

Diagnosis, Assessment, and Study of Mental Disorders

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Defining Abnormal Behavior and Mental Disorder

Classifying and Assessing Abnormal Behavior and Mental Disorder

Culture and Clinical Assessment

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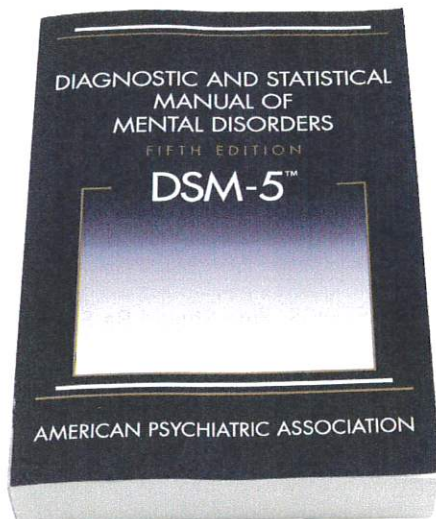
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C / Professor Smith

Forty-five-year-old **Professor Smith** could not understand what had been happening to him over the past 6 months. He had been experiencing strange sensations throughout his body, including chest pains and headaches. He felt short of breath, light-headed, shaky, and hot throughout his chest and arms during these



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episodes. These symptoms came on abruptly, sometimes even during sleep, but ended within 15 minutes. Professor Smith had a number of recent setbacks, including denial for promotion to full professor, so this was the last thing he needed.

What could be wrong? Professor Smith had several medical tests to rule out heart problems, a brain tumor, and other maladies. His physician reassured him nothing was medically wrong, but the symptoms persisted. Professor Smith found it harder to concentrate on his work and his career seemed to be on hold. Despite looming deadlines, he struggled to read books and journals and could not concentrate long enough to write a paragraph. His teaching was suffering as well, and he cancelled several classes because of his physical symptoms.

Professor Smith felt he needed to know what was happening but had no clear answer. Even worse, these symptoms and problems at work were creating a strain on his family and friendships. Those who cared about

him wanted to help but had trouble doing so because Professor Smith became more isolated, frustrated, and depressed. This depression seemed to worsen recently as he had trouble sleeping, felt fatigued much of the day, and lost 20 pounds. Finally, he agreed to see a clinical psychologist after constant pleas from his wife and at the suggestion of his physician. He was skeptical, but what harm could it do at this point?

What Do You Think?

1. Is Professor Smith's behavior abnormal? Do you think he has a mental disorder?
2. Do you know anyone with problems like Professor Smith's?
3. What other information about his condition would be useful to know?
4. What do you think would be the best way to find out more about his problems? Do you think interviews, psychological evaluations, or other medical tests would help?
5. What kind of treatment might give Professor Smith some relief?

Defining Abnormal Behavior and Mental Disorder

Professor Smith's case illustrates how certain symptoms can limit someone's ability to live comfortably, maintain a career, and even talk to others. These symptoms are indeed quite distressing to him and seem out of the ordinary. Professor Smith has consulted a psychologist to find out what is wrong and what can be done to help. What do mental health professionals do when they address people with mental disorder? Mental health professionals define, classify, assess, and study mental disorders; we discuss these endeavors in this chapter, starting with definition.

Dimensions and Categories

Mental health professionals often focus on **dimensions** and **categories** to define abnormal behavior and mental disorder. A *dimensional approach* refers to defining abnormal behavior along a continuum or spectrum. Recall three definitions of abnormal behavior from Chapter 1: (1) behavior that deviates from the norm, (2) behavior associated with difficulty adapting to life's demands, and (3) behavior accompanied by personal distress. Each definition lies on a continuum. Some behaviors deviate a little from the norm and involve slight adaptation

problems or distress, and some behaviors deviate substantially from the norm and involve significant adaptation problems and distress. Recall from Chapter 2 how Mariella's symptoms of depression reflected to some extent a normal reaction to being separated from family and friends but also that some of her depressive symptoms seemed problematic. Recall from Chapter 3 our discussion of mild, moderate, and severe intensity of symptoms. These examples show abnormal behavior on a continuum or from a dimensional perspective.

One way to think about abnormal behavior from a dimensional perspective is to consider its many forms. Abnormal behavior actually consists of *emotional states*, *cognitive styles* or ways of thinking, and *physical behavior*. We can view each form along a continuum or dimensional perspective. Professor Smith experiences *emotional* sadness, *cognitive* worry, and *behavioral* avoidance. His symptoms are severe, but all of us become sad and worrisome and avoid things from time to time. We show emotions, thoughts, and behaviors along a spectrum of intensity or oddity.

A different way of defining abnormal behavior or mental disorder is a *categorical approach*. A category is a large class of frequently observed syndromes (mental disorders) composed of abnormal behaviors or features that occur in a person. Many chapters in this book represent broad categories of mental disorder, such as anxiety, depressive, psychotic, personality, developmental, and neurocognitive disorders.

Depression is a widely recognized syndrome or mental disorder that often includes sad mood, sleep and appetite disturbance, and suicidal thoughts. A certain number of symptoms must be present from a categorical perspective before a person's behavior can be considered abnormal—for depression, five of nine main symptoms must be present. Someone with only three or four symptoms of depression would not be considered to have a mental disorder. A **diagnosis** from a categorical perspective is defined by rules that outline how many and what features of a mental disorder must be present.

The categorical approach can be thought of as a “yes–no” approach: One either has or does not have a mental disorder. The approach is derived from a medical model that makes sense when you consider a disease such as measles. We can guarantee you either have measles right now or you do not (pick one!). A “yes–no” approach works well for physical disorders but perhaps less well for mental disorders. Imagine if someone visited a psychologist and complained of sad mood, trouble sleeping, suicidal thoughts, and no other symptoms. This person has *no mental disorder* from a strict categorical perspective because not enough symptoms of depression are evident. But doesn't the person have a problem that should be treated?

We have indicated throughout this textbook that we can best view abnormal behavior along a continuum. Still, many mental health professionals adopt a common categorical approach to classifying mental disorder, and we describe this approach next. Our approach throughout this textbook will be to organize mental disorders by general categories but explain the dimensional aspects of each category in detail.

DSM

A categorical approach to mental disorder commonly used in the United States and much of the world is the *Diagnostic and Statistical Manual of Mental Disorders* (DSM; American Psychiatric Association [APA], 2013). General features of **mental disorder** according to the DSM include the following:

- A group of emotional, cognitive, or behavioral symptoms, called a **syndrome**, that occur within a person.
- These symptoms are usually associated with emotional distress or disability (impairment) in life activities.
- The syndrome is not simply an expected or culturally approved response to a specific event, such as grief and sadness following death of a loved one.
- The symptoms are considered to reflect dysfunction in psychological, biological, or developmental processes.

A syndrome (or mental disorder or diagnosis) includes a group of abnormal behaviors or number of symptoms *associated with* distress, significant work or interpersonal problems, or likelihood of future problems. Recall Ricardo and Yoko from Chapter 1 who had symptoms of anxiety. Ricardo qualified for a DSM diagnosis of social phobia because his symptoms interfered with daily functioning. Yoko's anxiety symptoms, however, were not accompanied by significant impairment in daily functioning, and so she did not qualify for a diagnosis.

This description of syndrome or mental disorder incorporates definitions of abnormal behavior from Chapter 1 and this chapter. The description focuses on behavior that deviates from the norm, behavior associated with difficulty adapting to life's demands, and behavior accompanied by distress. The DSM definition of mental disorder is restrictive because it focuses on *clusters* of abnormal behaviors associated with distress or disability. Several abnormal behaviors must be present at the same time *and* cause significant problems for someone to qualify for a diagnosis of a mental disorder.

Advantages of Diagnosis

Several advantages do exist regarding diagnoses, however. A primary advantage of diagnosis is *communication*—a wealth of information can be conveyed in a single term. A colleague once referred a person with a diagnosis of schizophrenia to one of your authors, Tim. A symptom pattern immediately came to Tim's mind even though he knew nothing about the person: delusions, hallucinations, severe social/occupational dysfunction, and continuous symptoms for at least 6 months. You can think of a diagnosis as “verbal shorthand” for describing features of a mental disorder. We do not have to ask so many questions about a person's symptoms when we know his or her diagnosis.

A second advantage of diagnosis is that standard rules are provided for defining mental disorders and for seeking the cause of these disorders. We must group people based on symptoms they share to study the cause of a mental disorder. Important comparisons between groups can then be made about developmental characteristics, personality features, performance on experimental tasks, or other variables that could shed light on risk factors and cause. We mentioned in Chapter 3 that childhood sexual maltreatment is a risk factor for borderline personality disorder. A reliable and systematic way of defining borderline personality disorder was necessary first, however, to even reach this conclusion. Use of diagnoses assists this process.

A third advantage of diagnosis is that, because everyone uses the same system, clinicians can find useful assessment strategies, such as questionnaires for depression, and researchers can examine prevalence rates of a certain mental disorder at local, state, and national levels. Managed care agencies also rely on diagnostic codes to reimburse people for mental health services. Diagnoses are most important because *they may suggest which treatment is most effective*. A diagnosis of schizophrenia, for example, suggests that antipsychotic medication is likely to be more effective than psychodynamic therapy. More than one treatment is often effective for mental disorders, however.

Diagnoses thus serve many useful functions, and researchers and practitioners commonly use them to understand mental disorder. Laypeople also use diagnoses to understand what is wrong. If you were diagnosed with a strange-sounding disease, you would likely “Google” it to get more information. Diagnoses also ease the sense of uniqueness or loneliness people feel when something is wrong. Professor Smith learned his condition was called “panic disorder” and that the problem can be successfully treated. How do you think he felt once he learned this?

Interim Summary

- Mental health professionals often focus on dimensions and categories to define abnormal behavior and mental disorder.
- A dimensional approach refers to defining abnormal behavior along a continuum.
- A category is a large class of frequently observed syndromes or mental disorders.
- A diagnosis is defined by rules that outline how many and what features of a mental disorder must be present.
- Mental disorder from the *DSM* categorical approach involves a group of abnormal behaviors associated with distress or disability.
- Advantages of diagnosis include enhanced communication, improved definition and understanding of mental disorder, coordinated research, and ideas about which treatment is likely to be most effective for a given disorder.

Review Questions

1. What is it about Professor Smith's behavior and symptoms that led his therapist to diagnose him with a mental disorder?
2. Which general features of the *DSM* definition of mental disorder are highlighted in Professor Smith's case?
3. Why do you think the *DSM* definition of mental disorder requires the presence of significant distress or disability?
4. How might diagnosis allow mental health professionals to communicate about Professor Smith's problems, study what caused his problems, and determine what treatment might be effective for him?

Classifying and Assessing Abnormal Behavior and Mental Disorder

Recall that mental health professionals define, classify, assess, and study mental disorders. We have discussed definition. **Classification** is next and refers to arranging mental disorders into broad categories or classes based on similar features. The *DSM* is a primary method of classification with criteria and research-based information about mental disorders listed in the manual (*DSM-5*; APA, 2013).

Some of the diagnostic categories discussed in this textbook may be familiar to you because of their prevalence and media coverage. You may have heard a lot about anxiety, depression, attention-deficit/hyperactivity disorder, Alzheimer's disease, alcohol use disorder, and anorexia nervosa. Other diagnoses may be less familiar to you, such as somatic symptom disorder and paraphilic disorders. Researchers have studied these disorders in one form or another for decades and the disorders are often the focus of clinical attention because of their prevalence and severity.

The *DSM-5* relies on categories to organize mental disorder but also encourages clinicians to use dimensional assessments in addition to diagnoses. Recall that "dimensional" means viewing

behavior or symptoms along a continuum. One type of dimensional assessment might include ratings of a person's symptoms as mild, moderate, or severe in intensity. Another dimensional assessment could involve a person's degree of insight into, or recognition of, his mental condition. Dimensional assessments allow clinicians to consider fluctuations in symptoms, to track a client's progress in therapy, and to evaluate all of a client's symptoms, not simply those that are part of an assigned diagnosis. Other types of dimensional assessments are discussed throughout the textbook.

How might such a categorical and dimensional approach work for Professor Smith? Professor Smith's therapist assigned two diagnoses based on his symptoms. The primary diagnosis (initial focus of treatment) was panic disorder. Professor Smith's "episodes" suggest he has periodic panic attacks with chest pain, shaking, breathlessness, hot flashes, and light-headedness (Chapter 5). These attacks are recurrent and unexpected, and Professor Smith has been concerned about additional attacks and their implications ("Am I having a heart attack?"). Professor Smith also received a diagnosis of major depressive disorder (Chapter 7). He has had sad mood, insomnia, difficulty concentrating, fatigue, weight loss, and poor appetite for more than 2 weeks. These symptoms characterize depression.

Professor Smith's therapist also used dimensional assessments. One type of dimensional assessment involved symptom intensity ratings along a continuum (i.e., mild, moderate, severe). For example, some of Professor Smith's anxiety and depressive symptoms were mild to moderate in nature. These included his headaches and sad mood. In contrast, some of his anxiety and depressive symptoms were severe in nature. These included his shortness of breath, light-headedness, trouble sleeping, and fatigue.

