

Table 11.3 Diagnostic Overlap of Personality Disorders
Odds Ratio[†] of People Qualifying for Other Personality Disorder Diagnoses

Diagnosis	Paranoid	Schizoid	Schizotypal	Antisocial	Borderline	Histrionic	Narcissistic	Avoidant	Dependent	Obsessive-Compulsive
Paranoid		2.1	37.3*	2.6	12.3*	0.9	8.7*	4.0*	0.9	5.2*
Schizoid	2.1		19.2	1.1	2.0	3.9	1.7	12.3*	2.9	5.5*
Schizotypal	37.3*	19.2		2.7	15.2*	9.4	11.0	3.9*	7.0	7.1
Antisocial	2.6	1.1	2.7		9.5*	8.1*	14.0*	0.9	5.6	0.2
Borderline	12.3*	2.0	15.2*	9.5*		2.8	7.1*	2.5*	7.3*	2.0
Histrionic	0.9	3.9	9.4	8.1*	2.8		13.2*	0.3	9.5	1.3
Narcissistic	8.7*	1.7	11.0	14.0*	7.1*	13.2*		0.3	4.0	3.7*
Avoidant	4.0*	12.3*	3.9*	0.9	2.5*	0.3	0.3		2.0	2.7
Dependent	0.9	2.9	7.0	5.6	7.3*	9.5	4.0	2.0		0.9
Obsessive-compulsive	5.2*	5.5*	7.1	0.2	2.0	1.3	2.0	2.7	0.9	

[†]The “odds ratio” indicates how likely it is that a person would have both disorders. The odds ratios with an asterisk (*) indicate that, statistically, people are likely to be diagnosed with both disorders—with a higher number meaning people are more likely to have both. Some higher odds ratios are not statistically significant because the number of people with the disorder in this study was relatively small.

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Concept Check 11.1

Fill in the blanks to complete the following statements about personality disorders.

1. Personality disorders as a group are distinct and therefore placed on a separate axis, _____.
2. _____ refers to a condition where people with personality disorders are diagnosed with other disorders.
3. The personality disorders are divided into three clusters or groups: _____ contains the odd or eccentric disorders; _____ contains the dramatic, emotional, and erratic disorders; and

contains _____ the anxious and fearful disorders.

4. It's debated whether personality disorders are extreme versions of otherwise normal personality variations (therefore classified as dimensions) or ways of relating that are different from psychologically healthy behavior (classified as _____).
5. Personality disorders are described as _____ because unlike many disorders, they originate in childhood and continue throughout adulthood.
6. Although gender differences are evident in the research of personality disorders, some differences in the findings may be the result of _____.

Cluster A Personality Disorders

› What are the nature, etiology, and treatment of each of the odd or eccentric personality disorders?

Three personality disorders—paranoid, schizoid, and schizotypal—share common features that resemble some of the psychotic symptoms seen in schizophrenia. These odd or eccentric personality disorders are described next.

Paranoid Personality Disorder

Although it is probably adaptive to be a little wary of other people and their motives, being too distrustful can interfere with making friends, working with others, and getting

through daily interactions in a functional way. People with **paranoid personality disorder** are excessively mistrustful and suspicious of others, without any justification. They assume other people are out to harm or trick them; therefore, they tend not to confide in others. Consider the case of Jake.

Jake • Research Victim

Jake grew up in a middle-class neighborhood, and although he never got in serious trouble, he had a reputation in high school for arguing with teachers and classmates. After high school he enrolled in the local community college, but he flunked out after the first year. Jake's lack of success in school was partly attributable to his failure to take responsibility for his poor grades. He began to develop conspiracy theories about fellow students and professors, believing they worked together to see him fail. Jake bounced from job to job, each time complaining that his employer was spying on him at work and at home.

At age 25—and against his parents' wishes—he moved out of his parents' home to a small town out of state. Unfortunately, the letters Jake wrote home daily confirmed his parents' worst fears. He was becoming increasingly preoccupied with theories about people who were out to harm him. Jake spent enormous amounts of time on his computer exploring websites, and he developed an elaborate theory about how research had been performed on him in childhood. His letters home described his belief that researchers working with the CIA drugged him as a child and implanted something in his ear that emitted microwaves. These microwaves, he believed, were being used to cause him to develop cancer. Over 2 years, he became increasingly preoccupied with this theory, writing letters to various authorities trying to convince them he was being slowly killed. After he threatened harm to some local college administrators, his parents were contacted and they brought him to a psychologist, who diagnosed him with paranoid personality disorder and major depression.

Clinical Description

The defining characteristic of people with paranoid personality disorder is a pervasive unjustified distrust (Edens, Marcus, & Morey, 2009). Certainly, there may be times when someone is deceitful and “out to get you”; however, people with paranoid personality disorder are suspicious in situations in which most other people would agree their suspicions are unfounded. Even events that have nothing to do with them are interpreted as personal attacks (Bernstein & Useda, 2007). These people would view a neighbor's barking dog or a delayed airline flight as a deliberate attempt to annoy them. Unfortunately, such mistrust often

extends to people close to them and makes meaningful relationships difficult.

Suspicion and mistrust can show themselves in a number of ways. People with paranoid personality disorder may be argumentative, may complain, or may be quiet. This style of interaction is communicated, sometimes non-verbally, to others, often resulting in discomfort among those who come in contact with them because of this volatility. They often appear tense and are “ready to pounce” when they think they've been slighted by someone. These individuals are sensitive to criticism and have an excessive need for autonomy (Bernstein & Useda, 2007).

Causes

Evidence for biological contributions to paranoid personality disorder is limited. Some research suggests the disorder may be slightly more common among the relatives of people who have schizophrenia, although the association does not seem to be strong (Tienari et al., 2003). As you will see later with the other odd or eccentric personality disorders in Cluster A, there seems to be some relationship with schizophrenia, although its exact nature is not yet clear. In general, however, there appears to be a strong role for genetics in paranoid personality disorder (Kendler et al., 2006).

DSM Disorder Criteria Summary Paranoid Personality Disorder

- A. A pervasive distrust and suspiciousness of others such that their motives are interpreted as malevolent, beginning by early adulthood and present in a variety of contexts, as indicated by four (or more) of the following:
 - (1) suspects, without sufficient basis, that others are exploiting, harming, or deceiving him or her;
 - (2) is preoccupied with unjustified doubts about the loyalty or trustworthiness of friends or associates;
 - (3) is reluctant to confide in others because of unwarranted fear that the information will be used maliciously against him or her;
 - (4) reads hidden demeaning or threatening meanings into benign remarks or events;
 - (5) persistently bears grudges, i.e., is unforgiving of insults, injuries, or slights;
 - (6) perceives attacks on his or her character or reputation that are not apparent to others and is quick to react angrily or to counter-attack;
 - (7) has recurrent suspicions, without justification, regarding fidelity of spouse or sexual partner
- B. Does not occur exclusively during the course of Schizophrenia, a Mood Disorder With Psychotic Features, or another Psychotic Disorder and is not due to the direct physiological effects of a general medical condition.

Note: If criteria are met prior to the onset of Schizophrenia, add “Premorbid,” e.g., “Paranoid Personality Disorder (Premorbid).”

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Psychological contributions to this disorder are even less certain, although some interesting speculations have been made. Some psychologists point directly to the thoughts of people with paranoid personality disorder as a way of explaining their behavior. One view is that people with this disorder have the following basic mistaken as-

sumptions about others: “People are malevolent and deceptive,” “They’ll attack you if they get the chance,” and “You can be okay only if you stay on your toes” (Freeman, Pretzer, Fleming, & Simon, 1990). This is a maladaptive way to view the world, yet it seems to pervade every aspect of the lives of these individuals. Although we don’t know why they develop these perceptions, some speculation is that the roots are in their early upbringing. Their parents may teach them to be careful about making mistakes and may impress on them that they are different from other people. This vigilance causes them to see signs that other people are deceptive and malicious (Carroll, 2009).

Cultural factors have also been implicated in paranoid personality disorder. Certain groups of people, such as prisoners, refugees, people with hearing impairments, and older adults, are thought to be particularly susceptible because of their unique experiences (Rogler, 2007). Imagine how you might view other people if you were an immigrant who had difficulty with the language and the customs of

your new culture. Such innocuous things as other people laughing or talking quietly might be interpreted as somehow directed at you. You have seen how someone could misinterpret ambiguous situations as malevolent. Therefore, cognitive and cultural factors may interact to produce the suspiciousness observed in some people with paranoid personality disorder.

Treatment

Because people with paranoid personality disorder are mistrustful of everyone, they are unlikely to seek professional help when they need it and they have difficulty developing the trusting relationships necessary for successful therapy (Skodol & Gunderson, 2008). When these individuals finally do seek therapy, the trigger is usually a crisis in their lives—such as Jake’s threats to harm strangers—or other problems such as anxiety or depression, not necessarily their personality disorder (Kelly, Casey, Dunn, Ayuso-Mateos, & Dowrick, 2007).

Therapists try to provide an atmosphere conducive to developing a sense of trust (Bender, 2005). They often use cognitive therapy to counter the person’s mistaken assumptions about others, focusing on changing the person’s beliefs that all people are malevolent and most people cannot be trusted (Skodol & Gunderson, 2008). However, a survey of mental health professionals indicated that only 11% of therapists who treat paranoid personality disorder thought these individuals would continue in therapy long enough to be helped (Quality Assurance Project, 1990).

Schizoid Personality Disorder

Do you know someone who is a “loner”? Someone who would choose a solitary walk over an invitation to a party? A person who comes to class alone, sits alone, and leaves alone? Now, magnify this preference for isolation many times over and you can begin to grasp the impact of **schizoid personality disorder** (Cloninger & Svakic, 2009). People with this personality disorder show a pattern of detachment from social relationships and a limited range of emotions in interpersonal situations. They seem aloof, cold, and indifferent to other people. The term *schizoid* is relatively old, having been used by Bleuler (1924) to describe people who have a tendency to turn inward and away from the outside world. These people were said to lack emotional expressiveness and pursued vague interests. Consider the case of Mr. Z.



▲ People with paranoid personality disorder often believe that interpersonal situations exist specifically to annoy or otherwise disturb them.

paranoid personality disorder A cluster A (odd or eccentric) personality disorder involving pervasive distrust and suspiciousness of others such that their motives are interpreted as malevolent.

schizoid personality disorder A cluster A (odd or eccentric) personality disorder featuring a pervasive pattern of detachment from social relationships and a restricted range of expression of emotions.

Mr. Z • All on His Own

A 39-year-old scientist was referred after his return from a tour of duty in Antarctica where he had stopped cooperating with others, withdrawn to his room, and begun drinking on his own. Mr. Z. was orphaned at age 4 years, raised by an aunt until age 9, and subsequently looked after by an aloof housekeeper. At university he excelled at physics, but chess was his only contact with others. Throughout his subsequent life he made no close friends and engaged primarily in solitary activities. Until the tour of duty in Antarctica, he had been quite successful in his research work in physics. He was now, some months after his return, drinking at least a bottle of schnapps each day, and his work had continued to deteriorate. He presented as self-contained and unobtrusive and was difficult to engage effectively. He was at a loss to explain his colleagues' anger at his aloofness in Antarctica and appeared indifferent to their opinion of him. He did not appear to require any interpersonal relations, although he did complain of some tedium in his life and at one point during the interview became sad, expressing longing to see his uncle in Germany, his only living relation.

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Clinical Description

Individuals with schizoid personality disorder seem neither to desire nor to enjoy closeness with others, including romantic or sexual relationships. As a result they appear cold and detached and do not seem affected by praise or criticism. Some, however, are sensitive to the opinions of others but are unwilling or unable to express this emotion. For them, social isolation may be extremely painful. Unfortunately, homelessness appears to be prevalent among people with this personality disorder; perhaps as a result of their lack of close friendships and lack of dissatisfaction about not having a sexual relationship with another person (Rouff, 2000).

The social deficiencies of people with schizoid personality disorder are similar to those of people with paranoid personality disorder, although they are more extreme. As Beck and Freeman (1990, p. 125) put it, they “consider themselves to be observers rather than participants in the world around them.” They do not seem to have the unusual thought processes that characterize the other disorders in Cluster A (Cloninger & Svakic, 2009) (Table 11.4). For example, people with paranoid and schizotypal personality disorders often have *ideas of reference*, mistaken beliefs that meaningless events relate just to them. In contrast, those with schizoid personality disorder share the social

Table 11.4 Grouping Schema for Cluster A Disorders

Cluster A Personality Disorder	Psychotic-Like Symptoms	
	Positive (for example, Ideas of Reference, Magical Thinking, and Perceptual Distortions)	Negative (for example, Social Isolation, Poor Rapport, and Constricted Affect)
Paranoid	Yes	Yes
Schizoid	No	Yes
Schizotypal	Yes	No

Source: Adapted from Siever, L. J., 1992. Schizophrenia spectrum personality disorders. In A. Tasman & M. B. Riba (Eds.), *Review of psychiatry* (Vol. 11, pp. 25–42). Washington, DC: American Psychiatric Press, © 1992 American Psychiatric Press.

isolation, poor rapport, and constricted affect (showing neither positive nor negative emotion) seen in people with paranoid personality disorder. You will see in Chapter 12 that this distinction among psychotic-like symptoms is important to understanding people with schizophrenia, some of whom show the “positive” symptoms (actively unusual behaviors such as ideas of reference) and others only the “negative” symptoms (the more passive manifestations of social isolation or poor rapport with others).

DSM Disorder Criteria Summary

Schizoid Personality Disorder

- A. A pervasive pattern of detachment from social relationships and a restricted range of expression of emotions in interpersonal settings, beginning by early adulthood and present in a variety of contexts, as indicated by four (or more) of the following:
 - (1) neither desires nor enjoys close relationships, including being part of a family;
 - (2) almost always chooses solitary activities;
 - (3) has little, if any, interest in having sexual experiences with another person;
 - (4) takes pleasure in few, if any, activities;
 - (5) lacks close friends or confidants other than first-degree relatives;
 - (6) appears indifferent to the praise or criticism of others;
 - (7) shows emotional coldness, detachment, or flattened affectivity
- B. Does not occur exclusively during the course of Schizophrenia, a Mood Disorder With Psychotic Features, another Psychotic Disorder, or a Pervasive Developmental Disorder and is not due to the direct physiological effects of a general medical condition.

Note: If criteria are met prior to the onset of Schizophrenia, add Premorbid,” e.g., “Schizoid Personality Disorder (Premorbid).”

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Causes and Treatment

Childhood shyness is reported as a precursor to later adult schizoid personality disorder. It may be that this personality trait is inherited and serves as an important determinant in

the development of this disorder. Abuse and neglect in childhood are also reported among individuals with this disorder (Johnson, Bromley, & McGeoch, 2005). Research over the past several decades points to biological causes of autism (a disorder we discuss in more detail in Chapter 13), and parents of children with autism are more likely to have schizoid personality disorder (Constantino et al., 2009). It is possible that a biological dysfunction found in both autism and schizoid personality disorder combines with early learning or early problems with interpersonal relationships to produce the social deficits that define schizoid personality disorder.

It is rare for a person with this disorder to request treatment except in response to a crisis such as extreme depression or losing a job (Kelly et al., 2007). Therapists often begin treatment by pointing out the value in social relationships. The person with the disorder may even need to be taught the emotions felt by others to learn empathy (Skodol & Gunderson, 2008). Because their social skills were never established or have atrophied through lack of use, people with schizoid personality disorder often receive social skills training. The therapist takes the part of a friend or significant other in a technique known as role-playing and helps the patient practice establishing and maintaining social relationships (Skodol & Gunderson, 2008). This type of social skills training is helped by identifying a social network—a person or people who will be supportive (Bender, 2005).

Schizotypal Personality Disorder

People with **schizotypal personality disorder** are typically socially isolated, like those with schizoid personality disorder. In addition, they also behave in ways that would seem unusual to many of us, and they tend to be suspicious and have odd beliefs (Cloninger & Svakic, 2009). Schizotypal personality disorder is considered by some to be on a continuum (that is, on the same spectrum) with schizophrenia—the severe disorder we discuss in the next chapter—but without some of the more debilitating symptoms, such as hallucinations and delusions. Consider the case of Mr. S.

Mr. S • Man with a Mission

Mr. S. was a 35-year-old chronically unemployed man who had been referred by a physician because of a vitamin deficiency. This was thought to have eventuated because Mr. S. avoided any foods that “could have been contaminated by machine.” He had begun to develop alternative ideas about diet in his 20s and soon left his family and began to study an Eastern religion. “It opened my third eye—corruption is all about,” he said.

He now lived by himself on a small farm, attempting to grow his own food and bartering for items he could not grow himself. He spent his days and evenings researching the origins and mechanisms of food contamination and, because of this knowledge, had developed a small band who followed his ideas. He had never married and maintained little contact

with his family: “I’ve never been close to my father. I’m a vegetarian.”

He said he intended to do an herbalism course to improve his diet before returning to his life on the farm. He had refused medication from the physician and became uneasy when the facts of his deficiency were discussed with him.

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Clinical Description

People given a diagnosis of schizotypal personality disorder have psychotic-like (but not psychotic) symptoms (such as believing everything relates to them personally), social deficits, and sometimes cognitive impairments or paranoia (Cloninger & Svakic, 2009). These individuals are often considered odd or bizarre because of how they relate to other people, how they think and behave, and even how they dress. They have *ideas of reference*, which means they think insignificant events relate directly to them. For example, they may believe that somehow everyone on a passing city bus is talking about them, yet they may be able to acknowledge this is unlikely. Again, as you will see in Chapter 12, some people with schizophrenia also have ideas of reference, but they are usually not able to “test reality” or see the illogic of their ideas.

Individuals with schizotypal personality disorder also have odd beliefs or engage in “magical thinking,” believing, for example, that they are clairvoyant or telepathic. In addition, they report unusual perceptual experiences, including such illusions as feeling the presence of another person when they are alone. Notice the subtle but important difference between *feeling* as if someone else is in the room and the more extreme perceptual distortion in people with schizophrenia who might report there *is* someone else in the room when there isn’t. Unlike people who simply have unusual interests or beliefs, those with schizotypal personality disorder tend to be suspicious and have paranoid thoughts, express little emotion, and may dress or behave in unusual ways (for example, wear many layers of clothing in the summertime or mumble to themselves) (Cloninger & Svakic, 2009). Prospective research on children who later develop schizotypal personality disorder found that they tend to be passive and unengaged and are hypersensitive to criticism (Olin et al., 1997).

schizotypal personality disorder A cluster A (odd or eccentric) personality disorder involving a pervasive pattern of interpersonal deficits featuring acute discomfort with, and reduced capacity for, close relationships, as well as cognitive or perceptual distortions and eccentricities of behavior.

DSM Disorder Criteria Summary

Schizotypal Personality Disorder

- A. A pervasive pattern of social and interpersonal deficits marked by acute discomfort with, and reduced capacity for, close relationships as well as by cognitive or perceptual distortions and eccentricities of behavior, beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:
- (1) ideas of reference (excluding delusions of reference);
 - (2) odd beliefs or magical thinking that influences behavior and is inconsistent with subcultural norms (e.g., superstition, belief in clairvoyance, telepathy, or “sixth sense”; in children and adolescents, bizarre fantasies or preoccupations);
 - (3) unusual perceptual experiences, including bodily illusions;
 - (4) odd thinking and speech (e.g., vague, circumstantial, metaphorical, overelaborate, or stereotyped);
 - (5) suspiciousness or paranoid ideation;
 - (6) inappropriate or constricted affect;
 - (7) behavior or appearance that is odd, eccentric, or peculiar;
 - (8) lack of close friends or confidants other than first-degree relatives;
 - (9) excessive social anxiety that does not diminish with familiarity and tends to be associated with paranoid fears rather than negative judgments about self
- B. Does not occur exclusively during the course of Schizophrenia, a Mood Disorder With Psychotic Features, another Psychotic Disorder, or a Pervasive Developmental Disorder.

Note: If criteria are met prior to the onset of Schizophrenia, add “Premorbid,” e.g., “Schizotypal Personality Disorder (Premorbid).”

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Clinicians must be aware that different cultural beliefs or practices may lead to a mistaken diagnosis of schizotypal personality disorder. For example, some people who practice certain religious rituals—such as speaking in tongues, practicing voodoo, or mind reading—may do so with such obsessiveness as to make them seem extremely unusual, thus leading to a misdiagnosis (American Psychiatric Association, 2000). Mental health workers have to be particularly sensitive to cultural practices that may differ from their own and can distort their view of certain seemingly unusual behaviors.

Causes

Historically, the word *schizotype* was used to describe people who were predisposed to develop schizophrenia (Meehl, 1962; Rado, 1962). Schizotypal personality disorder is viewed by some to be one phenotype of a schizophrenia genotype. Recall that a *phenotype* is one way a person’s genetics is expressed. A *genotype* is the gene or genes that make up a particular disorder. However, depending on a variety of other influences, the way you turn out—your phenotype—may vary from other people with a similar genetic makeup. Some people are thought to have “schizophrenia genes” (the genotype) yet, because of the relative lack of biological influences (for example, prenatal illnesses) or environmental stresses (for example, poverty), some will have the less severe schizotypal personality disorder (the phenotype).

The idea of a relationship between schizotypal personality disorder and schizophrenia arises partly from the way people with the disorders behave. Many characteristics of schizotypal personality disorder, including ideas of reference, illusions, and paranoid thinking, are similar but milder forms of behaviors observed among people with schizophrenia. Genetic research also seems to support a relationship. Family, twin, and adoption studies have shown an increased prevalence of schizotypal personality disorder among relatives of people with schizophrenia who do not also have schizophrenia themselves (Siever & Davis, 2004). However, these studies also tell us that the environment can strongly influence schizotypal personality disorder. Some research suggests that schizotypal symptoms are strongly associated with childhood maltreatment among men and this childhood maltreatment seems to result in posttraumatic stress disorder (PTSD) symptoms (see Chapter 4) among women (Berenbaum, Thompson, Milanak, Boden, & Bredemeier, 2008). Cognitive assessment of people with this disorder points to mild to moderate decrements in their ability to perform on tests involving memory and learning, suggesting some damage in the left hemisphere (Siever & Davis, 2004). Other research, using magnetic resonance imaging, points to generalized brain abnormalities in those with schizotypal personality disorder (Modinos et al., 2009).

Treatment

Some estimate that between 30% and 50% of the people with schizotypal personality disorder who request clinical help also meet the criteria for major depressive disorder. Treatment includes some of the medical and psychological treatments for depression (Cloninger & Svakic, 2009; Mulder, Frampton, Luty, & Joyce, 2009).

Controlled studies of attempts to treat groups of people with schizotypal personality disorder are few. However, there is now growing interest in treating this disorder because it is being viewed as a precursor to schizophrenia (McClure et al., 2010). One study used a combination of approaches, including antipsychotic medication, community treatment (a team of support professionals providing therapeutic services), and social skills training, to treat the symptoms experienced by individuals with this disorder. Researchers found that this combination of approaches either reduced their symptoms or postponed the onset of later schizophrenia (Nordentoft et al., 2006).

Concept Check 11.2

Which personality disorders are described here?

1. Heidi trusts no one and wrongly believes other people want to harm her or cheat her out of her life earnings. She is sure her husband is secretly planning to leave her and take their three boys, although she has no proof. She no longer confides in

friends or divulges any information to coworkers for fear that it will be used in a plot against her. She is usually tense and ready to argue about harmless comments made by family members.

2. Rebecca lives alone out in the country with her birds and has little contact with relatives or any other individuals in the nearby town. She is extremely concerned with pollution, fearing that harmful chemicals are in the air and water around her. She has developed her own water purification system and makes her own clothes. If it is necessary for her to go outside, she covers her body

with excessive clothing and wears a face mask to avoid the contaminated air. _____

3. Doug is a college student who has no close friends. He comes to class every day and sits in a corner and is sometimes seen having lunch alone on the park bench. Most students find him difficult to engage and complain about his lack of involvement in class activities, but he appears indifferent to what others say. He has never had a girlfriend and expresses no desire to have sex. He is meeting with a therapist only because his family tricked him into going. _____

Cluster B Personality Disorders

› What are the essential characteristics of dramatic, emotional, or erratic personality disorders?

People diagnosed with the Cluster B personality disorders—antisocial, borderline, histrionic, and narcissistic—all have behaviors that have been described as dramatic, emotional, or erratic. These personality disorders are described next.

Antisocial Personality Disorder

People with **antisocial personality disorder** are among the most puzzling of the individuals a clinician will see in a practice and are characterized as having a history of failing to comply with social norms. They perform actions most of us would find unacceptable, such as stealing from friends and family. They also tend to be irresponsible, impulsive, and deceitful (De Brito & Hodgins, 2009). Robert Hare, a pioneer in the study of people with this disorder, describes people with antisocial personality disorder as “social predators who charm, manipulate, and ruthlessly plow their way through life, leaving a broad trail of broken hearts, shattered expectations, and empty wallets. Completely lacking in conscience and empathy, they selfishly take what they want and do as they please, violating social norms and expectations without the slightest sense of guilt or regret” (Hare, 1993, p. xi). Consider the case of Ryan.

Ryan • The Thrill Seeker

I first met Ryan on his 17th birthday. Unfortunately, he was celebrating the event in a psychiatric hospital. He had been truant from school for several months and had gotten into some trouble; the local judge who heard his case had recommended psychiatric evaluation.

My first impression was that Ryan was cooperative and pleasant. He pointed out a tattoo on his arm that he had made himself, saying that it was a “stupid” thing to have done and that he now regretted it. He regretted many things and was looking forward to moving on with his life. I later found out that he was never truly remorseful for anything.

Our second interview was quite different. In the 48 hours since our first interview, Ryan had done a number of things that showed why he needed a great deal of help. The most serious incident involved a 15-year-old girl named Ann who attended class with Ryan in the hospital school. Ryan had told her that he was going to get himself discharged, get in trouble, and be sent to the same prison Ann’s father was in, where he would rape her father. Ryan’s threat so upset Ann that she hit her teacher and several of the staff. When I spoke to Ryan about this, he smiled slightly and said he was bored and that it was fun to upset Ann. When I asked whether it bothered him that his behavior might extend her stay in the hospital, he looked puzzled and said, “Why should it bother me? She’s the one who’ll have to stay in this hellhole!”

antisocial personality disorder A cluster B (dramatic, emotional, or erratic) personality disorder involving a pervasive pattern of disregard for and violation of the rights of others. Similar to the non-*DSM-IV-TR* label psychopathy but with greater emphasis on overt behavior than on personality traits.

Just before Ryan's admittance, a teenager in his town was murdered. A group of teens went to the local cemetery at night to perform satanic rituals, and a young man was stabbed to death, apparently over a drug purchase. Ryan was in the group, although he did not stab the boy. He told me that they occasionally dug up graves to get skulls for their parties—not because they really believed in the devil but because it was fun and it scared the younger kids. I asked, "What if this was the grave of someone you knew, a relative or a friend? Would it bother you that strangers were digging up the remains?" He shook his head. "They're dead, man. They don't care. Why should I?"

Ryan told me he loved PCP, or "angel dust," and that he would rather be dusted than anything else. He routinely made the 2-hour trip to New York City to buy drugs in a particularly dangerous neighborhood. He denied that he was ever nervous. This wasn't machismo; he really seemed unconcerned.

Ryan made little progress. I discussed his future in family therapy sessions and we talked about his pattern of showing supposed regret and remorse and then stealing money from his parents and going back onto the street. Most of our discussions centered on trying to give his parents the courage to say no to him and not to believe his lies.

Ryan was eventually discharged to a drug rehabilitation program. Within 4 weeks, he had convinced his parents to take him home, and within 2 days he had stolen all their cash and disappeared; he apparently went back to his friends and to drugs.

When he was in his 20s, after one of his many arrests for theft, he was diagnosed as having antisocial personality disorder. His parents never summoned the courage to turn him out or refuse him money, and he continues to con them into providing him with a means of buying more drugs.

Clinical Description

Individuals with antisocial personality disorder tend to have long histories of violating the rights of others (De Brito & Hodgins, 2009). They are often described as being aggressive because they take what they want, indifferent to the concerns of other people. Lying and cheating seem to be second nature to them, and often they appear unable to tell the difference between the truth and the lies they make up to further their own goals. They show no remorse or concern over the sometimes-devastating effects of their actions. Substance abuse is common, occurring in 60% of people with antisocial personality disorder, and appears to be a lifelong pattern among these individuals (Taylor & Lang, 2006). The long-term outcome for people with antisocial personality disorder is usually poor, regardless of gender (Colman et al., 2009). One classic study, for exam-

ple, followed 1,000 delinquent and nondelinquent boys over a 50-year period (Laub & Vaillant, 2000). Many of the delinquent boys would today receive a diagnosis of conduct disorder, which you will see later may be a precursor to antisocial personality disorder in adults. The delinquent boys were more than twice as likely to die an unnatural death (for example, accident, suicide, or homicide) as their nondelinquent peers, which may be attributed to factors such as alcohol abuse and poor self-care (for example, reckless behavior and infections).

Antisocial personality disorder has had a number of names over the years. Philippe Pinel (1801/1962) identified what he called *manie sans délire* (mania without delirium) to describe people with unusual emotional responses and impulsive rages but no deficits in reasoning ability (Charland, 2010). Other labels have included moral insanity, egopathy, sociopathy, and psychopathy. A great deal has been written about these labels; we focus on the two that have figured most prominently in psychological research: **psychopathy** and *DSM-IV-TR*'s antisocial personality disorder. As you will see, there are important differences between the two.

