CHAPTER SUMMARY

Human behavior is so complex that clinical scientists must use a range of methods to study it. Each method addresses some of the underlying problems in research, but no one approach overcomes them all. This chapter describes the research strategies that are currently informing our knowledge of abnormal functioning. It also stresses the importance of reviewing research findings with a critical eye. Were the variables properly controlled? Was the choice of participants representative? Was the sample large enough to be meaningful? Has bias been eliminated? Are the investigator’s conclusions justified? How else might the results be interpreted? Only after asking these questions can we conclude that a truly informative investigation has been conducted.

TOPIC OVERVIEW

What Do Clinical Researchers Do?

The Case Study
How Are Case Studies Helpful?
What Are the Limitations of Case Studies?

The Correlational Method
Describing a Correlation
When Can Correlations Be Trusted?
What Are the Merits of the Correlational Method?
Special Forms of Correlational Research

The Experimental Method
The Control Group
Random Assignment
Blind Design

Alternative Experimental Designs
Quasi-Experimental Design
Natural Experiments
Analogue Experiments
Single-Subject Experiments

Putting It Together: The Use of Multiple Research Methods

LECTURE OUTLINE

I. RESEARCH IN ABNORMAL PSYCHOLOGY
   A. Research is the systematic search for facts through the use of careful observations and investigations
      1. It is the key to accuracy in all fields, but it is particularly important (and challenging) in the field of abnormal psychology
         a. Theories and treatments that seem reasonable and effective in individual instances may prove disastrous when widely applied
      2. 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
   B. Clinical researchers face certain challenges that make their work very difficult
      1. Measuring unconscious motives
      2. Assessing private thoughts
      3. Monitoring mood changes
      4. Calculating human potential
   C. In addition, they must consider different cultural backgrounds, races, and genders of the people they study
   D. They also must always ensure that the rights of their research participants, both human and animal, are not violated

II. WHAT DO CLINICAL RESEARCHERS DO?
   A. Clinical researchers try to discover universal laws, or principles, of abnormal psychological functioning
      1. They search for general, or nomothetic, truths about the nature, causes, and treatments of abnormality
      2. Typically they do not assess, diagnose, or treat individual clients—that is the job of clinical practitioners, who seek an idiographic, or individualistic, understanding of abnormal behavior
      3. They rely on the scientific method to pinpoint and explain relationships between variables
         a. They utilize three main methods of investigation to form and test hypotheses and to draw broad conclusions
            (a) The case study
            (b) The correlational method
            (c) The experimental method

III. THE CASE STUDY
A. The case study provides a detailed description of a person’s life and psychological problems
   1. Case studies are helpful
      a. They can serve as a source of new ideas about behavior
         (a) For example, Freud’s theories were based mainly on case studies
      b. They may offer tentative support for a theory
      c. They may challenge a theory’s assumptions
      d. They may show the value of new therapeutic techniques
      e. They may offer opportunities to study unusual problems
   2. Case studies also are limited
      a. Observers are biased
      b. Data collection relies on subjective evidence (i.e., low internal validity)
      c. They provide little basis for generalization (i.e., low external validity)
   3. The limitations associated with this model are addressed by the two other methods of investigation—the correlational method and the experimental method
      a. Neither method offers richness of detail
      b. Both methods allow researchers to draw broad conclusions
      c. Thus, they are the preferred methods of clinical investigation
         (a) Both typically involve the observation of many individuals
         (b) Both models require the uniform application of study procedures
            (i) As a result, studies can be replicated
            (c) Both methods use statistical tests to analyze results

IV. THE CORRELATIONAL METHOD
A. Correlation is the degree to which events or characteristics vary with each other
   1. The correlational method is a research procedure used to determine the “co-
      relationship” between variables (See Table 2-1 on p. 39.)
B. The people chosen for a study are its subjects or participants, collectively called a sample
   1. The sample must be representative of the larger population
C. Correlational data can be graphed and a “line of best fit” drawn (See Figures 2-1 through 2-3 on pp. 36 and 37 of the text.)
   1. Positive correlation = variables change in the same direction
   2. Negative correlation = variables change in the opposite direction
   3. Unrelated = no consistent relationship
D. The magnitude (strength) of a correlation also is important (See Figure 2-4 on p. 37 of the text.)
   1. High magnitude = variables that vary closely together; fall close to the line of best fit
   2. Low magnitude = variables that do not vary as closely together; loosely scattered around the line of best fit
   3. Direction and magnitude of a correlation often are calculated numerically
      a. This statistic is called the “correlation coefficient” and is symbolized by the letter r
      b. The correlation coefficient can vary from 11.00 (perfect positive correlation)
         to 21.00 (perfect negative correlation)
      c. Sign (1 or 2) indicates direction
      d. Number (from 0.00 to 1.00) indicates magnitude
         (a) 0.005 no consistent relationship
   4. Most correlations found in psychological research fall far short of “perfect”
E. Correlations can be trusted based on a statistical analysis of probability
   1. “Statistical significance” means that the finding is unlikely to have occurred by chance
2. By convention, if there is less than a 5 percent probability that findings are due to chance (p < .05), results are considered “statistically significant” and are thought to reflect the larger population.