Another dimensional assessment involved the impact of Professor Smith's symptoms on different areas of his life. Professor Smith's symptoms such as his inability to concentrate or finish projects had the greatest negative impact on his career. His symptoms also had some impact on his marriage, but his wife was supportive of him during this difficult time. These dimensional assessments allowed the therapist to concentrate treatment first on those symptoms that caused Professor Smith the most amount of distress and that seemed most urgent. You can see that a dimensional approach adds substantial information to a simple diagnosis. We continue to emphasize this dimensional approach as we discuss mental disorders throughout this textbook.

Assessing Abnormal Behavior and Mental Disorder

Defining and classifying mental disorder are important tasks that involve detailed clinical assessment. **Clinical assessment** involves evaluating a person's strengths and weaknesses and understanding the problem at hand to develop a treatment (Trull & Prinstein, 2013). This may include providing a diagnosis for the person. We describe in this next section assessment procedures implemented in clinics, hospitals, and offices of mental health professionals.

The clinical assessment process begins with a *referral*. Someone—perhaps a parent, teacher, spouse, friend, judge, or a

4.1

Focus On

Diversity**Culture and Diagnosis**

Culture has an impact on our thoughts, personal perspectives and world-views, emotional expression, and behavior. Culture must be considered when a person is evaluated for psychological problems, and mental health professionals must be aware of their own biases when they evaluate people of other cultures. What may be considered unusual in one culture may not be in another culture. Consider Joey, a 10-year-old boy of Chinese descent who moved to the United States with his parents 4 years earlier (Fang, Lee, & Huang, 2013). Joey was referred to a mental health clinic by his pediatrician after reports of seeing ghosts at bedtime on a daily basis for the past 2 years. Joey stated that he actually sees ghosts (does not dream about them), they appear to be teenagers, and they intend to hurt his family. Joey goes to bed each night with a stick and a flashlight ready to defend himself and his family if necessary. However, over time, he has become less scared of the ghosts and simply watches them but does not interact with them. Joey reports that he has no trouble falling asleep, and he is functioning well at school and at home. Joey's parents began to wonder if Joey might possess some special powers to connect to the spiritual world, which according to some Chinese customs naturally interact with humans. Those with this gift are considered to be more vulnerable to "spirit attack."

Joey's experiences and beliefs may seem quite unusual or even evidence of a serious mental disorder like schizophrenia. However, there may be cultural explanations that account, at least partially, for his experience. One possible Chinese indigenous explanation is a form of sleep paralysis called "ghost oppression" (*guai ya chun*; "ghost presses bed"). However, this does not seem to fit Joey's report in that he did not report an inability to move while awakening. However, seeing ghosts is not an uncommon experience among Chinese people, and thus does not necessarily indicate psychotic symptoms like hallucinations or delusions. But why did Joey feel that the ghosts might hurt him or his family? Clinicians that evaluated Joey and his family attributed these feelings to the stress of immigration for both Joey and his family. Treatment focused on supporting Joey and his family in their adjustment to life in the United States as well as encouraging the family to spend more time together to strengthen their bond. Over time, Joey's primary symptoms of seeing ghosts at bedtime improved and the family reported better functioning.

Joey's case highlights the importance of considering culture when evaluating psychological symptoms. The *DSM-5* includes a Cultural Formulation Interview to help mental health professionals gain information about how a person's culture may affect his symptoms and treatment (APA, 2013). Questions surround how a person understands and explains his condition, what social stressors and supports he may have, whether his cultural background or identity affects his symptoms, what cultural factors may influence his ability to cope and to seek help, and concerns about his therapist or the mental health setting. Mental health professionals are also encouraged to be aware of how a person's culture can influence risk factors and the course of a disorder (Kleinman, 2012).

person himself—asks a question: "Why is Samantha struggling at her job?" "Why are my child's moods so unstable?" "Why do I feel anxious all the time?" "Why does Professor Smith keep canceling his classes?" People may then be referred to a therapist who might provide a *DSM-5* diagnosis but who will also examine emotional, cognitive, personality, and biological issues that must be addressed. Mental health professionals try to understand precisely what a client seeks or needs and use a wide array of procedures and measures to do so.

Reliability, Validity, and Standardization

An important expectation of mental health professionals is that they use assessment measures that are strong psychometrically. This means the measures should be reliable, valid, and standardized. We discuss each of these concepts separately.

Reliability

Reliability refers to consistency of scores or responses. Three main ways of evaluating reliability include *test-retest*, *interrater*, and *internal consistency reliability* (see **Table 4.1**). Each type of reliability is used to examine consistency of assessment data. **Test-retest reliability** is the extent to which a person provides similar answers

to the same test items across time. If Karl provides different scores on the same anxiety questionnaire on two consecutive Mondays, then the data may not be very useful. If we interview someone and find that her diagnosis changes from week to week, this would demonstrate poor test-retest reliability for the interview. Recall

TABLE 4.1**Types of Reliability for Psychological Tests and Structured Interviews**

Type of reliability	Definition
Test-retest reliability	Consistency of test scores or diagnoses across some period of time
Interrater reliability	Agreement between two or more raters or judges about level of a trait or presence/absence of a feature or diagnosis
Internal consistency reliability	Relationship among test items that measure the same variable

4.1 / Anonymous

I glanced at the clock on the opposite wall, taking a break from staring at a worn patch in the carpet near my feet. It was nearly 5 PM; the last time I looked up was about 1 PM. My only motivation was to determine where we were in the rhythm of the day, to see how much longer I had to bear before I could retreat to my room. There, my eyes heavy from sleeping pills and emotional exhaustion, I could succumb to the only thing that brought relief from my depression: sleep. It had not taken me long to discover that the most time-consuming activity on psychiatric units was doing nothing other than waiting for something to happen. Waiting to see your psychiatrist. Your social worker. Your nurse. Waiting for a therapy group. For art therapy. Pet therapy (if you're lucky). Waiting for a shower. To brush your teeth. Waiting for morning meds. Afternoon meds. Evening meds. Night meds. Breakfast. Lunch. Dinner. How did I get here?

My depression during my sophomore year in college was not my first episode. I had gone through periods of depression twice during high school, received antidepressant treatment and counseling, and recovered. I took having a depressive disorder seriously and was diligent about seeking and getting help. I did not share

my condition with other people, but I did not feel stigmatized. In an age of depressed Zoloft balls bouncing on the TV screen, depression seemed common in society. A little like having mild asthma or high blood pressure. I never thought of myself as someone who was truly "sick"—I saved that term for people with schizophrenia or bipolar disorder, people I assumed spent most of their lives in secluded state institutions, receiving antipsychotics and getting "shock therapy." If someone suggested I would know someday what it's like to be in a hospital, to take a plethora of drugs, and to be considered severely and chronically disordered, I would have found the notion bizarre and comical, if not impossible. That was not me.

Near the end of my sophomore year, I noticed some familiar feelings that, in the past, heralded depression. Over the course of a few weeks, I lost my appetite. Things I normally found engaging—reading, being with friends, participating in groups on campus—had no allure. I lacked the concentration to read more than a page or two or even follow a conversation. As my mood sunk, family and friends became concerned. I became increasingly depressed and despondent over a matter of weeks, and even though I recognized the

symptoms and was educated about treatments, I did not want to admit that I was experiencing a relapse of the disorder I thought had ended with my adolescence.

Ultimately, a close friend realized what was happening. Fearing for my safety, he made an urgent appointment with a local psychiatrist; I did not have the energy to protest. The psychiatrist spoke with me about my history, my current symptoms and thoughts of suicide, and determined that I needed to be hospitalized. My recollections of this decision, my admission, and the first few days in the hospital are foggy. My primary emotional response was shock and bewilderment, tempered only by the deadening apathy that engulfed my mood. I couldn't quite get my head around how things had gotten "this far." I was on a locked unit with severely disordered men and women, many acutely psychotic. I was watched constantly by an aide, denied access to my shoelaces, and allowed to make calls only from a phone in the "day room." But despite the indignities and trauma of this experience, I can say now it saved my life. I was discharged after a few weeks, not completely over my depression but on the way to feeling well again. I had started treatment and begun to feel optimistic about my

that Professor Smith received a primary diagnosis of panic disorder. If he came back the next week for a follow-up interview and no longer met criteria for panic disorder, how useful would this interview be? Panic disorder does not come and go this rapidly.

Test-retest reliability is important, but the consistency of scores or diagnoses will naturally diminish as time between test and retest grows longer. This may reflect actual change. Professor Smith may not meet criteria for panic disorder 2 years from now, but this may reflect the fact that he received treatment and no longer shows symptoms of the disorder.

Interrater reliability is the extent to which two raters or observers agree about their ratings or judgments of a person's behavior. Interrater reliability is often used to examine the usefulness of a diagnostic interview. Two mental health professionals may give Professor Smith the same diagnostic interview on the same day and arrive at the same diagnosis. This would reflect good interrater reliability.

Internal consistency reliability refers to whether items on a test appear to be measuring the same thing. You would expect items on a test of anxiety to generally relate to one another. If they do not, then the items may not be measuring the same

thing or may be measuring something else. Some child self-report measures of anxiety have been criticized for measuring depression more than anxiety. For us to consider them useful, test items should have high internal consistency reliability.

Validity

Validity is the extent to which an assessment technique measures what it is supposed to measure. Key types of validity include *content*, *predictive*, *concurrent*, and *construct validity* (see Table 4.2). **Content validity** is the degree to which test or interview items actually cover aspects of the variable or diagnosis under study. If a test of depression contained items only about sad mood, the test would not have high content validity because depression also involves problematic thinking patterns and withdrawn behavior.

Predictive validity refers to whether test or interview results accurately predict some *future* behavior or event. A test of school success has good predictive validity if current scores relate to children's school achievement 2 years from now. **Concurrent validity** refers to whether current test or interview results relate to an important *present* feature or characteristic. A child's diagnosis of conduct disorder should reflect his current level of misbehavior.

personal narrative

future. Within a month of getting back to school, I truly felt all this sadness and strife was behind me, and I never imagined that things could become even more challenging and complicated.

Right before my junior year I experienced symptoms that, unlike those during my depressions, I did not find troubling. I was always someone who needed a good 9 hours of sleep to feel well rested, but I started getting by on dramatically less. Some nights I would not touch the bed (if I was even home), other nights I would fall asleep for 2 or 3 hours and then jolt awake, energized and ready to go. My waking hours became filled with frenzied activity—I never felt smarter, more able, or more confident. My thinking was swift and sharp and seemed to reach near superhuman perfection. These feelings continued, but the ecstasy soon devolved into agitation. Every annoyance seemed like a concerted, even conspiratorial, effort to thwart my plans. When my psychiatrist saw me in his office, he knew immediately what was wrong. I was experiencing a manic episode. An ambulance was called and I was brought to the hospital. I was enraged and scared at the same time, but eventually acquiesced to treatment. New medications—antipsychotics and mood

stabilizers this time—were used to control my mood. Most of my symptoms abated within a few weeks, but the medications left me sedated and feeling somewhat dull. New medications for a new diagnosis: bipolar I disorder.

I came away from this traumatic experience dismayed and disheartened, my self-image shattered. I had already come to terms with being a “psychiatric patient” and acknowledged that my first hospitalization was necessary (although at the time I had no doubt it would be my last). But during my first manic episode, I was “publicly” sick in a way I hadn’t been before. I was embarrassed and humiliated. Being told I had a disorder only “other people” got—“other people” being unfortunates who lived their lives in drug-induced stupors in institutions or group homes—compounded my feelings of defeat.

As I recovered, I reevaluated some of these feelings and saw things more realistically. I also met other young adults, through a support group, who struggled with the same disorder. It was enlightening and heartening to hear many of their stories, and they provided invaluable advice and support. My ideas as to what it meant to have a mental disorder shifted largely as a result of these conversations, allowing me to approach my own situation with more hope and

strength. I began to see medications and therapy as my toolbox for maintaining a stable life in which I could achieve my goals. This involved tinkering to find the best combination of medicines and trade-offs in terms of putting up with some side effects if my overall health was good.

Coming to terms with having bipolar disorder and learning how to effectively take care of myself has been a process of peaks and valleys. After 3 years of feeling well, I relapsed and experienced episodes of mania and depression. Both required hospitalization and medication changes. Experiencing relapse after a few years of feeling great was a wake-up call. I secretly felt I was somehow “past” that sort of thing. Since then I’ve tried to be optimistic while still recognizing I have a chronic disorder, and the chance of having more episodes in the future is very high. Thankfully, when I am stable, I have no lingering symptoms. My goal is no longer to avoid getting sick again but to keep myself stable and healthy for as long a stretch as possible. Despite my disorder, I’ve graduated college and entered graduate school. I’ve had lasting and meaningful relationships. I live on my own and have traveled widely. My disorder hasn’t defined my life, and despite the inevitable challenges ahead, I don’t believe it ever will.

Source: Used with permission.

TABLE 4.2

Common Types of Validity

Type of validity	Definition
Content validity	How well test or interview items adequately measure various aspects of a variable, construct, or diagnosis
Predictive validity	How well test scores or diagnoses predict and correlate with behavior or test scores that are observed or obtained at some future point
Concurrent validity	How well test scores or diagnoses correlate with a related but independent set of test scores or behaviors
Construct validity	How well test scores or diagnoses correlate with other measures or behaviors in a logical and theoretically consistent way

Construct validity refers to whether test or interview results relate to other measures or behaviors in a logical, theoretically expected fashion. Recall DeShawn’s impulsivity and alcohol problems from Chapter 3. A valid test of impulsivity might be expected to correlate with a diagnosis of alcohol use disorder, school or work problems, and lower levels of the neurotransmitter serotonin. If this test does so, then we can be more confident in its construct validity. If people with problems similar to DeShawn’s scored high on this test of impulsivity, this would also support the test’s construct validity.