Defining Criteria. Hervey Cleckley (1941/1982), a psychiatrist who spent much of his career working with the "psychopathic personality," identified a constellation of 16 major characteristics, most of which are personality traits and are sometimes referred to as the "Cleckley criteria." Hare and his colleagues, building on the descriptive work of Cleckley, researched the nature of psychopathy (see, for example, Hare, 1970; Harpur, Hare, & Hakstian, 1989) and developed a 20-item checklist that serves as an assessment tool. Six of the criteria that Hare includes in his Revised Psychopathy Checklist (PCL-R) are as follows:

1. Glibness/superficial charm
2. Grandiose sense of self-worth
3. Proneness to boredom/need for stimulation
4. Pathological lying
5. Conning/manipulative
6. Lack of remorse

(Neumann, Hare, & Newman, 2007: pg., 103)

With some training, clinicians are able to gather information from interviews with a person, along with material from significant others or institutional files (for example, prison records), and assign the person scores on the checklist, with high scores indicating psychopathy (Hare & Neumann, 2006).

The *DSM-IV-TR* criteria for antisocial personality focus almost entirely on observable *behaviors* (for example, "impulsively and repeatedly changes employment, residence, or sexual partners"). In contrast, the Cleckley/Hare criteria focus primarily on underlying *personality traits* (for example, being self-centered or manipulative). *DSM-IV-TR* and previous versions chose to use only observable behaviors so that clinicians could reliably agree on a diagnosis.

DSM Disorder Criteria Summary

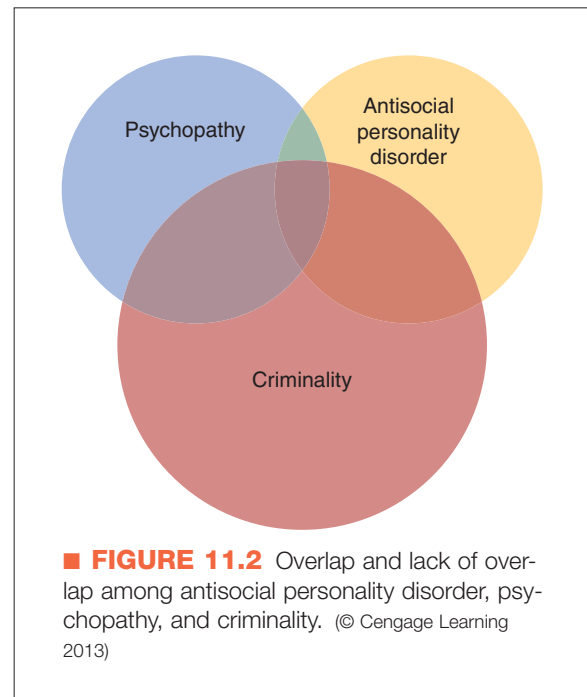
Antisocial Personality Disorder

- A. There is a pervasive pattern of disregard for and violation of the rights of others occurring since age 15 years, as indicated by three (or more) of the following:
- (1) failure to conform to social norms with respect to lawful behaviors as indicated by repeatedly performing acts that are grounds for arrest;
 - (2) deceitfulness, as indicated by repeated lying, use of aliases, or conning others for personal profit or pleasure;
 - (3) impulsivity or failure to plan ahead;
 - (4) irritability and aggressiveness, as indicated by repeated physical fights or assaults;
 - (5) reckless disregard for safety of self or others;
 - (6) consistent irresponsibility, as indicated by repeated failure to sustain consistent work behavior or honor financial obligations;
 - (7) lack of remorse, as indicated by being indifferent to or rationalizing having hurt, mistreated, or stolen from another
- B. The individual is at least age 18 years.
- C. There is evidence of Conduct Disorder with onset before age 15 years.
- D. The occurrence of antisocial behavior is not exclusively during the course of Schizophrenia or a Manic Episode.

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Antisocial Personality, Psychopathy, and Criminality. Although Cleckley did not deny that many psychopaths are at greatly elevated risk for criminal and antisocial behaviors, he did emphasize that some have few or no legal or interpersonal difficulties. In other words, some psychopaths are not criminals and some do not display the aggressiveness that is a *DSM-IV-TR* criterion for antisocial personality disorder. Although the relationship between psychopathic personality and antisocial personality disorder is uncertain, the two syndromes clearly do not overlap perfectly (De Brito & Hodgins, 2009). ■ Figure 11.2 illustrates the relative overlap among the characteristics of psychopathy as described by Cleckley and Hare; antisocial personality disorder as outlined in *DSM-IV-TR*; and criminality, which includes all people who get into trouble with the law.

As you can see in the diagram, not everyone who has psychopathy or antisocial personality disorder becomes involved with the legal system. What separates many in this group from those who get into trouble with the law may be their intelligence quotient (IQ). In a classic prospective, longitudinal study, White, Moffitt, and Silva (1989) followed almost 1,000 children, beginning at age 5, to see what predicted antisocial behavior at age 15. They found that, of the 5 year olds determined to be at high risk for later delinquent behavior, 16% did indeed have run-ins with the law by the age of 15 and 84% did not. What distinguished these two groups? In general, the at-risk children with lower IQs were the ones who got in trouble. This suggests that having a higher IQ may help protect some people from developing more serious problems or may at least prevent them from getting caught.



Some psychopaths function quite successfully in certain segments of society (for example, politics, business, and entertainment). Because of the difficulty in identifying these people, such “successful” or “subclinical” psychopaths (who meet some of the criteria for psychopathy) have not been the focus of much research. In a clever exception, Widom (1977; pg., 677) recruited a sample of subclinical psychopaths through advertisements in underground newspapers that invited many of the major personality characteristics of psychopathy. For example, one of the advertisements reads as follows:

Wanted: charming, aggressive, carefree people who are impulsively irresponsible but are good at handling people and at looking after number one.

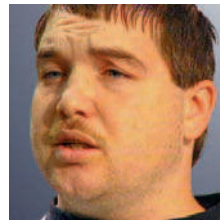
Widom found that her sample appeared to possess many of the same characteristics as imprisoned psychopaths; for example, a large percentage of them received low scores on questionnaire measures of empathy and socialization and their parents tended to have higher rates of psychopathology, including alcoholism. But many of these individuals had stable occupations and had managed to stay out of prison. Widom’s study, although lacking a control group, shows that at least some individuals with psychopathic personality traits avoid repeated contact with the legal system and may even function successfully in society.

psychopathy A non-*DSM-IV-TR* category similar to antisocial personality disorder but with less emphasis on overt behavior. Indicators include superficial charm, lack of remorse, and other personality characteristics.

Antisocial Personality Disorder: George

"I have hatred inside me. I don't care how much I be somebody. . . . The more I hear somebody, the more anger I get inside me. . . . I used drugs when I was . . . probably 9 or 10 years old . . . smoked marijuana. . . . First time I drank some alcohol I think I was probably about 3 years old. . . . I assaulted a woman. . . . I had so much anger. . . . I was just like a bomb . . . it's just ticking . . . and the way I'm going, that bomb was going to blow up in me. I wouldn't be able to get away from it . . . going to be a lot of people hurt. . . . I'm not going out without taking somebody with me."

Go to Psychology CourseMate at www.cengagebrain.com to watch this video.



Abnormal Psychology Inside Out,
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Genetic Influences

Family, twin, and adoption studies all suggest a genetic influence on both antisocial personality disorder and criminality (Ferguson, 2010a). For example in a classic study, Crowe (1974) examined children whose mothers were felons and who were later adopted by other families and compared them with adopted children of normal mothers. All were separated from their mothers as newborns, minimizing the possibility that environmental factors from their biological families were responsible for the results. Crowe found that the adopted offspring

of felons had significantly higher rates of arrests, conviction, and antisocial personality than did the adopted offspring of normal mothers, which suggests at least some genetic influence on criminality and antisocial behavior.

However, Crowe found something else interesting: The adopted children of felons who themselves later became criminals had spent more time in interim orphanages than either the adopted children of felons who did not become criminals or the adopted children of normal mothers. As Crowe points out, this suggests a gene–environment interaction; in other words, genetic factors may be important only in the presence of certain environmental influences (alternatively, certain environmental influences are important only in the presence of certain genetic predispositions). Genetic factors may present a vulnerability, but actual development of criminality may require environmental factors, such as a deficit in early, high-quality contact with parents or parent surrogates.

This gene–environment interaction was demonstrated most clearly by Cadoret, Yates, Troughton, Woodworth, and Stewart (1995), who studied adopted children and their likelihood of developing conduct problems. If the children's biological parents had a history of antisocial personality disorder and their adoptive families exposed them to chronic stress through marital, legal, or psychiatric problems, the children were at greater risk for conduct problems. Again, research shows that genetic influence does not necessarily mean certain disorders are inevitable. Large-scale research on twins with conduct disorder supports the role of genetic and environmental influences on this disorder as well (Thomas, 2009).

If you remember back to Chapter 3, we introduced the concept of an *endophenotype*—underlying aspects of a disorder that might be more directly influenced by genes. In the case of antisocial personality disorder, gene researchers are looking for genetic differences that may influence factors such as serotonin and dopamine levels or the relative lack of anxiety or fear seen in these individuals (which we discuss next) (van Goozen, Fairchild, Snoek, & Harold,

Identifying psychopaths among the criminal population seems to have important implications for predicting their future criminal behavior. As you can imagine, having personality characteristics such as a lack of remorse and impulsivity can lead to difficulty staying out of trouble with the legal system. In general, people who score high on measures of psychopathy commit crimes at a higher rate than those with lower scores and are at greater risk for more violent crimes and recidivism (repeating offenses) (Widiger, 2006).

Conduct Disorder. Before we discuss causal factors, it is important to note the developmental nature of antisocial behavior. *DSM-IV-TR* provides a separate diagnosis for children who engage in behaviors that violate society's norms: *conduct disorder*. Many children with conduct disorder—most often diagnosed in boys—become juvenile offenders and tend to become involved with drugs (Durand, 2011). Ryan fit into this category. More important, the lifelong pattern of antisocial behavior is evident because young children who display antisocial behavior are likely to continue these behaviors as they grow older (Soderstrom, Sjodin, Carlstedt, & Forsman, 2004). Data from long-term follow-up research indicate that many adults with antisocial personality disorder or psychopathy had conduct disorder as children (Robins, 1978; Salekin, 2006); the likelihood of an adult having antisocial personality disorder increases if, as a child, he or she had both conduct disorder and attention deficit/hyperactivity disorder (Biederman, Mick, Faraone, & Burback, 2001; Moffitt, Caspi, Rutter, & Silva, 2001). In many cases, the types of norm violations that an adult would engage in—irresponsibility regarding work or family—appear as younger versions in conduct disorder, such as truancy from school or running away from home. A major difference is that lack of remorse is included under antisocial personality disorder but not in the conduct disorder criteria—that is, unlike those with antisocial personality disorder, some children with conduct disorder do feel remorseful about their behavior.

DSM Disorder Criteria Summary

Conduct Disorder

- A. A repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of three (or more) of the following criteria in the past 12 months, with at least one criterion present in the past 6 months:

Aggression to people and animals

- (1) often bullies, threatens, or intimidates others
- (2) often initiates physical fights
- (3) has used a weapon that can cause serious physical harm to others (e.g., a bat, brick, broken bottle, knife, gun)
- (4) has been physically cruel to people
- (5) has been physically cruel to animals
- (6) has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery)
- (7) has forced someone into sexual activity

Destruction of property

- (8) has deliberately engaged in fire setting with the intention of causing serious damage
- (9) has deliberately destroyed others' property (other than by fire setting)

Deceitfulness or theft

- (10) has broken into someone else's house, building, or car
- (11) often lies to obtain goods or favors or to avoid obligations (i.e., "cons" others)
- (12) has stolen items of nontrivial value without confronting a victim (e.g., shoplifting, but without breaking and entering; forgery)

Serious violations of rules

- (13) often stays out at night despite parental prohibitions, beginning before age 13 years
- (14) has run away from home overnight at least twice while living in parental or parental surrogate home (or once without returning for a lengthy period)
- (15) is often truant from school, beginning before age 13 years

- B. The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.

- C. If the individual is age 18 years or older, criteria are not met for Antisocial Personality Disorder.

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2007; Waldman & Rhee, 2006). Although at its early stages, this research is refining the search for genes—not for ones that “cause” antisocial personality disorder but for genes that create the unusual aspects of an antisocial personality, such as fearlessness, aggressiveness, impulsivity, and lack of remorse.

Neurobiological Influences

A great deal of research has focused on neurobiological influences that may be specific to antisocial personality disorder. One thing seems clear: General brain damage does not explain why some people become psychopaths or

criminals; these individuals appear to score as well on neuropsychological tests as the rest of us (Hart, Forth, & Hare, 1990). However, such tests are designed to detect significant damage in the brain and will not pick up subtle changes in chemistry or structure that could affect behavior.

Arousal Theories. The fearlessness, seeming insensitivity to punishment, and thrill-seeking behaviors characteristic of those with antisocial personality disorder (especially those with psychopathy) sparked interest in what neurobiological processes might contribute to these unusual reactions. Early theoretical work on people with antisocial personality disorder emphasized two hypotheses: the underarousal hypothesis and the fearlessness hypothesis. According to the *underarousal hypothesis*, psychopaths have abnormally low levels of cortical arousal (Sylvers, Ryan, Alden, & Brennan, 2009). There appears to be an inverted U-shaped relation between arousal and performance. The *Yerkes-Dodson curve* suggests that people with either high or low levels of arousal tend to experience negative affect and perform poorly in many situations, whereas individuals with intermediate levels of arousal tend to be relatively content and perform satisfactorily in most situations.

According to the underarousal hypothesis, the abnormally low levels of cortical arousal characteristic of psychopaths are the primary cause of their antisocial and risk-taking behaviors; they seek stimulation to boost their chronically low levels of arousal. This means that Ryan lied, took drugs, and dug up graves to achieve the same level of arousal we might get from talking on the phone with a good friend or watching television. Several researchers have examined childhood and adolescent psychophysiological predictors of adult antisocial behavior and criminality. Raine, Venables, and Williams (1990), for example, assessed a sample of 15 year olds on a variety of autonomic and central nervous system variables. They found that future criminals had lower skin conductance activity, lower heart rate during rest periods, and more slow-frequency brain-wave activity, all indicative of low arousal.

According to the fearlessness hypothesis, psychopaths possess a higher threshold for experiencing fear than most other individuals (Lykken, 1957, 1982). In other words, things that greatly frighten the rest of us have little effect on the psychopath. Remember that Ryan was unafraid of going alone to dangerous neighborhoods to buy drugs. According to proponents of this hypothesis, the fearlessness of the psychopath gives rise to all the other major features of the syndrome.

Theorists have tried to connect what we know about the workings of the brain with clinical observations of people with antisocial personality disorder, especially those with psychopathy. Several theorists have applied Jeffrey Gray's (1987) model of brain functioning to this population (Fowles, 1988; Quay, 1993). According to Gray, three major brain systems influence learning and emotional behavior: the behavioral inhibition system (BIS), the reward system,



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▲ Many prisons allow visits between inmates and their children, partly to help reduce later problems in those children.

and the fight/flight system. Two of these systems, the BIS and the reward system, have been used to explain the behavior of people with psychopathy. The BIS is responsible for our ability to stop or slow down when we are faced with impending punishment, nonreward, or novel situations; activation of this system leads to anxiety and frustration. The BIS is thought to be located in the septo-hippocampal system and involves the noradrenergic and serotonergic neurotransmitter systems. The reward system is responsible for how we behave—in particular, our approach to

positive rewards—and is associated with hope and relief. This system probably involves the dopaminergic system in the mesolimbic area of the brain, which we previously noted as the “pleasure pathway” for its role in substance use and abuse (see Chapter 10).

If you think about the behavior of psychopaths, the possible malfunctioning of these systems is clear. An imbalance between the BIS and the reward system may make the fear and anxiety produced by the BIS less apparent and the positive feelings associated with the reward system more prominent (Levenston, Patrick, Bradley, & Lang, 2000; Quay, 1993). Theorists have proposed that this type of neurobiological dysfunction may explain why psychopaths aren’t anxious about committing the antisocial acts that characterize their disorder.

Researchers continue to explore how differences in neurotransmitter function (for example, serotonin) and neurohormone function (for example, androgens such as testosterone and the stress neurohormone cortisol) in the brains of these individuals can explain the callousness, superficial charm, lack of remorse, and impulsivity that characterize people with psychopathy. Integrative theories that link these differences to both genetic and environmental influences are just now beginning to be outlined (van Goozen et al., 2007) and may lead to better understanding and treatments for this debilitating disorder.

Psychological and Social Dimensions

What goes on in the mind of a psychopath? In one of several studies of how psychopaths process reward and punishment, Newman, Patterson, and Kosson (1987) set up a card-playing task on a computer; they provided five-cent rewards and fines for correct and incorrect answers to psychopathic and nonpsychopathic criminal offenders. The game was constructed so that at first players were rewarded about 90% of the time and fined only about 10% of

the time. Gradually, the odds changed until the probability of getting a reward was 0%. Despite feedback that reward was no longer forthcoming, the psychopaths continued to play and lose, whereas those without psychopathy stopped playing. As a result of this and other studies, the researchers hypothesized that once psychopaths set their sights on a reward goal, they are less likely than nonpsychopaths to be deterred despite signs the goal is no longer achievable (Dvorak-Bertscha, Curtin, Rubinstein, & Newman, 2009). Again, considering the reckless and daring behavior of some psychopaths (robbing banks without a mask and getting caught immediately), failure to abandon an unattainable goal fits the overall picture.

Interesting research suggests that this pattern of persisting in the face of failure may not be true for psychopaths from different racial groups. In replicating the type of research just described across samples of Caucasian and African American offenders, Newman and Schmitt (1998) found that the African American offenders did not make the same types of errors as their Caucasian counterparts. One explanation for this difference may be that because African American males are incarcerated at a higher rate than people from other groups, the population in prison may have a lower rate of psychopathy and therefore less likely to commit such errors (Newman & Schmitt, 1998).

Gerald Patterson’s influential work suggests that aggression in children with antisocial personality disorder may escalate, partly as a result of their interactions with their parents (Granic & Patterson, 2006; Patterson, 1982). He found that the parents often give in to the problem behaviors displayed by their children. For example, a boy’s parents ask him to make his bed and he refuses. One parent yells at the boy. The boy yells back and becomes abusive. At some point, his interchange becomes so aversive that the parent stops fighting and walks away, thereby ending the fight but also letting the son not make his bed. Giving in to these problems results in short-term gains for both the parent (calm is restored in the house) and the child (he gets what he wants), but it results in continuing problems. The child has learned to continue fighting and not give up, and the parent learns that the only way to “win” is to withdraw all demands. This “coercive family process” combines with other factors, such as parental depression, poor monitoring of their child’s activities, and less parental involvement, to help maintain the aggressive behaviors (Chronis et al., 2007; Patterson, DeBaryshe, & Ramsey, 1989).

Although little is known about which environmental factors play a direct role in causing antisocial personality disorder and psychopathy (as opposed to childhood conduct disorders), evidence from adoption studies strongly suggests that shared environmental factors—that tend to make family members similar—are important to the etiology of criminality and perhaps antisocial personality disorder. For example, in the adoption study by Sigvardsson, Cloninger, Bohman, and von-Knorring (1982), low social status of the adoptive parents increased the risk of nonviolent criminality among females. Like children with con-

duct disorders, individuals with antisocial personality disorder come from homes with inconsistent parental discipline (see, for example, Robins, 1966). It is not known for certain, however, whether inconsistent discipline directly causes antisocial personality disorder; it is conceivable, for example, that parents have a genetic vulnerability to antisocial personality disorder that they pass on to their children but that also causes them to be inadequate parents.

Developmental Influences

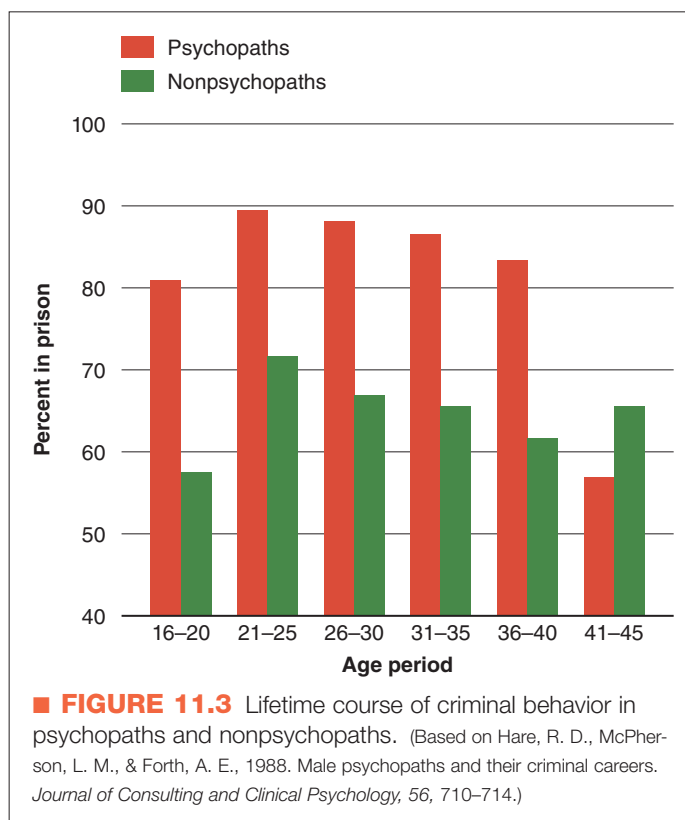
The forms that antisocial behaviors take change as children move into adulthood, from truancy and stealing from friends to extortion, assaults, armed robbery, or other crimes. Fortunately, clinical lore, as well as scattered empirical reports (Robins, 1966), suggest that rates of antisocial behavior begin to decline rather markedly around the age of 40. In their classic study, Hare, McPherson, and Forth (1988) provided empirical support for this phenomenon. They examined the conviction rates of male psychopaths and male nonpsychopaths who had been incarcerated for a variety of crimes. The researchers found that between the ages of 16 and 45 the conviction rates of nonpsychopaths remained relatively constant. In contrast, the conviction rates of psychopaths remained relatively constant up until about 40, at which time they decreased markedly (■ Figure 11.3). Why antisocial behavior often declines around middle age remains unanswered.

An Integrative Model

How can we put all this information together to get a better understanding of people with antisocial personality disorder? Remember that the research just discussed sometimes involved people labeled as having antisocial personality disorder but at other times included people labeled as psychopathic or even criminals. Whatever the label, it appears these people have a genetic vulnerability to antisocial behaviors and personality traits.

One potential gene–environment interaction may be seen in the role of fear conditioning in children. If you remember back to Chapters 1 and 4, we discussed how we learn to fear things that can harm us (for example, a hot stove) through the pairing of an unconditioned stimulus (e.g., heat from burner) and a conditioned stimulus (e.g., parent's warning to stay away), resulting in avoidance of the conditioned stimulus. But what if this conditioning is somehow impaired and you do not learn to avoid things that can harm you?

An important study looked at whether abnormal responses to fear conditioning as a young child could be responsible for later antisocial behavior in adults (Gao, Raine, Venables, Dawson, & Mednick, 2010). This large 20-year study assessed fear conditioning in a group of 1,795 children at age 3 and then looked to see who had a criminal record at age 23. They found that offenders showed significantly reduced fear conditioning at age 3 compared to matched comparison participants, with many of these children showing no fear conditioning at all. Deficits in



amygdala functioning is thought to make individuals unable to recognize cues that signal threat, making them relatively fearless, which suggests that these children had problems in this area of the brain (Sterzer, 2010). If these findings are replicated, it may point to a mechanism by which genetic influences (leading to damage in the amygdala) interact with environmental influences (learning to fear threats) to produce adults who are relatively fearless and therefore engage in behaviors that cause harm to themselves and others.

Biological influences further interact with other environmental experiences such as early childhood adversity. In a family that may already be under stress because of divorce or substance abuse, there may be an interaction style that encourages antisocial behavior on the part of the child (Thomas, 2009). The child's antisocial and impulsive behavior—partly caused by the child's difficult temperament and impulsivity (Chronis et al., 2007; Kochanska, Aksan, & Joy, 2007)—alienates other children who might be good role models and attracts others who encourage antisocial behavior. These behaviors may also result in the child dropping out of school and a poor occupational history in adulthood, which help create increasingly frustrating life circumstances that further incite acts against society (Thomas, 2009).

This is, admittedly, an abbreviated version of a complex scenario. The important element is that in this integrative model of antisocial behavior, biological, psychological, and cultural factors combine in intricate ways to create someone like Ryan.



▲ Children with conduct disorder may become adults with antisocial personality disorder.

Treatment

One of the major problems with treating people in this group is typical of numerous personality disorders: They rarely identify themselves as needing treatment. Because of this, and because they can be manipulative even with their therapists, most clinicians are pessimistic about the outcome of treatment for adults who have antisocial personality disorder, and there are few documented success stories (National Collaborating Centre for Mental Health, 2010). In general, therapists agree with incarcerating these people to deter future antisocial acts. Clinicians encourage identification of high-risk children so that treatment can be attempted before they become adults (National Collaborating Centre for Mental Health, 2010; Thomas, 2009).

The most common treatment strategy for children involves parent training (Patterson, 1986; Sanders, 1992). Parents are taught how to recognize behavior problems early and how to use praise and privileges to reduce problem behavior and encourage prosocial behaviors. Treatment studies typically show that these types of programs can significantly improve the behaviors of many children who display antisocial behaviors (Conduct Problems Prevention Research Group, 2010). A number of factors, however, put families at risk either for not succeeding in treatment or for dropping out early; these include cases with a high degree of family dysfunction, socioeconomic disadvantage, high family stress, a parent's history of antisocial behavior, and severe conduct disorder on the part of the child (Kaminski, Valle, Filene, & Boyle, 2008).

Prevention

The aggressive behavior of young children is remarkably stable, meaning that children who hit, insult, and threaten others are likely to continue as they grow older. Unfortu-

nately, these behaviors become more serious over time and are the early signs of the homicides and assaults seen among some adults (Eron & Huesmann, 1990; Singer & Flannery, 2000).

Approaches to change this aggressive course are being implemented mainly in school and preschool settings and emphasize behavioral supports for good behavior and skills training to improve social competence (Reddy, Newman, De Thomas, & Chun, 2009). Research using parent training for young children (toddlers from 1½ to 2½ years) suggests that early intervention may be particularly helpful (Shaw, Dishion, Supplee, Gardner, & Arnds, 2006). Aggression can be reduced and social competence (for example, making friends and sharing) can be improved among young children, and these results generally are maintained over a few years (Conduct Problems Prevention Research, 2010; Reddy

et al., 2009). It is too soon to assess the success of such programs in preventing adult antisocial behaviors typically observed among people with this personality disorder. However, given the ineffectiveness of treatment for adults, prevention may be the best approach to this problem.

Borderline Personality Disorder

People with **borderline personality disorder** lead tumultuous lives. Their moods and relationships are unstable and usually they have a poor self-image. These people often feel empty and are at great risk of dying by their own hands. Consider the case of Claire.

Claire ♦ A Stranger among Us

I have known Claire for more than 40 years and have watched her through the good but mostly bad times of her often shaky and erratic life as a person with borderline personality disorder. Claire and I went to school together from the eighth grade through high school, and we've kept in touch periodically. My earliest memory of her is of her hair, which was cut short rather unevenly. She told me that when things were not going well she cut her own hair severely, which helped to "fill the void." I later found out that the long sleeves she usually wore hid scars and cuts that she had made herself.

Claire was the first of our friends to smoke. What was unusual about this and her later drug use was not that they occurred or that they began early; it was that she didn't seem to use them to get attention, like everyone else. Claire was also one of the first whose

parents divorced, and both of them seemed to abandon her emotionally. She later told me that her father was an alcoholic who had regularly beaten her and her mother. She did poorly in school and had a low opinion of herself. She often said she was stupid and ugly, yet she was neither.

Throughout our school years, Claire left town periodically, without any explanation. I learned many years later that she was in psychiatric facilities to get help with her suicidal depression. She often threatened to kill herself, although we didn't guess that she was serious.

In our later teens, we all drifted away from Claire. She had become increasingly unpredictable, sometimes berating us for a perceived slight ("You're walking too fast. You don't want to be seen with me!") and at other times desperate to be around us. We were confused by her behavior. With some people, emotional outbursts can bring you closer together. Unfortunately for Claire, these incidents and her overall demeanor made us feel that we didn't know her. As we all grew older, the "void" she described in herself became overwhelming and eventually shut us all out.

Claire married twice and both times had passionate but stormy relationships interrupted by hospitalizations. She tried to stab her first husband during a particularly violent rage. She tried a number of drugs but mainly used alcohol to "deaden the pain."

Now, in her mid-50s, things have calmed down some, although she says she is rarely happy. Claire does feel a little better about herself and is doing well as a travel agent. Although she is seeing someone, she is reluctant to become involved because of her personal history. Claire was ultimately diagnosed with depression and borderline personality disorder.