3. Generally, confidence increases with the size of the sample and the magnitude of the correlation.

F. What are the merits of the correlational method? (See Table 2-1 on text p. 39.)
   1. These studies have high external validity; therefore, clinical researchers can generalize findings.
   2. Using this model, clinical researchers can repeat (replicate) studies on other samples.

G. What are the difficulties with correlational studies?
   1. These studies lack internal validity.
   2. Results describe but do not explain relationships; in other words, results say nothing about causation.

H. There are two special forms of correlational study
   1. Epidemiological studies—These studies reveal the incidence and prevalence of a disorder in a particular population.
      a. Incidence = Number of new cases that emerge in a given period of time
      b. Prevalence = Total number of cases in a given period of time.
   2. Longitudinal studies—in this design, researchers observe the same individuals on many occasions over a long period of time.

V. THE EXPERIMENTAL METHOD

A. An experiment is a research procedure in which a variable is manipulated and the manipulation’s effect on another variable is observed.
   1. Manipulated variable = independent variable
   2. Variable being observed = dependent variable.

B. This model allows researchers to ask such questions as: Does a particular therapy relieve the symptoms of a particular disorder?
   1. Questions about relationships can only be answered by an experiment (See Table 2-2 on p. 41 of the text.)

C. Statistics and research design are very important.
   1. Researchers must try to eliminate all confounds from their studies—variables other than the independent variable that may also be affecting the dependent variable.
   2. Three features are included in experiments to guard against confounds:
      a. The control group
         (a) A control group is a group of participants who are not exposed to the independent variable but whose experience is similar to that of the experimental group.
         (b) By comparing the two groups, researchers can better determine the effect of the independent variable.
         (c) Rules of statistical significance are applied.
         (d) In addition, clinicians may evaluate clinical significance—whether the amount of improvement is meaningful in the individual’s life.
      b. Random assignment
         (a) Researchers must watch out for preexisting differences between the experimental and control groups.
         (i) 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.
         1. Examples: coin flip; picking names out of a hat.
      c. Blind design
         (a) A final confound problem is bias.
(i) To avoid bias by the participant, experimenters employ a “blind design”—participants are kept from knowing which assigned group (experimental or control) they are in

1. One strategy for this is providing a placebo—something that looks or tastes like real therapy but has none of its key ingredients

(ii) To avoid their own bias, experimenters employ a “double-blind design,” in which the experimenters and the participants are kept from knowing which condition of the study that the participants are in

1. Often used in medication trials

VI. ALTERNATIVE EXPERIMENTAL DESIGNS

A. It is not easy to devise an experiment that is both well controlled and enlightening

B. Clinical researchers often must settle for designs that are less than ideal and include:

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

2. Natural experiments
   a. In natural experiments, nature manipulates the independent variable and the experimenter observes the effects
      (a) Example: psychological impact of flooding
   b. Natural experiments cannot be replicated at will
   c. Broad generalizations cannot be made

3. Analogue experiments
   a. Analogue experiments allow investigators to manipulate independent variables while avoiding ethical and practical limitations
   b. They induce laboratory subjects to behave in ways that seem to resemble real life
      (a) Example: animal subjects
   c. 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

4. Single-subject experiments
   a. In a single-subject experiment, a single participant is observed both before and after manipulation of an independent variable
      (a) Baseline data is gathered to set a standard for comparison
   b. An experimental design is the ABAB, or reversal, design
      (a) 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)
      (i) The participant is, essentially, compared against himself or herself rather than against control subjects
   c. Single-subject experiments are similar to individual case studies
      (a) Both focus on one subject only
      (b) Both have low external validity
      (c) However, the single-subject experiment has higher internal validity than the case study, given the manipulation of an independent variable
LEARNING OBJECTIVES

2.1. Describe the role of clinical researchers in the field of abnormal psychology.

2.2. Describe the case study, including its uses and limitations (strengths and weaknesses).

2.3. Describe the correlational method. What is a positive versus a negative versus a null correlation? What are the uses and limitations of correlational research?

2.4. Describe the experiment. What are the uses and limitations of experimental research? Describe the reasons that experimenters use control groups, random assignment, and blind design.

2.5. Describe the following alternative experimental designs: quasi-experimental design; natural experiments; analogue experiments; single-subject experiments.