Standardization

Standardization refers to administering or conducting assessment measures in the same way for everyone. When you took the SAT or ACT, you may have noticed all the rules and guidelines for administering, scoring, and interpreting the test. Proctors gave the test in a standardized or similar way for all high school students in the country.

Assessment measures can be standardized in several ways. First, the same test items and testing procedures, such as time limits or item order, can be used for everyone. Second, the way

the test is scored can be the same for everyone. Everyone's SAT verbal scores are based on the same scoring system. Third, our interpretation of test scores can be standardized by collecting normative data from large groups of people across age, gender, and race. Test scores can thus be compared among members of these groups. Scores obtained by a 25-year-old Latina student, for example, can be compared with typical scores obtained by Latina students in this age range. We can then interpret these scores by seeing whether they are higher or lower than average scores obtained by members of the appropriate normative group.

Reliability, validity, and standardization are important for developing and refining clinical assessment techniques. We next explore different methods of clinical assessment. We begin with a discussion of *interviews*, which mental health professionals use to gather information about a person's concerns, symptoms, and history.

Interview

The interview is the most common assessment technique and is used to solicit a wide range of information about mental disorders. Interviewers often ask questions about the frequency and nature of symptoms of different mental disorders. Interview questions also focus on events or experiences that preceded symptom onset, such as child maltreatment or death of a parent. Interviews have a range of applications and can be easily adapted to match a person's situation.

Interviews differ in two key ways. First, interviews differ with respect to *purpose*. The purpose of one interview may be to evaluate the history and concerns of a person seeking psychological help for the first time, but another interview might focus solely on *DSM-5* diagnoses. Second, interviews may be *unstructured* or *structured*. **Unstructured interviews** allow an interviewer to ask any question that comes to mind in any order. This type of interview is often unreliable because two clinicians evaluating the same person may arrive at different ideas of what is happening. **Structured interviews** require an interviewer to ask standardized questions in a specified sequence. Interviewers ask people the same questions, so two clinicians who evaluate the same person are more likely to arrive at the same diagnosis or conclusion.

Several structured diagnostic interviews are available. The *Structured Clinical Interview for DSM-5* (SCID-5; First, Williams, Karg, & Spitzer, 2015) is a popular structured diagnostic interview for major mental disorders. The SCID-5 gives clear instructions to the interviewer about what questions to ask and in what order to ask them. Structured interviews like the SCID-5 standardize questions to be asked and help interviewers obtain relevant information. Structured interviews are available for various mental disorders as well as many psychological and other variables such as personality and family history of mental disorder.

Diagnoses and ratings from structured diagnostic interviews are generally reliable across raters and have high content validity because they are based on specific criteria. Many structured interviews appear to have high construct validity as well. Structured interview diagnoses or ratings usually relate to scores and ratings from other psychological, behavioral, or biological tests in expected ways.

A disadvantage of structured diagnostic interviews is the time necessary to administer and score them. These interviews



The clinical interview is the most commonly used assessment technique.

are comprehensive and can take several hours to conduct. In many clinical settings, clients are seen for only an hour at a time and often for only a few sessions, so these interviews may be less attractive as assessment devices. Structured diagnostic interviews are thus particularly common to research settings.

Intelligence Tests

Intelligence tests are probably the most common form of clinical assessment after the interview. Intelligence tests assess cognitive functioning and provide estimates of a person's intellectual ability. Mental health professionals are interested in assessing cognitive processes such as memory, language, comprehension, reasoning, and speed with which we process and interpret information. Many people associate intelligence tests with assessment of learning disorder and brain dysfunction, but information provided by these tests can also be used to understand symptoms of mental disorders such as schizophrenia or depression.

Most intelligence tests include multiple *subscales* or *subtests* to measure specific aspects of cognitive functioning such as memory, arithmetic, mastery of general information, or visual-perceptual organization. Some subtests require a person to answer direct questions, but other subtests require people to complete tasks or solve problems. Scores on these subtests are typically combined and compared with normative data from people of similar age and gender. This form of standardization allows an individual's scores to be interpreted as low, average, or high.

The *Wechsler Adult Intelligence Scale—Fourth Edition* (WAIS-IV; Wechsler, 2008) is one of the most popular intelligence tests. Items regarding a particular domain such as arithmetic are placed in one section (subtest) and arranged in order of increasing difficulty. Item scores from each subtest are converted to *scaled scores*, which represent standardized scores within an age group. Scaled scores are added to derive *intelligence quotients* (IQs), which are general measures of intellectual functioning. Several WAIS-IV subtests are described in **Table 4.3** and a simulated WAIS-IV item is illustrated in **Figure 4.1**.

Intelligence quotients often include *full-scale*, *verbal*, and *performance* IQs. The full-scale IQ may be most familiar to you; it gives an estimate of overall intellectual ability. Verbal IQ specifically represents use and comprehension of language,

TABLE 4.3

Simulated Examples of Wechsler Adult Intelligence Scale Subtests

Vocabulary	The examinee must define words. For example, "What does the word <i>impede</i> mean?"
Similarities	The examinee must explain how two objects are alike. For example, "How are a <i>wheel</i> and <i>ski</i> alike?"
Digit span	Two lists of digits are read aloud by the examiner. For the first list, the examinee must repeat the digits in the order they were read. For example, "2-8-3-9-6." For the second list, the digits must be repeated backward.

Source: Wechsler (2008).

and performance IQ specifically represents spatial reasoning. Individual IQs are calculated in relation to normative data. The score of a 20-year-old male, for example, is compared with the scores of other 20-year-old males. To make scores easier to interpret, the mean for each age group is 100; this makes the IQ scale consistent across age groups.

Intelligence test scores can give mental health professionals a sense of a person's strengths and weaknesses. This information is important for diagnosing, assessing, and treating psychological problems. Some disorders, such as Alzheimer's disease, are defined primarily by cognitive deficits that may be assessed by intelligence tests. Other disorders have cognitive and behavioral features that intelligence tests can at least tap. Intelligence tests are therefore administered to many clients in clinical and research settings.

Intelligence test scores must be interpreted with caution. IQ scores do not indicate how smart a person is but rather how well she is likely to do in future academic work. Most intelligence tests focus on verbal and spatial ability but do not measure other forms of competence such as social skill, creativity, and mechanical ability. Intelligence tests have also been criticized for bias because people across cultures think differently. A test that is completely "culture-free" has not been developed, but researchers have identified nonverbal intelligence subtests that may be "culture-fair" because scores differ less between ethnic groups (Cockcroft, Alloway, Copello, & Milligan, 2015).

Personality Assessment

A clinical assessment measure that may be more familiar to you is personality assessment. **Personality assessment** refers to instruments that measure different traits or aspects of our character. Most of us could name or describe at least one personality or psychological test based on what we have read in books or seen on television shows or films. Many of us have seen a movie or television show that portrayed the "inkblot test" as a measure of personality. Thousands of other personality assessment measures are available, however. These can be divided into objective and projective tests.



FIGURE 4.1 SIMULATED ITEM FROM THE WAIS-IV PICTURE COMPLETION SUBTEST. Can you find what's missing in this picture? *Simulated items similar to those found in the Wechsler Adult Intelligence Scale, Fourth Edition (WAIS-IV). Copyright © 2008 NCS Pearson, Inc. Reproduced with permission. All rights reserved. "Wechsler Adult Intelligence Scale" and "WAIS" are trademarks, in the United States and/or other countries, of Pearson Education, Inc. or its affiliates.*

Objective Personality Measures

Objective personality measures involve administering a standard set of questions or statements to which a person responds using set options. Objective tests often use a *true/false* or *yes/no* response format, but others provide a *dimensional scale* such as 0 = *strongly disagree*, 1 = *disagree*, 2 = *neutral*, 3 = *agree*, and 4 = *strongly agree*. Self-report, paper-and-pencil questionnaires are popular objective tests of general or limited aspects of personality, and many types are discussed throughout this textbook. Examples include the *Social Phobia and Anxiety Inventory* (Chapter 5) and *Beck Depression Inventory* (Chapter 7). These questionnaires are economical, impartial, simple to administer and score, and more reliable and standardized than other assessment methods.

We briefly illustrate here the *Minnesota Multiphasic Personality Inventory—2* (MMPI-2), which clinicians have used for more than 60 years and is still considered the most important general personality questionnaire (Butcher, 2011). Thousands of studies using the MMPI/MMPI-2 have been published (Friedman, Bolinsky, Levak, & Nichols, 2015), and scores from the scale have been used to measure everything from psychosis to marriage suitability.

The developers of the original MMPI believed the content of a test item mattered less than whether people with the same mental disorder endorsed the same items. Do people with depression endorse the item "I like mechanics magazines" more

so than people without depression? If so, then the item might appear on a scale of depression. An item that does not appear on the surface to be related to depression may thus become an item on the depression scale.

The MMPI-2 includes 567 items to which a person answers “True,” “False,” or “Cannot Say.” The MMPI-2 can be administered to people aged 13 years or older, to those who can read at an eighth-grade level, and to individuals or groups. An adolescent version (MMPI-A) is also available (Williams & Butcher, 2011). The MMPI-2 is usually computer-scored.

A potential problem with questionnaires such as the MMPI-2 is susceptibility to distortion. Some people might wish to place themselves in a favorable light, and others may “fake bad” to receive aid, sympathy, or a military discharge. Other people tend to agree with almost any item regardless of content. If a mental health professional is unaware of these response styles in a given client, the test can be misinterpreted. The following **MMPI-2 validity scales** are used to detect people who are trying to look a certain way or who are defensive or careless when taking the test:

1. *? (cannot say) scale*: This is the number of items left unanswered.
2. *F (infrequency) scale*: These items are seldom answered a certain way (“true” or “false”) by people. A high F score may suggest unusual approaches to taking the test or the presence of odd emotional states, thinking patterns, and behavior.
3. *L (lie) scale*: Endorsing these items places someone in a very positive light. People are unlikely, however, to endorse too many items such as, “I like everyone I meet.”
4. *K (defensiveness) scale*: These items suggest defensiveness in admitting certain problems. Items such as “Criticism from others never bothers me” purportedly detect “faking good” but are more subtle than L or F items.

Validity scales help us understand someone’s motives and test-taking attitudes. Attempts to present oneself in an overly favorable light will likely be detected by the *Lie* or *Defensiveness* scale and a tendency to exaggerate one’s problems or symptoms usually results in an elevated *F (Infrequency)* scale. A mental health professional might disregard the test as well under these circumstances.

Scores on 10 **MMPI-2 clinical scales** are also calculated. These scales were originally developed to identify people likely to have certain diagnoses. The MMPI-2 retained the original names of the scales despite newer diagnostic labels introduced since the scale was developed. Each clinical scale with a short description and an abbreviated item is in **Table 4.4**.

Scores from the MMPI-2 can suggest diagnoses, but they also indicate various problematic behaviors and personality styles. How does a mental health professional interpret MMPI-2 profiles? Think about Professor Smith, who agreed to consult with a clinical psychologist after struggling with panic attacks and depression for many months. The clinical psychologist

TABLE 4.4
MMPI-2 Clinical Scales and Abbreviated Items

1. Hypochondriasis (Hs)	High scores indicate excessive concern with bodily functions (“Upset stomach”).
2. Depression (D)	High scores indicate pessimism, hopelessness, and slowing of action and thought (“Work atmosphere tense”).
3. Hysteria (Hy)	High scores indicate tendency to use physical and mental problems to avoid conflicts or responsibility (“Feel band around head”).
4. Psychopathic deviate (Pd)	High scores indicate a disregard for social custom, shallow emotions, and inability to profit from experience (“Haven’t led a good life”).
5. Masculinity-femininity (Mf)	Items on this scale differentiate traditional gender roles (“Likes mechanic magazines”). High scores indicate a tendency to endorse a nontraditional gender role.
6. Paranoia (Pa)	High scores indicate unusual suspiciousness and possible delusions of grandeur or persecution (“Insulting, vulgar things are said about me”).
7. Psychasthenia (Pt)	High scores indicate obsessions, compulsiveness, fears, guilt, and indecisiveness (“Have strange thoughts”).
8. Schizophrenia (Sc)	High scores indicate bizarre or unusual thoughts or behavior, withdrawal, hallucinations, and delusions (“Unusual experiences”).
9. Hypomania (Ma)	High scores indicate emotional overexcitement, flight of ideas, and overactivity (“Sometimes thoughts race”).
10. Social introversion (Si)	High scores indicate shyness, disinterest in others, and insecurity (“Easily defeated in argument”).