Clinical Description

Borderline personality disorder is one of the most common personality disorders observed in clinical settings; it is observed in every culture and is seen in about 1% to 2% of the general population (Cloninger & Svakic, 2009). Claire's life illustrates the instability characteristic of people with borderline personality disorder. They tend to have turbulent relationships, fearing abandonment but lacking control over their emotions (Linehan & Dexter-Mazza, 2008). They often engage in behaviors that are suicidal, self-mutilative, or both, cutting, burning, or punching themselves. Claire sometimes used her cigarette to burn her palm or forearm, and she carved her initials in her arm. A significant proportion—about 6%—succeed at suicide (McGirr, Paris, Lesage, Renaud, & Turecki, 2009). On the positive side, the long-term outcome for people with borderline personality disorder is encouraging, with up to 88% achieving remission more than 10 years after initial treatment (Zanarini et al., 2006).

People with this personality disorder are often intense, going from anger to deep depression in a short time. Dysfunction in the area of emotion is sometimes considered one of the core features of borderline personality disorder (Linehan & Dexter-Mazza, 2008) and is one of the best predictors of suicide in this group (McGirr et al., 2009).

These individuals also are characterized by impulsivity, which can be seen in their drug abuse and self-mutilation. Although not so obvious as to why, the self-injurious behaviors such as cutting sometimes are described as tension reducing by people who engage in these behaviors (Nock, Cha, & Dour, 2011). Claire's empty feeling is also common; these people are sometimes described as chronically bored and have difficulties with their own identities (Linehan & Dexter-Mazza, 2008). The mood disorders we discussed in Chapter 6 are common among people with borderline personality disorder, with about 20% having major depression and about 40% having bipolar disorder (Grant et al., 2008). Eating disorders are also common, particularly bulimia (see Chapter 8). Almost 25% of people with bulimia also have borderline personality disorder (Zanarini, Reichman, Frankenburg, Reich, & Fitzmaurice, 2010). Up to 67% of the people with borderline personality disorder are also diagnosed with at least one substance use disorder (Grant et al., 2008). As with antisocial personality disorder, people with borderline personality disorder tend to improve during their 30s and 40s, although they may continue to have difficulties into old age (National Collaborating Centre for Mental Health, 2009).



Dr. P. Marazzi/Photo Researchers, Inc.

▲ Borderline personality disorder is often accompanied by self-mutilation.

borderline personality disorder A cluster B (dramatic, emotional, or erratic) personality disorder involving a pervasive pattern of instability of interpersonal relationships, self-image, affect, and control over impulses.



How would you describe a woman who regularly exhibits unstable relationships (e.g., falls in and out of love quickly), problems with her self-identity (e.g., frequently changes her career goals), and impulsive decision making (e.g., goes on reckless shopping sprees)? Are these just “normal” behaviors, expressions, and decisions for a woman or do they indicate the presence of a psychological disorder? The *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* (American Psychological Association, 2000) states that “a pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity that begins by early adulthood and is present in a variety of contexts” is the primary feature of borderline personality disorder (BPD) (APA, 2000, p. 706). With this *DSM-IV* understanding, the woman described here might be diagnosed with BPD—a disorder that is predominantly (75% of the time) found in women. This differential sex prevalence rate, and several of the criteria for BPD,

have led to wide debate over the possibility of gender bias in the diagnosis of BPD.

From a socialization perspective, it has been argued that women are trained from a young age to be what our society calls “dependent” and can be more sensitive to criticism or rejection from others (e.g., girls are taught to place high emphasis on things such as relatedness and tend to view themselves through the appraisals of others) (Becker, 1997). Additionally, in attempting to understand how a BPD diagnosis affects women, feminist literature has argued that “the diagnosis of BPD is the latest manifestation of historical attempts to explain away the strategies which some women use to survive and resist oppression and abuse, by describing these strategies as symptomatic of a disturbed personality/pathology” (Shaw & Proctor, 2005, p. 484). Both of these perspectives suggest that BPD is an unfair diagnosis: either pathologizing socialized expressions of gender or devaluing the experiences and expressions of women. However, diagnos-

ing and treating such extreme behaviors may be the appropriate action. What do you think? Is it the case that extremes in socialized gender expression unfairly lead to labels of personality disorder and devaluation, or do such extreme expressions suggest unhealthiness and call for diagnosis and treatment?

In terms of gender bias in personality disorders, the *DSM-IV* states that two personality disorders occur more frequently in women (including dependent and histrionic) and six personality disorders occur more often in men (including antisocial, narcissistic, obsessive-compulsive, paranoid, schizotypal, and schizoid). Therefore, just as women are more likely to be diagnosed with BPD, men are more than three times more likely to be diagnosed with antisocial personality disorder (Kessler et al., 1994), and similar socialization and various gender biases in the *DSM-IV* may play a part. How do you view the potential gender bias in the other personality disorders listed here?

DSM Disorder Criteria Summary

Borderline Personality Disorder

A pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:

- (1) frantic efforts to avoid real or imagined abandonment. **Note:** Do not include suicidal or self-mutilating behavior covered in Criterion 5.
- (2) a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation
- (3) identity disturbance: markedly and persistently unstable self image or sense of self
- (4) impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating). **Note:** Do not include suicidal or self-mutilating behavior covered in Criterion 5.
- (5) recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior
- (6) affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days)
- (7) chronic feelings of emptiness
- (8) inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights)
- (9) transient, stress-related paranoid ideation or severe dissociative symptoms

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Causes

The results from numerous family studies suggest that borderline personality disorder is more prevalent in families with the disorder and somehow linked with mood disorders (Distel, Trull, & Boomsma, 2009). Studies of monozygotic (identical) and dizygotic (fraternal) twins indicated a higher concordance rate among monozygotic twins, further supporting the role of genetics in the expression of borderline personality disorder (for example, Reichborn-Kjennerud et al., 2009).

The emotional reactivity that is a central aspect of borderline personality disorder has led researchers to look at this personality trait for clues about inherited influences (endophenotypes). Important genetic studies are investigating genes associated with the neurochemical serotonin because dysfunction in this system has been linked to the emotional instability, suicidal behaviors, and impulsivity seen in people with this disorder (Distel et al., 2009). This research is in its early stages and there are as yet no solid answers for how genetic differences lead to the symptoms of borderline personality disorder.

Neuroimaging studies, designed to locate areas in the brain contributing to borderline personality disorder, point to the limbic network (Nunes et al., 2009). Significantly, this area in the brain is involved in emotion regulation and

dysfunctional serotonin neurotransmission, linking these findings with genetic research.

Cognitive factors in borderline personality disorder are just beginning to be explored. Here, the questions are, just how do people with this disorder process information, and does this contribute to their difficulties? One study that looked at the thought processes of these individuals asked people with and without borderline personality disorder to look at words projected on a computer screen and try to remember some of the words and try to forget others (Korfine & Hooley, 2000). When the words were not related to the symptoms of borderline personality disorder—for example, “celebrate,” “charming,” and “collect”—both groups performed equally well. However, when they were presented with words that might be relevant to the disorder—for example, “abandon,” “suicidal,” and “emptiness”—individuals with borderline personality disorder remembered more of these words despite being instructed to forget them. This preliminary evidence for a memory bias may hold clues to the nature of this disorder and may someday be helpful in designing more effective treatment (Geraerts & McNally, 2008).

An important environmental risk factor in a gene-environment interaction explanation for borderline personality disorder is the possible contribution of early trauma, especially sexual and physical abuse. Numerous studies show that people with this disorder are more likely to report abuse than are healthy individuals or those with other psychiatric conditions (see, for example, Bandelow et al., 2005; Goldman, D’Angelo, DeMaso, & Mezzacappa, 1992; Ogata et al., 1990). Unfortunately, these types of studies (based on recollection and a correlation between the two phenomena) do not tell us directly whether abuse and neglect cause later borderline personality disorder. In an important study, researchers followed 500 children who had documented cases of childhood physical and sexual abuse and neglect and compared them in adulthood with a control group (no history of reported abuse or neglect) (Widom, Czaja, & Paris, 2009). Significantly more abused and neglected children went on to develop borderline personality disorder compared to controls. This finding is particularly significant for girls and women because girls are two or three times more likely to be sexually abused than boys (Bebbington et al., 2009).

It is clear that a majority of people who receive the diagnosis of borderline personality disorder have suffered terrible abuse or neglect from both parents, sexual abuse, physical abuse by others, or a combination of these (Ball & Links, 2009). For those who have not reported such histories, some workers are examining just how they could develop borderline personality disorder. For example, factors such as temperament (emotional nature, such as being impulsive, irritable, or hypersensitive) or neurological impairments (being exposed prenatally to alcohol or drugs) and how they interact with parental styles may account for some cases of borderline personality disorder (Graybar & Boutilier, 2002).

Borderline personality disorder has been observed among people who have gone through rapid cultural changes. The problems of identity, emptiness, fears of

abandonment, and low anxiety threshold have been found in child and adult immigrants (Laxenaire, Ganne-Vevonec, & Streiff, 1982; Skhiri, Annabi, Bi, & Allani, 1982). These observations further support the possibility that prior trauma may, in some individuals, lead to borderline personality disorder.

Remember, however, that a history of childhood trauma, including sexual and physical abuse, occurs in people with other disorders, such as schizoid personality disorder, somatoform disorder (see Chapter 5), panic disorder (see Chapter 4), and dissociative identity disorder (see Chapter 5). In addition, a portion of individuals with borderline personality disorder have no apparent history of such abuse (Cloninger & Svakic, 2009). Although childhood sexual and physical abuse seems to play an important role in the etiology of borderline personality disorder, neither appears to be necessary or sufficient to produce the syndrome.

An Integrative Model

Although there is no currently accepted integrative model for this disorder, it is tempting to borrow from the work on anxiety disorders to outline a possible view. In Chapter 4, we described the “triple vulnerability” theory (Barlow, 2002; Suárez, Bennett, Goldstein, & Barlow, 2008). The first vulnerability (or diathesis) is a generalized biological vulnerability. We can see the genetic vulnerability to emotional reactivity in people with borderline personality disorder and how this affects specific brain function. The second vulnerability is a generalized psychological vulnerability. In the case of people with this personality disorder, they tend to view the world as threatening and to react strongly to real and perceived threats. The third vulnerability is a specific psychological vulnerability, learned from early environmental experiences; this is where early trauma, abuse, or both may advance this sensitivity to threats. When stressed, a person’s biological tendency to be overly reactive interacts with the psychological tendency to feel threatened. This may result in the outbursts and suicidal behaviors commonly observed in this group. This preliminary model awaits validation and further research.

Treatment

In stark contrast to individuals with antisocial personality disorder who rarely acknowledge requiring help, those with borderline personality disorder appear quite distressed and are more likely to seek treatment even than people with anxiety and mood disorders (Ansell, Sanislow, McGlashan, & Grilo, 2007). Reviews of research on the use of medical treatment for people with this disorder suggest that anticonvulsants (such as drugs used for people with epilepsy) and newer antipsychotics may be effective for treating some of the core symptoms of borderline personality disorder, but that antidepressants have limited usefulness (Citrome et al., 2010). Efforts to provide successful treatment are complicated by problems with drug abuse, compliance with treatment, and suicide attempts. As a result, many clinicians are reluctant to work with people who have borderline personality disorder.

One of the most thoroughly researched psychosocial treatments was developed by Marsha Linehan (Linehan et al., 2006; Linehan et al., 1999; Linehan & Dexter-Mazza, 2008). This approach—called **dialectical behavior therapy (DBT)**—involves helping people cope with the stressors that seem to trigger suicidal behaviors. Priority in treatment is first given to those behaviors that may result in harm (suicidal behaviors), then those behaviors that interfere with therapy, and, finally, those that interfere with the patient's quality of life. Weekly individual sessions provide support, and patients are taught how to identify and regulate their emotions. Problem solving is emphasized so that patients can handle difficulties more effectively. In addition, they receive treatment similar to that used for people with PTSD, in which prior traumatic events are reexperienced to help extinguish the fear associated with them (see Chapter 4). In the final stage of therapy, clients learn to trust their own responses rather than depend on the validation of others, sometimes by visualizing themselves not reacting to criticism.

Results from a number of studies suggest that DBT may help reduce suicide attempts, dropouts from treatment, and hospitalizations (Linehan & Dexter-Mazza, 2008; Stanley & Brodsky, 2009). A follow-up of 39 women who received either dialectical behavior therapy or general therapeutic support (called “treatment as usual”) for 1 year showed that, during the first 6 months of follow-up, the women in the DBT group were less suicidal, less angry, and better adjusted socially (Linehan & Kehrer, 1993). Another study examined how treating these individuals with DBT in an inpatient setting (a psychiatric hospital) for approximately 5 days would improve their outcomes (Yen, Johnson, Costello, & Simpson, 2009). The participants improved in a number of areas, such as with a reduction in depression, hopelessness, anger expression, and dissociation. A growing body of evidence is now available to document the effectiveness of this approach to aid many individuals with this debilitating disorder (Stanley & Brodsky, 2005).

Probably some of the most intriguing research we describe in this book involves using the techniques in brain imaging to see how psychological treatments influence brain function. One pilot study examined emotional reactions to upsetting photos (for example, pictures of women being attacked) in controls and in women with borderline personality disorder (Schnell & Herpertz, 2007). This study found that among the women who benefited from treatment, arousal (in the amygdala and hippocampus) to the upsetting photos improved over time as a function of treatment. No changes occurred in controls or in women who did not have positive treatment experiences. This type of integrative research holds enormous promise for our understanding of borderline personality disorder and the mechanisms underlying successful treatment.

Histrionic Personality Disorder

Individuals with **histrionic personality disorder** tend to be overly dramatic and often seem almost to be acting, which is why the term *histrionic*, which means theatrical in manner, is used. Consider the case of Pat.

Pat • Always Onstage

When we first met, Pat seemed to radiate enjoyment of life. She was single, in her mid-30s, and was going to night school for her master's degree. She often dressed flamboyantly. During the day she taught children with disabilities, and when she didn't have class she was often out late on a date. When I first spoke with her, she enthusiastically told me how impressed she was with my work in the field of developmental disabilities and that she had been extremely successful in using some of my techniques with her students. She was clearly overdoing the praise, but who wouldn't appreciate such flattering comments?

Because some of our research included children in her classroom, I saw Pat often. Over a period of weeks, however, our interactions grew strained. She often complained of various illnesses and injuries (falling in the parking lot, twisting her neck looking out a window) that interfered with her work. She was disorganized, often leaving to the last minute tasks that required considerable planning. Pat made promises to other people that were impossible to keep but seemed to be aimed at winning their approval; when she broke the promise, she usually made up a story designed to elicit sympathy and compassion.

Pat often interrupted meetings about research to talk about her latest boyfriend. The boyfriends changed almost weekly, but her enthusiasm (“Like no other man I have ever met!”) and optimism about the future (“He's the guy I want to spend the rest of my life with!”) remained high for each of them. Wedding plans were seriously discussed with almost every one, despite their brief acquaintance. Pat was ingratiating, especially to the male teachers, who often helped her out of trouble she got into because of her disorganization.

When it became clear that she would probably lose her teaching job because of her poor performance, Pat managed to manipulate several of the male teachers and the assistant principal into recommending her for a new job in a nearby school district. A year later, she was still at the new school but had been moved twice to different classrooms. According to teachers she worked with, Pat still lacked close interpersonal relationships, although she described her current romantic relationship as “deeply involved.” After a rather long period of depression, Pat sought help from a psychologist, who diagnosed her as also having histrionic personality disorder.

Clinical Description

People with histrionic personality disorder are inclined to express their emotions in an exaggerated fashion, for example, hugging someone they have just met or crying uncontrollably during a sad movie (Skodol & Gunderson, 2008). They also tend to be vain, self-centered, and uncom-

fortable when they are not in the limelight. They are often seductive in appearance and behavior, and they are typically concerned about their looks. (Pat, for example, spent a great deal of money on unusual jewelry and was sure to point it out to anyone who would listen.) In addition, they seek reassurance and approval constantly and may become upset or angry when others do not attend to them or praise them. People with histrionic personality disorder also tend to be impulsive and have great difficulty delaying gratification.

The cognitive style associated with histrionic personality disorder is impressionistic (Beck, Freeman, & Davis, 2007), characterized by a tendency to view situations in global, black-and-white terms. Speech is often vague, lacking in detail, and characterized by exaggeration (Nestadt et al., 2009). For example, when Pat was asked about a date she had had the night before, she might say it was “way cool” but fail to provide more detailed information.

The high rate of this diagnosis among women versus men raises questions about the nature of the disorder and its diagnostic criteria. As we first discussed in the beginning of this chapter, there is some thought that the features of histrionic personality disorder, such as overdramatization, vanity, seductiveness, and overconcern with physical appearance, are characteristic of the Western “stereotypical female” and may lead to an overdiagnosis among women. Sprock (2000) examined this important question and found some evidence for a bias among psychologists and psychiatrists to associate the diagnosis with women rather than men.



Radius Images/JupiterImages

▲ People with histrionic personality disorder tend to be vain, extravagant, and seductive.

Causes

Despite its long history, little research has been done on the causes or treatment of histrionic personality disorder. One hypothesis involves a possible relationship with antisocial personality disorder. Evidence suggests that histrionic personality and antisocial personality co-occur more often than chance would account for. Lilienfeld and colleagues (1986), for example, found that roughly two thirds of people with a histrionic personality also met criteria for antisocial personality disorder. The evidence for this association has led to the suggestion (see, for example, Cloninger, 1978; Lilienfeld, 1992) that histrionic personality and antisocial personality may be sex-typed alternative expressions of the same unidentified underlying condition. Females with the underlying condition may be predisposed to exhibit a predominantly histrionic pattern, whereas males with the underlying condition may be predisposed to exhibit a predominantly antisocial pattern. Whether this association exists remains a controversial issue, however, and further research on this potential relationship is needed (Dolan & Völlm, 2009; Salekin, Rogers, & Sewell, 1997). The overlap of histrionic personality disorder with other personality disorders (for example, borderline, narcissistic, and dependent personality disorders) has caused some to question whether histrionic personality disorder should be reclassified in *DSM-5* to be included under an-

DSM Disorder Criteria Summary

Histrionic Personality Disorder

A pervasive pattern of excessive emotionality and attention seeking, beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:

- (1) is uncomfortable in situations in which he or she is not the center of attention
- (2) interaction with others is often characterized by inappropriate sexually seductive or provocative behavior
- (3) displays rapidly shifting and shallow expression of emotions
- (4) consistently uses physical appearance to draw attention to self
- (5) has a style of speech that is excessively impressionistic and lacking in detail
- (6) shows self-dramatization, theatricality, and exaggerated expression of emotion
- (7) is suggestible, i.e., easily influenced by others or circumstances
- (8) considers relationships to be more intimate than they actually are

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dialectical behavior therapy (DBT) A promising treatment for borderline personality disorder that involves exposing the client to stressors in a controlled situation, as well as helping the client regulate emotions and cope with stressors that might trigger suicidal behavior.

histrionic personality disorder A cluster B (dramatic, emotional, or erratic) personality disorder involving a pervasive pattern of excessive emotionality and attention seeking.

other personality disorder (such as narcissistic personality disorder) (Bakkevig & Karterud, 2010).

Treatment

Although a great deal has been written about ways of helping people with histrionic personality disorder, little research demonstrates success (Cloninger & Svakic, 2009). Some therapists have tried to modify the attention-getting behavior. Kass, Silvers, and Abrams (1972) worked with five women, four of whom had been hospitalized for suicide attempts and all of whom were later diagnosed with histrionic personality disorder. The women were rewarded for appropriate interactions and fined for attention-getting behavior. The therapists noted improvement after an 18-month follow-up, but they did not collect scientific data to confirm their observation.

A large part of therapy for these individuals usually focuses on the problematic interpersonal relationships. They often manipulate others through emotional crises, using charm, sex, seduction, or complaining (Beck et al., 2007). People with histrionic personality disorder often need to be shown how the short-term gains derived from this interactional style result in long-term costs, and they need to be taught more appropriate ways of negotiating their wants and needs.

Narcissistic Personality Disorder

We all know people who think highly of themselves—perhaps exaggerating their real abilities. They consider themselves somehow different from others and deserving of special treatment. In **narcissistic personality disorder**, this tendency is taken to its extreme. In Greek mythology, Narcissus was a youth who spurned the love of Echo, so enamored was he of his own beauty. He spent his days admiring his own image reflected in a pool of water. Psychoanalysts, including Freud, used the term *narcissistic* to describe people who show an exaggerated sense of self-importance and are preoccupied with receiving attention (Cloninger & Svakic, 2009). Consider the case of Willie.

Willie ♦ It's All about Me

Willie was an office assistant in a small attorney's office. Now in his early 30s, Willie had an extremely poor job history. He never stayed employed at the same place for more than 2 years, and he spent considerable time working through temporary employment agencies. Your first encounter, however, would make you believe that he was extremely competent and that he ran the office. If you entered the waiting room you were greeted by Willie, even though he wasn't the receptionist. He would be extremely solicitous, asking how he could be of assistance, offer you

coffee, and ask you to make yourself comfortable in "his" reception area. Willie liked to talk, and any conversation was quickly redirected in a way that kept him the center of attention.

This type of ingratiating manner was welcomed at first but soon annoyed other staff. This was especially true when he referred to the other workers in the office as his staff, even though he was not responsible for supervising any of them. The conversations with visitors and staff often consumed a great deal of his time and the time of other staff, and this was becoming a problem.

He quickly became controlling in his job—a pattern revealed in his other positions also—eagerly taking charge of duties assigned to others. Unfortunately, he did not complete these tasks well, and this created a great deal of friction.

When confronted with any of these difficulties, Willie would first blame others. Ultimately, however, it would become clear that Willie's self-centeredness and controlling nature were at the root of many of the office inefficiencies. During a disciplinary meeting with all of the law firm's partners, an unusual step, Willie became explosively abusive and blamed them for being out to get him. He insisted that his performance was exceptional at all of his previous positions—something contradicted by his previous employers—and that they were at fault. After calming down, he revealed a previous drinking problem, a history of depression, and multiple family problems, all of which he believed contributed to any difficulties he experienced.

The firm recommended he be seen at a university clinic as a condition of his continued employment, where he was diagnosed with major depression and narcissistic personality disorder. Ultimately, his behavior—including lateness and incomplete work—resulted in his termination. In a revealing turn of events, Willie reapplied for another position at the same firm 2 years later. A mix-up in records failed to reveal his previous termination, but he lasted only 3 days—showing up late to work on his second and third days. He was convinced he could be successful, yet he could not change his behavior to conform to even the minimal standards needed to be successful at work.

Clinical Description

People with narcissistic personality disorder have an unreasonable sense of self-importance and are so preoccupied with themselves that they lack sensitivity and compassion for other people (Miller, Campbell, & Pilkonis, 2007). Their exaggerated feelings and their fantasies of greatness, called

grandiosity, create a number of negative attributes. They require and expect a great deal of special attention—the best table in the restaurant, the illegal parking space in front of the movie theater. They also tend to use or exploit others for their own interests and show little empathy. When confronted with successful people, they can be extremely envious and arrogant. And because they often fail to live up to their own expectations, they are often depressed.

Causes and Treatment

We start out as infants being self-centered and demanding, which is part of our struggle for survival. However, part of the socialization process involves teaching children empathy and altruism. Some writers, including Kohut (1971, 1977), believe that narcissistic personality disorder arises largely from a profound failure by the parents of modeling empathy early in a child's development. As a consequence, the child remains fixated at a self-centered, grandiose stage of development. In addition, the child (and later the adult) becomes involved in an essentially endless and fruitless search for the ideal person who will meet her unfulfilled empathic needs.

DSM Disorder Criteria Summary Narcissistic Personality Disorder

A pervasive pattern of grandiosity (in fantasy or behavior), need for admiration, and lack of empathy, beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:

- (1) has a grandiose sense of self-importance (e.g., exaggerates achievements and talents, expects to be recognized as superior without commensurate achievements)
- (2) is preoccupied with fantasies of unlimited success, power, brilliance, beauty, or ideal love
- (3) believes that he or she is "special" and unique and can only be understood by, or should associate with, other special or high-status people (or institutions)
- (4) requires excessive admiration
- (5) has a sense of entitlement, i.e., unreasonable expectations of especially favorable treatment or automatic compliance with his or her expectations
- (6) is interpersonally exploitative, i.e., takes advantage of others to achieve his or her own ends
- (7) lacks empathy: is unwilling to recognize or identify with the feelings and needs of others
- (8) is often envious of others or believes that others are envious of him or her
- (9) shows arrogant, haughty behaviors or attitudes

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Research on treatment options is extremely limited in both number of studies and reports of success (Cloninger & Svakic, 2009; Dhawan, Kunik, Oldham, & Coverdale, 2010). When therapy is attempted with these individuals, it

often focuses on their grandiosity, their hypersensitivity to evaluation, and their lack of empathy toward others (Beck et al., 2007). Cognitive therapy strives to replace their fantasies with a focus on the day-to-day pleasurable experiences that are truly attainable. Coping strategies such as relaxation training are used to help them face and accept criticism. Helping them focus on the feelings of others is also a goal. Because individuals with this disorder are vulnerable to severe depressive episodes, particularly in middle age, treatment is often initiated for the depression. However, it is impossible to draw any conclusions about the impact of such treatment on the actual narcissistic personality disorder.

Concept Check 11.3

Correctly identify the type of personality disorder described here.

1. Elaine has low self-esteem and usually feels empty unless she does dangerous and exciting things. She takes illegal drugs and has casual sexual encounters, even with strangers. She threatens to commit suicide if her boyfriend suggests getting help or if he talks about leaving her. She alternates between passionately loving him and hating him, sometimes going from one extreme to the next in a short time. _____
2. Lance is 17 and has been in trouble with the law for the past 2 years. He lies to his parents, vandalizes buildings in the community, and often fights with others. He shows no remorse for whom he injures or the grief that he causes his ailing parents. _____
3. Nancy thinks she is the best at everything. She thinks her performance is always excellent and is extremely critical of anyone else's success. She constantly looks for admiration and reassurance from others. _____
4. Samantha is known for being overly dramatic. She cries uncontrollably during sad movies and we sometimes think that she is acting. She is vain and self-centered, interrupting many of our class conversations to discuss her personal life. _____

narcissistic personality disorder A cluster B (dramatic, emotional, or erratic) personality disorder involving a pervasive pattern of grandiosity in fantasy or behavior, need for admiration, and lack of empathy.



Cluster C Personality Disorders

› What are the essential characteristics of anxious or fearful personality disorders?

People diagnosed with the next three personality disorders we highlight—avoidant, dependent, and obsessive-compulsive—share common features with people who have anxiety disorders. These anxious or fearful personality disorders are described next.

Avoidant Personality Disorder

As the name suggests, people with **avoidant personality disorder** are extremely sensitive to the opinions of others and therefore avoid most relationships. Their extremely low self-esteem, coupled with a fear of rejection, causes them to be limited in their friendships and dependent on those they feel comfortable with. Consider the case of Jane.

Jane • Not Worth Noticing

Jane was raised by an alcoholic mother who had borderline personality disorder and who abused her verbally and physically. As a child, she made sense of her mother's abusive treatment by believing that she (Jane) must be an intrinsically unworthy person to be treated so badly. As an adult in her late 20s, Jane still expected to be rejected when others found out that she was inherently unworthy and bad.

Jane was highly self-critical and predicted that she would not be accepted. She thought that people would not like her, that they would see she was a loser, and that she would not have anything to say. She became upset if she perceived that someone in even the most fleeting encounter was reacting negatively or neutrally. If a newspaper vendor failed to smile at her, or a sales clerk was slightly curt, Jane automatically thought it must be because she (Jane) was somehow unworthy or unlikable. She then felt sad. Even when she was receiving positive feedback from a friend, she discounted it. As a result, Jane had few friends and certainly no close ones.

(Case and excerpt reprinted, with permission, from Beck, A. T., & Freeman, A., 1990. *Cognitive therapy of personality disorders*. New York: Guilford Press, © 1990 Guilford Press.)

Clinical Description

Theodore Millon (1981), who initially proposed this diagnosis, notes that it is important to distinguish between individuals who are asocial because they are apathetic, affectively flat, and relatively uninterested in interpersonal relationships (comparable to what *DSM-IV-TR* terms *schizoid personality disorder*) and individuals who are asocial

because they are interpersonally anxious and fearful of rejection. It is the latter who fit the criteria of avoidant personality disorder (Millon & Martinez, 1995). These individuals feel chronically rejected by others and are pessimistic about their future.

Causes

Some evidence has found that avoidant personality disorder is related to other subschizophrenia-related disorders—occurring more often in relatives of people who have schizophrenia (Fogelson et al., 2007). A number of theories have been proposed that integrate biological and psychosocial influences as the cause of avoidant personality disorder. Millon (1981), for example, suggests that these individuals may be born with a difficult temperament or personality characteristics. As a result, their parents may reject them, or at least not provide them with enough early, uncritical love. This rejection, in turn, may result in low self-esteem and social alienation, conditions that persist into adulthood. Limited support does exist for psychosocial influences in the cause of avoidant personality disorder. For example, Stravynski, Elie, and Franche (1989) questioned a group of people with avoidant personality disorder and a group of control participants about their early treatment by their parents. Those with the disorder remembered their parents as more rejecting, more guilt

DSM Disorder Criteria Summary

Avoidant Personality Disorder

A pervasive pattern of social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation, beginning by early adulthood and present in a variety of contexts, as indicated by four (or more) of the following:

- (1) avoids occupational activities that involve significant interpersonal contact, because of fears of criticism, disapproval, or rejection
- (2) is unwilling to get involved with people unless certain of being liked
- (3) shows restraint within intimate relationships because of the fear of being shamed or ridiculed
- (4) is preoccupied with being criticized or rejected in social situations
- (5) is inhibited in new interpersonal situations because of feelings of inadequacy
- (6) views self as socially inept, personally unappealing, or inferior to others
- (7) is unusually reluctant to take personal risks or to engage in any new activities because they may prove embarrassing

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engendering, and less affectionate than the control group, suggesting parenting may contribute to the development of this disorder. Similarly, Meyer and Carver (2000) found that these individuals were more likely to report childhood experiences of isolation, rejection, and conflict with others.

