variable = independent variable
  – Variable being observed = dependent variable
• Allows researchers to ask questions such as: Does a particular therapy relieve the symptoms of a particular disorder?
  – Questions about causal relationships can only be answered by an experiment

The Experimental Method

• Statistics and research design are very important
  – Researchers must try to eliminate all confounds – variables other than the independent variable that may also be affecting the dependent variable
  – Three features are included in experiments to guard against confounds:
    • A control group
    • Random assignment
    • Blind design
The Control Group

- A control group is a group of research participants who are not exposed to the independent variable, but whose experience is similar to that of the experimental group
  - By comparing the two groups, researchers can better determine the effect of the independent variable
- Rules of statistical significance are applied
  - In addition, clinicians may also evaluate clinical significance

Random Assignment

- Researchers must also watch out for differences in the makeup of the experimental and control groups
  - To do so, researchers use random assignment – any selection procedure that ensures that every participant in the experiment is as likely to be placed in one group as another
  - Examples: coin flip; picking names out of a hat

Blind Design

- A final confound problem is bias
  - To avoid bias by the participant, experimenters employ a “blind design,” in which participants are kept from knowing which assigned group (experimental or control) they are in
    - One strategy for this is providing a placebo – something that simulates real therapy but has none of its key ingredients
  - To avoid bias by the experimenter, experimenters employ a “double-blind design,” in which the experimenters and the participants are kept from knowing which condition of the study participants are in
    - Often used in medication trials
Alternative Experimental Designs

- It is not easy to devise an experiment that is both well controlled and enlightening
- Clinical researchers often must settle for designs that are less than ideal and include:
  - Quasi-experimental designs
  - Natural experiments
  - Analogue experiments
  - Single-subject experiments

Alternative Experimental Designs

- In quasi-experimental, or mixed, designs, investigators do not randomly assign participants to groups, but make use of groups that already exist
  - Example: Children with a history of child abuse
- To address the problem of confounds, researchers use matched control groups
  - These groups are “matched” to the experimental group based on demographic and other variables

Alternative Experimental Designs

- In natural experiments, nature manipulates the independent variable and the experimenter observes the effects
  - Example: Psychological impact of flooding
- These events cannot be replicated at will
- Broad generalizations cannot be made
Alternative Experimental Designs

- Analogue experiments allow investigators to freely manipulate independent variables while avoiding ethical and practical limitations
  - They induce laboratory subjects to behave in ways that seem to resemble real life
    - Example: Animal subjects
  - The major limitation of all analogue research is that experimenters can never be certain that the phenomena observed in the lab are the same as the psychological disorders being investigated

- In a single-subject experiment, a single participant is observed both before and after manipulation of an independent variable
  - Experiments rely on baseline data to set a standard for comparison
  - An example is the ABAB, or reversal, design

- In an ABAB (reversal) design, a participant’s reactions are measured during a baseline period (A), after the introduction of the independent variable (B), after the removal of the independent variable (A), and after reintroduction of the independent variable (B)
  - The participant is, essentially, compared against himself or herself under different conditions rather than against control subjects
Alternative Experimental Designs

• Single-subject experiments are similar to individual case studies
  — Both focus on one subject only
  — Both have low external validity
• However, the single-subject experiment has higher internal validity than the case study, given the manipulation of an independent variable