Source: MMPI®-2 (Minnesota Multiphasic Personality Inventory®-2) Manual for Administration, Scoring, and Interpretation, Revised Edition. Copyright © 2001 by the Regents of the University of Minnesota. Used by permission of the University of Minnesota Press. All rights reserved. “MMPI®” and “Minnesota Multiphasic Personality Inventory®” are trademarks owned by the Regents of the University of Minnesota. MMPI®-2 Booklet of Abbreviated Items. Copyright © 2005 by the Regents of the University of Minnesota. All rights reserved. Used by permission of the University of Minnesota Press. “MMPI®” and “Minnesota Multiphasic Personality Inventory®” are trademarks owned by the Regents of the University of Minnesota.

asked Professor Smith to complete the MMPI-2 before their first session, and this information was used with a clinical interview. The following excerpt is from a report based on Professor Smith's MMPI-2 profile (see **Figure 4.2**):

Professor Smith approached testing in a frank manner, and his responses suggest a valid MMPI-2 profile. His scores indicate concern about his present mental state and a willingness to receive help to

overcome his problems. The MMPI-2 clinical profile highlights several problems and symptoms Professor Smith experienced during initial treatment. His responses suggest he is anxious, nervous, tense, and high-strung. He worries excessively and expects more problems to occur in the future. Professor Smith also has concerns about his health and body. He may complain of feeling fatigued, exhausted, and pained. Professor Smith appears depressed, pessimistic, and discouraged about his current situation and may feel lonely and insecure. He

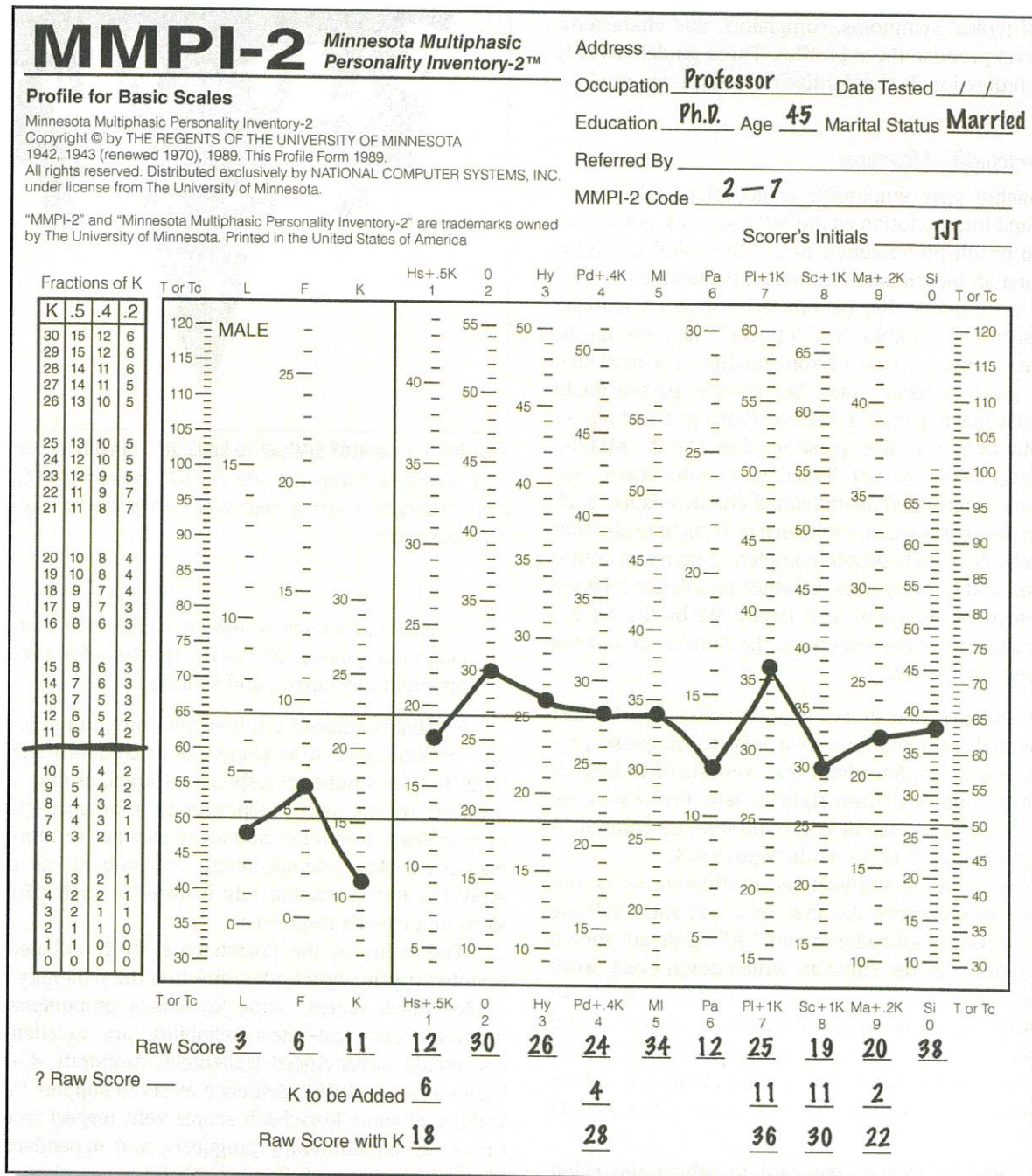


FIGURE 4.2 PROFESSOR SMITH'S PRETREATMENT MMPI-2 CLINICAL PROFILE. Reproduced by permission of the University of Minnesota Press. All rights reserved. "MMPI®" and "Minnesota Multiphasic Personality Inventory®" are trademarks owned by the University of Minnesota.

has great difficulty concentrating on his work and is likely to be indecisive. Professor Smith may blame himself for his current problems and feel guilty or disappointing to others. His responses also indicate little zest for life and preoccupation with inability to accomplish personal goals.

You can see that MMPI-2 interpretation does not rely on a single score but rather a profile of a client based on all scores. Profiles like Professor Smith's can then be interpreted using certain guidelines. These guidelines, or "cookbooks" as they are sometimes called, outline frequently obtained profiles and descriptions of typical symptoms, complaints, and characteristics of those who produce these profiles. These guidelines help mental health professionals standardize the interpretation of the MMPI-2.

Projective Personality Measures

Not all personality tests emphasize standardized administration, scoring, and interpretation as the MMPI-2 does. Some tests require mental health professionals to use their skill and judgment to interpret an individual's responses. **Projective tests** are based on the assumption that people faced with an ambiguous stimulus such as an inkblot will "project" their own needs, personality, and conflicts. One person looking at a particular inkblot might see a monster's face, but another person might see two children playing near a stream. Projective techniques differ drastically from objective questionnaires like the MMPI-2 because (1) responses are not linked to certain scales and (2) responses are interpreted as individual characteristics, such as one's unconscious processes. Projective tests include *sentence completion tasks*, in which people complete a series of unfinished sentences, and *drawing tests*, in which people are asked to draw a figure such as a house or their family. We briefly discuss two other popular projective tests next: the Rorschach and the Thematic Apperception Test.

Rorschach. Hermann Rorschach was a Swiss psychiatrist who experimented with inkblots as a way to diagnose psychological problems. The *Rorschach* test consists of 10 inkblot cards that are symmetrical from right to left. Five cards are black and white (with shades of gray) and five are colored. A simulated Rorschach card is shown in **Figure 4.3**.

The Rorschach can be administered in different ways, but many clinicians give a client the first card and say, "Tell me what you see—what it looks like to you." All cards are shown to a client in order, and the clinician writes down every word the client says. The clinician then moves to an *inquiry* phase: She reminds the client of each previous response and asks what prompted each response. The client also indicates the exact location of various responses for each card and may elaborate or clarify responses. Many clinicians focus on these major aspects of responses:

- *Location* refers to area of the card to which the client responded; examples include the whole blot, a large detail, a small detail, or white space.
- *Content* refers to nature of the object seen, such as an animal, person, rock, or fog.

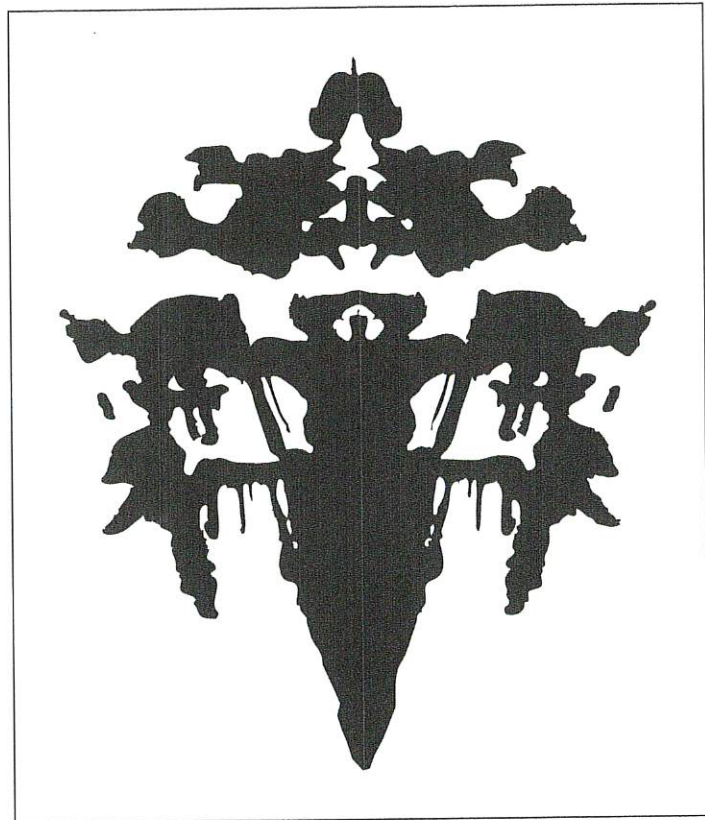


FIGURE 4.3 INKBLOT SIMILAR TO RORSCHACH INKBLOTS. From Timothy Trull, *Clinical Psychology* (7th ed.), Fig. 8.2. Copyright © 2005 Wadsworth, a part of Cengage Learning. Reproduced with permission. www.cengage.com/permissions

- *Determinants* refer to aspects of the card that prompted a client's response, such as the inkblot's form, color, texture, apparent movement, and shading.

Scoring the Rorschach involves computing the ratio of certain responses, such as responses to colored parts of the inkblots, to total number of responses. Clinicians may also compute the ratio of one set of responses to another, such as number of responses describing human movement to number of color responses. Many mental health professionals do not formally score the Rorschach but rely instead on their clinical impressions of a client's responses.

The utility of the Rorschach is hotly debated. Research-oriented psychologists often question the reliability and validity of Rorschach scores. Some Rorschach proponents argue that interrater and test-retest reliability are excellent, but others remain unconvinced (Lilienfeld, Ammirati, & David, 2012; Viglione et al., 2015). Evidence exists to support the predictive validity of some Rorschach scores with respect to thought disturbance, psychotherapy prognosis, and dependency (Mihura, Meyer, Dumitrascu, & Bombel, 2013).

Thematic Apperception Test. Another popular projective test to assess motivations and interpersonal style is the *Thematic Apperception Test* (TAT). The TAT is a series of pictures like



FIGURE 4.4 THEMATIC APPERCEPTION TEST (TAT) CARDS.

the ones in **Figure 4.4**. Most TAT cards depict people in various situations, but some cards contain only objects. Clinicians typically select 6 to 12 cards to give to a client. Clients are asked to say what is happening in the picture now and in the future. Instructions vary from clinician to clinician, but many say something such as, "I want you to make up a story about each of these pictures. Tell me who the people are, what they are doing, what they are thinking or feeling, what led up to the scene, and how it will turn out." The client's stories are then transcribed word-for-word by the clinician.

A mental health professional can learn about a client's personality from these stories. One person might say a picture in **Figure 4.4** shows a mother worried about her daughter who is leaving home, but another might say a woman is constantly fighting with her mother and now refuses to talk to her. These different stories help us understand how a client relates to others. The TAT is not generally used to derive specific diagnoses but rather to make judgments about personality themes such as hostility, defensiveness, jealousy, and rebelliousness. The reliability and validity of this test may be enhanced by using certain coding and rating techniques (Stein et al., 2015).

Behavioral Assessment

The purpose of **behavioral assessment** is to measure overt behaviors or responses shown by a person (McCahill, Healy, Lydon, & Ramey, 2014). Instead of relying only on Professor Smith's report of how fearful and anxious he is when lecturing in class, a behavioral assessor might also observe Professor Smith in this situation. Behavioral assessment provides a snapshot of an actual problem behavior. Traditional assessments such as intelligence or personality tests rely on responses as indirect indicators of underlying traits or characteristics. Behavioral assessment relies on as little interpretation or inference as possible—the behavior observed is the main interest.

Behavioral assessment often involves a **functional analysis** of behavior. This involves understanding **antecedents**, or what precedes a behavior, and **consequences**, or what follows a behavior. A functional analysis for Professor Smith might reveal that certain student questions (antecedents) led to stress and panic attacks and that letting class out early (consequences) helped ease these anxious feelings, which is reinforcing. Consequences are often reinforcers of problematic behavior.

Careful and precise description of antecedents, behavior, and consequences is crucial to functional analysis. Important antecedents that you could easily measure and observe include student questions, time spent lecturing, and class attendance. You would also have to specify behaviors of interest, such as frequency and length of Professor Smith's chest pains. Important consequences that you could easily measure and observe include the number of minutes Professor Smith let class out early and the number of times he excused himself from class. You would also have to obtain similar level of detail for other situations in which Professor Smith had a panic attack because antecedents and consequences of behavior often differ from situation to situation.

Behavioral therapists often broaden functional analysis to include organismic variables. **Organismic variables** include a person's physiological or cognitive characteristics that may help the therapist understand a problem and determine treatment. A major organismic variable for Professor Smith is worry about future panic attacks and fear that certain physical sensations indicate an impending attack. Organismic variables such as worries and cognitions are also sometimes assessed via self-report questionnaires.