Treatment

In contrast to the scarcity of research into most other personality disorders, there are a number of well-controlled studies on approaches to therapy for people with avoidant personality disorder (Beck et al., 2007). Behavioral intervention techniques for anxiety and social skills problems have had some success (for example, Borge et al., 2010). Because the problems experienced by people with avoidant personality disorder resemble those of people with social phobia, many of the same treatments are used for both groups (see Chapter 4). Therapeutic alliance—the collaborative connection between therapist and client—appears to be an important predictor for treatment success in this group (Strauss et al., 2006).

Dependent Personality Disorder

We all know what it means to be dependent on another person. People with **dependent personality disorder**, however, rely on others to make ordinary decisions and important ones, which results in an unreasonable fear of abandonment. Consider the case of Karen.

Karen ♦ Whatever You Say

Karen was a 45-year-old married woman who was referred for treatment by her physician for problems with panic attacks. During the evaluation, she appeared to be worried, sensitive, and naive. She was easily overcome with emotion and cried on and off throughout the session. She was self-critical at every opportunity throughout the evaluation. For example, when asked how she got along with other people, she reported, “Others think I’m dumb and inadequate,” although she could give no evidence as to what made her think that. She reported that she didn’t like school because “I was dumb” and that she always felt that she was not good enough.

Karen described staying in her first marriage for 10 years, even though “[i]t was hell.” Her husband had affairs with many other women and was verbally abusive. She tried to leave him many times but gave in to his repeated requests to return. She was finally able to divorce him, and shortly afterward she met and married her current husband, who she described as kind, sensitive, and supportive. Karen stated that she preferred to have others make important decisions and agreed with other people to avoid conflict. She worried about being left alone without anyone to

take care of her and reported feeling lost without other people’s reassurance. She also reported that her feelings were easily hurt, so she worked hard not to do anything that might lead to criticism.

(Case and excerpt reprinted, with permission, from Beck, A. T., & Freeman, A., 1990. *Cognitive therapy of personality disorders*. New York: Guilford Press, © 1990 by Guilford Press.)

Clinical Description

Individuals with dependent personality disorder sometimes agree with other people when their own opinion differs so as not to be rejected (Cloninger & Svakic, 2009). Their desire to obtain and maintain supportive and nurturant relationships may lead to their other behavioral characteristics, including submissiveness, timidity, and passivity. People with this disorder are similar to those with avoidant personality disorder in their feelings of inadequacy, sensitivity to criticism, and need for reassurance. However, people with avoidant personality disorder respond to these feelings by avoiding relationships, whereas those with dependent personality disorder respond by clinging to relationships (Cloninger & Svakic, 2009).

Causes and Treatment

We are all born dependent on other people for food, physical protection, and nurturance. Part of the socialization process involves helping us live independently (Bornstein, 1992). It is thought that such disruptions as the early death of a parent or neglect or rejection by caregivers may cause people to grow up fearing abandonment (Stone, 1993). This view comes from work in child development on “attachment,” or how children learn to bond with their parents and other people who are important in their lives (Bowlby, 1977). If early bonding is interrupted, individuals may be constantly anxious that they will lose people close to them.

The treatment literature for this disorder is mostly descriptive; little research exists to show whether a particular treatment is effective (Borge et al., 2010; Paris, 2008). On the surface, because of their attentiveness and eagerness to give responsibility for their problems to the therapist, people with dependent personality disorder can appear to be ideal patients. However, their submissiveness negates one of the major goals of therapy, which is to make the person more independent and personally responsible. Therapy therefore progresses gradually as the patient de-

avoidant personality disorder A cluster C (anxious or fearful) personality disorder featuring a pervasive pattern of social inhibition, feelings of inadequacy, and hypersensitivity to criticism.

dependent personality disorder A cluster C (anxious or fearful) personality disorder characterized by a person’s pervasive and excessive need to be taken care of, a condition that leads to submissive and clinging behavior and fears of separation.

DSM Disorder Criteria Summary

Dependent Personality Disorder

A pervasive and excessive need to be taken care of that leads to submissive and clinging behavior and fears of separation, beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:

- (1) has difficulty making everyday decisions without an excessive amount of advice and reassurance from others
- (2) needs others to assume responsibility for most major areas of his or her life
- (3) has difficulty expressing disagreement with others because of fear of loss of support or approval. Note: Do not include realistic fears of retribution.
- (4) has difficulty initiating projects or doing things on his or her own (because of a lack of self-confidence in judgment or abilities rather than a lack of motivation or energy)
- (5) goes to excessive lengths to obtain nurturance and support from others, to the point of volunteering to do things that are unpleasant
- (6) feels uncomfortable or helpless when alone because of exaggerated fears of being unable to care for himself or herself
- (7) urgently seeks another relationship as a source of care and support when a close relationship ends
- (8) is unrealistically preoccupied with fears of being left to take care of himself or herself

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velops confidence in his ability to make decisions independently (Beck et al., 2007). There is a particular need for care that the patient does not become overly dependent on the therapist.

Obsessive-Compulsive Personality Disorder

People who have **obsessive-compulsive personality disorder** are characterized by a fixation on things being done “the right way.” Although many might envy their persistence and dedication, this preoccupation with details prevents them from completing much of anything. Consider the case of Daniel.

Daniel • Getting It Exactly Right

Each day at exactly 8 A.M., Daniel arrived at his office at the university where he was a graduate student in psychology. On his way, he always stopped at the 7-Eleven for coffee and the *New York Times*. From 8 A.M. to 9:15 A.M., he drank his coffee and read the paper. At 9:15 A.M., he reorganized the files that held the hundreds of papers related to his doctoral dissertation, now several years overdue. From 10 A.M. until noon, he read one of these papers, highlighting relevant passages. Then he took the paper bag that held

his lunch (always a peanut butter and jelly sandwich and an apple) and went to the cafeteria to purchase a soda and eat by himself. From 1 P.M. until 5 P.M., he held meetings, organized his desk, made lists of things to do, and entered his references into a new database program on his computer. At home, Daniel had dinner with his wife, then worked on his dissertation until after 11 P.M., although much of the time was spent trying out new features of his home computer.

Daniel was no closer to completing his dissertation than he had been 4.5 years ago. His wife was threatening to leave him because he was equally rigid about everything at home and she didn’t want to remain in this limbo of graduate school forever. When Daniel eventually sought help from a therapist for his anxiety over his deteriorating marriage, he was diagnosed as having obsessive-compulsive personality disorder.

Clinical Description

Like many with this personality disorder, Daniel is work oriented, spending little time going to movies or parties or doing anything that isn’t related to his graduate studies. Because of their general rigidity, these people tend to have poor interpersonal relationships (Cloninger & Svakic, 2009).

DSM Disorder Criteria Summary

Obsessive-Compulsive Personality Disorder

A pervasive pattern of preoccupation with orderliness, perfectionism, and mental and interpersonal control, at the expense of flexibility, openness, and efficiency, beginning by early adulthood and present in a variety of contexts, as indicated by four (or more) of the following:

- (1) is preoccupied with details, rules, lists, order, organization, or schedules to the extent that the major point of the activity is lost
- (2) shows perfectionism that interferes with task completion (e.g., is unable to complete a project because his or her own overly strict standards are not met)
- (3) is excessively devoted to work and productivity to the exclusion of leisure activities and friendships (not accounted for by obvious economic necessity)
- (4) is overconscientious, scrupulous, and inflexible about matters of morality, ethics, or values (not accounted for by cultural or religious identification)
- (5) is unable to discard worn-out or worthless objects even when they have no sentimental value
- (6) is reluctant to delegate tasks or to work with others unless they submit to exactly his or her way of doing things
- (7) adopts a miserly spending style toward both self and others; money is viewed as something to be hoarded for future catastrophes
- (8) shows rigidity and stubbornness

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This personality disorder seems to be only distantly related to obsessive-compulsive disorder, one of the anxiety disorders we described in Chapter 4. People like Daniel tend not to have the obsessive thoughts and the compulsive behaviors seen in the like-named obsessive-compulsive disorder. Although people with the anxiety disorder sometimes show characteristics of the personality disorder, they show the characteristics of other personality disorders also (for example, avoidant, histrionic, or dependent) (Eisen, Mancebo, Chiappone, Pinto, & Rasmussen, 2008).

An intriguing theory suggests that the psychological profiles of many serial killers point to the role of obsessive-compulsive personality disorder. Ferreira (2000) notes that these individuals do not often fit the definition of someone with a severe mental illness—such as schizophrenia—but are “masters of control” in manipulating their victims. Their need to control all aspects of the crime fits the pattern of people with obsessive-compulsive personality disorder, and some combination of this disorder and unfortunate childhood experiences may lead to this disturbing behavior pattern. Obsessive-compulsive personality disorder may also play a role among some sex offenders—in particular, pedophiles. Brain-imaging research on pedophiles suggests that brain functioning in these individuals is similar to those with obsessive-compulsive personality disorder (Schiffer et al., 2007). At the other end of the behavioral spectrum, it is also common to find obsessive-compulsive personality disorder among gifted children, whose quest for perfectionism can be quite debilitating (Nugent, 2000).

Causes and Treatment

There seems to be a weak genetic contribution to obsessive-compulsive personality disorder (Cloninger & Svakic, 2009). Some people may be predisposed to favor structure in their lives, but to reach the level it did in Daniel may require parental reinforcement of conformity and neatness.

Therapy often attacks the fears that seem to underlie the need for orderliness. These individuals are often afraid that what they do will be inadequate, so they procrastinate and excessively ruminate about important issues and minor details alike. Therapists help the individual relax or use distraction techniques to redirect the compulsive thoughts. This form of cognitive-behavioral therapy appears to be effective for people with this personality disorder (Svartberg et al., 2004).



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▲ People with obsessive-compulsive personality disorder are preoccupied with doing things “the right way.”

Concept Check 11.4

Match the following scenarios with the correct personality disorder:

1. During a therapy session John gets up for a glass of water. Ten minutes later John still is not back. He first had to clean the fountain area and neatly arrange the glasses before pouring his glass of water. _____
2. Whitney is self-critical and claims she is unintelligent and has no skills. She is also afraid to be alone and seeks constant reassurance from her family and friends. She says and does nothing about her cheating husband because she thinks that if she shows any resolve or initiative she will be abandoned and will have to take care of herself. _____
3. Mike has no social life because of his great fear of rejection. He disregards compliments and reacts excessively to criticism, which only feeds his pervasive feelings of inadequacy. Mike takes everything personally. _____

obsessive-compulsive personality disorder A cluster C (anxious or fearful) personality disorder featuring a pervasive pattern of preoccupation with orderliness, perfectionism, and mental and interpersonal control at the expense of flexibility, openness, and efficiency.



We opened the chapter discussing the controversies surrounding the classification of the personality disorders. The great degree of overlap (comorbidity) of the disorders—for example, some people are diagnosed with three or more personality disorders—and the use of categories as opposed to dimensions continue to concern the researchers who study these disorders and the clinicians who care for these individuals (South et al., 2011). For example, the organization that we use in the chapter (the three clusters of A, B, and C) is also used by *DSM-IV* but is nothing more than a convenient way for clinicians to remember the disorders and

is not based on any scientific evidence (Widiger, 2007). Perhaps the most anticipated change in this field is a radical redefinition of the disorders using dimensions, and we expect that the next version of the *DSM—DSM-5*—will introduce this new approach and perhaps make us rethink how we view many of the other disorders we cover in this book (Krueger, Skodol, Livesley, Shrout, & Huang, 2008; Lopez, Compton, Grant, & Breiling, 2008; Widiger & Trull, 2007).

One way to introduce dimensions that is currently being discussed is to rate clients on six broad personality trait domains (negative emotionality, introversion, antago-

nism, disinhibition, compulsivity, and schizotypy) (American Psychiatric Association, 2010b). Each of these domains would include more specific “trait facets.” For example, under the domain of “compulsivity” would be the facets of perfectionism, perseveration, rigidity, orderliness, and risk aversion. Clinicians would rate clients on a four-point scale as to the extent that these traits are present (from “very little or not at all” to “extremely descriptive”), therefore providing some indication of the dimensional quality of their difficulties. If and how this classification scheme will ultimately be incorporated into mainstream clinical work remains to be resolved.

Summary

An Overview of Personality Disorders

What are the essential features of personality disorders, and why are they listed on Axis II in *DSM-IV-TR*?

- › The personality disorders represent long-standing and ingrained ways of thinking, feeling, and behaving that can cause significant distress. Because people may display two or more of these maladaptive ways of interacting with the world, considerable disagreement remains over how to categorize the personality disorders.
- › *DSM-IV-TR* includes 10 personality disorders that are divided into three clusters: Cluster A (odd or eccentric) includes paranoid, schizoid, and schizotypal personality disorders; Cluster B (dramatic, emotional, or erratic) includes antisocial, borderline, histrionic, and narcissistic personality disorders; and Cluster C (anxious or fearful) includes avoidant, dependent, and obsessive-compulsive personality disorders.

Cluster A Personality Disorders

What are the nature, etiology, and treatment of each of the odd or eccentric personality disorders?

- › People with paranoid personality disorder are excessively mistrustful and suspicious of other people without any justification. They tend not to confide in others and expect other people to do them harm.
- › People with schizoid personality disorder show a pattern of detachment from social relationships and a limited range of emotions in interpersonal situations. They seem aloof, cold, and indifferent to other people.

- › People with schizotypal personality disorder are typically socially isolated and behave in ways that would seem unusual to most of us. In addition, they tend to be suspicious and have odd beliefs about the world.

Cluster B Personality Disorders

What are the essential characteristics of dramatic, emotional, or erratic personality disorders?

- › People with antisocial personality disorder have a history of failing to comply with social norms. They perform actions most of us would find unacceptable, such as stealing from friends and family. They also tend to be irresponsible, impulsive, and deceitful.
- › In contrast to the *DSM-IV-TR* criteria for antisocial personality, which focus almost entirely on observable behaviors (for example, impulsively and repeatedly changing employment, residence, or sexual partners), the related concept of psychopathy primarily reflects underlying personality traits (for example, self-centeredness or being manipulative).
- › People with borderline personality disorder lack stability in their moods and in their relationships with other people, and they usually have poor self-esteem. These individuals often feel empty and are at great risk of suicide.
- › Individuals with histrionic personality disorder tend to be overly dramatic and often appear to be acting.
- › People with narcissistic personality disorder think highly of themselves—beyond their real abilities. They consider themselves somehow different from others and deserving of special treatment.

Cluster C Personality Disorders

What are the essential characteristics of anxious or fearful personality disorders?

- › People with avoidant personality disorder are extremely sensitive to the opinions of others and therefore avoid social relationships. Their extremely low self-esteem, coupled with a fear of rejection, causes them to reject the attention of others.
- › Individuals with dependent personality disorder rely on others to the extent of letting them make everyday decisions and major ones; this results in an unreasonable fear of being abandoned.
- › People who have obsessive-compulsive personality disorder are characterized by a fixation on things being done “the right way.” This preoccupation with details prevents them from completing much of anything.
- › Treating people with personality disorders is often difficult because they usually do not see that their difficulties are a result of the way they relate to others.
- › Personality disorders are important for the clinician to consider because they may interfere with efforts to treat more specific problems such as anxiety, depression, or substance abuse. Unfortunately, the presence of one or more personality disorders is associated with a poor treatment outcome and a generally negative prognosis.

Key Terms

personality disorders, 413

paranoid personality disorder, 420

schizoid personality disorder, 421

schizotypal personality disorder, 423

antisocial personality disorder, 425

psychopathy, 426

borderline personality disorder, 432

dialectical behavior therapy, 436

histrionic personality disorder, 436

narcissistic personality disorder, 438

avoidant personality disorder, 440

dependent personality disorder, 441

obsessive-compulsive personality disorder, 442

Answers to Concept Checks

11.1

1. Axis II; 2. comorbidity; 3. Cluster A, Cluster B, Cluster C; 4. categories; 5. chronic; 6. bias

11.2

1. paranoid; 2. schizotypal; 3. schizoid

11.3

1. borderline; 2. antisocial; 3. narcissistic; 4. histrionic

11.4

1. obsessive-compulsive; 2. dependent; 3. avoidant

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Abnormal Psychology Videos

- › *George, an Example of Antisocial Personality Disorder:* George describes his long history of violating people's rights.

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Video Concept Reviews

CengageNOW also contains Mark Durand's *Video Concept Reviews* on these challenging topics.

- › Personality Disorders
- › Paranoid Personality Disorder
- › Schizoid Personality Disorder
- › Schizotypal Personality Disorder
- › Antisocial Personality Disorder
- › Borderline Personality Disorder
- › Histrionic Personality Disorder
- › Narcissistic Personality Disorder
- › Concept Check: Histrionic Versus Narcissistic Personality Disorder
- › Avoidant Personality Disorder
- › Dependent Personality Disorder
- › Obsessive-Compulsive Personality Disorder

CHAPTER QUIZ

1. The dimensional versus categorical debate over the nature of personality disorders can also be described as a debate between _____ and _____.
 - a. diagnosis; prognosis
 - b. state; trait
 - c. degree; kind
 - d. qualitative; quantitative
2. Some personality disorders are diagnosed more frequently in men than in women. One explanation for this difference is as follows:
 - a. Symptoms are interpreted by clinicians in different ways depending on the gender of the person with the symptoms.
 - b. Men are more likely to seek help from mental health professionals than women.
 - c. Most clinicians are men, and they tend to see psychopathology more often in patients of the same gender as themselves.
 - d. Because of hormonal differences, women are more likely to have acute disorders and men are more likely to have chronic personality disorders.
3. Genetic research and an overlap in symptoms suggest a common relationship between schizophrenia and:
 - a. borderline personality disorder
 - b. schizotypal personality disorder
 - c. schizoid personality disorder
 - d. antisocial personality disorder
4. Criteria for psychopathy emphasize _____, and criteria for antisocial personality disorder emphasize _____.
 - a. behavior; personality
 - b. personality; behavior
 - c. criminal conduct; social isolation
 - d. social isolation; criminal conduct
5. Which symptom is characteristic of persons with borderline personality disorder?
 - a. impulsivity
 - b. aloofness
 - c. mania
 - d. grandiosity
6. Which theory suggests psychopaths may engage in antisocial and risk-taking behavior to stimulate their cortical system?
 - a. equifinality hypothesis
 - b. transcortical magnetic stimulation hypothesis
 - c. underarousal hypothesis
 - d. equipotential hypothesis
7. Greeting a new acquaintance with effusive familiarity, crying uncontrollably during a movie, and trying to be the center of attention at a party are typical behaviors of someone with:
 - a. borderline personality disorder
 - b. narcissistic personality disorder
 - c. histrionic personality disorder
 - d. paranoid personality disorder

8. Which of the following statements is most true about borderline personality disorder?
- a. Childhood abuse is rare in people with borderline personality disorder.
 - b. Borderline personality disorder is more frequently diagnosed in men than in women.
 - c. Behaviors in borderline personality disorder overlap those seen in posttraumatic stress disorder.
 - d. Borderline personality disorder is seldom accompanied by self-mutilation.
9. People with which personality disorder often exhibit childlike, egocentric behaviors?
- a. paranoid
 - b. antisocial
 - c. schizotypal
 - d. narcissistic
10. An individual who is preoccupied with details, rules, organization, and scheduling to the extent that it interferes with daily functioning may have:
- a. obsessive-compulsive personality disorder
 - b. narcissistic personality disorder
 - c. antisocial personality disorder
 - d. schizoid personality disorder
- (See Appendix A for answers.)

Exploring Personality Disorders

- › People with personality disorders think and behave in ways that cause distress to themselves and/or the people who care about them.
- › There are three main groups, or clusters, of personality disorders, which usually begin in childhood.

CLUSTER A

Odd or Eccentric



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Schizoid
social isolation

Psychological Influences

- Very limited range of emotions
- Apparently cold and unconnected
- Unaffected by praise or criticism

Biological Influences

- May be associated with lower density of dopamine receptors

Causes

Treatment

- Learning value of social relationships
- Social skills training with role playing

Social/Cultural Influences

- Preference for social isolation
- Lack of social skills
- Lack of interest in close relationships, including romantic or sexual

Paranoid
extreme suspicion

Psychological Influences

- Thoughts that people are malicious, deceptive, and threatening
- Behavior based on mistaken assumptions about others

Biological Influences

- Possible but unclear link with schizophrenia

Causes

Social/Cultural Influences

- "Outsiders" may be susceptible because of unique experiences (e.g., prisoners, refugees, people with hearing impairments, and the elderly)
- Parents' early teaching may influence

Treatment

- Difficult because of client's mistrust and suspicion
- Cognitive work to change thoughts
- Low success rate

CLUSTER C

Anxious or Fearful



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Dependent
pervasive need to be taken care of

Psychological Influences

- Early "loss" of caretaker (death, rejection, or neglect) leads to fear of abandonment
- Timidity and passivity

Biological Influences

- Each of us born dependent for protection, food, and nurturance

Causes

Social/Cultural Influences

- Agreement for the sake of avoiding conflict
- Similar to Avoidant in
 - inadequacy
 - sensitivity to criticism
 - need for reassurance**BUT**
 - for those same shared reasons
 - Avoidants withdraw
 - Dependents cling

Treatment

- Very little research
- Appear as ideal clients
- Submissiveness negates independence

Psychological Influences

- Unusual beliefs, behavior, or dress
- Suspiciousness
- Believing insignificant events are personally relevant ("ideas of reference")
- Expressing little emotion
- Symptoms of major depressive disorder

Schizotypal
suspicion and odd behavior

Biological Influences

- Genetic vulnerability for schizophrenia but without the biological or environmental stresses present in that disorder

Causes

Treatment

- Teaching social skills to reduce isolation and suspicion
- Medication (haloperidol) to reduce ideas of reference, odd communication, and isolation
- Low success rate

Social/Cultural Influences

- Preference for social isolation
- Excessive social anxiety
- Lack of social skills

CLUSTER B

Dramatic,
Emotional,
or Erratic

Note: Cluster B also includes Narcissistic Personality Disorder.



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Histrionic
excessively emotional

Antisocial
violation of
others' rights

Psychological Influences

- Vain and self-centered
- Easily upset if ignored
- Vague and hyperbolic
- Impulsive; difficulty delaying gratification

Causes

Biological Influences

- Possible link to antisocial disorder – women histrionic/men antisocial

Social/Cultural Influences

- Overly dramatic behavior attracts attention
- Seductive
- Approval-seeking

Treatment

- Little evidence of success
- Rewards and fines
- Focus on interpersonal relations

Psychological Influences

- Difficulty learning to avoid punishment
- Indifferent to concerns of others

Causes

Biological Influences

- Genetic vulnerability combined with environmental influences
- Abnormally low cortical arousal
- High fear threshold

Social/Cultural Influences

- Criminality
- Stress/exposure to trauma
- Inconsistent parental discipline
- Socioeconomic disadvantage

Treatment

- Seldom successful (incarceration instead)
- Parent training if problems are caught early
- Prevention through preschool programs

Psychological Influences

- Suicidal
- Erratic moods
- Impulsivity

Borderline
tumultuous
instability

Biological Influences

- Familial link to mood disorders
- Possibly inherited tendencies (impulsivity or volatility)

Causes

Social/Cultural Influences

- Early trauma, especially sexual/physical abuse
- Rapid cultural changes (immigration) may trigger symptoms

Treatment

- Dialectical behavior therapy (DBT)
- Medication:
 - tricyclic antidepressants
 - minor tranquilizers
 - lithium

Avoidant
inhibition

Psychological Influences

- Low self-esteem
- Fear of rejection, criticism leads to fear of attention
- Extreme sensitivity
- Resembles social phobia

Causes

Biological Influences

- Innate characteristics may cause rejection

Social/Cultural Influences

- Insufficient parental affection

Treatment

- Behavioral intervention techniques sometimes successful
 - systematic desensitization
 - behavioral rehearsal
- Improvements usually modest

Obsessive-compulsive
fixation on details

Psychological Influences

- Generally rigid
- Dependent on routines
- Procrastinating

Causes

Biological Influences

- Distant relation to OCD
- Probable weak genetic role
 - predisposition to structure combined with parental reinforcement

Treatment

- Little information
- Therapy
 - attack fears behind need
 - relaxation or distraction techniques redirect compulsion to order

Social/Cultural Influences

- Very work-oriented
- Poor interpersonal relationships

CHAPTER 12

Schizophrenia and Other Psychotic Disorders

Chapter Outline

Perspectives on Schizophrenia

- Early Figures in Diagnosing Schizophrenia
- Identifying Symptoms

Clinical Description, Symptoms, and Subtypes

- Positive Symptoms
- Negative Symptoms
- Disorganized Symptoms
- Schizophrenia Subtypes
- Other Psychotic Disorders

Prevalence and Causes of Schizophrenia

- Statistics
- Development
- Cultural Factors
- Genetic Influences
- Neurobiological Influences
- Psychological and Social Influences

Treatment of Schizophrenia

- Biological Interventions
- Psychosocial Interventions
- Treatment across Cultures
- Prevention



Abnormal Psychology Live Videos

- Etta, a Patient with Schizophrenia



Student Learning Outcomes*

Demonstrate knowledge and understanding representing appropriate breadth and depth in selected content areas of psychology:

- › Biological bases of behavior and mental processes, including physiology, sensation, perception, comparative, motivation, and emotion (APA SLO 1.2.a (3)) (see textbook pages 463–471)
- › The history of psychology, including the evolution of methods of psychology, its theoretical conflicts, and its sociocultural contexts (APA SLO 1.2.b) (see textbook pages 451–452)

Use the concepts, language, and major theories of the discipline to account for psychological phenomena.

- › Describe behavior and mental processes empirically, including operational definitions (APA SLO 1.3.a) (see textbook pages 452–461)

Identify appropriate applications of psychology in solving problems, such as:

- › Origin and treatment of abnormal behavior (APA SLO 4.2.b) (see textbook pages 461–477)

*Portions of this chapter cover learning outcomes suggested by the American Psychological Association (2007) in their guidelines for the undergraduate psychology major. Chapter coverage of these outcomes is identified by APA Goal and APA Suggested Learning Outcome (SLO).

Perspectives on Schizophrenia

› How is schizophrenia defined, and what symptoms are included in its diagnosis?

A middle-aged man walks the streets of New York City with aluminum foil on the inside of his hat so Martians can't read his mind. A young woman sits in her college classroom and hears the voice of God telling her she is a vile and disgusting person. You try to strike up a conversation with the supermarket bagger, but he stares at you vacantly and will say only one or two words in a flat, toneless voice. Each of these people may have **schizophrenia**, the startling disorder characterized by a broad spectrum of cognitive and emotional dysfunctions including delusions and hallucinations, disorganized speech and behavior, and inappropriate emotions.

Schizophrenia is a complex syndrome that inevitably has a devastating effect on the lives of the person affected and on family members. Society often devalues these individuals. And despite important advances in treatment, complete recovery from schizophrenia is rare. This catastrophic disorder takes a tremendous emotional toll on everyone involved. In addition to the emotional costs, the financial drain is considerable. The annual cost of schizophrenia in the United States is estimated to exceed \$60 billion when factors such as family caregiving, lost wages, and treatment are considered (Jablensky, 2009; Wu et al., 2005). Because schizophrenia is so widespread, affecting approximately 1 of every 100 people at some point in their lives, and because its consequences are so severe, research on its causes and treatment has expanded rapidly. In this chapter, we explore this intriguing disorder and review efforts to determine whether schizophrenia is distinct or a combination of disorders. The search is complicated by the presence of subtypes: different presentations and combinations of symptoms such as hallucinations; delusions; and disorders of speech, emotion, and socialization. After discussing the characteristics of people with schizophrenia, we describe research into its causes and treatment.

Early Figures in Diagnosing Schizophrenia

In *Observations on Madness and Melancholy*, published in 1809, John Haslam eloquently portrayed what he called “a form of insanity.”

About the same time Haslam was writing his description in England, the French physician Philippe Pinel was writing about people we would describe as having schizophrenia (Pinel, 1801/1962, 1809). Some 50 years later, another physician, Benedict Morel, used the French term *démence* (loss of mind) *précoce* (early, premature) because the onset of the disorder is often during adolescence.

Toward the end of the 19th century, the German psychiatrist Emil Kraepelin (1899) built on the writings of Haslam, Pinel, and Morel (among others) to give us what stands today as the most enduring description and categorization of schizophrenia. Two of Kraepelin's accomplishments are especially important. First, he combined several symptoms of insanity that had usually been viewed as reflecting separate and distinct disorders: **catatonia** (alternating immobility and excited agitation), **hebephrenia** (silly and immature emotionality), and **paranoia** (delu-

schizophrenia A devastating psychotic disorder that may involve characteristic disturbances in thinking (delusions), perception (hallucinations), speech, emotions, and behavior.

catatonia A disorder of movement involving immobility or excited agitation.

hebephrenia A silly and immature emotionality, a characteristic of some types of schizophrenia.

paranoia People's irrational beliefs that they are especially important (delusions of grandeur) or that other people are seeking to do them harm.

sions of grandeur or persecution). Kraepelin thought these symptoms shared similar underlying features and included them under the Latin term **dementia praecox**. Although the clinical manifestation might differ from person to person, Kraepelin believed an early onset at the heart of each disorder develops into “mental weakness.”