KEY TERMS

analogue experiment
blind design
case study
confounded
control group
correlation
correlational method
dependent variable
double-blind design
epidemiological study
experiment
experimental group
external validity
hypothesis
incidence
independent variable
Institutional Review Board (IRB)
internal validity
longitudinal study
natural experiment
nomothetic understanding
placebo therapy
prevalence
quasi-experiment
random assignment
scientific method
single-subject experimental design
MEDIA RESOURCES

Internet Sites

Please see Appendix A for full and comprehensive references. Sites relevant to Chapter 2 material are:

http://psych.med.nyu.edu/patient-care/outpatient-services/behavioral-health-program
This website provides an overview of the behavioral health programs offered at NYU Medical Center, including clinical research and current studies. It also provides links to general psychological research, hospital and patient care information, and education.

http://www.nimh.nih.gov
National Institute of Mental Health—NIMH
The homepage of the NIMH, a component of NIH. NIMH is the federal agency that conducts and supports (funds) research on mental illness and mental health.

Mainstream Films

Films relevant to Chapter 2 material are listed and summarized below.

Key to Film Listings:
P = psychopathology focus
T = treatment focus
E = ethical issues raised

Please note that some of the films suggested may have graphic sexual or violent content due to the nature of certain subject matters.

Charly
From the award-winning book *Flowers for Algernon*, this 1968 film portrays Charly, an adult suffering from intellectual disability. The film details Charly's experiences with doctors attempting to "cure" him, leading up to his participation in an experimental treatment that raises his IQ to genius levels but not his emotional maturity. Issues of informed consent and the responsibilities that accompany science are handled well. **P, T, E, serious film**

Kinsey

Trading Places
This 1983 film loosely addresses issues related to correlational and experimental research design. Dan Akroyd and Eddie Murphy play a privileged but priggish broker and a street hustler who are experimentally manipulated (without informed consent) into trading places. **E, comedy**

Wrong Answer
From 2005, this short film follows a participant in a psychology study of the effects of mild electric shocks on recall. Based on the classic Milgram obedience study. **E, serious film**

Other Films:
*Brain Candy* (1996) involves a drug company’s research into and development of a drug to treat depression. **P, T, comedy**
*The Nutty Professor* (1996 remake), research. **P, T, comedy**
The Royal Tennenbaums (2001) centers on a character who is conducting research on the brain functions of a boy and makes his living publishing pseudo-scientific results. P, comedy/serious film

CLASS DEMONSTRATIONS AND ACTIVITIES

“It’s Debatable: Is It Ethical to Use Animals in Psychological Research?” (See the Preface of this Instructor’s Resource Manual for instructions for conducting this activity.)

Have students volunteer (or assign them) in teams to opposite sides of the debate topic (see PsychWatch, text p. 31, for more information). Have students present their cases in class, following standard debate guidelines.

The Double-Blind Study

To illustrate the risks and benefits of the double-blind procedure, have students break up into small groups. Pass out index cards (one patient, several “blind” doctors, several “un-blind” doctors per group) and a treatment scenario (e.g., a patient in an antidepressant medication trial complaining of sexual side effects). How does being blind/un-blind influence your questioning of the patient?

Case Study

Present a case study to the class. Some of Freud’s cases (e.g., Little Hans [see the excerpt in the text], Dora, the Rat Man, and/or the case of the “Genain” sisters) are especially interesting.

Correlational Study

Discuss a situation in which a correlational design is required, that is, where it is either practically or ethically impossible to conduct an experiment. Examples include the association between smoking and heart disease, sexual abuse and eating disorders, alcohol abuse and work problems, and high levels of expressed emotion and schizophrenia.

Autism and Emotionally Frigid Parenting: The Dangers of Concluding Causation from Correlation

Present the case of clinicians concluding that autism is due to parenting practices. Children with autism were taken by their parents to Leo Kanner, a child psychiatrist at Johns Hopkins University. Kanner observed the behavior exchanges between children and parents and found that these parents appeared to be less warm than other parents. He concluded that these parents were “emotional refrigerators” and that their detached, emotionally vacant child-rearing practices caused the autism; the children responded to this rejection by becoming defensive and rejecting themselves. Psychoanalyst Bruno Bettelheim reached the same conclusion, but he argued that their hostility was unconscious and unintended. Nonetheless, Bettelheim advocated placing the children in residential settings with more loving caregivers so that the children could learn to trust and to let down their defenses. Discuss the fact that Kanner and Bettelheim were sincere in their efforts to help but that they had concluded causation based on correlation (the observation that two events—autism and emotional detachment—coincided). Discuss the effect such conclusions might have had on parents. Point out that the axiom “Correlation does not imply causation,” if not followed, can cause serious problems.
Facilitated Communication: Strict Experimental Controls Debunk a Useless Intervention