Naturalistic Observation

Behavioral assessors often use observation to conduct a functional analysis. One form is **naturalistic observation**, in which a client is directly observed in his or her natural environment. A naturalistic observation might involve observing Professor Smith in his office, classroom, and home for a week. You can see, though, that naturalistic observation can be impractical, difficult, time-intensive, and expensive. Observers also cannot know for sure the problem behavior will even occur, so they sometimes must be present for long periods to capture a certain behavior.

Controlled Observation

Controlled observation is a more practical and less expensive form of observation and involves analogue tests; these tests involve tasks that approximate situations people face in real life and that may elicit a certain problem behavior (Miltenberger, 2012). A person anxious about public speaking could be asked to give a short presentation before others in a psychologist's office. Or a troubled married couple might be asked to solve a hypothetical problem. A person's responses are observed and analyzed in each case. This information helps us understand precise mistakes the person makes when speaking before others or the couple makes when solving a problem. These observations can then lead to a treatment plan that might include relaxation and interpersonal skills training for the anxious public speaker and problem-solving and communication skills training for the troubled couple.

Self-Monitoring

Controlled observations are more practical than naturalistic observations but can be difficult to arrange. Many behavior assessors thus rely on **self-monitoring**, where a person observes and records his own emotions, thoughts, and behaviors. Professor Smith could be asked to complete a daily diary to record the frequency, intensity, and duration of his panic attacks, related thoughts and emotions, and antecedents and consequences of his panic attacks. Self-monitoring can be informal or more structured like a *dysfunctional thought record* (see **Figure 4.5**). Dysfunctional thought records help identify and monitor situations, thoughts, responses, and outcomes associated with problems such as depression. A therapist and client can thus better understand what precedes and follows these problems. Technological advances also mean clients can

Directions: When you notice your mood getting worse, ask yourself, "What's going through my mind right now?" and as soon as possible jot down the thought or mental image in the Automatic Thought(s) column.					
Date/time	Situation	Automatic thought(s)	Emotion(s)	Adaptive response	Outcome
	1. What actual event or stream of thoughts, or daydreams or recollection led to the unpleasant emotion? 2. What (if any) distressing physical sensations did you have?	1. What thought(s) and/or image(s) went through your mind? 2. How much did you believe each one at the time?	1. What emotion(s) (sad/anxious/angry/etc.) did you feel at the time? 2. How intense (0–100%) was the emotion?	1. (optional) What cognitive distortion did you make? 2. Use questions at bottom to compose an adaptive response to the automatic thought(s). 3. How much do you believe each response?	1. How much do you now believe each automatic thought? 2. What emotion(s) do you feel now? How intense (0–100%) is the emotion? 3. What will you do (or did you do)?
Friday 2/23 10 A.M.	Talking on the phone with Donna.	She must not like me anymore. 90%	Sad 80%	Maybe she's upset about something else. 60%	A little bit/Less sad (50%)/I will ask Donna if she is upset with me.
Tuesday 2/27 12 P.M.	Studying for my exam.	I'll never learn this. 100%	Sad 95%	Maybe I can't learn all of this, but I can learn some of this. 50%	Somewhat/More motivated (60%)/I will study as hard as I can and ask someone to help me.
Thursday 2/29 5 P.M.	Thinking about my economics class tomorrow.	I might get called on and I won't give a good answer. 80%	Anxious 80%	Doing my best is all I can do. 70%	To some extent/A little better (70%)/I'll just give the best answer I can.
	Noticing my heart beating fast and my trouble concentrating	What's wrong with me?	Anxious 80%	I'm just nervous; I'm not having a heart attack. 90%	Less so/More calm (80%)/Relax and steady my breathing.

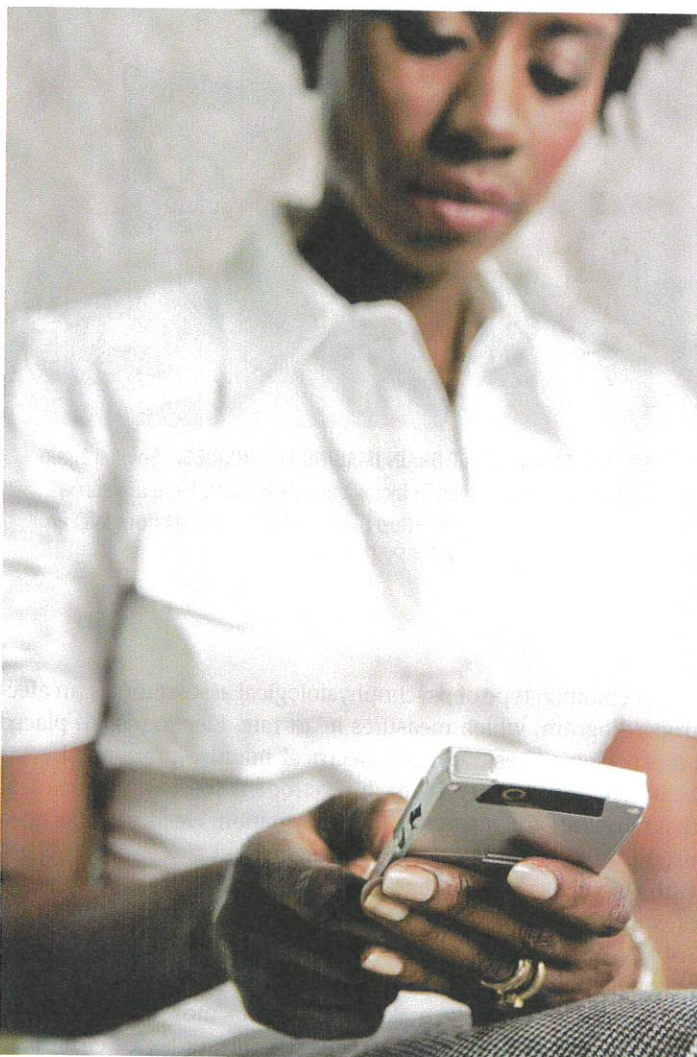
Questions to help compose an adaptive response: (1) What is the evidence that the automatic thought is true? Not true? (2) Is there an alternative explanation? (3) What's the worst that could happen? Could I live through it? What's the best that could happen? What's the most realistic outcome? (4) What's the effect of my believing the automatic thought? What could be the effect of my changing my thinking? (5) What should I do about it? (6) If _____ [friend's name] was in the situation and had this thought, what would I tell him/her?

FIGURE 4.5 AN EXAMPLE OF A DYSFUNCTIONAL THOUGHT RECORD. The dysfunctional thought record is a type of self-monitoring diary or log used to identify what may prompt and what may follow negative emotions. *Source: Adapted from J.S. Beck, Cognitive Therapy: Basics and Beyond, New York: Guilford, 1995.*

record their emotions, thoughts, and behaviors during their everyday lives. Handheld computers, smartphones, and laptop computers have been used to collect self-monitoring data (Faurholt-Jepsen et al., 2015).

Biological Assessment

Recall from Chapter 2 that mental disorders often involve abnormalities in brain structure or function. Many medical tests are available for examining general central nervous system dysfunction, such as from a stroke, but technological advances have led to amazing assessment techniques that can measure very specific central nervous system changes. Brain imaging techniques now provide detailed and precise evaluations of brain structure and function. We next provide an overview of neuroimaging and other biological tests used to assess psychopathology, although these tests are typically used in research settings or in cases involving clear brain dysfunction from problems such as stroke.



Cell phones and laptop and tablet computers can be used to monitor emotions, thoughts, and behaviors as they occur.

Neuroimaging

Brain images can be derived in several ways. **Computerized axial tomography (CT scan)** assesses *structural abnormalities* of the brain. A CT scan can detect brain tumors and other structural abnormalities such as enlarged ventricles or hollow spaces in the brain sometimes seen in people with schizophrenia or other mental disorders. The CT scan is essentially an X-ray of a cross-section of the brain. X-ray dye (iodine) is injected into the person, and the CT scan assesses brain tissue density by detecting the amount of radioactivity from a moving beam of X-rays that penetrates the tissue. A computer then interprets this information to provide a two-dimensional picture of that cross-section of the brain.

Magnetic resonance imaging (MRI) produces higher-quality brain images without radiation. MRI is costly but is better than CT scans in detecting brain tumors, blood clots, and other structural abnormalities. A person lies in a large cylindrical magnet, and radio waves are beamed through the magnetic field. Sensors read the signals, and a computer integrates the information to produce a high-resolution brain image. **Functional MRI (fMRI)** goes a step further in that pictures are taken rapidly to assess metabolic changes in the brain; fMRI thus assesses how the brain is *working*. This can have important implications for understanding risk factors of mental disorder. If fMRI results reveal a person's frontal lobes to be poorly activated during a decision-making task, then frontal lobe dysfunction may be associated with a learning or thought disorder.

Positron emission tomography (PET scan) is an invasive procedure to evaluate brain structure *and* function. Radioactive molecules are injected into the bloodstream and emit a particle called a positron. Positrons collide with electrons, and light particles emit from the skull and are detected by the PET scanner. A computer uses this information to construct a picture of how the brain is functioning. PET scans can identify seizure activity and even brain sites activated by psychoactive drugs (see Figure 4.6).

Neurochemical Assessment

Neurochemical assessment is a biological assessment of dysfunctions in specific *neurotransmitter* systems. Recall from Chapter 2 that neurotransmitters are brain chemicals that can activate or inhibit neurons and are often part of several main systems such as: *serotonin*, *norepinephrine*, *gamma-aminobutyric acid (GABA)*, and *dopamine*. Many symptoms of mental disorder are influenced by dysfunction of one or more of these neurotransmitter systems in certain regions of the brain.

No technology allows us to *directly* assess how much neurotransmitter is in a specific brain region, but we can *indirectly* assess this by focusing on neurotransmitter **metabolites**. Metabolites are by-products of neurotransmitters that can be detected in urine, blood, and cerebral spinal fluid. Low levels of a metabolite suggest a low level of the associated neurotransmitter and vice versa. We will see later in this textbook how scientists

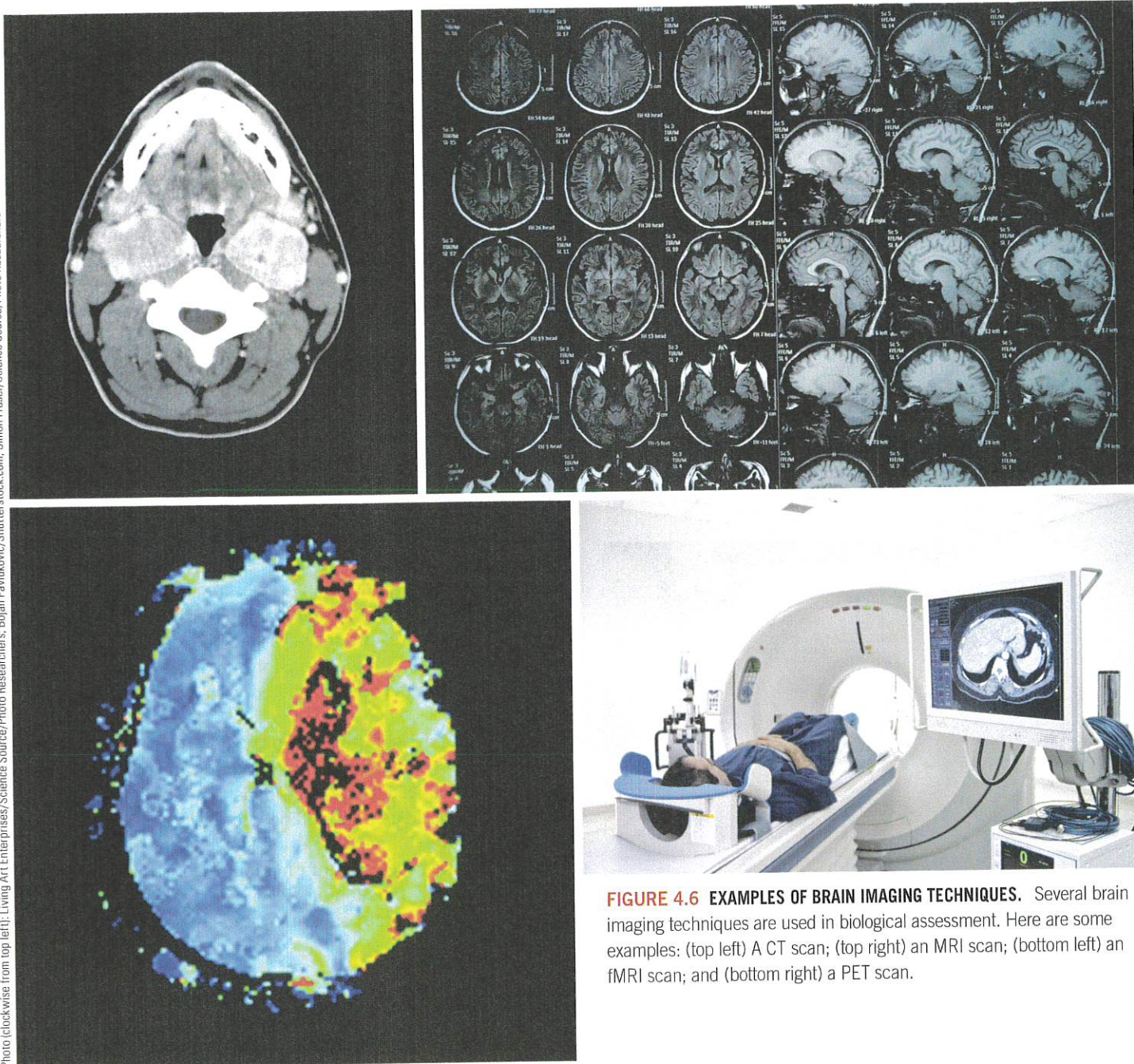


FIGURE 4.6 EXAMPLES OF BRAIN IMAGING TECHNIQUES. Several brain imaging techniques are used in biological assessment. Here are some examples: (top left) A CT scan; (top right) an MRI scan; (bottom left) an fMRI scan; and (bottom right) a PET scan.