In a second important contribution, Kraepelin (1898) distinguished dementia praecox from manic-depressive illness (now called bipolar disorder). For people with dementia praecox, an early age of onset and a poor outcome were characteristic; in contrast, these patterns were not essential to manic depression (Lewis, Escalona, & Keith, 2009). Kraepelin also noted the numerous symptoms in people with dementia praecox, including hallucinations, delusions, negativism, and stereotyped behavior.

A second major figure in the history of schizophrenia was Kraepelin’s contemporary, Eugen Bleuler (1908), a Swiss psychiatrist who introduced the term *schizophrenia* (Fusar-Poli & Politi, 2008). The label was significant because it signaled Bleuler’s departure from Kraepelin on what he thought was the core problem. *Schizophrenia*, which comes from the combination of the Greek words for “split” (*skhizein*) and “mind” (*phren*), reflected Bleuler’s belief that underlying all the unusual behaviors shown by people with this disorder was an **associative splitting** of the basic functions of personality. This concept emphasized the “breaking of associative threads,” or the destruction of the forces that connect one function to the next. Furthermore, Bleuler believed that a difficulty keeping a consistent train of thought characteristic of all people with this disorder led to the many and diverse symptoms they displayed. Whereas Kraepelin focused on early onset and poor outcomes, Bleuler highlighted what he believed to be the universal underlying problem. Unfortunately, the concept of “split mind” inspired the common but incorrect use of the term *schizophrenia* to mean split or multiple personality.

Identifying Symptoms

As you read about different disorders in this book, you have learned that a particular behavior, way of thinking, or emotion usually defines or is characteristic of each disorder. For example, depression always includes feelings of sadness, and panic disorder is always accompanied by intense feelings of anxiety. It may be surprising, but this isn’t the case for schizophrenia. Schizophrenia is a number of behaviors or symptoms that aren’t necessarily shared by all people who are given this diagnosis.

Despite these complexities, researchers have identified clusters of symptoms that make up the disorder of schizophrenia. Later we describe these dramatic symptoms, such as seeing or hearing things that others do not (hallucinations) or having beliefs that are unrealistic, bizarre, and not shared by others in the same culture (delusions). But first, consider the following case of an individual who had an intense but relatively rare short-term episode of psychotic behavior.

Arthur • Saving the Children

We first met 22-year-old Arthur at an outpatient clinic in a psychiatric hospital. Arthur’s family was extremely concerned and upset by his unusual behavior and was desperately seeking help for him. They said that he was “sick” and “talking like a crazy man,” and they were afraid he might harm himself.

Arthur had a normal childhood in a middle-class suburban neighborhood. His parents had been happily married until his father’s death several years earlier. Arthur was an average student throughout school and had completed an associate’s degree in junior college. He had worked in a series of temporary jobs, and his mother reported that he seemed satisfied with what he was doing. He lived and worked in a major city, some 15 minutes from his mother and his married brother and sister.

Arthur’s family said that about 3 weeks before he came to the clinic he had started speaking strangely. He had been laid off from his job a few days before because of cutbacks and hadn’t communicated with any of his family members for several days. When they next spoke with him, his behavior startled them. Although he had always been idealistic and anxious to help other people, he now talked about saving all the starving children in the world with his “secret plan.” At first, his family assumed this was just an example of Arthur’s sarcastic wit, but his demeanor changed to one of extreme concern and he spoke non-stop about his plans. He began carrying several spiral notebooks that he claimed contained his scheme for helping starving children; he said he would reveal it only at the right time to the right person. Suspecting that Arthur might be taking drugs, which could explain the sudden and dramatic change in his behavior, his family searched his apartment. Although they didn’t find any evidence of drug use, they did find his checkbook and noticed a number of strange entries. Over the past several weeks, Arthur’s handwriting had deteriorated, and he had written notes instead of the usual check information (“Start to begin now”; “This is important!”; “They must be saved”). He had also made unusual notes in several of his most prized books.

As the days went on, Arthur showed dramatic changes in emotion, often crying and acting apprehensive. He stopped wearing socks and underwear and, despite the extremely cold weather, wouldn’t wear a jacket when he went outdoors. At the family’s insistence, he moved into his mother’s apartment. He slept little and kept the family up until the early morning. Each morning his mother would wake up with a knot in her stomach, not wanting to get out of bed because she felt so helpless to do anything to rescue Arthur from his obvious distress.

The family's sense of alarm grew as Arthur revealed more details of his plan. He said that he was going to the German embassy because that was the only place people would listen to him. He would climb the fence at night when everyone was asleep and present his plan to the German ambassador. Fearing that Arthur would be hurt trying to enter the embassy grounds, his family contacted a local psychiatric hospital, described Arthur's condition, and asked that he be admitted. Much to their surprise and disappointment, they were told that Arthur could commit himself but that they couldn't bring him in involuntarily unless he was in danger of doing harm to himself or others. His family finally talked Arthur into meeting the staff at the outpatient clinic.

In our interview, it was clear he was delusional, firmly believing in his ability to help all starving children. After some cajoling, I finally convinced him to let me see his books. He had written random thoughts (for example, "The poor, starving souls"; "The moon is the only place") and made drawings of rocket ships. Parts of his plan involved building a rocket ship that would go to the moon, where he would create a community for all malnourished children, a place where they could live and be helped. After a few brief comments on his plan, I began to ask him about his health.

"You look tired; are you getting enough sleep?"

"Sleep isn't really needed," he noted. "My plans will take me through, and then they can all rest."

"Your family is worried about you," I said. "Do you understand their concern?"

"It's important for all concerned to get together, to join together," he replied.

With that, he got up and walked out of the room and out of the building, after telling his family that he would be right back. After 5 minutes they went to look for him, but he had disappeared. He was missing for 2 days, which caused his family a great deal of concern about his health and safety. In an almost miraculous sequence of events, they found him walking the streets of the city. He acted as if nothing had happened. Gone were his notebooks and the talk of his secret plan.

We will never know exactly what happened to Arthur to make him behave so bizarrely and then recover so quickly and completely. However, research that we discuss next may shed some light on schizophrenia and potentially help other Arthurs and their families.



Clinical Description, Symptoms, and Subtypes

- › What are the distinctions among positive, negative, and disorganized symptoms of schizophrenia?
- › What are the clinical characteristics and major types of schizophrenia and other psychotic disorders?

The case of Arthur shows the range of problems experienced by people with schizophrenia or other psychotic disorders. The term **psychotic behavior** has been used to characterize many unusual behaviors, although in its strictest sense it usually involves delusions and/or hallucinations. Schizophrenia is one of the disorders that involves psychotic behavior; we describe others in more detail later.

Schizophrenia can affect all the functions we rely on each day. Before we describe the symptoms, it is important to look carefully at the specific characteristics of people who exhibit these behaviors, partly because we constantly see distorted images of people with schizophrenia. Evidence for violence among people with schizophrenia suggests that although they may be more likely to commit violent acts than the general population, you are more likely to see violence from people with substance abuse problems and personality disorders (antisocial or borderline personality disorders) (Douglas, Guy, & Hart, 2009). Despite this information, more than 70% of characters in prime-time television dra-

mas with schizophrenia are portrayed as violent, with more than one fifth depicted as murderers (Wahl, 1995).

The text revision of the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)* has a multiple-part process for determining whether or not someone has schizophrenia. Later we discuss the symptoms the person experiences during the disorder (active phase symptoms), the course of the disorder, and the subtypes of schizophrenia currently in use.

dementia praecox The Latin term meaning premature loss of mind; an early label for what is now called schizophrenia, emphasizing the disorder's frequent appearance during adolescence.

associative splitting A separation among basic functions of human personality (for example, cognition, emotion, and perception) seen by some as the defining characteristic of schizophrenia.

psychotic behavior A severe psychological disorder category characterized by hallucinations and loss of contact with reality.

Mental health workers typically distinguish between *positive* and *negative* symptoms of schizophrenia. A third dimension, *disorganized* symptoms, also appears to be an important aspect of the disorder (Lewis et al., 2009). There is not yet universal agreement about which symptoms should be included in these categories. Positive symptoms generally include the more active manifestations of abnormal behavior or an excess or distortion of normal behavior; these include delusions and hallucinations. Negative symptoms involve deficits in normal behavior in such areas as speech and motivation. Disorganized symptoms include rambling speech, erratic behavior, and inappropriate affect (for example, smiling when you are upset). A diagnosis of schizophrenia requires that two or more positive, negative, and/or disorganized symptoms be present for at least 1 month. A great deal of research has focused on the different symptoms of schizophrenia, each of which is described here in some detail.

DSM Disorder Criteria Summary Schizophrenia

- A. Characteristic symptoms: Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated): (1) delusions; (2) hallucinations; (3) disorganized speech (e.g., frequent derailment or incoherence); (4) grossly disorganized or catatonic behavior; (5) negative symptoms, i.e., affective flattening, alogia, or avolition
Note: Only one Criterion A symptom is required if delusions are bizarre or hallucinations consist of a voice keeping up a running commentary on the person's behavior or thoughts, or two or more voices conversing with each other.
- B. Social/occupational dysfunction: For a significant portion of the time since the onset of the disturbance, one or more major areas of functioning such as work, interpersonal relations, or self-care are markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, failure to achieve expected level of interpersonal, academic, or occupational achievement).
- C. Duration: Continuous signs of the disturbance persist for at least 6 months. This 6-month period must include at least 1 month of symptoms (or less if successfully treated) that meet Criterion A (i.e., active-phase symptoms) and may include periods of prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or two or more symptoms listed in Criterion A present in an attenuated form (e.g., odd beliefs, unusual perceptual experiences).
- D. Schizoaffective and Mood Disorder exclusion: Schizoaffective Disorder and Mood Disorder With Psychotic Features have been ruled out because either (1) no Major Depressive, Manic, or Mixed Episodes have occurred concurrently with the active-phase symptoms; or (2) if mood episodes have occurred during active-phase symptoms, their total duration has been brief relative to the duration of the active and residual periods.
- E. Substance/general medical condition exclusion: The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.
- F. Relationship to a Pervasive Developmental Disorder: If there is a history of Autistic Disorder or another Pervasive Developmental Disorder, the additional diagnosis of Schizophrenia is made only if prominent delusions or hallucinations are also present for at least a month (or less if successfully treated).

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Positive Symptoms

We next describe the **positive symptoms** of schizophrenia, which are the more obvious signs of psychosis. These include the disturbing experiences of delusions and hallucinations. Between 50% and 70% of people with schizophrenia experience hallucinations, delusions, or both (Lindenmayer & Khan, 2006).

Delusions

A belief that would be seen by most members of a society as a misrepresentation of reality is called a *disorder of thought content*, or a **delusion**. Because of its importance in schizophrenia, delusion has been called “the basic characteristic of madness” (Jaspers, 1963, p. 93). If, for example, you believe that squirrels are aliens sent to Earth on a reconnaissance mission, you would be considered delusional. The media often portray people with schizophrenia as believing they are famous or important people (such as Napoleon or Jesus Christ), although this is only one type of delusion. Arthur’s belief that he could end starvation for all the world’s children is also a *delusion of grandeur* (a mistaken belief that the person is famous or powerful).

A common delusion in people with schizophrenia is that others are “out to get them.” Called *delusions of persecution*, these beliefs can be most disturbing. One of us worked with a world-class cyclist who was on her way to making the Olympic team. Tragically, however, she developed a belief that other competitors were determined to sabotage her efforts, which forced her to stop riding for years. She believed opponents would spray her bicycle with chemicals that would take her strength away, and they would slow her down by putting small pebbles in the road that only she would ride over. These thoughts created a great deal of anxiety, and she refused even to go near her bicycle for some time.

Other more unusual delusions include Capgras syndrome, in which the person believes someone he or she knows has been replaced by a double, and Cotard’s syndrome, in which the person believes he is dead (Christodoulou, Margariti, Kontaxakis, & Christodoulou, 2009; Debruyne, Portzky, Van den Eynde, & Audenaert, 2009).

Why would someone come to believe such obviously improbable things (for example, a friend is replaced by a double or your vote will determine the outcome of a national election)? A number of theories exist and can be summarized into two themes—motivational or deficit theories (McKay, Langdon, & Coltheart, 2007). A *motivational view of delusions* would look at these beliefs as attempts to deal with and relieve anxiety and stress. A person develops “stories” around some issue—for example, a famous person is in love with her (erotomania)—that in a way helps the person make sense out of uncontrollable anxieties in a tumultuous world. Preoccupation with the delusion distracts the individual from the upsetting aspects of the world, such as hallucinations. In contrast, a *deficit view of delusion* sees these beliefs as resulting from brain dysfunction that creates these disordered cognitions or perceptions.

Hallucinations

Did you ever think someone called your name, only to discover that no one was there? Did you ever think you saw something move by you, yet nothing did? We all have fleeting moments when we think we see or hear something that isn't there. However, for many people with schizophrenia, these perceptions are real and occur regularly. The experience of sensory events without any input from the surrounding environment is called a **hallucination**. The case of David illustrates the phenomena of hallucinations in addition to other disorders of thought that are common among people with schizophrenia.

David ♦ Missing Uncle Bill

David was 25 years old when I met him; he had been living in a psychiatric hospital for about 3 years. He was a little overweight and of average height; he typically dressed in a T-shirt and jeans and tended to be active. I first encountered him while I was talking to another man who lived on the same floor. David interrupted us by pulling on my shoulder. "My Uncle Bill is a good man. He treats me well." Not wanting to be impolite, I said, "I'm sure he is. Maybe after I've finished talking to Michael here, we can talk about your uncle." David persisted, "He can kill fish with a knife. Things can get awfully sharp in your mind, when you go down the river. I could kill you with my bare hands—taking things into my own hands. . . . I know you know!" He was now speaking quickly and had gained emotionality, along with speed, as he spoke. I talked to him quietly until he calmed down for the moment; later, I looked into David's file for some information about his background.

David was brought up on a farm by his Aunt Katie and Uncle Bill. His father's identity is unknown and his mother, who had mental retardation, couldn't care for him. David, too, was diagnosed as having mental retardation, although his functioning was only mildly impaired, and he attended school. The year David's Uncle Bill died, his high school teachers first reported unusual behavior. David occasionally talked to his deceased Uncle Bill in class. Later, he became increasingly agitated and verbally aggressive toward others and was diagnosed as having schizophrenia. He managed to graduate from high school but never obtained a job after that; he lived at home with his aunt for several years. Although his aunt sincerely wanted him to stay with her, his threatening behavior escalated to the point that she requested he be seen at the local psychiatric hospital.

I spoke with David again and had a chance to ask him a few questions. "Why are you here in the hospital, David?" "I really don't want to be here," he told me. "I've got other things to do. The time is right, and you know, when opportunity knocks." He continued

for a few minutes until I interrupted him. "I was sorry to hear that your Uncle Bill died a few years ago. How are you feeling about him these days?" "Yes, he died. He was sick and now he's gone. He likes to fish with me, down at the river. He's going to take me hunting. I have guns. I can shoot you and you'd be dead in a minute."

David's conversational speech resembled a ball rolling down a rocky hill. Like an accelerating object, his speech gained momentum the longer he went on and, as if bouncing off obstacles, the topics almost always went in unpredictable directions. If he continued for too long, he often became agitated and spoke of harming others. David also told me that his uncle's voice spoke to him repeatedly. He heard other voices also, but he couldn't identify them or tell me what they said. We return to David's case later in this chapter when we discuss causes and treatments.

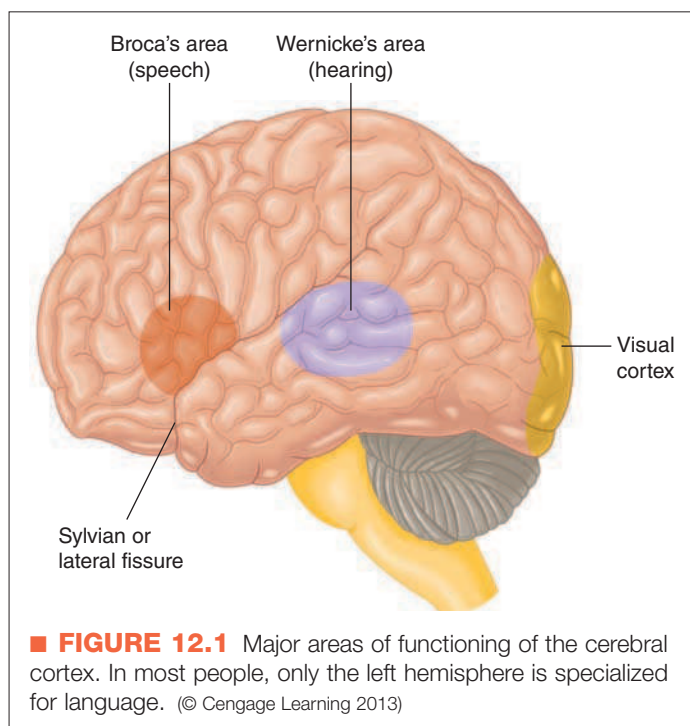
Hallucinations can involve any of the senses, although hearing things that aren't there, or *auditory hallucination*, is the most common form experienced by people with schizophrenia. David had frequent auditory hallucinations, usually of his uncle's voice. When David heard a voice that belonged to his Uncle Bill, he often couldn't understand what his uncle was saying; on other occasions, the voice was clearer. "He told me to turn off the TV. He said, 'It's too damn loud, turn it down, turn it down.'" This is consistent with recent views of hallucinations as being related to metacognition or "thinking about thinking." In other words, metacognition is a phrase to describe examining your own thoughts. Most of us have had an occasional intrusive thought that we try not to focus on. People who experience hallucinations appear to have intrusive thoughts, but they believe they are coming from somewhere or someone else. They then worry about having these thoughts and engage in meta-worry—or worrying about worrying (Ben-Zeev, Ellington, Swendsen, & Granholm, 2010).

Exciting research on hallucinations uses sophisticated brain-imaging techniques to try to localize these phenomena in the brain. Using single photon emission computed tomography (SPECT) to study the cerebral blood flow of men with schizophrenia who also had auditory hallucinations, researchers in London made a surprising discovery (McGuire, Shah, & Murray, 1993). The researchers used the brain-imaging technique while the men were experiencing hallucinations and while they were not, and they found that the part of the brain most active during halluci-

positive symptom A more overt symptom, such as a delusion or hallucination, displayed by some people with schizophrenia.

delusion A psychotic symptom involving disorder of thought content and presence of strong beliefs that are misrepresentations of reality.

hallucination A psychotic symptom of perceptual disturbance in which something is seen, heard, or otherwise sensed although it is not actually present.



nations was Broca's area (■ Figure 12.1). This is surprising because Broca's area is known to be involved in speech *production*, rather than language *comprehension*. Because auditory hallucinations usually involve understanding the "speech" of others, you might expect more activity in Wernicke's area, which involves language comprehension. However, this study supports an earlier finding by a different group of researchers who also found that Broca's area was more active than Wernicke's area during auditory hallucinations (Cleghorn et al., 1992). These observations support the metacognition theory that people who are hallucinating are *not* hearing the voices of others but are listening

to their own thoughts or their own voices and cannot recognize the difference (e.g., Ford et al., 2009).

Negative Symptoms

In contrast to the active presentations that characterize the positive symptoms of schizophrenia, the **negative symptoms** usually indicate the absence or insufficiency of normal behavior. They include apathy, poverty of (i.e., limited) thought or speech, and emotion and social withdrawal, and approximately 25% of people with schizophrenia display these symptoms (Lewis et al., 2009).

Avolition

Avolition is the inability to initiate and persist in activities. People with this symptom (also referred to as *apathy*) show little interest in performing even the most basic day-to-day functions, including those associated with personal hygiene.

Alogia

Alogia refers to the relative absence of speech. A person with alogia may respond to questions with brief replies that have little content and may appear uninterested in the conversation.

Such deficiency in communication is believed to reflect a negative thought disorder rather than inadequate communication skills. Some researchers, for example, suggest that people with alogia may have trouble finding the right words to formulate their thoughts (Kerns, 2009). Sometimes alogia takes the form of delayed comments or slow responses to questions. Talking with individuals who manifest this symptom can be extremely frustrating, making you feel as if you are "pulling teeth" to get them to respond.

Anhedonia

A related symptom is called **anhedonia**, the presumed lack of pleasure experienced by some people with a psychological disorder. Like some mood disorders, anhedonia signals an indifference to activities that would typically be considered pleasurable, including eating, social interactions, and sexual relations.

Affective Flattening

Imagine that people wore masks at all times: You could communicate with them verbally, but you wouldn't be able to see their emotional reactions. Approximately one fourth of the people with schizophrenia exhibit what is called **flat affect** (Lewis et al., 2009). They are similar to people wearing masks because they do not show emotions when you would normally expect them to. They may stare at you vacantly, speak in a flat and toneless manner; and seem unaffected by things going on around them. However, although they do not react openly to emotional situations, they may be responding on the inside.

Howard Berenbaum and Thomas Oltmanns (1992) compared people with schizophrenia who had flat (or "blunted") affect with those who did not. The two groups were shown clips from comedies and dramas selected to create emotional reactions in the viewer. Berenbaum and Oltmanns found that the people with flat affect showed little change in facial ex-



▲ Negative symptoms of schizophrenia include social withdrawal and apathy.

pression, although they reported experiencing the appropriate emotions. The authors concluded that the flat affect in schizophrenia may represent difficulty expressing emotion, not a lack of feeling. Researchers can now use computer analyses of facial expressions to more objectively assess the emotional expressiveness of people with disorders such as schizophrenia. One such study confirmed the difficulty of people with this disorder to express themselves properly with facial expressions (Alvino et al., 2007).

The expression of affect—or the lack of this expression—may be an important symptom of the development of schizophrenia. In a particularly innovative study, researchers videotaped high-risk children (those with one or more parents who had schizophrenia) eating lunch in 1972 and followed them up almost 20 years later (Schiffman et al., 2004). The researchers were able to show that children who later went on to develop schizophrenia typically displayed less positive and more negative affect than those children who did not develop the disorder. This suggests that emotional expression may be one way to identify potential schizophrenia in children.

Disorganized Symptoms

Perhaps the least studied and therefore the least understood symptoms of schizophrenia are referred to as the “disorganized symptoms.” These include a variety of erratic behaviors that affect speech, motor behavior, and emotional reactions. The prevalence of these behaviors among those with schizophrenia is unclear.

Disorganized Speech

A conversation with someone who has schizophrenia can be particularly frustrating. If you want to understand what is bothering or upsetting this person, eliciting relevant information is especially difficult. For one thing, people with schizophrenia often lack *insight*, an awareness that they have a problem. In addition, they experience what Bleuler called “associative splitting” and what researcher Paul Meehl called “cognitive slippage” (Bleuler, 1908; Meehl, 1962). These phrases help describe the speech problems of people with schizophrenia: Sometimes they jump from topic to topic, and at other times they talk illogically. *DSM-IV-TR* uses the term **disorganized speech** to describe such communication problems. Let’s go back to our conversation with David to demonstrate the symptom.

THERAPIST: Why are you here in the hospital, David?

DAVID: I really don’t want to be here. I’ve got other things to do. The time is right, and you know, when opportunity knocks . . .



Abnormal Psychology Inside Out, produced by Ira Wohl, Only Child Motion

Schizophrenia: Etta

“If anyone gets into the house, they say I’d get shot. . . . [Who said?] That’s the eagle. . . . The eagle works through General Motors. They have something to do with my General Motors check I get every month . . . when you do the 25 of the clock, it means that you leave the house 25 after 1 to mail letters so that they can check on you . . . and they know where you’re at. That’s the eagle. . . . If you don’t do something they tell you to do, Jesus makes the shotgun sound, and then . . . not to answer the phone or the doorbell . . . because you’d get shot [by the] eagle.”

Go to Psychology CourseMate at www.cengagebrain.com to watch this video.

David didn’t really answer the question he was asked. This type of response is called *tangentiality*—that is, going off on a tangent instead of answering a specific question. David also abruptly changed the topic of conversation to unrelated areas, a behavior that has variously been called *loose association* or *derailment* (Barrera, McKenna, & Berrios, 2009).

THERAPIST: I was sorry to hear that your Uncle Bill died a few years ago. How are you feeling about him these days?

DAVID: Yes, he died. He was sick, and now he’s gone. He likes to fish with me, down at the river. He’s going to take me hunting. I have guns. I can shoot you and you’d be dead in a minute.

Again, David didn’t answer the question. It was unclear whether he didn’t understand the question, couldn’t focus his attention, or found it too difficult to talk about his uncle. You can see why people spend a great deal of time trying to interpret all the hidden meanings behind this type of conversation. Unfortunately, however, such analyses have yet to provide us with useful information about the nature of schizophrenia or its treatment.

Inappropriate Affect and Disorganized Behavior

Occasionally, people with schizophrenia display **inappropriate affect**, laughing or crying at improper times. Sometimes they exhibit bizarre behaviors such as hoarding

negative symptom A less outgoing symptom, such as flat affect or poverty of speech, displayed by some people with schizophrenia.

avolition An inability to initiate or persist in important activities. Also known as *apathy*.

alogia A deficiency in the amount or content of speech, a disturbance often seen in people with schizophrenia.

anhedonia An inability to experience pleasure, associated with some mood and schizophrenic disorders.

flat affect An apparently emotionless demeanor (including toneless speech and vacant gaze) when a reaction would be expected.

disorganized speech A style of talking often seen in people with schizophrenia, involving incoherence and a lack of typical logic patterns.

inappropriate affect An emotional display that is improper for the situation.

objects or acting in unusual ways in public. People with schizophrenia engage in a number of other “active” behaviors that are usually viewed as unusual. For example, catatonia is one of the most curious symptoms in some individuals with schizophrenia; it involves motor dysfunctions that range from wild agitation to immobility. On the active side of the continuum, some people pace excitedly or move their fingers or arms in stereotyped ways. At the other end of the extreme, people hold unusual postures, as if they were fearful of something terrible happening if they move (**catatonic immobility**). This manifestation can also involve *waxy flexibility*, or the tendency to keep their bodies and limbs in the position they are put in by someone else.

Again, to receive a diagnosis of schizophrenia, a person must display two or more positive, negative, and/or disorganized symptoms for a major portion of at least 1 month. Depending on the combination of symptoms displayed, two people could receive the same diagnosis but behave differently—for example, one having marked hallucinations and delusions and the other displaying disorganized speech and some negative symptoms. Proper treatment depends on differentiating individuals in terms of their varying symptoms.

Schizophrenia Subtypes

Three main types of schizophrenia have been identified: paranoid (delusions of grandeur or persecution), disorganized (or hebephrenic; silly and immature emotionality), and catatonic (alternate immobility and excited agitation). Although these categories continue to be used in *DSM-IV-TR*, their usefulness is in question. We will discuss in the “On the Spectrum” section at the end of the chapter that they may not be included in *DSM-5* (American Psychiatric Association, 2010). And, as research advances on the underlying biological influences (endophenotypes) of this disorder, it is not clear that they will match these subtypes. In addition, a person’s diagnosis can sometimes change over the course of his or her illness, so people can move from one category to another (Lewis et al., 2009). However, we describe the schizophrenia subtypes next for their historic value and because the current diagnostic system relies on these distinctions.

Paranoid Type

People with the **paranoid type of schizophrenia** stand out because of their delusions or hallucinations; at the same time, their cognitive skills and affect are relatively intact. They generally do not have disorganized speech or flat affect, and they typically have a better prognosis than people with other forms of schizophrenia. The delusions and hallucinations usually have a theme, such as grandeur or persecution. The *DSM-IV-TR* criteria for inclusion in this subtype specify preoccupation with one or more delusions or frequent auditory hallucinations but without a marked display of disorganized speech, disorganized or catatonic behavior, or flat or inappropriate affect (American Psychiatric Association, 2000).



©Michael Newman/Photo Edit

▲ Homeless people who suffer from paranoid schizophrenia often bear the additional burden of persecutory delusions, which interfere with outside efforts to help.

Disorganized Type

In contrast to the paranoid type of schizophrenia, people with the **disorganized type of schizophrenia** show marked disruption in their speech and behavior; they also show flat or inappropriate affect, such as laughing in a silly way at the wrong times (American Psychiatric Association, 2000). They also seem unusually self-absorbed and may spend considerable amounts of time looking at themselves in the mirror (Lewis et al., 2009). If delusions or hallucinations are present, they tend not to be organized around a central theme, as in the paranoid type, but are more fragmented. This subtype was previously called *hebephrenic*. Individuals with this diagnosis tend to show signs of difficulty early, and their problems are often chronic, lacking the remissions (improvement of symptoms) that characterize other forms of the disorder (Lindenmayer & Khan, 2006).

Catatonic Type

In addition to the unusual motor responses of remaining in fixed positions (called “waxy flexibility” because their limbs and body position can be moved by others) and engaging in excessive activity, individuals with the **catatonic type of schizophrenia** sometimes display odd mannerisms with their bodies and faces, including grimacing (American Psychiatric Association, 2000). They sometimes repeat or mimic the words of others (*echolalia*) or the movements of others (*echopraxia*). There may be subtypes of catatonic schizophrenia, with some individuals showing primarily symptoms of labeled “negative withdrawal” (immobility, posturing, mutism), “automatic” (routine obedience, waxy flexibility),

“repetitive/echo” (grimacing, perseveration, echolalia), and “agitated/resistive” (excitement, impulsivity, combativeness) (Ungvari, Goggins, Leung, & Gerevich, 2007).