Facilitated communication (FC) is a method for providing assistance to a nonverbal person—such as a child with autism—by using a keyboard to type messages and thus communicate with others. The procedure involves the “facilitator” or assistant supporting the patient’s hand, making it easier for the patient to strike the keys he or she wishes to strike. Proponents of FC have asserted that previously uncommunicative persons, such as those with autism or profound mental retardation, can now communicate with others and, in fact, that many such patients have been found to be highly intelligent. In one study of FC, patients were asked how they felt. With the facilitator’s help, patients described themselves, revealing their personalities. Patients exhibited unique spellings, or typographical errors, or unique word usages. They occasionally reported, via FC, that they had been sexually abused. A number of questions were raised about FC. The most important was whether the facilitators were unwittingly selecting the keys that spelled out the messages. What was needed was a controlled experiment. An article in *American Psychologist* summarized the findings as follows:

Relevant controlled, peer-reviewed published studies repeatedly show that, under circumstances when access to information by facilitators is systematically and tightly manipulated, the ability to produce communication through FC varies predictably and in a manner that demonstrates that the content of the communication is being determined by the facilitator. (Jacobson, Mulick, and Schwartz 1995, p. 754)

The following is from an abstract of a 1998 article in the journal *Focus on Autism and Other Developmental Disabilities*:

The first author, a certified speech-language pathologist (SLP), served as the facilitator for two students with autism to assess pointing control during facilitated communication. The teacher instructed the students during typical classroom activities, and two classroom assistants collected data. We used a counterbalanced alternating treatments design with the SLP/facilitator being either blind or sighted. She wore sunglasses throughout the investigation with a cardboard cutout inserted for the blind condition. The alternating treatments data reveal that the students responded more accurately when the SLP/facilitator could see in spite of the fact that she did not think she was influencing their responding and did not intentionally do so.

Science and Society

The previous example clearly illustrates the sometimes dramatic tension between concrete experimental evidence and the human desire to believe certain things. In the FC example, there is great desire to help persons with autism, which can be a profoundly disabling disorder.

SUGGESTED TOPICS FOR DISCUSSION

Double-Blind Research

Discuss the ethical dilemmas involved in the use of control groups in research. Double-blind research requires that both the subject and the experimenter not know who receives treatment and who is given a placebo. Discuss whether there is an ethical obligation to halt the research if it becomes clear that treatment subjects are benefiting significantly from the treatment that is not being received by control subjects.
Research Ethics I
Discuss the ethical dilemmas related to informed consent (see PsychWatch, text p. 50). Why is this procedure so important? What should the penalty be for investigators who fail to obtain such documentation?

Research Ethics II
Discuss the necessity and importance of selecting representative samples. Why is this procedure so critical? What are the implications if a study sample is NOT representative? Can any sample ever truly be representative?

Research Ethics III
Discuss the ethical issues involved in the widespread (yet unvalidated) early use of lobotomy. The memoir My Lobotomy (see p. 30 of the text) details one man’s experience.

Research Design
Using Table 2-2, “Most Investigated Questions in Clinical Research,” on text p. 41, ask students to select a variable for study and discuss the potential design problems and hypothesize outcomes/conclusions.

ASSIGNMENTS/EXTRA CREDIT SUGGESTIONS

Essay Topics
For homework or extra credit, have students write an essay addressing one (or more) of the following topics:

(1) Compare and contrast the case study, the correlational method, and the experimental method.

(2) Design a detailed correlational study or experiment addressing one of the questions listed on text p. 41.

(3) The correlation found between life stress and depression does not necessarily indicate that stressors cause depression. Discuss other possible factors to explain this finding and other correlations in life that are often interpreted as causal but that may actually reflect a different relationship between the variables.

Research Topics
For homework or extra credit, have students write a research report addressing one (or more) of the following topics:

(1) Research and report on the clinical practice of Sigmund Freud (see Between the Lines, text p. 33). What interesting case studies did he write? How could he have conducted experimental research? What limitations did he face?

(2) Research and report on the case of the “Genain” sisters—identical quadruplets who all developed schizophrenia in their twenties (text p. 34).

(3) Conduct a “Psych Info” search and write an annotated bibliography on double-blind experiments.

(4) Conduct a “Psych Info” search and write an annotated bibliography on violations of research ethics.
(5) Conduct a “Psych Info” search and write an annotated bibliography on research conducted through Facebook or other social media platforms. (See MindTech, text p. 35.)

Film Review

To earn extra credit, have students watch one (or more) of the mainstream films listed earlier in this chapter and write a brief report (3 to 5 pages). Students should summarize the plot of the film in sufficient detail to demonstrate familiarity but should focus their papers on the depiction of psychological abnormality. What errors or liberties did the filmmaker take? What is the message (implicit or explicit) concerning people with mental illness?