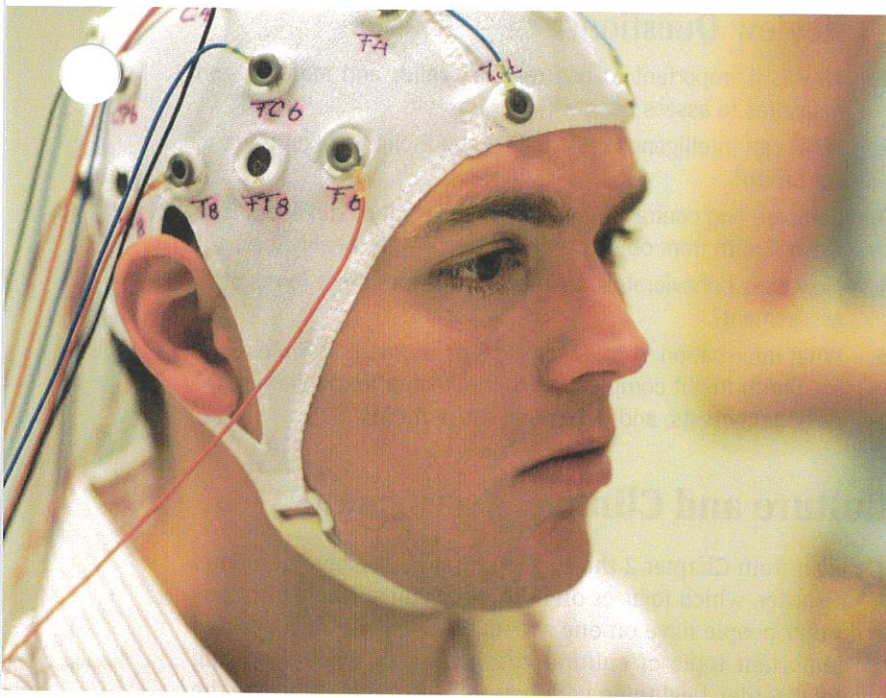
have used this methodology to evaluate neurochemical theories of depression (low levels of serotonin) and schizophrenia (high levels of dopamine).

Psychophysiological Assessment

Psychophysiological assessment involves evaluating bodily changes possibly associated with certain mental conditions. We experience certain bodily changes when we are highly anxious, such as increased heart rate or sweating (yes, measures exist for sweating!). These kinds of bodily changes could be examined in someone like Professor Smith who is seeking treatment for an anxiety disorder.

A common type of psychophysiological assessment is an **electrocardiogram**, which measures heart rate. Electrodes are placed on a person's chest, and the electrical impulse produced by the heartbeat and detected by each electrode is fed to an instrument that measures and integrates this information. Heart rate has been used to assess various emotional states and risk factors. Those with anxiety disorders (Chapter 5), for example, are at greater risk of cardiovascular disease (Chalmers, Quintana, Abbott, & Kemp, 2014). We might also expect Professor Smith's heart rate to be elevated, even when he is not experiencing a panic attack, because his fear of future attacks makes him anxious most of the time.

Galvanic skin conductance is another index of emotional state. Some emotional states increase sweat gland activity and thus electrical conductance of the skin (electricity moves faster



One form of psychophysiological assessment is the electroencephalogram (EEG).

through skin when a person sweats). This is especially true for people with anxiety. Some people, however, may display *lower* levels of skin conductance. This is true for some people with antisocial personality disorder who manipulate and harm others without guilt (Chapter 10; Pemment, 2013). People with antisocial personality disorder often have lower anxiety and fear about negative consequences to their behavior. They may thus be more likely than the rest of us to commit illegal or harmful acts.

The **electroencephalogram (EEG)** is a measure of brain activity. Electrodes are placed at various locations on the scalp so electrical activity in various brain areas can be assessed. Abnormal activity may indicate a lesion or tumor in that area or even seizure activity or epilepsy. Observation of possible abnormal brain wave activity might be followed by additional testing such as MRI.

Neuropsychological Assessment

Methods of biological assessment are *direct* measures of brain and physical function. Methods of **neuropsychological assessment**, however, are *indirect* measures of brain and physical function. Neuropsychological assessment is a noninvasive method of evaluating brain functioning via one's performance on standardized tests and tasks that indicate brain-behavior relationships (Lezak, Howieson, Bigler, & Tranel, 2012). Many mental disorders involve some cognitive impairment, so neuropsychological tests can help identify or rule out physical problems. Biological assessment methods are invasive and expensive, so neuropsychological tests are often used as first-line screening measures. If problems are noted from these tests, then biological assessment may follow.

Neuropsychological tests typically assess abstract reasoning, memory, visual-perceptual processing, language functioning, and

motor skills. Two general approaches are used for neuropsychological testing. One approach is to employ commonly used neuropsychological batteries such as the *Halstead-Reitan Battery*. These batteries involve various subtests that tap many cognitive and behavioral functions. The following descriptions of two Halstead-Reitan subtests provide good examples:

- *Tactual performance test*: The examinee is blindfolded and asked to place 10 variously shaped blocks into proper slots on a board using touch only. This is done once for each hand (dominant and nondominant) and once with both hands. The blindfold is then removed, and the examinee draws the board and located blocks from memory. This subtest assesses damage to the brain's right parietal lobe and tactile and spatial memory.
- *Seashore rhythm test*: The examinee hears 30 pairs of rhythmic acoustic patterns and states whether the patterns are the same or different. This subtest assesses damage to the brain's anterior temporal lobes and nonverbal auditory perception.

A second approach to neuropsychological testing is to administer one or more standardized tests to evaluate a specific area of brain functioning. This is known as *focal testing*. Suppose a neuropsychologist is primarily concerned with a person's memory functioning. The neuropsychologist might administer the *Benton Visual Retention Test*, which measures memory for designs (Figure 4.7). Ten cards are presented for 10 seconds

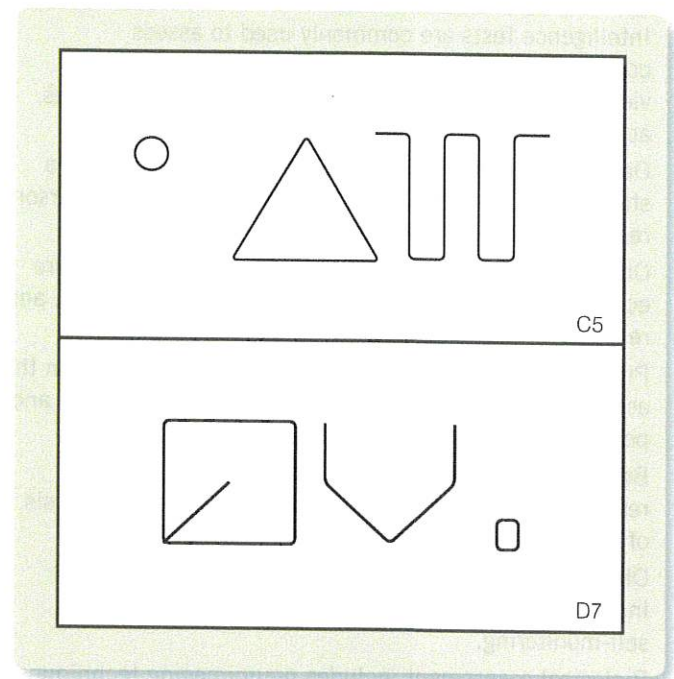


FIGURE 4.7 EXAMPLES FROM THE BENTON VISUAL RETENTION TEST. Two cards from the Benton Visual Retention Test that assesses memory for designs. Adapted from M.D. Lezak, D.B. Howieson, E.D., Bigler, D. Tranel. (2012). *Neuropsychological Assessment (5th ed.)*, New York: Oxford University Press.

each. After each presentation, the examinee draws the design from memory, and the examiner looks at number and type of errors in the drawings. A related test is the *Bender Visual-Motor Gestalt Test* (Bender-Gestalt II), which contains 14 stimulus cards and may be used for anyone aged 4 years or older (South & Palilla, 2013). These tests assess immediate memory, spatial perception, and perceptual-motor coordination.

➤ Interim Summary

- Classification refers to arranging mental disorders into broad categories or classes based on similar features.
- The *DSM-5* is a main system of classification that includes diagnoses but also allows for dimensional assessments.
- Clinical assessment involves evaluating a person's strengths and weaknesses as well as understanding a problem to develop treatment.
- Reliability refers to consistency of scores or responses and includes test-retest, interrater, and internal consistency reliability.
- Validity is the extent to which an assessment technique measures what it is supposed to measure and includes content, predictive, concurrent, and construct validity.
- Standardization refers to administering and conducting clinical assessment measures in the same way for everyone.
- Structured and unstructured interviews are the most common type of assessment.
- Intelligence tests are commonly used to assess cognitive aspects of mental disorders but must be viewed with caution, especially when comparing scores across cultures.
- Objective personality measures involve administering a standard set of questions or statements to which a person responds using set options.
- Objective personality measures such as the MMPI-2 are economical, relatively simple to administer and score, and reliable.
- Projective tests such as the Rorschach and TAT rely on the assumption that people project their needs, conflicts, and personality when responding to ambiguous stimuli.
- Behavioral assessment measures overt behaviors or responses and is often conducted via functional analysis of antecedents and consequences of behavior.
- Observational methods used in behavioral assessment include naturalistic and controlled observation and self-monitoring.
- Biological assessment includes neuroimaging techniques as well as procedures for assessing neurochemistry and body physiology.
- Neuropsychological assessment indirectly evaluates brain function via performance on standardized tests and tasks that indicate brain-behavior relationships.

➤ Review Questions

1. Why is it important to use reliable, valid, and standardized measures to assess people?
2. What can intelligence tests tell us about clients like Professor Smith?
3. Compare and contrast information you might obtain about Professor Smith from objective and projective personality tests.
4. How does behavioral assessment differ from other forms of assessment?
5. What information from a biological assessment of Professor Smith might complement that obtained from interviews, personality tests, and behavioral assessment?

Culture and Clinical Assessment

Recall from Chapter 2 the sociocultural perspective of mental disorder, which focuses on influences that social institutions and other people have on one's mental health. We next address the important topic of cultural considerations when assessing mental disorder, beginning with how culture might influence the development of psychological problems.

Culture and the Development of Mental Disorders

As we discussed in Chapter 2, culture refers to unique behaviors and lifestyles that distinguish groups of people. Culture represents a unique worldview and is reflected in customs, laws, art, and music. Culture can also influence the development of mental disorders in several ways (Tseng, 2015).

1. *Culture may cause stress and psychological problems.* Culturally shared beliefs or ideas may lead to extreme stress and symptoms of mental disorders. A form of mental disorder may be unique to a culture because of specific ideas or beliefs that are part of that culture. *Ataque de nervios* is a syndrome common to Latinos (APA, 2013). A person with this syndrome may sense losing control, shout uncontrollably, experience attacks of crying and trembling, and faint or feel suicidal. These symptoms typically result from a stressful family event. Latino culture emphasizes family well-being and stability, so a family crisis can be extremely stressful and produce *ataque de nervios*.
2. *Culture may influence a person's reaction to stress.* Certain cultures may disapprove of certain reactions to stressful events, such as becoming depressed. Some people may thus be expected to react to stress in only limited ways. A Japanese businessman's financial failure might lead to suicide because the disgrace and shame of publicly acknowledging bankruptcy would be too painful.
3. *Culture may influence which symptoms of a disorder are expressed and the content of the symptoms.* Symptoms of depression differ among people of various cultures. Societies or cultures that do not emphasize the concept of "guilt," as in Indonesia, are less likely to have depressed clients who



Sean Justice/Stone/Getty Images

Culture can influence the development of psychological problems, and mental health professionals and medical doctors must consider cultural influences when conducting a clinical assessment or physical examination.

feel guilty. The content of phobias or delusions can also depend on culture. People from poorly developed countries may be less likely to fear airplanes or believe their mind is controlled by satellites.

4. *Culture may reinforce certain forms of mental disorder.* The prevalence of certain mental disorders varies as a function of culture. General lifestyle patterns and attitudes, as well as acceptance of a disorder by the culture, likely influence prevalence. Anorexia nervosa is more prevalent in societies such as ours that emphasize and reward thinness (Chapter 8).

Culture and Clinical Assessment

Culture clearly influences the development and presentation of mental disorders, so culture must influence clinical assessment as well. This is important not only for assessing people from other countries but also for assessing diverse groups within the United States. This presents unique challenges to many clinicians, however. Four main areas should be considered during assessment (Tseng, 2015).

1. *Clinicians must overcome a language barrier if one exists.* An interpreter with a background in mental health should be used if necessary. This is not the best option because people may feel uncomfortable disclosing certain information to more than one person. The translator could also misinterpret or mistranslate information.