Undifferentiated Type

People who do not fit neatly into these subtypes are classified as having an **undifferentiated type of schizophrenia**; they include people who have the major symptoms of schizophrenia but who do not meet the criteria for paranoid, disorganized, or catatonic types.

Residual Type

People who have had at least one episode of schizophrenia but who no longer manifest major symptoms are diagnosed as having the **residual type of schizophrenia**. Although they may not suffer from bizarre delusions or hallucinations, they may display residual or “leftover” symptoms, such as negative beliefs, or they may still have unusual ideas that are not fully delusional. Residual symptoms can include social withdrawal, bizarre thoughts, inactivity, and flat affect.

Several other disorders also characterized by psychotic behaviors such as hallucinations and delusions do not manifest in the same way as schizophrenia. In the next section, we first distinguish them from schizophrenia and then describe them in greater detail.

Other Psychotic Disorders

Schizophreniform Disorder

Some people experience the symptoms of schizophrenia for a few months only; they can usually resume normal lives. The symptoms sometimes disappear as the result of successful treatment, but they often do so for reasons unknown. The label **schizophreniform disorder** classifies these symptoms, but because relatively few studies are available on this disorder, data on important aspects of it are sparse. It appears, however, that the lifetime prevalence is approximately 0.2% (American Psychiatric Association, 2000). The *DSM-IV-TR* diagnostic criteria for schizophreniform disorder include onset of psychotic symptoms within 4 weeks

of the first noticeable change in usual behavior; confusion at the height of the psychotic episode, good *premorbid* (before the psychotic episode) social and occupational functioning (functioning before the psychotic episode), and the absence of blunted or flat affect (Kendler & Walsh, 2007).

Schizoaffective Disorder

Historically, people who had symptoms of schizophrenia and who exhibited the characteristics of mood disorders (for example, depression or bipolar disorder) were lumped in the category of schizophrenia. Now, however, this mixed bag of problems is diagnosed as **schizoaffective disorder** (Sikich, 2009). The prognosis is similar to the prognosis for people with schizophrenia—that is, individuals tend not to get better on their own and are likely to continue experiencing major life difficulties for many years. *DSM-IV-TR* criteria for schizoaffective disorder require, in addition to the presence of a mood disorder, delusions or hallucinations for at least 2 weeks in the absence of prominent mood symptoms (American Psychiatric Association, 2000).

Delusional Disorder

The major feature of **delusional disorder** is a persistent belief that is contrary to reality in the absence of other characteristics of schizophrenia. For example, a woman who believes without any evidence that coworkers are tormenting her by putting poison in her food and spraying her apartment with harmful gases has a delusional disorder. This disorder is characterized by a persistent delusion that is not the result of an organic factor such as brain seizures or of any severe psychosis. Individuals with delusional disorder tend not to have flat affect, anhedonia, or other negative symptoms of schizophrenia; it is important to note, however, they may become socially isolated because they are suspicious of others. The delusions are often long-standing, sometimes persisting over several years (Suvisaari et al., 2009).

DSM Disorder Criteria Summary

Schizophreniform Disorder

- A. Criteria A, D, and E of Schizophrenia are met.
- B. An episode of the disorder (including prodromal, active, and residual phases) lasts at least 1 month but less than 6 months. (When the diagnosis must be made without waiting for recovery, it should be qualified as “Provisional.”)

Specify if:

Without Good Prognostic Features

With Good Prognostic Features: as evidenced by two (or more) of the following: (1) onset of prominent psychotic symptoms within 4 weeks of the first noticeable change in usual behavior or functioning; (2) confusion or perplexity at the height of the psychotic episode; (3) good premorbid social and occupational functioning; (4) absence of blunted or flat affect

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catatonic immobility A disturbance of motor behavior in which the person remains motionless, sometimes in an awkward posture, for extended periods.

paranoid type of schizophrenia A type of schizophrenia in which symptoms primarily involve delusions and hallucinations; speech and motor and emotional behavior are relatively intact.

disorganized type of schizophrenia A type of schizophrenia featuring disrupted speech and behavior, disjointed delusions and hallucinations, and silly or flat affect.

catatonic type of schizophrenia A type of schizophrenia in which motor disturbances (rigidity, agitation, and odd mannerisms) predominate.

undifferentiated type of schizophrenia A category for individuals who meet the criteria for schizophrenia but not for one of the defined subtypes.

residual type of schizophrenia A diagnostic category for people who have experienced at least one episode of schizophrenia and who no longer display its major symptoms but still show some bizarre thoughts or social withdrawal.

schizophreniform disorder A psychotic disorder involving the symptoms of schizophrenia but lasting less than 6 months.

schizoaffective disorder A psychotic disorder featuring symptoms of both schizophrenia and major mood disorder.

delusional disorder A psychotic disorder featuring a persistent belief contrary to reality (delusion) but no other symptoms of schizophrenia.

DSM Disorder Criteria Summary

Delusional Disorder

- A. Nonbizarre delusions (i.e., involving situations that occur in real life, such as being followed, poisoned, infected, loved at a distance, or deceived by spouse or lover, or having a disease) of at least 1 month's duration.
- B. Criterion A for Schizophrenia has never been met.
Note: Tactile and olfactory hallucinations may be present in Delusional Disorder if they are related to the delusional theme.
- C. Apart from the impact of the delusion(s) or its ramifications, functioning is not markedly impaired and behavior is not obviously odd or bizarre.
- D. If mood episodes have occurred concurrently with delusions, their total duration has been brief relative to the duration of the delusional periods.
- E. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

Specify type (the following types are assigned based on the predominant delusional theme):

Erotomantic Type: delusions that another person, usually of higher status, is in love with the individual

Grandiose Type: delusions of inflated worth, power, knowledge, identity, or special relationship to a deity or famous person

Jealous Type: delusions that the individual's sexual partner is unfaithful

Persecutory Type: delusions that the person (or someone to whom the person is close) is being malevolently treated in some way

Somatic Type: delusions that the person has some physical defect or general medical condition

Mixed Type: delusions characteristic of more than one of the above types but no one theme predominates

Unspecified Type

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DSM-IV-TR recognizes the following delusional subtypes: erotomantic, grandiose, jealous, persecutory, and somatic. An *erotomantic type* of delusion is the irrational belief that one is loved by another person, usually of higher status. Some individuals who stalk celebrities appear to have erotomantic delusional disorder. The *grandiose type* of delusion involves believing in one's inflated worth, power, knowledge, identity, or special relationship to a deity or famous person. A person with the *jealous type* of delusion believes the sexual partner is unfaithful. The *persecutory type* of delusion involves believing oneself (or someone close) is being malevolently treated in some way. Finally, with the *somatic delusions* the person feels afflicted by a physical defect or general medical condition. These delusions differ from the more bizarre types often found in people with schizophrenia because in delusional disorder *the imagined events could be happening but aren't* (for example, mistakenly believing you are being followed); in schizophrenia, however, *the imagined events aren't possible* (for example, believing your brain waves broadcast your thoughts to other people around the world).

Delusional disorder seems to be relatively rare, affecting 24 to 30 people out of every 100,000 in the general population (Suvisaari et al., 2009). Among those people with psychotic disorders in general, between 2% and 8% are thought to have delusional disorder (Vahia & Cohen, 2009). The onset of delusional disorder is relatively late: The average age of first

admission to a psychiatric facility is between 40 and 49 (Vahia & Cohen, 2009). However, because many people with this disorder can lead relatively normal lives, they may not seek treatment until their symptoms become most disruptive. Delusional disorder seems to afflict more females than males (55% and 45%, respectively, of the affected population).

In a longitudinal study, Opjordsmoen (1989) followed 53 people with delusional disorder for an average of 30 years and found they tended to fare better in life than people with schizophrenia but not and those with some other psychotic disorders, such as schizoaffective disorder. About 80% of the 53 individuals had been married at some time, and half were employed, which demonstrates an ability to function relatively well despite delusions.

We know relatively little about either the biological or the psychosocial influences on delusional disorder (Vahia & Cohen, 2009). Research on families suggests that the characteristics of suspiciousness, jealousy, and secretive-ness may occur more often among the relatives of people with delusional disorder than among the population at large, suggesting some aspect of this disorder may be inherited (Kendler & Walsh, 2007).

A number of other disorders can cause delusions, and their presence should be ruled out before diagnosing delusional disorder. For example, abuse of amphetamines, alcohol, and cocaine can cause delusions, as can brain tumors, Huntington's disease, and Alzheimer's disease (Vahia & Cohen, 2009).

Brief Psychotic Disorder

Recall the puzzling case of Arthur, who suddenly experienced the delusion that he could save the world and whose intense emotional swings lasted for only a few days. He would receive the *DSM-IV-TR* diagnosis of **brief psychotic disorder**, which is characterized by the presence of one or more positive symptoms such as delusions, hallucinations, or disorganized speech or behavior lasting 1 month or less. Individuals like Arthur regain their previous ability to function well in day-to-day activities. Brief psychotic disorder is often precipitated by extremely stressful situations.

Shared Psychotic Disorder (Folie à Deux)

Relatively little is known about **shared psychotic disorder (folie à deux)**, the condition in which an individual develops delusions simply as a result of a close relationship with a delusional individual. The content and nature of the delusion originate with the partner and can range from the relatively bizarre, such as believing enemies are sending harmful gamma rays through your house, to the fairly ordinary, such as believing you are about to receive a major promotion despite evidence to the contrary. Although it was once thought that this disorder was more common among mother-daughter or sister-sister pairs, this does not appear to be the case (Shimizu, Kubota, Toichi, & Baba, 2007).

Schizotypal personality disorder, discussed in Chapter 11, is a related psychotic disorder. As you may recall, the characteristics are similar to those experienced by people with schizophrenia but are less severe. Some evidence also suggests that schizophrenia and schizotypal

personality disorder may be genetically related as part of a “schizophrenia spectrum.”

Remember that although people with related psychotic disorders display many of the characteristics of schizophrenia, these disorders differ significantly.

Concept Check 12.1

Part A

Determine which subtype of schizophrenia is described in each scenario.

1. Jane has spent the past half hour staring in the mirror. As you approach her she turns away and giggles. When you ask what she’s laughing at, she answers, but you’re having difficulty understanding what she says. _____
2. Two years ago Drew had an episode of schizophrenia, but he no longer displays the major symptoms of the disorder. He does, however, still have some bizarre thoughts and displays flat affect on occasion. _____
3. Greg’s cognitive skills and affect are relatively intact. He, however, often has delusions and hallucinations that convince him enemies are out to persecute him. _____
4. Alice usually holds an unusual posture and is sometimes seen grimacing. _____
5. Cameron suffers from a type of schizophrenia that is identified by disruption and incoherence in his speech and behavior. He also shows inappropriate

affect, often laughing in a silly way in sad situations. _____

Part B

Diagnose the type of psychotic disorders described in each of the following. Choose from (a) schizophreniform disorder, (b) schizoaffective disorder, (c) delusional disorder, and (d) shared psychotic disorder.

6. Lately Dom has become more isolated because he believes his coworkers are conspiring to get him fired. He becomes agitated whenever he sees a group of employees talking and laughing because he believes that they are plotting against him. _____
7. Natalie reveals to her therapist that she hears numerous voices talking to her and giving her orders. Her doctor has just sent her to this therapist for what he believes to be a major depressive episode. She had begun to sleep all the time and contemplated suicide often. _____
8. If Shawn’s schizophrenic symptoms disappeared after about 4 months and he returned to his normal life, what diagnosis might he have received? _____
9. Elias believes the government is out to get him. He thinks agents follow him daily, monitor his calls, and read his mail. His roommate, Cedric, tried to convince him otherwise. However, after a year of this, Cedric began to believe Elias was correct and the government was out to get him, too. _____

Prevalence and Causes of Schizophrenia

› What are the potential genetic, neurobiological, developmental, and psychosocial risk factors for schizophrenia?

To uncover the causes of this disorder, researchers look in several areas: (1) the possible genes involved in schizophrenia, (2) the chemical action of the drugs that help many people with this disorder, and (3) abnormalities in the working of the brains of people with schizophrenia (Tamminga, 2009). We now examine the nature of schizophrenia and learn how researchers have attempted to understand and treat people who have it.

Statistics

Worldwide, the lifetime prevalence rate of schizophrenia is roughly equivalent for men and women, and it is estimated to be 0.2% to 1.5% in the general population (Mueser & Marcello, 2011), which means the disorder will affect around

1% of the population at some point. Life expectancy is slightly less than average, partly because of the higher rate of suicide and accidents among people with schizophrenia.

brief psychotic disorder A psychotic disturbance involving delusions, hallucinations, or disorganized speech or behavior but lasting less than 1 month; often occurs in reaction to a stressor.

shared psychotic disorder (folie à deux) A psychotic disturbance in which individuals develop a delusion similar to that of a person with whom they share a close relationship. Also known as *folie à deux*.

schizotypal personality disorder A cluster A (odd or eccentric) personality disorder involving a pervasive pattern of interpersonal deficits featuring acute discomfort with, and reduced capacity for, close relationships, as well as cognitive or perceptual distortions and eccentricities of behavior.

Although there is some disagreement about the distribution of schizophrenia between men and women, the difference between the sexes in age of onset is clear. For men, the likelihood of onset diminishes with age, but it can still first occur after the age of 75. The frequency of onset for women is lower than for men until age 36, when the relative risk for onset switches, with more women than men being affected later in life (Mueser & Marcello, 2011). Women appear to have more favorable outcomes than do men.

Development

The more severe symptoms of schizophrenia first occur in late adolescence or early adulthood, although we saw that there may be signs of the development of the disorder in early childhood (Murray & Bramon, 2005). Children who go on to develop schizophrenia show early clinical features such as mild physical abnormalities, poor motor coordination, and mild cognitive and social problems (Schiffman et al., 2004; Welham et al., 2008). Unfortunately, these types of early problems are not specific enough to schizophrenia—meaning they could also be signs of other problems, such as the pervasive developmental disorders we review in Chapter 13—to be able to say for sure that a particular child will later develop schizophrenia.

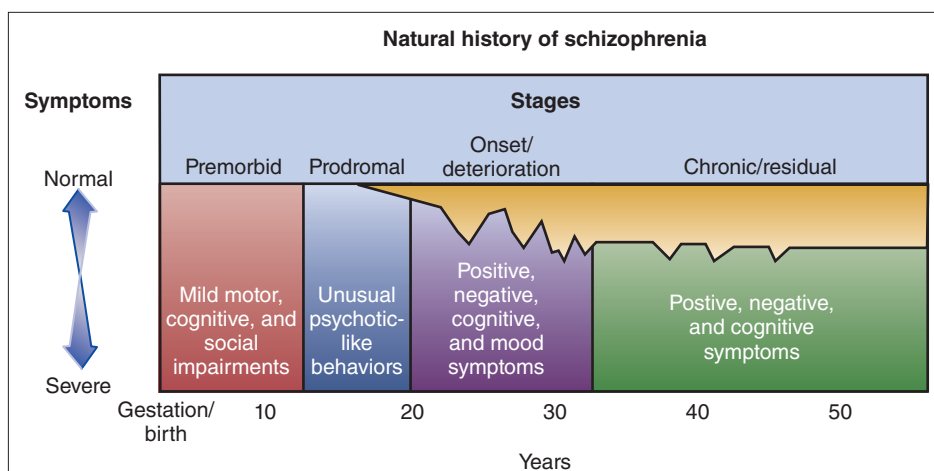
Up to 85% of people who later develop schizophrenia go through a *prodromal stage*—a 1- to 2-year period before the serious symptoms occur but when less severe yet unusual behaviors start to show themselves (Murray & Bramon, 2005; Yung, Phillips, Yuen, & McGorry, 2004). These behaviors (which you should recognize from Chapter 11 as symptoms seen in schizotypal personality disorders) include ideas of reference (thinking insignificant events relate directly to them), magical thinking (believing they have special abilities such as being clairvoyant or telepathic), and illusions (such as feeling the presence of another person when they are alone). In addition, other symptoms are common, such as isolation, marked impairment in functioning, and a lack of initiative, interests, or energy (Moukas, Stathopoulou, Gourzis, Beratis, & Beratis, 2010).

Once the symptoms of schizophrenia develop, it typically takes 1 to 2 years before the person is diagnosed and receives treatment (Woods et al., 2001). Part of this delay may be the result of hiding symptoms from others (sometimes because of increasing paranoia). Once treated, patients with this disorder will often improve. Unfortunately, most will also go through a pattern of relapse and recovery (Harvey & Bellack, 2009). This relapse rate is important when discussing the course of schizophrenia. For example, the data from one clas-

sic study show the course of schizophrenia among four prototypical groups (Zubin, Steinhauer, & Condray, 1992). About 22% of the group had one episode of schizophrenia and improved without lasting impairment. However, the remaining 78% experienced several episodes, with differing degrees of impairment between them. People with schizophrenia have a poorer prognosis than those with most of the other disorders we describe in this book—including a high risk of suicide—although a significant number of individuals can experience long periods of recovery (Jobe & Harrow, 2005). To illustrate this complex developmental picture, ■ Figure 12.2 graphically depicts the developmental course of schizophrenia. Life stages (from before birth to the end of life) are listed across the top of the graph, with the colored regions showing periods of decline and recovery.

Cultural Factors

Because schizophrenia is so complex, the diagnosis itself can be controversial. Some have argued that “schizophrenia” does not really exist but is a derogatory label for people who behave in ways outside the cultural norm (see, for example, Laing, 1967; Sarbin & Mancuso, 1980; Szasz, 1961). This concern takes us back to our discussions in the first chapter about the difficulty defining what is abnormal. Although the idea that schizophrenia exists only in the minds of mental health professionals is provocative, this extreme view is contradicted by experience. We have both had a great deal of contact with people who have this disorder and with their families and friends, and the tremendous amount of emotional pain resulting from schizophrenia gives definite credence to its existence. In addition, many people in extremely diverse cultures have the symptoms of schizophrenia, which supports the notion that it is a reality for many people worldwide. Schizophrenia is thus



■ **FIGURE 12.2** The longitudinal course of schizophrenia is depicted starting at birth through old age. The severity of the symptoms is showing on the left axis, and the changes in symptoms across each phase (premorbid, prodromal, onset, and chronic) are labeled. (Adapted from Lieberman, J. A., Perkins, D., Belger, A., Chakos, M., Jarskog, F., Boteva, K., & Gilmore, J., 2001. The early stages of schizophrenia: Speculations on pathogenesis, pathophysiology, and therapeutic approaches. *Biological Psychiatry*, 50, p. 885.)

universal, affecting all racial and cultural groups studied so far.

However, the course and outcome of schizophrenia vary from culture to culture. For example, the stressors associated with significant political, social, and economic problems that are prevalent in many areas of Africa, Latin America, and Asia may contribute to poorer outcomes for people with schizophrenia in these countries (Burns, 2009). These differences also may be the result of cultural variations or prevalent biological influences such as immunization, but we cannot yet explain these differences in outcomes.

In the United States, proportionately more African Americans than Caucasians receive the diagnosis of schizophrenia (Schwartz & Feisthamel, 2009). Research from both England and the United States suggests that people from devalued ethnic minority groups (Afro-Caribbean in England and African Americans and Puerto Ricans in the United States) may be victims of bias and stereotyping (Jones & Gray, 1986; Lewis, Croft-Jeffreys, & Anthony, 1990); in other words, they may be more likely to receive a diagnosis of schizophrenia than members of a dominant group. One prospective study of schizophrenia among different ethnic groups in London found that, although the outcomes of schizophrenia appear similar across these groups, blacks were more likely to be detained against their will, brought to the hospital by police, and given emergency injections (Goater et al., 1999). The differing rates of schizophrenia, therefore, may be partially the result of *misdiagnosis* rather than to any real cultural distinctions. However, an additional factor contributing to this imbalance may be the levels of stress associated with factors such as stigma and isolation (Pinto, Ashworth, & Jones, 2008). There also may be genetic variants unique to certain racial groups that contribute to the development of schizophrenia (Glatt, Tampi, Christie, DeYoung, & Freimer, 2004), a factor we explore in detail next.

Genetic Influences

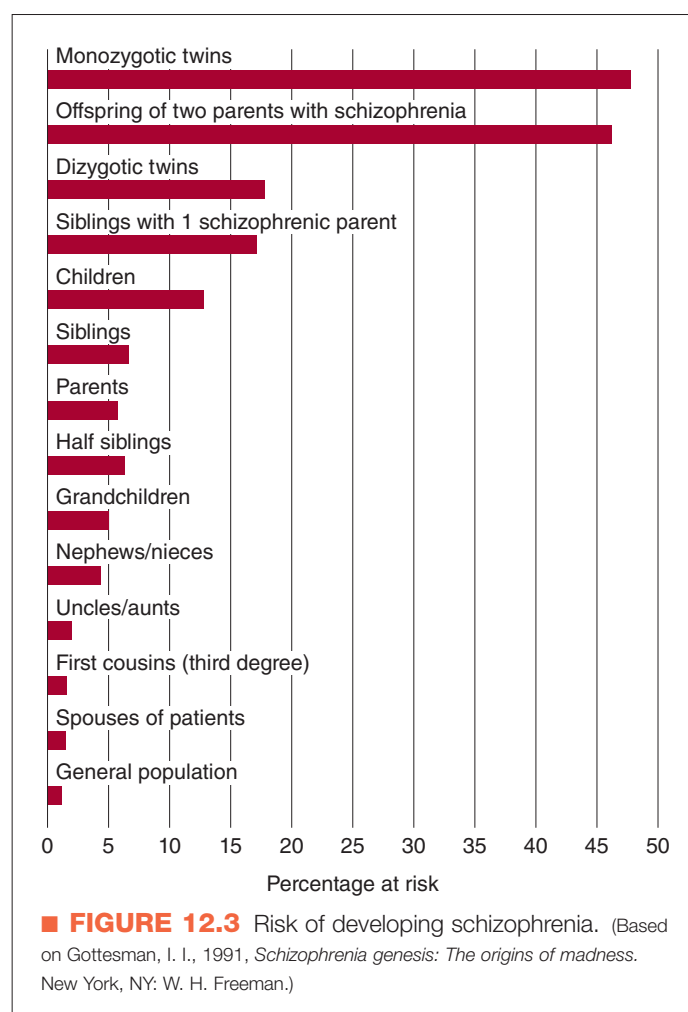
We could argue that no other area of abnormal psychology so clearly illustrates the enormous complexity and intriguing mystery of genetic influences on behavior as does the phenomenon of schizophrenia (Braff, Schork, & Gottesman, 2007). Despite the possibility that schizophrenia may be several different disorders, we can safely make one generalization: *Genes are responsible for making some individuals vulnerable to schizophrenia.* We look at a range of research findings from family, twin, adoptee, offspring of twins, and linkage and association studies. We conclude by discussing the compelling reasons that no one gene is responsible for schizophrenia; rather, thousands of gene variances combine to produce vulnerability (Purcell et al., 2009; Wray & Visscher, 2010).

Family Studies

In 1938, Franz Kallmann published a major study of the families of people with schizophrenia (Kallmann, 1938). Kallmann examined family members of more than 1,000

people diagnosed with schizophrenia in a Berlin psychiatric hospital. He showed that the severity of the parent's disorder influenced the likelihood of the child's having schizophrenia: The more severe the parent's schizophrenia, the more likely the children were to develop it. Another observation was important: All forms of schizophrenia (for example, catatonic and paranoid) were seen within the families. In other words, it does not appear that you inherit a predisposition for, say, paranoid schizophrenia. Instead, you may inherit a general predisposition for schizophrenia that manifests in the same form or differently from that of your parent. More recent research confirms this observation and suggests that families that have a member with schizophrenia are at risk not just for schizophrenia alone or for all psychological disorders; instead, there appears to be some familial risk for a spectrum of psychotic disorders related to schizophrenia.

In a classic analysis, Gottesman (1991) summarized the data from about 40 studies of schizophrenia, as shown in Figure 12.3. The most striking feature of this graph is its orderly demonstration that the risk of having schizophrenia varies according to how many genes an individual shares with someone who has the disorder. For example, you have the greatest chance (approximately 48%) of hav-



ing schizophrenia if it has affected your identical (monozygotic) twin, a person who shares 100% of your genetic information. Your risk drops to about 17% with a fraternal (dizygotic) twin, who shares about 50% of your genetic information. And having any relative with schizophrenia makes you more likely to have the disorder than someone without such a relative (about 1% if you have no relative with schizophrenia). Because family studies can't separate genetic influence from the impact of the environment, we use twin and adoption studies to help us evaluate the role of shared experiences in the cause of schizophrenia.

Twin Studies

If they are raised together, identical twins share 100% of their genes and 100% of their environment, whereas fraternal twins share only about 50% of their genes and 100% of their environment. If the environment is solely responsible for schizophrenia, we would expect little difference between identical and fraternal twins with regard to this disorder. If only genetic factors are relevant, both identical twins would always have schizophrenia (be concordant) and the fraternal twins would both have it about 50% of the time. Research from twin studies indicates that the truth is somewhere in the middle (Braff et al., 2007).

In one of the most fascinating of “nature’s experiments,” identical quadruplets, all of whom have schizophrenia, have been studied extensively. Nicknamed the “Genain” quadruplets (from the Greek, meaning “dreadful gene”), these women have been followed by David Rosenthal and his colleagues at the National Institute of Mental Health for a number of years (Rosenthal, 1963). The fictitious names of the girls reported in studies of their lives—Nora, Iris, Myra, and Hester—represent the letters NIMH for the National Institute of Mental Health. In a sense, the women represent the complex interaction between genetics and environment. All four shared the same genetic predisposition, and all were brought up in the same particularly dysfunctional household; yet the time of onset for schizophrenia, the symptoms and diagnoses, the course of the disorder, and, ultimately, their outcomes differed significantly from sister to sister.

The case of the Genain quadruplets reveals an important consideration in studying genetic influences on behavior—*unshared environments* (Plomin, 1990). We tend to think that siblings, and especially identical multiples, are brought up exactly the same way. The impression is that “good” parents expose their children to favorable environments and “bad” parents give them unstable experiences. However, even identical siblings can have different prenatal and family experiences and therefore be exposed to varying degrees of biological and environmental stress.



▲ The Genain quadruplets all had schizophrenia but exhibited different symptoms over the years.

Dr. Allan F. Mirsky/National Institute of Mental Health

For example, Hester, one of the Genain sisters, was described by her parents as a habitual masturbator, and she had more social problems than her sisters as she grew up. Hester was the first to experience severe symptoms of schizophrenia, at age 18, but her sister Myra was not hospitalized until 6 years later. This unusual case demonstrates that even siblings who are close in every aspect of their lives can still have considerably different experiences physically and socially as they grow up, which may result in vastly different outcomes. A follow-up on the lives of these women showed the progression of their disorder stabilized and in some cases improved when they were assessed at age 66 (Mirsky et al., 2000).

Adoption Studies

Several adoption studies have distinguished the roles of the environment and genetics as they affect schizophrenia. The largest adoption study is currently being conducted in Finland (Tienari, 1991). From a sample of almost 20,000 women with schizophrenia, the researchers found 190 children who had been given up for adoption. The data from this study support the idea that schizophrenia represents a spectrum of related disorders, all of which overlap genetically. If an adopted child had a biological mother with schizophrenia, that child had about a 5% chance of having the disorder (compared to about only 1% in the general population). However, if the biological mother had schizophrenia or one of the related psychotic disorders (for example, delusional disorder or schizophreniform disorder), the risk that the adopted child would have one of these disorders rose to about 22% (Tienari et al., 2003; Tienari, Wahlberg, & Wynne, 2006). Even when raised away from their biological parents, children of parents with schizophrenia have a much higher chance of having the disorder themselves. At the same time, there appears

to be a protective factor if these children are brought up in healthy supportive homes. In other words, a gene-environment interaction was observed in this study, with a good home environment reducing the risk of schizophrenia (Gilmore, 2010; Wynne et al., 2006).

The Offspring of Twins

Twin and adoption studies strongly suggest a genetic component for schizophrenia, but what about children who develop schizophrenia even though their parents do not? For example, the study by Tienari and colleagues (2003, 2006) we just discussed found that 1.7% of the children with nonschizophrenic parents developed schizophrenia. Does this mean you can develop schizophrenia without “schizophrenic genes”? Or are some people carriers, having the genes for schizophrenia but for some reason not showing the disorder themselves? An important clue to this question comes from research on the children of twins with schizophrenia.

In a study begun in 1971 by Margit Fischer and later continued by Irving Gottesman and Aksel Bertelsen, 21 identical twin pairs and 41 fraternal twin pairs with a history of schizophrenia were identified, along with their children (Fischer, 1971; Gottesman & Bertelsen, 1989). The researchers wanted to determine the relative likelihood that a child would have schizophrenia if his or her parent did and if the parent’s twin had schizophrenia but the parent did not. ■ Figure 12.4 illustrates the findings from this study. For example, if your parent is an identical (monozygotic) twin with schizophrenia, you have about a 17% chance of having the disorder yourself, a figure that holds if you are the child of an unaffected identical twin whose co-twin has the disorder.

However, look at the risks for the child of a fraternal (dizygotic) twin. If your parent is the twin with schizophrenia, you have about a 17% chance of having schizophrenia yourself. However, if your parent does not have schizo-

phrenia but your parent’s fraternal twin does, your risk is only about 2%. The only way to explain this finding is through genetics. The data clearly indicate that you can have genes that predispose you to schizophrenia, not show the disorder yourself, but still pass on the genes to your children. In other words, you can be a “carrier” for schizophrenia. This is some of the strongest evidence yet that people are genetically vulnerable to schizophrenia. Remember, however, there is only a 17% chance of inheritance if your parent has schizophrenia, meaning that other factors help determine who will have this disorder.