2. *Clinicians must obtain information about the cultural background of a client.* This might involve reading clinical books on diversity or consulting with cultural experts. A mental health professional must also distinguish behavior collectively shared by a culture and a client's responses or behaviors. A helpful question to a client or family members thus might be, "How do your friends and other members of your community typically react in similar situations?"
3. *Clinicians must be culturally sensitive.* Mental health professionals must be aware that culture influences emotions, thoughts, and behavior. Psychological problems should also be understood and interpreted from a cultural perspective. Many people from East Asian cultures are more reserved, soft-spoken, and passive than people from the West. A mental health professional must be careful not to misinterpret this style as evidence of an interpersonal problem or depression.
4. *Clinicians must be knowledgeable about cultural variations in psychological problems.* Mental health professionals must find assessment and other materials that consider cultural variations in mental disorder. The DSM-5 presents general categories of information relevant to cultural considerations. First, for many mental disorders, a description of culture-related diagnostic issues is included: how cultural background may influence the cause or presentation of symptoms, preferred terms for distress, and/or prevalence of the disorder. Second, cultural syndromes are discussed; these are covered throughout this textbook. Third, an outline is presented for cultural formulation of presenting problems (see Table 4.5).

TABLE 4.5

DSM-5

Cultural Formulation

The *DSM-5* (APA, 2013) suggests that a mental health professional supplement traditional diagnostic formulations with a cultural formulation of presenting symptoms of clients whose cultural background differs from the treating mental health professional. Information is obtained to address the following topics:

- **Cultural identity of the client:** Note the client's ethnic or cultural reference groups as well as language abilities and preferences.
- **Cultural ideas of distress:** Note how the identified cultural group might explain the present symptoms and how these symptoms compare with those experienced by those in the cultural reference group.
- **Cultural factors related to the social environment:** Note how the cultural reference group might interpret the social stresses, as well as availability of social supports and other resources that may aid treatment.
- **Cultural influences on the relationship between the client and the mental health professional:** Indicate differences in cultural and social status between the client and mental health professional that might influence diagnosis and treatment.
- **Overall cultural assessment:** Summarize how cultural factors and considerations are likely to influence the assessment and treatment of the client.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Arlington, VA: American Psychiatric Association.

Interim Summary

- Culture may cause stress and psychological problems.
- Culture may influence a person's reaction to stress.
- Culture may influence which symptoms of a disorder are expressed and the content of the symptoms.
- Culture may reinforce certain forms of mental disorder.
- Mental health professionals must overcome a language barrier if one exists, obtain information about a client's culture, be culturally sensitive, and be aware of cultural variations in psychological problems.

Review Questions

1. How might culture influence the development of psychological problems?
2. What considerations regarding culture are important for clinical assessment?
3. Consider the assessment methods and instruments discussed earlier in this chapter. How might cultural considerations affect the use of these?

Studying Abnormal Behavior and Mental Disorder

We have so far discussed classification, assessment, and cultural considerations regarding mental disorder. Mental health professionals also rely on the scientific method to study, describe, explain, predict, and treat disorders. The **scientific method** has three basic steps: generating a hypothesis, developing a research design, and analyzing and interpreting data to test the hypothesis. We present first the most powerful scientific method: the *experiment*.

Experiment

An **experiment** is a research design that allows us to draw cause-and-effect conclusions about particular variables or events. Researchers generally follow a specific path to draw such conclusions, beginning with a hypothesis.

Hypothesis

A **hypothesis** is a statement about the cause of an event or about the relationship between two events. We might hypothesize that treatment A is more effective than treatment B for depression. Hypotheses are educated guesses based on previous studies but must be *testable* and *refutable*. This means hypotheses must contain constructs that can be measured or observed so others can try to replicate the study. Recall from Chapter 2 that one criticism of the psychodynamic perspective was that its constructs could not be measured or observed. Constructs such as id and unconscious cannot be directly or accurately measured, and so a cause-effect relationship between these constructs and behavior cannot be established.

If we develop a testable and refutable hypothesis regarding treatment for depression, then we must specify how we define depression and exactly what comprises treatments A and B. We might define depression as scores on a questionnaire or number of hours a person sleeps during the day. We might define treatment A as a specific drug such as Prozac given at 60 milligrams (mg)/day and define treatment B as Prozac given at 20 mg/day. Our hypothesis is now *testable*: We can measure or observe depression and provide specific doses of a medication. Our hypothesis is also *refutable*: Other people can clearly understand what we did, and they can try to replicate these results. We may also find no differences between our two groups, which refutes or contradicts our hypothesis.

Research Design

The next step in the scientific experimental method is to develop a *research design* that allows us to test the hypothesis, or in this case, tell us whether treatment A is indeed more effective than treatment B. Research designs comprise dependent and independent variables. **Dependent variables** are those that measure a certain outcome the researcher is trying to explain or predict. Dependent variables in our experiment might include scores on a depression questionnaire or number of hours a person sleeps during the day. An **independent variable** is a manipulated variable that researchers hypothesize to be the cause of the outcome. The independent variable in our experiment is *treatment*: Some people will receive treatment A, and some people will receive treatment B.

Once we develop a testable and refutable hypothesis with dependent and independent variables, we must then test the hypothesis. We can do so by choosing people with depression from the general population and randomly assigning them to an experimental group and a control group. **Randomization** means assigning people to groups so each person has the same chance of being assigned to any group. The goal of randomization is to make sure our groups represent the general population with respect to age, gender, cultural background, income level, or other variables that could influence the dependent variable. If we examined only Hispanic males in our study, then our results would probably not be too useful to everyone.

The **experimental group** is one that receives the active independent variable, in this case medication at two levels. We actually need two experimental groups for our study: one receiving medication at 60 mg/day and one receiving medication at 20 mg/day. The **control group** is one that does not receive the active independent variable. We may thus include people who are on a wait list for medication and monitor them over time to see if changes occur. They will receive no medication for a certain period of time, so we will see if changes in the experimental group are significantly different than changes in the control group. If our hypothesis is correct, then manipulation of the independent variable in the experimental group will lead to less depression, but this change will not occur in the control group.

We will assign 50 people (participants) with depression to treatment A (experimental group 1; 60 mg/day), 50 people with depression to treatment B (experimental group 2; 20 mg/day),

4.2

Focus On

*Law and Ethics***Who Should Be Studied in Mental Health Research?**

Much concern has been expressed over the relative lack of women and diverse participants in mental health research. Some feel that many studies use samples composed predominantly of male European Americans. This is a problem because results about causes and treatment of mental disorders in male European Americans may not generalize to others. Important biological differences exist between men and women (like hormones) that may affect the development and expression of psychological

problems. Diverse ethnic groups are also subject to different types and degrees of environmental stressors, and these differences may influence mental health as well. Conclusions about psychological problems and their treatment in male European Americans may not be valid for women or people of color.

These concerns have heightened clinical psychologists' awareness of these issues, and more formal requirements for studies supported by the U.S. government are now in place. The National Institutes of Health (NIH) has a policy about including women and members of minority groups in studies of human participants. These groups must be represented in NIH-supported projects unless some clear and compelling rationale exists for not doing so. Researchers must also provide a detailed and specific plan for the outreach and recruitment of women and minority subjects in their study. Researchers can thus address whether general conclusions for men or European Americans also hold for women and diverse groups.

and 50 people with depression to the control group (0 mg/day) for our experiment. Some control groups in an experiment such as this one receive a **placebo** or a substance or treatment that has no actual therapeutic effect. In this example, control group participants could receive a pill with no active treatment ingredient. Experimenters use placebos to control for *bias* or the possibility that a person receiving a medication will show improved symptoms simply because he expects to improve. Some experiments also use **double-blind designs**, meaning that neither the experimenter nor the participants know who received a placebo or an active treatment. In this case, perhaps only an independent pharmacist knows who received a placebo or active treatment. **Triple-blind designs** are experiments in which participants, experimenters, independent raters of outcome, and even data managers are unaware of who received a placebo or active treatment. Blinded designs are meant to control for as much bias from different people as possible.

In our experiment, we will then monitor our participants over several weeks by examining their scores on a depression measure and tracking the number of hours they sleep during the day. We may find after 3 months that people in experimental group 1 experienced a substantial drop in depression, people in experimental group 2 experienced a slight drop in depression, and people in the control group experienced no change in depression. This is done by analyzing and interpreting data, the third step in the scientific method. We could then conclude our hypothesis was correct: treatment A (60 mg/day) was indeed more effective than treatment B (20 mg/day). We could also conclude treatment is better than no treatment under these conditions.

Results such as these are a powerful testament to the causal role of treatment for reducing symptoms of depression. The groups were similar at the beginning of the experiment with respect to depression. The only difference between the groups was level of medication given. Differences in depression at the conclusion of the experiment can thus be attributed confidently to

the manipulation differences between the groups—those receiving higher amounts of antidepressant medication experienced greater improvement.

Results such as these can be contaminated by variables other than the independent variable, however. If differences existed between the experimental and control groups, then we would have trouble concluding our treatment was effective. Imagine if the experimental group was mostly male African Americans and the control group was mostly female European Americans. How confident could we be in our results? Factors such as this affect the **external validity** of a study, or the extent to which results can be generalized to the whole population.

If the experimental group experienced something other than the manipulation, or treatment, then our conclusions would also be affected. Imagine if some members of the experimental group were attending therapy sessions in addition to their medication but members of the control group were not. How confident could we then be that medication was the major cause of improved symptoms? Factors such as this can decrease the **internal validity** of an experiment, or the extent to which a researcher can be confident that changes in the dependent variable (depression symptoms) truly resulted from manipulation of the independent variable (medication).

The experiment remains the best strategy for testing hypotheses about mental disorder. Unfortunately, researchers are not able to use this strategy as much as they would like. Experiments are costly in time and resources and require many people to study. Experiments are sometimes criticized for being unethical as well. Making people wait in the control group for medication that could help their depression sooner might raise some questions. If we wanted to study the effects of alcohol use on women and their unborn children, we would not want to deliberately introduce alcohol consumption to their diets. Because experiments can be costly and difficult to conduct, researchers often use correlational studies.

Correlational Studies

A correlation is an association or relationship between two variables. **Correlational studies** allow researchers to make statements about the association or relationship between variables based on the extent to which they change together in a predictable way. A dependent variable and an independent variable may be related to each other such that high scores on one are associated with high scores on the other and vice versa. You would expect number of hours spent studying for an abnormal psychology test to be associated with higher grades. Height and weight in people are also closely associated. These examples indicate **positive correlations** where two variables are highly related to one another—as one goes up, the other does as well.

Dependent and independent variables may also be related to each other such that low scores on one are associated with high scores on the other and vice versa. You might expect greater dosage of medication to be related to lower scores on a depression measure. This would indicate a **negative correlation** in which two variables are also highly related to one another—as one goes up, the other goes down.

Correlations or associations between two variables are represented by a *correlation coefficient*, which is a number from +1.00 to -1.00. The sign of the coefficient, + or -, refers to type of association between variables. A positive sign indicates a positive correlation, and a negative sign indicates a negative correlation. The *absolute value* of the correlation coefficient, how high the number is regardless of its sign, refers to the *strength* of the association between the two variables.

The closer a correlation is to +1.00 or -1.00, the stronger the association. A correlation coefficient of exactly +1.00 or -1.00 means two variables are perfectly related: As one variable changes, the other variable always changes as well. Knowing someone's score on the independent variable thus allows us to predict a person's score on the dependent variable with 100 percent accuracy. A correlation coefficient of 0.00 means no relationship exists between the two variables: Knowing someone's score on the independent variable allows no prediction about a score on the dependent variable.

Correlations of +1.00 or -1.00 are rare. Correlation coefficients of +0.50 to +0.99 or -0.50 to -0.99 reflect strong association between two variables. Correlation coefficients of +0.30 to +0.49 or -0.30 to -0.49 reflect moderate association between two variables. Correlation coefficients of +0.01 to +0.29 or -0.01 to -0.29 reflect weak association between two variables. Examples of correlation coefficients are in **Figure 4.8**.

A correlation between two variables does not mean one variable *causes* another. *Correlation does not imply causation*. A problem with correlational methods is that we cannot rule out other explanations for the relationship between two variables because correlation does not control for the influence of third variables. This is the *third variable problem*. One of your authors lives in Las Vegas and has seen a strong correlation between number of churches built and number of violent crimes. The more churches built in Las Vegas, the more crime such as murder, rape, and robbery! Can we conclude church-building *caused*

more violent crime? Of course not. A *third variable* explains this effect: massive population growth. More people are moving to Las Vegas, so more churches and greater prevalence of crime are to be expected.

Another problem with correlation methods is *directionality*. We know a correlation exists between marital fighting and adolescent delinquency. This effect might at first seem easy to explain—parents who fight a lot increase family stress, model violence as a way to solve problems, and fail to supervise their children. But the *opposite direction* is also possible: Some children get into trouble in their teenage years and cause their parents to fight about how best to handle this situation. We may have a strong correlation, but we cannot know for sure which variable is the cause and which is the effect. We would have to conduct an experiment to know for sure.

Quasi-Experimental Methods

An alternative approach to experiments and correlations is **quasi-experimental methods** or mixed designs. Mixed designs do not randomly assign people to experimental and control groups like a true experiment does. An experimenter instead examines groups that already exist. People already diagnosed with depression might be compared with people without depression. We could compare these groups along different variables such as family history of depression and stressful life events. We could even examine subgroups within the depressed group to see what medications they are taking and whether any effects can be seen. We could also calculate correlations between level of depression and many other variables such as age, income level, and family size.

Quasi-experiments involve no randomization, so researchers who use quasi-experiments must minimize confounds in their investigation. **Confounds** are factors that may account for group differences on a dependent variable. If we examine people with and without depression regarding stressful life events, then we should beware of these other factors. People with depression may have more stressful life events than people without depression, but people with depression may simply be more likely to *remember* stressful life events than people without depression. Confounds such as this impact the internal validity of results.

Researchers often try to *match* people in their groups on many variables to guard against these kinds of problems. They may try to ensure their groups are similar with respect to gender, age, race, income level, and symptoms of a specific disorder such as depression. Unfortunately, researchers cannot identify every variable necessary to match groups and protect internal validity. Experimental and control groups may still differ along important dimensions even after matching.

Other Alternative Experimental Designs

Other designs also serve as alternatives to a large-scale true experiment. A **natural experiment** is an observational study in which nature itself helps assign groups. Recall John Snow from Chapter 3 who found that some residents getting sick

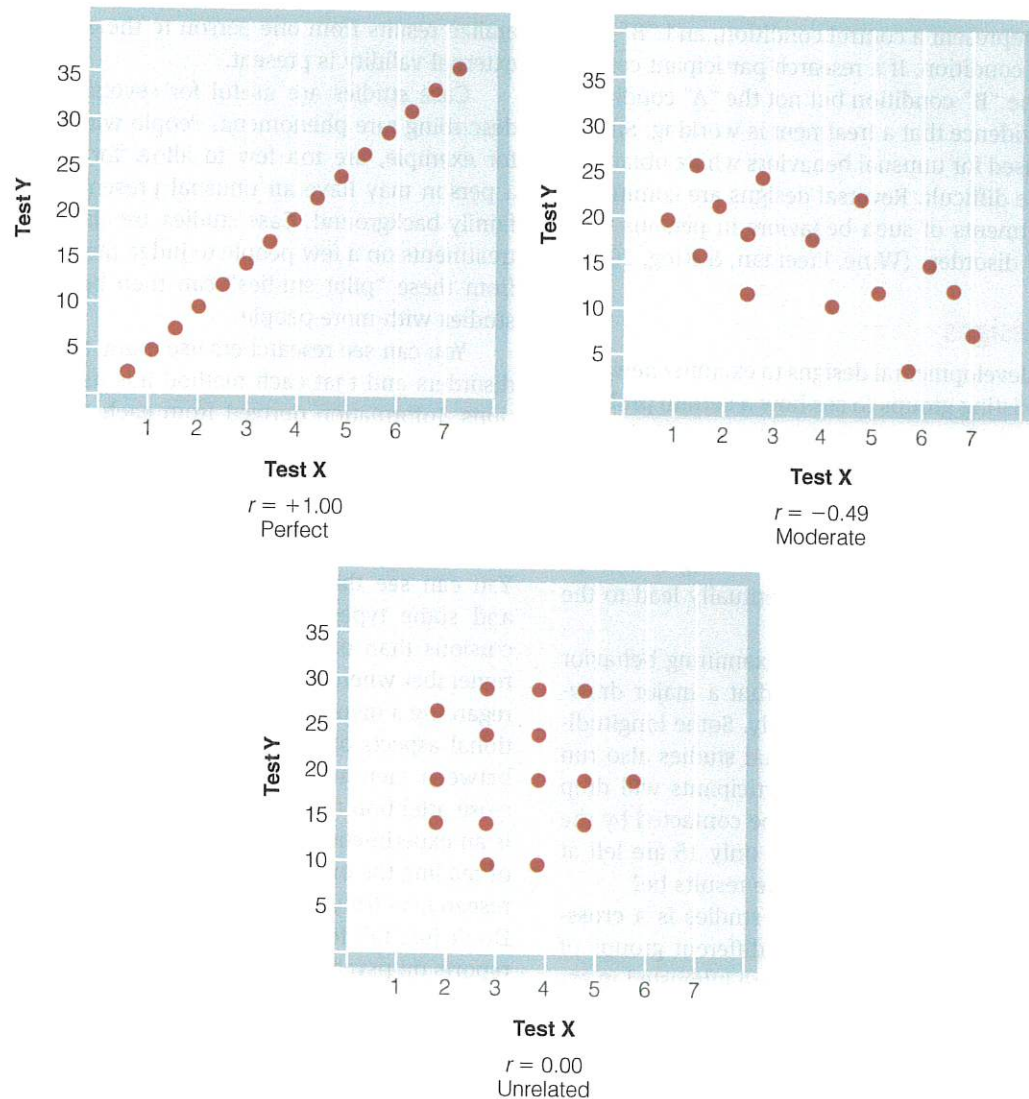


FIGURE 4.8 SCATTERPLOTS SHOWING DIFFERENT STRENGTHS AND SIGNS OF CORRELATIONS. (Top left) Perfect positive correlation; (top right) moderate negative correlation; (bottom) no correlation. From Timothy Trull, *Clinical Psychology* (7th ed.), Fig. 4.2, p. 94. Copyright © 2005 Wadsworth, a part of Cengage Learning. Reproduced with permission. www.cengage.com/permissions

from tainted drinking water were accessing a particular pump, whereas other residents not getting sick were accessing a different pump. The “natural” independent variable in this case was the source of drinking water. Natural experiments also commonly occur following disasters such as tsunamis or hurricanes. One group of researchers studied different communities affected by the Gulf of Mexico Deepwater Horizon Oil Spill. One community was indirectly affected, whereas another community was directly exposed to coastal oil. The researchers found that people with spill-related income loss had significantly greater anxiety and depression than those with more stable incomes (Morris, Grattan, Mayer, & Blackburn, 2013). Such a study could not be “created” without the tragedy that took place.

Another alternative experimental design is an **analogue experiment** that involves simulating a real-life situation under

controlled conditions. Often this simulation is done because recreating certain events or conditions is not ethical. Morina and colleagues (2013) were interested in examining trauma-related imagery and memories, but obviously subjecting their research participants to an actual trauma was out of the question. Instead, the researchers conducted an analogue experiment in which participants watched a distressing video and then were monitored afterward. The study provided valuable information about different kinds of coping strategies that might be relevant to posttraumatic stress disorder (Chapter 5).

Researchers also use **single-subject experimental designs** that involve one person or a small group of persons who are examined under certain conditions. Single-subject designs still have experimental and control conditions to observe and measure behavior but do so in innovative ways. One type of

single-subject experimental design is an *ABAB* or *reversal* design. In this case, “A” may represent a control condition, and “B” may represent a treatment condition. If a research participant consistently benefits from the “B” condition but not the “A” condition, then we have some evidence that a treatment is working. Such a design is sometimes used for unusual behaviors where obtaining large groups would be difficult. Reversal designs are commonly used to examine treatments of such behaviors in persons with severe developmental disorders (Wine, Freeman, & King, 2015).

Developmental Designs

Researchers also use developmental designs to examine new participants or already-existing groups to see how a certain problem or mental disorder unfolds over time. Developmental designs consist of longitudinal, cross-sectional, and sequential studies. **Longitudinal studies** involve examining the same group of people over a long period of time. Researchers sometimes follow youth whose parents had schizophrenia during childhood and adolescence to see what risk factors eventually lead to the mental disorder.

Longitudinal studies are important for examining behavior change and development, but you can see that a major drawback is the time needed to complete the study. Some longitudinal studies last 20 years or more. Longitudinal studies also run the risk of *attrition*, which means some participants will drop out of the study over time or can no longer be contacted by the researcher. If 100 children begin a study but only 15 are left at the end of adolescence, how useful would the results be?

An alternative approach to longitudinal studies is a **cross-sectional study**, which involves examining different groups of people at one point in time. If a researcher were interested in examining children of parents of schizophrenia, then she might find children at different ages—say, 2, 7, 12, and 17 years—and study them right now. Cross-sectional studies are highly useful but suffer from *cohort effects*. This means children at different ages are being raised in different eras, which may affect their functioning. Think about the fast-paced changes in technology that occur in our society today. A 2-year-old child will likely have access to different kinds of experiences than a 17-year-old did. These differences will be reflected in their behavior to some extent.

Some researchers thus blend aspects of longitudinal and cross-sectional studies into a **sequential design**. A sequential design begins as a cross-sectional study, but the groups are examined over a short time frame. From the example above, 2-, 7-, 12-, and 17-year-old children whose parents had schizophrenia may be examined now *and* over a 5-year period. Cross-sectional *and* longitudinal changes can thus be examined.

Case Study

The research designs discussed so far are useful but not always practical. A researcher using the **case study method** makes careful observations of one person over time. The researcher may describe in great detail types of symptoms, assessment, and treatment relevant to that case. Substantial data are made available about one person, but no experimental manipulation

occurs and no internal validity is present. We also cannot generalize results from one person to the overall population, so no external validity is present.

Case studies are useful for several reasons, especially for describing rare phenomena. People with multiple personalities, for example, are too few to allow for a large experiment. Or a person may have an unusual presentation of symptoms and family background. Case studies are also useful for testing new treatments on a few people to judge their effect and safety. Data from these “pilot studies” can then be used to justify further studies with more people.

You can see researchers use many methods to study mental disorders and that each method has its advantages and limitations. Information derived from each of these methods is presented throughout this textbook. We thus encourage you to keep in mind each method’s strengths and weaknesses.

Consuming the Media’s Research

You can see that many types of research can be conducted, and some types (e.g., experiments) allow for stronger conclusions than others (e.g., case studies). This is important to remember when reading a media report about a research finding regarding a mental disorder. Media outlets often focus on sensational aspects of a research study, especially differences found between men and women. When you read these reports, pay close attention to the study that is cited and whether the study is an experiment or something less rigorous. Take the extra step of reading the original research paper to get a sense of what the researchers truly found and what drawbacks exist for the study. Don’t just fall for the headline—be a wise consumer of media reports on psychological research.

Interim Summary

- The scientific method involves generating a hypothesis, designing a research plan, and analyzing data to test the hypothesis.
- An experiment allows a researcher to draw cause-and-effect conclusions about variables.
- A hypothesis is a statement about the cause of an event or about the relationship between two events.
- Dependent variables are those measuring a certain outcome, and independent variables are those manipulated by a researcher to test a hypothesis.
- Experimental and control groups are key to an experiment, which must include randomization of participants.
- Internal validity and external validity are important components of an experiment that allow researchers to be confident about their results and generalize their results to the overall population.
- Experimenters use certain procedures to control for bias such as placebos and blinded designs.
- Correlational studies allow researchers to examine associations between variables and often include evaluating positive and negative correlations.

- Correlation does not imply causation because of third variable and directionality problems.
- Quasi-experiments involve examining groups that already exist along an independent variable.
- Other alternative experimental designs include natural experiments, analogue experiments, and single-subject research designs.
- Researchers often examine the development of mental disorders via longitudinal, cross-sectional, and sequential designs.
- Researchers use the case study method to make careful observations of one person.

➤ Review Questions

1. Describe three major steps used in the scientific method.
2. Discuss various steps and components of an experiment.
3. Describe the correlational approach to research and its problems.
4. Describe the main characteristics of natural experiments, analogue experiments, and single-subject research designs.
5. Describe developmental designs and their advantages and disadvantages.
6. What is a case study, and why would a researcher conduct one?

Final Comments

You can see that mental health professionals take seriously the precise definition, classification, assessment, and study of psychological problems. This is done to better understand, treat, and prevent mental disorders. If we have a well-defined mental disorder that can be more easily assessed, we can actively work to identify risk factors for the disorder that allow for early detection and prevention of symptoms. We have now reached the point in the book where we begin to describe major mental disorders at length. Each of the following chapters cover important information about features, epidemiology (including diversity), stigma, risk factors, prevention, assessment, and treatment of these disorders. Keep in mind that the behaviors we describe can be seen along a continuum or spectrum. We all have many aspects of these problems to some extent at some point in our lives. We begin by discussing some of the most common forms of mental disorder, the anxiety, obsessive-compulsive, and trauma-related disorders.

Key Terms

dimensions 74	projective tests 84	hypothesis 92
categories 74	behavioral assessment 85	dependent variables 92
diagnosis 75	functional analysis 85	independent variable 92
mental disorder 75	antecedents 85	randomization 92
syndrome 75	consequences 85	experimental group 92
classification 76	organismic variables 85	control group 92
clinical assessment 76	naturalistic observation 85	placebo 93
reliability 77	controlled observation 86	double-blind design 93
test-retest reliability 77	self-monitoring 86	triple-blind design 93
interrater reliability 78	computerized axial tomography (CT scan) 87	external validity 93
internal consistency reliability 78	magnetic resonance imaging (MRI) 87	internal validity 93
validity 78	functional MRI (fMRI) 87	correlational studies 94
content validity 78	positron emission tomography (PET scan) 87	positive correlations 94
predictive validity 78	neurochemical assessment 87	negative correlation 94
concurrent validity 78	metabolites 87	quasi-experimental methods 94
construct validity 79	psychophysiological assessment 88	confounds 94
standardization 79	electrocardiogram 88	natural experiment 94
unstructured interviews 80	galvanic skin conductance 88	analogue experiment 95
structured interviews 80	electroencephalogram 89	single-subject experimental design 95
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