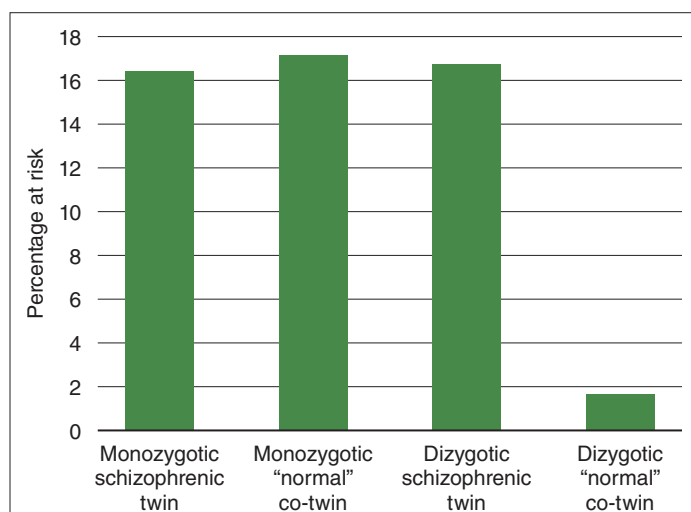
Linkage and Association Studies

Genetic linkage and association studies rely on traits such as blood types (whose exact location on the chromosome is already known) inherited in families with the disorder you are looking for—in this case, schizophrenia. Because researchers have determined the location of the genes for these traits (called *marker genes*), they can make a rough guess about the location of the disorder genes inherited with them. To date, researchers have looked at several sites for genes that may be responsible for schizophrenia. For example, regions of chromosomes 1, 2, 3, 5, 6, 8, 10, 11, 13, 20, and 22 are implicated in this disorder (Kirov & Owen, 2009).

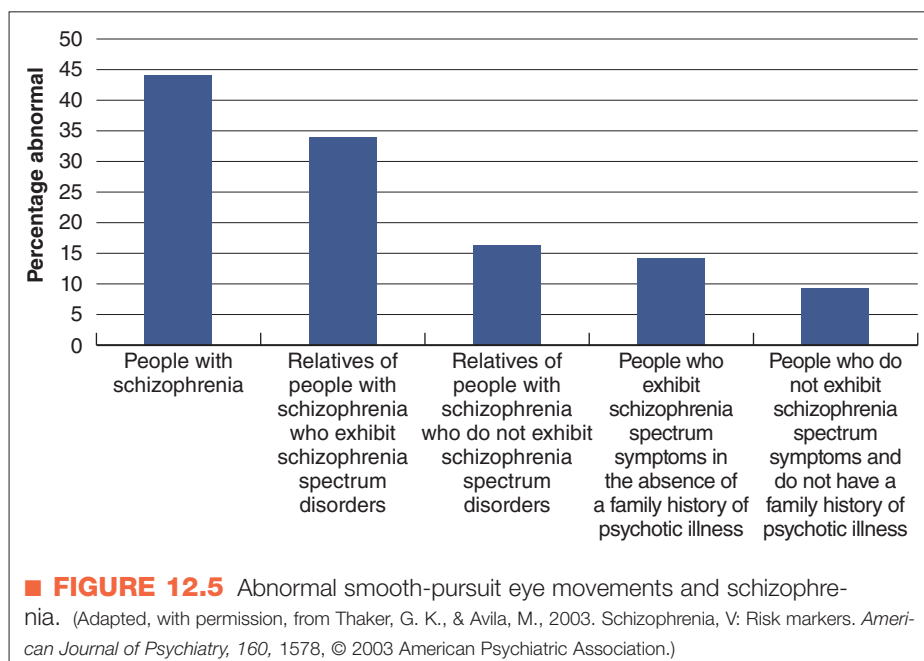
Endophenotypes. Genetic research on schizophrenia is evolving, and the information on the findings from these sophisticated studies is now being combined with advances in our understanding of specific deficits found in people with this disorder. Remember, in complex disorders such as this, researchers are not looking for a “schizophrenia gene” or genes. Instead, researchers try to find basic processes that contribute to the behaviors or symptoms of the disorder and then find the gene or genes that cause these difficulties—a strategy called *endophenotyping* (Braff et al., 2007).

Several potential candidates for endophenotypes for schizophrenia have been studied over the years. One of the more highly researched is called *smooth-pursuit eye movement*, or eye-tracking. Keeping their head still, typical people are able to track a moving pendulum, back and forth, with their eyes. The ability to track objects smoothly across the visual field is deficient in many people who have schizophrenia (Clementz & Sweeney, 1990; Holzman & Levy, 1977; Iacono, Bassett, & Jones, 1988); it does not appear to be the result of drug treatment or institutionalization (Lieberman et al., 1993). It also seems to be a problem for relatives of those with schizophrenia (Lenzenweger, McLachlan, & Rubin, 2007a). ■ Figure 12.5 shows the decreasing likelihood of observing this abnormal eye-tracking ability the further a person is genetically from someone with schizophrenia. When all these observations are combined, they suggest an eye-tracking deficit may be an endophenotype for schizophrenia that could be used in further study.

Other such research is looking at the social, cognitive, and emotional deficits characteristic of schizophrenia. One



■ **FIGURE 12.4** Risk for schizophrenia among children of twins. (© Cengage Learning 2013)



study, for example, looked at multiple generations of families who had someone with schizophrenia (Gur et al., 2007). They tested them on a variety of skills for identified cognitive deficits in areas we described previously—such as emotion identification—and showed that specific problems were inherited in the same manner as schizophrenia (suggesting that these cognitive deficits might be endophenotypes for schizophrenia). Combining genetic research—in this case, a large family study—with neurocognitive assessment may bring us closer to understanding just what is inherited in this disorder (Braff et al., 2007).

Neurobiological Influences

Dopamine

One of the most enduring yet controversial theories of the cause of schizophrenia involves the neurotransmitter *dopamine* (Howes & Kapur, 2009). Before we consider the research, however, let's review briefly how neurotransmitters operate in the brain and how they are affected by neuroleptic medications, which reduce hallucinations and delusions. In Chapter 2, we discussed the sensitivity of specific neurons to specific neurotransmitters and described how they cluster throughout the brain. The top of ■ Figure 12.6 shows two neurons and the important synaptic gap that separates them. Neurotransmitters are released from the storage vessels (synaptic vesicles) at the end of the axon, cross the gap, and are taken up by receptors in the dendrite of the next axon. Chemical “messages” are transported in this way from neuron to neuron throughout the brain.

This process can be influenced in a number of ways, and the rest of Figure 12.6 illustrates some of them. The chemical messages can be increased by agonistic agents or decreased by antagonistic agents. Antagonistic effects slow or

stop messages from being transmitted by preventing the release of the neurotransmitter, blocking uptake at the level of the dendrite, or causing leaks that reduce the amount of neurotransmitter released. However, agonistic effects assist with the transference of chemical messages and, if extreme, can produce too much neurotransmitter activity by increasing production or release of the neurotransmitter and by affecting more receptors at the dendrites.

What we've learned about antipsychotic medications points to the possibility that the dopamine system is too active in people with schizophrenia. The simplified picture in Figure 12.6 does not show that there are different receptor sites and that a chemical such as dopamine produces different results depending on which of those sites it affects.

In schizophrenia, attention has focused on several dopamine sites, in particular those referred to simply as D₁ and D₂.

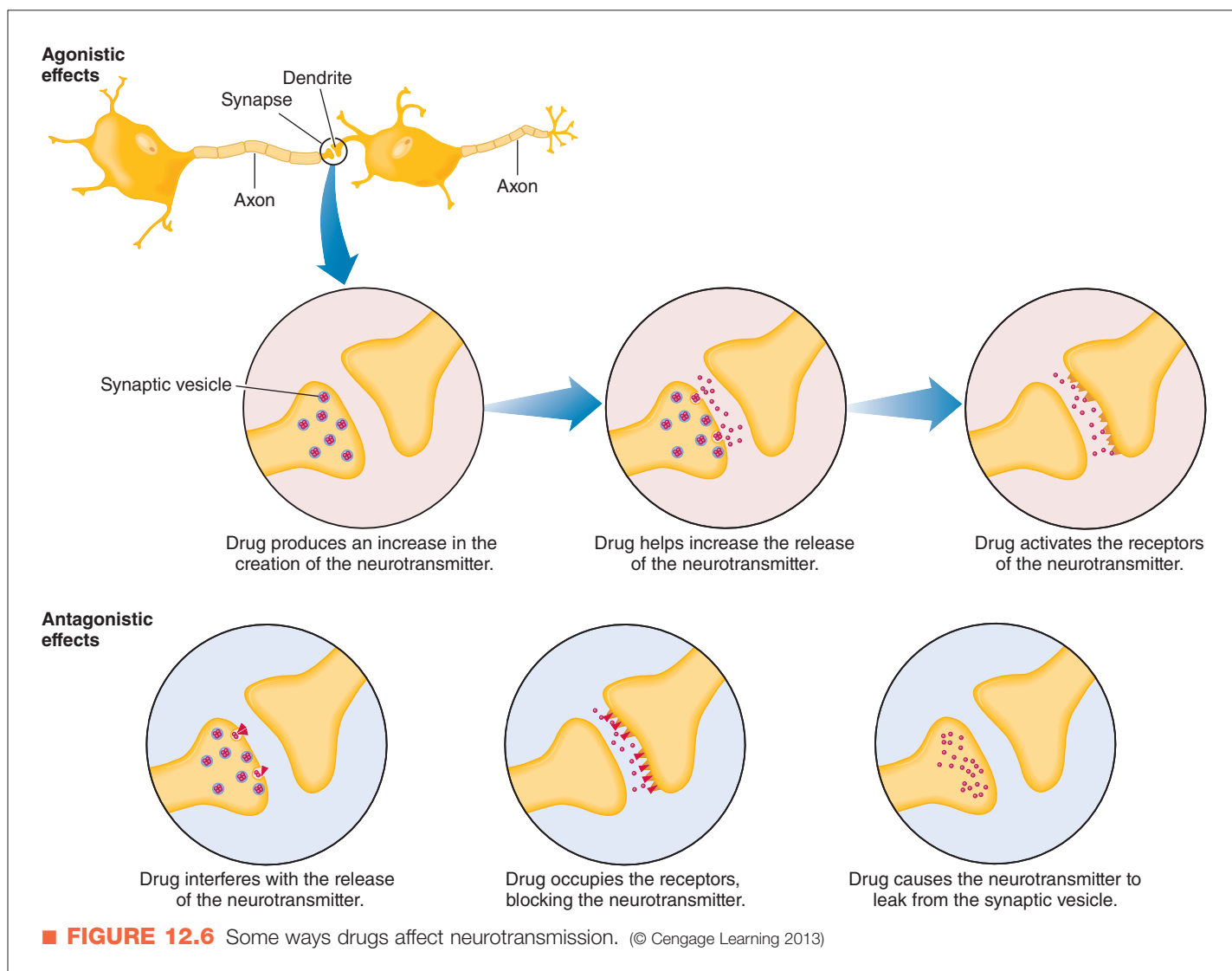
In a story that resembles a mystery plot, several pieces of “circumstantial evidence” are clues to the role of dopamine in schizophrenia:

1. Antipsychotic drugs (neuroleptics) often effective in treating people with schizophrenia are dopamine antagonists, partially blocking the brain's use of dopamine (Creese, Burt, & Snyder, 1976; Seeman, Lee, Chau Wong, & Wong, 1976).
2. These neuroleptic drugs can produce negative side effects similar to those in Parkinson's disease, a disorder known to be caused by insufficient dopamine.
3. The drug L-dopa, a dopamine agonist used to treat people with Parkinson's disease, produces schizophrenia-like symptoms in some people (Davidson et al., 1987).
4. Amphetamines, which also activate dopamine, can make psychotic symptoms worse in some people with schizophrenia (van Kammen, Docherty, & Bunney, 1982).

In other words, when drugs are administered that are known to increase dopamine (agonists), there is an increase in schizophrenic behavior; when drugs that are known to decrease dopamine activity (antagonists) are used, schizophrenic symptoms tend to diminish. Taking these observations together, researchers theorized that schizophrenia in some people was attributable to excessive dopamine activity.

Despite these observations, some evidence contradicts the dopamine theory (Javitt & Laruelle, 2006):

1. A significant number of people with schizophrenia are not helped by the use of dopamine antagonists.
2. Although the neuroleptics block the reception of dopamine quite quickly, the relevant symptoms subside only



after several days or weeks, more slowly than we would expect.

3. These drugs are only partly helpful in reducing the negative symptoms (for example, flat affect or anhedonia) of schizophrenia.

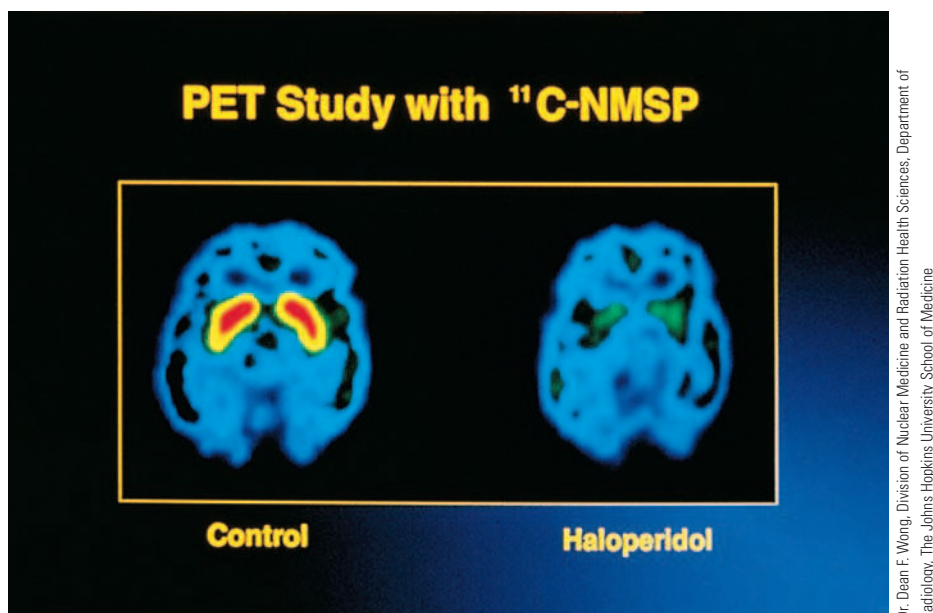
In addition to these concerns, there is evidence of a “double-edged sword” with respect to schizophrenia. A medication called *olanzapine*—along with a family of similar drugs—is effective with many people who were not helped with traditional neuroleptic medications (Kane, Stroup, & Marder, 2009). That’s the good news. The bad news for the dopamine theory is that olanzapine and these other new medications are weak dopamine antagonists, much less able to block the sites than other drugs (Javitt & Laruelle, 2006). Why would a medication inefficient at blocking dopamine be effective as a treatment for schizophrenia if schizophrenia is caused by excessive dopamine activity?

The answer may be that although dopamine is involved in the symptoms of schizophrenia, the relationship is more complicated than once thought (Howes & Kapur, 2009).

Current thinking—based on growing evidence from highly sophisticated research techniques—points to *at least three specific neurochemical abnormalities* simultaneously at play in the brains of people with schizophrenia.

Strong evidence now leads us to believe that schizophrenia is partially the result of excessive stimulation of striatal dopamine D₂ receptors (Javitt & Laruelle, 2006). The striatum is part of the basal ganglia found deep within the brain. These cells control movement, balance, and walking, and they rely on dopamine to function. How do we know that excessive stimulation of D₂ receptors is involved in schizophrenia? One clue is that the most effective antipsychotic drugs all share dopamine D₂ receptor antagonism—meaning they help block the stimulation of the D₂ receptors (Ginovart & Kapur, 2010). Using brain-imaging techniques such as SPECT, scientists can view the living brain of a person with schizophrenia and can observe how the newer, “second generation” antipsychotic medications work on these specific dopamine sites.

A second area of interest to scientists investigating the cause of schizophrenia is the observation of a deficiency in



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▲ These PET images show the brain of a man with schizophrenia who had never been medicated (*left*) and after he received haloperidol (*right*). The red and yellow areas indicate activity in the D_2 receptors; haloperidol evidently reduced dopamine activity.

the stimulation of prefrontal dopamine D_1 receptors (Howes & Kapur, 2009). Therefore, while some dopamine sites may be overactive (for example, striatal D_2), a second type of dopamine site in the part of the brain that we use for thinking and reasoning (prefrontal D_1 receptors) appears to be less active and may account for other symptoms common in schizophrenia. As you will see later in this chapter, people with schizophrenia display a range of deficits in the prefrontal section of the brain, and this area may be less active in people with schizophrenia.

Finally, a third area of neurochemical interest involves research on alterations in prefrontal activity involving glutamate transmission (Javitt & Laruelle, 2006). Glutamate is an excitatory neurotransmitter that is found in all areas of the brain and is only now being studied in earnest. Just as we saw with dopamine (for example, D_1 and D_2 receptors), glutamate has different types of receptors, and the ones being studied for their role in schizophrenia are the *N*-methyl-d-aspartate (NMDA) receptors. And, just as researchers were led to the study of dopamine by observations from the effects of dopamine-specific drugs on behavior, the effects of certain drugs that affect NMDA receptors point to clues to schizophrenia. Two recreational drugs described in Chapter 10—phencyclidine (PCP) and ketamine—can result in psychotic-like behavior in people without schizophrenia and can exacerbate psychotic symptoms in those with schizophrenia. Both PCP and ketamine are also NMDA antagonists, suggesting that a deficit in glutamate or blocking of NMDA sites may be involved in some symptoms of schizophrenia (Goff & Coyle, 2001).

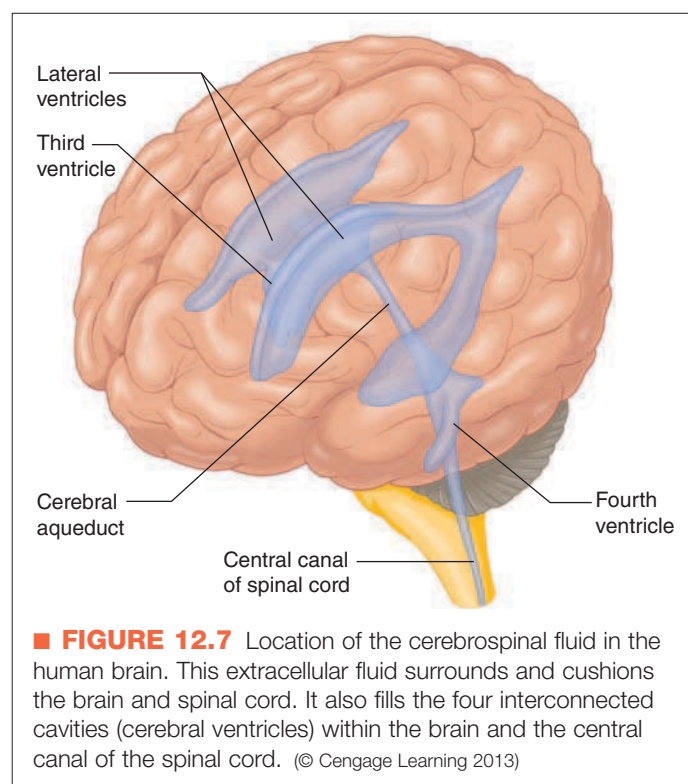
Research on these two neurotransmitters and their relationship to each other is complex and awaits further clarification. However, advances in technology are leading us

closer to the clues behind this enigmatic disorder and closer still to better treatments.

Brain Structure

Evidence for neurological damage in people with schizophrenia comes from a number of observations. Many children with a parent who has the disorder, and who are therefore at risk, tend to show subtle but observable neurological problems, such as abnormal reflexes and inattentiveness (Wan, Abel, & Green, 2008). These difficulties are persistent: Adults who have schizophrenia show deficits in their ability to perform certain tasks and to attend during reaction time exercises (Cleghorn & Albert, 1990). Such findings suggest that brain damage or dysfunction may cause or accompany schizophrenia, although no one site is probably responsible for the whole range of symptoms (Belger & Dichter, 2006).

One of the most reliable observations about the brain in people with schizophrenia involves the size of the ventricles (■ Figure 12.7). As early as 1927, these liquid-filled cavities showed enlargement in some brains examined in people with schizophrenia (Jacobi & Winkler, 1927). Since then, more sophisticated techniques have been developed for observing the brain, and in the



■ **FIGURE 12.7** Location of the cerebrospinal fluid in the human brain. This extracellular fluid surrounds and cushions the brain and spinal cord. It also fills the four interconnected cavities (cerebral ventricles) within the brain and the central canal of the spinal cord. (© Cengage Learning 2013)

dozens of studies conducted on ventricle size, the great majority show abnormally large lateral ventricles in people with schizophrenia (Shenton & Kubicki, 2009). Ventricle size may not be a problem, but the dilation (enlargement) of the ventricles indicates that adjacent parts of the brain either have not developed fully or have atrophied, thus allowing the ventricles to become larger.

Ventricle enlargement is not seen in everyone who has schizophrenia. Several factors seem to be associated with this finding. For example, enlarged ventricles are observed more often in men than in women (Goldstein & Lewine, 2000). Also, ventricles seem to enlarge in proportion to age and to the duration of the schizophrenia. One study found that individuals with schizophrenia who were exposed to influenza prenatally may be more likely to have enlarged ventricles (Takei, Lewis, Jones, Harvey, & Murray, 1996). In a study of ventricle size, researchers investigated the possible role of genetics (Staal et al., 2000). Using a brain-imaging technique, magnetic resonance imaging (MRI), investigators compared brain structure among people with schizophrenia, their same-sex siblings who did not have schizophrenia, and healthy volunteers. Both the people with schizophrenia and their otherwise unaffected siblings had enlargement of the third ventricle compared to the volunteers. This suggests that the enlargement of ventricles may be related to susceptibility to schizophrenia.

We touched on the concept of unshared environments in the section on genetics (Jang, 2005; Plomin, 1990). Although twins are identical genetically, they can experience a number of environmental differences, even before they are born. For instance, in the intrauterine environment, twins must compete for nutrients, and they may not be equally successful. In addition, birth complications, such as the loss of oxygen (anoxia), could affect only one of the twins (Jang, 2005). Obstetric complications appear often in one of a pair of twins who develops schizophrenia, and among the more severely affected if both twins have schizophrenia (McNeil, 1987). Different experiences among twins already predisposed to the disorder could damage the brain and cause the types of symptoms we associate with schizophrenia.

The frontal lobes of the brain have also interested researchers looking for structural problems associated with schizophrenia (Shenton & Kubicki, 2009). As we described in the section on neurotransmitters, this area may be less active in people with schizophrenia than in people without the disorder, a phenomenon sometimes known as *hypofrontality* (*hypo* means “less active,” or “deficient”). Research by Weinberger and other scientists at the National Institute of Mental Health further refined this observation, suggesting that deficient activity in a particular area of the frontal lobes, the dorsolateral prefrontal cortex (DLPFC), may be implicated in schizophrenia (Berman & Weinberger, 1990; Weinberger, Berman, & Chase, 1988). When people with and without schizophrenia are given tasks that involve the DLPFC, less activity (measured by cerebral blood flow) is recorded in the brains of those with schizophrenia. Follow-up studies show that some individuals with schizophrenia

show *hyperfrontality* (that is, too much activity), indicating that the dysfunction is reliable, but hyperfrontality displays itself differently in different people (Callicott et al., 2003; Garrity et al., 2007).

It appears that several brain sites are implicated in the cognitive dysfunction observed among people with schizophrenia, especially the prefrontal cortex, various related cortical regions, and subcortical circuits, including the thalamus and the stratum (Shenton & Kubicki, 2009). Remember that this dysfunction seems to occur *before the onset* of schizophrenia. In other words, brain damage may develop progressively, beginning before the symptoms of the disorder are apparent, perhaps prenatally.

Prenatal and Perinatal Influences

There is evidence that the prenatal (before birth) and perinatal (around the time of birth) environment are correlated with the development of schizophrenia (van Os & Allardyce, 2009). Fetal exposure to viral infection, pregnancy complications, and delivery complications are among the environmental influences that seem to affect whether or not someone develops schizophrenia.

Several studies have shown that schizophrenia may be associated with prenatal exposure to influenza. For example, Sarnoff Mednick and colleagues followed a large number of people after a severe Type A2 influenza epidemic in Helsinki, Finland, and found that those whose mothers were exposed to influenza during the second trimester of pregnancy were more likely to have schizophrenia than others (Cannon, Barr, & Mednick, 1991). This observation has been confirmed by some researchers (see, for example, O’Callaghan, Sham, Takei, Glover, & Murray, 1991; Venables, 1996) but not by others (Buchanan & Carpenter, 2005). The indications that viruslike diseases may cause damage to the fetal brain, which later may cause the symptoms of schizophrenia, are suggestive and may help explain why some people with schizophrenia behave the way they do (van Os & Allardyce, 2009).

The evidence of pregnancy complications (for example, bleeding) and delivery complications (for example, asphyxia or lack of oxygen) and their relationship to later schizophrenia suggest, on the surface, that this type of environmental stress may trigger the expression of the disorder (Byrne, Agerbo, Bennedsen, Eaton, & Mortensen, 2007). However, it is possible that the genes carried by the fetus that make it vulnerable to schizophrenia may themselves contribute to the birth complications (van Os & Allardyce, 2009).

The chronic and early use of marijuana (cannabis) is also being studied as a potential influence on the onset of schizophrenia (Mueser & Marcello, 2011). Some evidence suggests that people who use marijuana in high doses have an increased likelihood of developing schizophrenia (Henquet et al., 2005) and that people with schizophrenia are more likely to have a cannabis use disorder than individuals without schizophrenia (Arseneault, Cannon, Witton, & Murray, 2004; Corcoran et al., 2008). However, the link between these two problems is not yet clearly understood,

and there are conflicting findings about whether or not other factors may be responsible for this correlation (Foti, Kotov, Guey, & Bromet, 2010; Sevy et al., 2010).

Psychological and Social Influences

That one identical twin may develop schizophrenia and the other may not suggests that schizophrenia involves something in addition to genes. We know that early brain trauma, perhaps resulting from a second-trimester virus-like attack or obstetric complications, may generate physical stress that contributes to schizophrenia. All these observations show clearly that schizophrenia does not fall neatly into a few simple causal packages. For instance, not all people with schizophrenia have enlarged ventricles, nor do they all have a hypofrontality or disrupted activity in their dopamine systems. The causal picture may be further complicated by psychological and social factors. We next look at research into psychosocial factors. Do emotional stressors or family interaction patterns *initiate* the symptoms of schizophrenia? If so, how might those factors cause people to relapse after a period of improvement?

Stress

It is important to learn how much and what kind of stress makes a person with a predisposition for schizophrenia develop the disorder. Think back to the two cases we presented at the beginning of this chapter. Did you notice any precipitating events? Arthur's father had died several years earlier, and Arthur was laid off from his job around the time his symptoms first appeared. David's uncle had died the same year he began acting strangely. Were these stressful events just coincidences, or did they contribute to the men's later problems?

Researchers have studied the effects of a variety of stressors on schizophrenia. Dohrenwend and Egri (1981), for instance, observed that otherwise healthy people who engage in combat during a war often display temporary symptoms that resemble those of schizophrenia. In a classic study, Brown and Birley (1968; Birley & Brown, 1970) examined people whose onset of schizophrenia could be dated within a week. These individuals had experienced a high number of stressful life events in the 3 weeks before they started showing signs of the disorder. In a large-scale study sponsored by the World Health Organization, researchers also looked at the role of life events in the onset of schizophrenia (Day et al., 1987). This cross-national study confirmed the findings of Brown and Birley across eight research centers.

The *retrospective* nature of such research creates problems. Each study relies on after-the-fact reports, collected after the person showed signs of schizophrenia. One always wonders whether such reports are biased in some way and therefore misleading. At the same time, there are strong individual differences in how people experience the same life events, and people with schizophrenia may experience events differently than those without the disorder (Phillips, Francey, Edwards, & McMurray, 2007).

Do the symptoms of schizophrenia become worse as a result of stressful life experiences? This vulnerability-stress model of schizophrenia suggests that this is the case, and it may be helpful in predicting problems. One research study used a natural disaster—the 1994 Northridge, California, earthquake—to assess how people with schizophrenia would react to this stress when compared to those with bipolar disorder and healthy controls (Horan et al., 2007). Both patient groups reported more stress-related symptoms compared to the controls; however, the people with schizophrenia reported lower levels of self-esteem after the disaster and were more likely to engage in avoidance coping (not thinking about the problem or becoming resigned to difficulties) than the other two groups. Research on sociocultural stress, such as poverty, homelessness, and the stress of being in a new country (van Os & Allardyce, 2009), extends the types of psychosocial stressors influential in schizophrenia. Important research has begun to isolate the gene-environment interactions in this area. For example, some studies now show that particular gene variances may predict which individuals with schizophrenia will be more likely to react negatively (such as relapse) with increased stress (Myin-Germeys & Van Os, 2008). These types of studies point to how stress can affect people with schizophrenia and may suggest useful treatments (such as cognitive-behavioral therapy to help them cope more appropriately) (Phillips et al., 2007).

Families and Relapse

A great deal of research has studied how interactions within the family affect people who have schizophrenia. For example, the term **schizophrenogenic mother** was used for a time to describe a mother whose cold, dominant, and rejecting nature was thought to cause schizophrenia in her children (Fromm-Reichmann, 1948). In addition, the term **double bind communication** was used to portray a communication style that produced conflicting messages, which, in turn, caused schizophrenia to develop (Bateson, 1959). Here, the parent presumably communicates messages that have two conflicting meanings; for example, a mother responds coolly to her child's embrace but says, "Don't you love me anymore?" when the child withdraws. Although these theories are no longer supported, they have been—and in some cases continue to be—destructive, producing guilt in parents who are persuaded that their early mistakes caused devastating consequences.

Recent work has focused more on how family interactions contribute not to the onset of schizophrenia but to relapse after initial symptoms are observed. You will see that this research is similar to the work on vulnerability to stress in general that was just discussed. Research has focused on a particular emotional communication style known as **expressed emotion (EE)**. This concept was formulated by George W. Brown and his colleagues in London. Following a sample of people who had been discharged from the hospital after an episode of schizophrenic symptoms, the researchers found that former patients who

had limited contact with their relatives did better than the patients who spent longer periods with their families (Brown, 1959). Additional research results indicated that if the levels of criticism (disapproval), hostility (animosity), and emotional overinvolvement (intrusiveness) expressed by the families were high, patients tended to relapse (Brown, Monck, Carstairs, & Wing, 1962).

Other researchers have since found that ratings of high expressed emotion in a family are a good predictor of relapse among people with chronic schizophrenia (Kymalainen & Weisman de Mamani, 2008). If you have schizophrenia and live in a family with high expressed emotion, you are 3.7 times more likely to relapse than if you lived in a family with low expressed emotion (Kavanagh, 1992; Parker & Hadzi-Pavlovic, 1990). Here are examples of interviews that show how families of people with schizophrenia might communicate expressed emotion (Hooley, 1985, p. 134).

High expressed emotion may be expressed as follows:

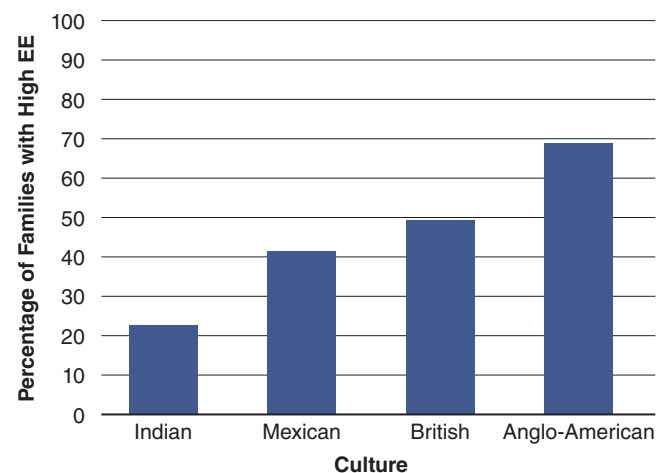
- › I always say, “Why don’t you pick up a book, do a crossword or something like that to keep your mind off it?” That’s even too much trouble.
- › I’ve tried to jolly him out of it and pestered him into doing things. Maybe I’ve overdone it, I don’t know.

Low expressed emotion may be expressed as follows:

- › I know it’s better for her to be on her own, to get away from me and try to do things on her own.
- › Whatever she does suits me.
- › I just tend to let it go because I know that when she wants to speak she will speak.

This style suggests that families with high expressed emotion view the symptoms of schizophrenia as controllable and that the hostility arises when family members think that patients just do not want to help themselves (Hooley & Campbell, 2002; McNab, Haslam, & Burnett, 2007). An interesting issue that arises when studying family influences is whether what we see is unique to our culture or universal. Looking at expressed emotion across different cultures may help us learn whether expressed emotion is a *cause* of schizophrenia (Kymalainen & Weisman de Mamani, 2008). Remember that the rate of schizophrenia is observed to be about the same worldwide, with a prevalence of about 1% in the global population. If a factor like high expressed emotion in families is a causal agent, we should see the same rates in families across cultures; however, they differ, as you can see in

■ Figure 12.8. These data come from an analysis of the concept of expressed emotion in several studies from India, Mexico, United Kingdom, and the United States (Jenkins & Karno, 1992). The differences suggest there are cultural variations in how families react to someone with schizophrenia and their reactions do not cause the disorder (Weisman de Mamani, Kymalainen, Rosales, & Armesto, 2007). However, critical and hostile environments clearly provide additional stressors that can, in turn, lead to more relapses.



■ **FIGURE 12.8** Cultural differences in expressed emotion. (© Cengage Learning 2013)

Concept Check 12.2

Check your understanding of genetic vulnerability by filling in the blanks of the statements associated with family, twin, and adoption studies. Choose from (a) higher, (b) lower, (c) equal, (d) severity, (e) type, (f) identical twin, (g) specific, (h) fraternal twin, and (i) general.

1. The greatest risk of having schizophrenia is in those who have a(n) _____ or _____ with schizophrenia. Any relative with schizophrenia will make your chances of developing the disorder _____ than those of the general population.
2. Raised in a home other than that of their biological parents, adopted children of parents with schizophrenia have a(n) _____ chance of having the disorder themselves. Children of people with schizophrenia adopted into families without schizophrenia have a _____-than-average chance of having schizophrenia.
3. The likelihood of a child’s having schizophrenia is influenced by the _____ of the parent’s disorder. One may inherit a predisposition for _____ schizophrenia that is the same or different from that of the parent.

schizophrenogenic mother According to an obsolete, unsupported theory, a cold, dominating, and rejecting parent who was thought to cause schizophrenia in her offspring.

double bind communication According to an obsolete, unsupported theory, the practice of transmitting conflicting messages that was thought to cause schizophrenia.

expressed emotion (EE) Hostility, criticism, and over-involvement demonstrated by some families toward a family member with a psychological disorder. This can often contribute to the person’s relapse.

Treatment of Schizophrenia

- › What are the goals of therapy for schizophrenia?
- › What biological and psychosocial treatments for schizophrenia are available?

If you remember our descriptions of Arthur and David, you will recall their families' concern for them. In each case, the family was desperate to help, but what do you do for someone who has delusions, hears his dead uncle's voice, or can't communicate complete thoughts? The search for help has taken many paths, sometimes down some disturbing roads; for example, in the 1500s primitive surgery was conducted to remove the "stone of madness," which was thought to cause disturbed behavior. As barbaric as this practice may seem today, it is not different from the prefrontal lobotomies performed on people with schizophrenia as late as the 1950s. This procedure severed the frontal lobes from the lower portion of the brain, which sometimes calmed the patient but also caused cognitive and emotional deficits.

In the Western world today, treatment usually begins with one of the neuroleptic drugs invaluable in reducing the symptoms of schizophrenia for many people. They are typically used with a variety of psychosocial treatments to reduce relapse, compensate for skills deficits, and improve cooperation for taking the medications (Kane et al., 2009).

Biological Interventions

Researchers have assumed for more than 100 years that schizophrenia requires some form of biological intervention. Kraepelin, who so eloquently described dementia praecox in the late 19th century, saw the disorder as a



▲ An early 16th century painting of psychosurgery, in which part of the brain is removed to treat mental illness.

brain disease. Lacking a biological treatment, he routinely recommended that the physician use "good patience, kindly disposition, and self-control" to calm excited patients (Nagel, 1991).

During the 1930s, several novel biological treatments were tried. One approach was to inject massive doses of insulin—the drug that given in smaller doses is used to treat diabetes—to induce comas in people suffering from schizophrenia. Insulin coma therapy was thought for a time to be helpful, but closer examination showed it carried great risk of serious illness and death. During this time, *psychosurgery*, including prefrontal lobotomies, was introduced, and in the late 1930s, electroconvulsive therapy (ECT) was advanced as a treatment for schizophrenia. As with earlier drastic treatments, initial enthusiasm for ECT faded because it was found not to be beneficial for most people with schizophrenia—although it is still used with a limited number of people today, sometimes in combination with antipsychotic medications (Braga & Petrides, 2005). As we explained in Chapter 6, ECT is sometimes recommended for people who experience severe episodes of depression.

Antipsychotic Medications

A breakthrough in the treatment of schizophrenia came during the 1950s with the introduction of several drugs that relieved symptoms in many people (Kane et al., 2009). Called *neuroleptics* (meaning "taking hold of the nerves"), these medications provided the first real hope that help was available for people with schizophrenia. When they are effective, neuroleptics help people think more clearly and reduce hallucinations and delusions. They work by affecting the positive symptoms (delusions, hallucinations, and agitation) and to a lesser extent the negative and disorganized ones, such as social deficits. Table 12.1 shows the classes of these drugs (based on their chemical structure) and their trade names.

Recall from our discussion of the dopamine theory of schizophrenia that the neuroleptics are dopamine antagonists. One of their major actions in the brain is to interfere with the dopamine neurotransmitter system. However, they can also affect other systems, such as the serotonergic and glutamate system. We are just beginning to understand the mechanisms by which these drugs work.

In general, each drug is effective with some people and not with others. Clinicians and patients often must go through a trial-and-error process to find the medication that works best, and some individuals do not benefit significantly from any of them. The earliest neuroleptic drugs, called conventional or first-generation antipsychotics (such

Table 12.1 Commonly Used Antipsychotic Medications

Class	Example*	Degree of Extrapyramidal Side Effects
Conventional Antipsychotics		
	Chlorpromazine/ <i>Thorazine</i>	Moderate
	Fluphenazine/ <i>Prolixin</i>	High
	Mesoridazine/ <i>Serentil</i>	Low
	Perphenazine/ <i>Trilafon</i>	High
	Thioridazine/ <i>Mellaril</i>	Low
	Trifluoperazine/ <i>Stelazine</i>	High
Butyrophenone	Haloperidol/ <i>Haldol</i>	High
Others	Loxapine/ <i>Loxitane</i>	High
	Molindone/ <i>Moban</i>	Low
	Thiothixene/ <i>Navane</i>	High
Second-Generation Agents		
	Aripiprazole/ <i>Abilify</i>	Low
	Clozapine/ <i>Clozaril</i>	Low
	Olanzapine/ <i>Zyprexa</i>	Low
	Quetiapine/ <i>Seroquel</i>	Low
	Risperidone/ <i>Risperdal</i>	Low
	Ziprasidone/ <i>Geodon</i>	Low

Source: Adapted from American Psychiatric Association. (2004). Practice guideline for the treatment of patients with schizophrenia, 2nd edition. *American Journal of Psychiatry*, 161(Suppl), 1–56.

as Haldol and Thorazine), are effective for approximately 60% of people who try them (Kane et al., 2009). However, many people are not helped by antipsychotics or experience unpleasant side effects. Fortunately, some people respond well to newer medications—sometimes called atypical or second-generation antipsychotics; the most common are risperidone and olanzapine. These newer drugs hold promise for helping patients who were previously unresponsive to medications (Leucht et al., 2009); also, it was initially thought that these drugs had fewer serious side effects than the conventional antipsychotics. However, two large-scale studies—one conducted in the United States (called the “Clinical Antipsychotic Trials of Intervention

Effectiveness” or CATIE) (Stroup & Lieberman, 2010) and one in the United Kingdom (called the “Cost Utility of the Latest Antipsychotic Drugs in Schizophrenia Study” or CUTLASS) (Jones et al., 2006)—found that the second-generation drugs were no more effective or better tolerated than the older drugs (Lewis & Lieberman, 2008). These results point out how important it is to carefully study the outcomes of all new treatments.

Noncompliance with Medication: Why?

Despite the optimism generated by the effectiveness of antipsychotics, they work only when they are taken properly, and many people with schizophrenia do not routinely take their medication. David frequently “cheeked” the Haldol pills that were helpful in reducing his hallucinations, holding them in his mouth until he was alone and then spitting them out. In the large-scale study we just mentioned, 74% of those studied had stopped taking their medications 18 months after initial use (Lieberman et al., 2005).

A number of factors seem to be related to patients’ non-compliance with a medication regimen, including negative doctor–patient relationships, cost of the medication, and poor social support (Miller, McEvoy, Jest, & Marder, 2006). It is not surprising that negative side effects are a major factor in patient refusal. Antipsychotics can produce a number of unwanted physical symptoms, such as grogginess, blurred vision, and dryness of the mouth. Because the drugs affect neurotransmitter systems, more serious side effects, called *extrapyramidal symptoms*, can also result (Kane et al., 2009). These symptoms include the motor difficulties similar to those experienced by people with Parkinson’s disease, sometimes called parkinsonian symptoms. *Akinesia* is one of the most common; it includes an expressionless face, slow motor activity, and monotonous speech. Another extrapyramidal symptom is *tardive dyskinesia*, which involves involuntary movements of the tongue, face, mouth, or jaw and can include protrusions of the tongue, puffing of the cheeks, puckering of the mouth, and chewing movements. Tardive dyskinesia seems to result from long-term use of high doses of antipsychotic medication and is often irreversible. During the first 5 years of use, 3% to 5% of people taking this medication display tardive dyskinesia, with the risk increasing over time (Kane, 2006). These serious negative side effects have justifiably concerned people who otherwise benefit from the drugs.

To learn what patients themselves say, Windgassen (1992) questioned 61 people who had had recent onsets of schizophrenia. About half reported the feeling of sedation or grogginess as an unpleasant side effect: “I always have to fight to keep my eyes open,” “I felt as though I was on drugs . . . drowsy, and yet really wound up” (p. 407). Other complaints included deterioration in the ability to think or concentrate (18%), problems with salivation (16%), and blurred vision (16%). Although a third of the patients felt the medications were beneficial, about 25% had a negative attitude toward them. A significant number of people who could benefit from antipsychotic medications find them unacceptable as a treatment, which may explain the rela-

tively high rates of refusal and noncompliance (Pratt, Mueser, Driscoll, Wolfe, & Bartels, 2006; Yamada et al., 2006).

Researchers have made this a major treatment issue in schizophrenia, realizing that medications can't be successful if they aren't taken regularly. Researchers hoped compliance rates would improve with the introduction of injectable medications. Instead of taking an oral antipsychotic every day, patients can have their medications injected every few weeks. Unfortunately, noncompliance remains an issue, primarily because patients do not return to the hospital or clinic for repeated doses (Kane et al., 2009). Psychosocial interventions are now used not only to treat schizophrenia, but also to increase medication-taking compliance by helping patients communicate better with professionals about their concerns.

Psychosocial Interventions

Historically, a number of psychosocial treatments have been tried for schizophrenia, reflecting the belief that the disorder results from problems in adapting to the world because of early experiences (Tenhula, Bellack, & Drake, 2009). Many therapists have thought that individuals who could achieve insight into the presumed role of their personal histories could be safely led to deal with their current situations. Although clinicians who take a traditional psychodynamic or psychoanalytic approach to therapy continue to use this type of treatment, research suggests that their efforts at best may not be beneficial and at worst may be harmful (Mueser & Berenbaum, 1990; Scott & Dixon, 1995).

Today, few believe that psychological factors cause people to have schizophrenia or that traditional psychotherapeutic approaches will cure them. Nevertheless, you will see that psychological methods have an important role. Despite the great promise of drug treatment, the problems with ineffectiveness, inconsistent use, and relapse suggest that by themselves drugs may not be effective with many people. As with a number of the disorders discussed in this text, recent work in the area of psychosocial intervention has suggested the value of an approach that uses both kinds of treatment (Mueser & Marcello, 2011).

Until relatively recently, most people with severe and chronic cases of schizophrenia were treated in hospital settings. During the 19th century, inpatient care involved "moral treatment," which emphasized improving patients' socialization, helping them establish routines for self-control, and showing them the value of work and religion (Tenhula et al., 2009). Various types of such "milieu" treatments (changing the physical and social environment—usually to make institutional settings more homelike) have been popular, but, with one important exception, none seems to have helped people with schizophrenia.

Gordon Paul and Robert Lentz conducted pioneering work in the 1970s at a mental health center in Illinois (Paul & Lentz, 1977). Borrowing from the behavioral approaches used by Ted Ayllon and Nate Azrin (1968), Paul and Lentz designed an environment for inpatients that encouraged

appropriate socialization, participation in group sessions, and self-care such as bed making while discouraging violent outbursts. They set up an elaborate **token economy**, in which residents could earn access to meals and small luxuries by behaving appropriately. A patient could, for example, buy cigarettes with the tokens he earned for keeping his room neat. However, a patient would be fined (lose tokens) for being disruptive or otherwise acting inappropriately. This incentive system was combined with a full schedule of daily activities. Paul and Lentz compared the effectiveness of applied behavioral (or social learning) principles to traditional inpatient environments. In general, they found that patients who went through their program did better than others on social, self-care, and vocational skills, and more of them could be discharged from the hospital.

During the years since 1955, many efforts have combined to halt the routine institutionalization of people with schizophrenia in the United States (Fakhoury & Priebe, 2007). This trend has occurred partly because of court rulings that limit involuntary hospitalization (as we saw in Arthur's case) and partly because of the relative success of antipsychotic medication. The bad news is that policies of deinstitutionalization have often been ill conceived, with the result that many people who have schizophrenia or other serious psychological disorders are homeless—the number is estimated at between 150,000 and 200,000 people in the United States alone (Pearson, Montgomery, & Locke, 2009). The good news is that more attention is being focused on supporting these people in their communities among their friends and families. The trend is away from creating better hospital environments and toward the perhaps more difficult task of addressing complex problems in the less predictable and insecure world outside. One of the more insidious effects of schizophrenia is its negative impact on a person's ability to relate to other people. Although not as dramatic as hallucinations and



Ghislain & Marie David de Lussy/The Image Bank/Getty Images

▲ A mother is glad to have her daughter home from a psychiatric hospital but acknowledges, "Now the real struggle begins."

Table 12.2 Independent Living Skills Program at UCLA

Module	Skill Areas	Learning Objectives
Symptom management	Identifying warning signs of relapse	<ul style="list-style-type: none"> To identify personal warning signs To monitor personal warning signs with assistance from others
	Managing warning signs	<ul style="list-style-type: none"> To obtain assistance from health-care providers in differentiating personal warning signs from persistent symptoms, medication side effects, and variations in mood; to develop an emergency plan for responding to warning signs
	Coping with persistent symptoms	<ul style="list-style-type: none"> To recognize and monitor persistent personal symptoms; to obtain assistance from health-care providers in differentiating persistent symptoms from warning signs, medication side effects, and variations in mood; to use specific techniques for coping with persistent symptoms To monitor persistent symptoms daily
	Avoiding alcohol and street drugs	<ul style="list-style-type: none"> To identify adverse effects of alcohol and illicit drugs and benefits of avoiding them; to refuse offers of alcohol and street drugs; to know how to resist using these substances in coping with anxiety, low self-esteem, or depression; to discuss openly use of alcohol and drugs with health-care providers
Medication management	Obtaining information about antipsychotic medication Knowing correct self-administration and evaluation Identifying side effects of medication Negotiating medication issues with health-care providers	<ul style="list-style-type: none"> To understand how these drugs work, why maintenance drug therapy is used, and the benefits of taking medication To follow the appropriate procedures for taking medication; to evaluate responses to medication daily To know the specific side effects that sometimes result from taking medication and what to do when these problems occur To practice ways of obtaining assistance when problems occur with medication

Source: Reprinted, with permission, from Eckman, T. A., Wirshing, W. C., Marder, S. R., Liberman, R. P., Johnston-Cronk, K., Zimmermann, K., & Mintz, J. (1992). Techniques for training schizophrenic patients in illness self-management: A controlled trial. *American Journal of Psychiatry*, 149, 1549–1555, © 1992 American Psychiatric Association.

delusions, problems with social skills can be the most visible impairment displayed by people with schizophrenia and can prevent them from getting and keeping jobs and making friends. Clinicians attempt to reteach social skills such as basic conversation, assertiveness, and relationship building to people with schizophrenia (Mueser & Marcello, 2011).

Therapists divide complex social skills into their component parts, which they model. Then the clients do role-playing and ultimately practice their new skills in the “real world,” all the while receiving feedback and encouragement at signs of progress. This isn’t as easy as it may sound. For example, how would you teach someone to make a friend? Many skills are involved, such as maintaining eye contact when you talk to someone and providing the prospective friend with some (but not too much) positive feedback on her own behavior (“I really enjoy talking to you”). Such individual skills are practiced and then combined until they can be used naturally (Swartz, Lauriello, & Drake, 2006). The challenge of teaching social skills, as with all therapies, is to maintain the effects over a long period.

In addition to social skills, programs often teach a range of ways people can adapt to their disorder yet live in the community. At the Independent Living Skills Program at the University of California, Los Angeles, for example, the

focus is on helping people take charge of their own care by such methods as identifying signs that warn of a relapse and learning how to manage their medication (Table 12.2) (Liberman, 2007). Preliminary evidence indicates that this type of training may help prevent relapses by people with schizophrenia, although longer-term outcome research is needed to see how long the effects last. To address some obstacles to this much-desired maintenance, such programs combine skills training with the support of a multidisciplinary team that provides services directly in the community, which seems to reduce hospitalization (Swartz et al., 2006). The more time and effort given to these services, the more likely the improvement.

In our discussion of the psychosocial influences on schizophrenia, we reviewed some work linking the person’s social and emotional environments to the recurrence of schizophrenic episodes (McNab et al., 2007). It is logical to ask whether families could be helped by learning to reduce their level of expressed emotion and whether this would result in fewer relapses and better overall functioning for

token economy A social learning behavior modification system in which individuals earn items they can exchange for desired rewards by displaying appropriate behaviors.

people with schizophrenia. Several studies have addressed these issues in a variety of ways (Falloon et al., 1985; Hogarty et al., 1986, 1991), and behavioral family therapy has been used to teach the families of people with schizophrenia to be more supportive (Dixon & Lehman, 1995; Mueser, Liberman, & Glynn, 1990). Research on professionals who provide care for people who have schizophrenia, and who may display high levels of expressed emotion, is also an active area of study (Grice et al., 2009).

In contrast to traditional therapy, behavioral family therapy resembles classroom education (Lefley, 2009). Family members are informed about schizophrenia and its treatment, relieved of the myth that they caused the disorder, and taught practical facts about antipsychotic medications and their side effects. They are also helped with communication skills so that they can become more empathic listeners, and they learn constructive ways of expressing negative feelings to replace the harsh criticism that characterizes some family interactions. In addition, they learn problem-solving skills to help them resolve conflicts that arise. Like the research on social skills training, outcome research suggests that the effects of behavioral family therapy are significant during the first year but less robust 2 years after intervention (Montero, Masanet, Bellver, & Lacruz, 2006; Montero et al., 2005). This type of therapy, therefore, must be ongoing if patients and their families are to benefit from it.

Adults with schizophrenia face great obstacles to maintaining gainful employment. Their social skills deficits make reliable job performance and adequate employee relationships a struggle. To address these difficulties, some programs focus on vocational rehabilitation, such as supportive employment. Supportive employment involves providing coaches who give on-the-job training, and these efforts can help some people with schizophrenia maintain meaningful jobs (Mueser & Marcello, 2011).

Where treatment occurs, it has expanded over the years from locked wards in large mental hospitals, to family homes, to local communities. In addition, the services have expanded to include self-advocacy and self-help groups. Former patients have organized programs such as Fountain House in New York City to provide mutual support. Psychosocial clubs have differing models, but all are “person centered” and focus on obtaining positive experiences through employment opportunities, friendship, and empowerment. Many see this consumer-run self-help model as an added component to more specific interventions such as social skills training, family intervention, and medical management of symptoms. Some research indicates that participation may help reduce relapses, but as it is also possible that those who participate may be a special group of individuals, it is difficult to interpret improvements (Goering et al., 2006).

Because schizophrenia is a complex disorder that affects multiple areas of functioning, effective treatment is carried out at several levels. Table 12.3 lists six approaches to treatment that have proved effective in assisting these individuals to achieve higher quality lives. Probably the

Table 12.3 An Integrative Treatment Approach

Treatment	Description
Collaborative psychopharmacology	Using antipsychotic medications to treat the main symptoms of the disorder (hallucinations, delusions) and using other medications for secondary symptoms (for example, antidepressant medication for people with secondary depression)
Assertive community treatment	Providing support in the community, with emphasis on small caseloads for care providers, services in the community setting rather than a clinic, and 24-hour coverage
Family psychoeducation	Assisting family members, including educating them about the disorder and its management, helping them reduce stress and tension in the home, and providing social support
Supportive employment	Providing sufficient support before and during employment so that the person can find and keep a meaningful job
Illness management and recovery	Helping the individual become an active participant in treatment, including providing education about the disorder, teaching effective use of medication strategies for collaborating with clinicians, and coping with symptoms when they reoccur
Integrated dual-disorders treatment	Treating coexisting substance use

Source: © Cengage Learning 2013

most extensively studied program is the assertive community treatment (ACT) program that grew out of work by researchers in Madison, Wisconsin (Swartz et al., 2006). ACT involves using a multidisciplinary team of professionals to provide broad-ranging treatment across all domains, including medication management, psychosocial treatment, and vocational training and support. As you can see, one approach alone is not sufficient to address the many needs of people with schizophrenia and their families (Mueser & Marcello, 2011).

Treatment across Cultures

Treatment of schizophrenia and its delivery differ from one country to another and across cultures within countries. For example, the vast majority of the Xhosa people of South Africa who have schizophrenia report using traditional healers who sometimes recommend the use of oral treatments to induce vomiting, enemas, and the slaughter of cattle to appease the spirits (Koen, Niehaus, Muller, & Laurent, 2008). Hispanics may be less likely than other groups to seek help in institutional settings, relying instead on family sup-



Although people in different parts of the world who are diagnosed with schizophrenia experience many of the same symptoms, the treatment they receive differs greatly depending on the culture in which they live. Some of these differences are not specific to the diagnosis of schizophrenia but instead result from differences in the mental health services each country provides. For instance, one recent study revealed that in a given year only 2% of people in Nigeria receive mental health care compared to 18% of those in the United States and that such differences are largely explained by the amount of money each country dedicates toward mental health services (Wang et al., 2007). Cultural differences also exist within each country as related to the treatment and understanding of schizo-

phrenia specifically. Within the United States, Hispanics diagnosed with schizophrenia appear less likely than other groups to seek help from formal institutional settings and instead receive support from their families (Dassori, Miller, & Saldana, 1995). Because of this focus on the family, treatments for schizophrenia among Hispanics are more likely to include relatives in the treatment process (Kopelowicz, Liberman, & Zarate, 2006).

Differences in treatment approaches around the world also are influenced to some degree by varying perspectives about the causes of schizophrenia. For instance, people from Eastern cultures (e.g., China) hold more religious beliefs about the causes of schizophrenia than those in Western cultures (e.g., the United Kingdom), with those in the United King-

dom putting greater emphasis on biological and psychological factors (Furnham & Wong, 2007). These differences in beliefs about the causes of schizophrenia translate into differences in how schizophrenia is treated across cultures, with China relying more on alternative medicine approaches and the United Kingdom making greater use of biological and psychological treatments (Furnham & Wong, 2007). Many newer studies on the prediction and treatment of schizophrenia are being conducted across different cultures and countries (Bertelsen et al., 2008; Cannon et al., 2008). It is likely that studies taking this broader approach will lead to an enhanced understanding of the ways in which culture can influence the study, assessment, and treatment of this serious mental disorder.

port (Liberman & Kopelowicz, 2009). Adapting treatments to make them culturally relevant—in this case, adding important relatives to the social skills training of Latinos with schizophrenia—is essential for effectiveness (Kopelowicz, Mintz, Liberman, Zarate, & Gonzalez-Smith, 2004). In one interesting study, beliefs about symptoms and treatments were compared between British and Chinese populations (Furnham & Wong, 2007). Native Chinese hold more religious beliefs about both the causes and the treatments of schizophrenia than those living in England—for example, endorsing statements such as, “Schizophrenia is due to evil done in a previous life” and “Ancestor worship (burning candles and joss sticks) will help treat schizophrenia.” These different beliefs translate into practice—with the British using more biological, psychological, and community treatments and the Chinese relying more on alternative medicine (Furnham & Wong, 2007). Supernatural beliefs about the cause of schizophrenia among family members in Bali lead to limited use of antipsychotic medication in treatment (Kurihara, Kato, Reverger, & Gusti Rai Tirta, 2006). In many countries in Africa, people with schizophrenia are kept in prisons, primarily because of the lack of adequate alternatives (Mustafa, 1990). In general, the movement from housing people in large institutional settings to community care is ongoing in most Western countries.

Prevention

One strategy for preventing a disorder such as schizophrenia—which typically first shows itself in early adulthood—is to identify and treat children who may be at risk for getting

the disorder later in life. In our discussion of genetics, we noted that approximately 17% of the children born to parents who have schizophrenia are likely themselves to develop the disorder. These high-risk children have been the focus of several studies.

A classic at-risk study was initiated in the 1960s by Sarnoff Mednick and Fini Schulsinger (1965, 1968). They identified 207 Danish children of mothers who had severe cases of schizophrenia and 104 control children born to mothers who had no history of the disorder. The average age of these children was about 15 when they were first identified, and the researchers followed them for 10 more years to determine whether any factors had predicted who would and would not develop schizophrenia. We have already discussed pregnancy and delivery-related complications. Mednick and Schulsinger also identified *instability of early family rearing environment*, which suggests that environmental influences may trigger the onset of schizophrenia (Cannon et al., 1991). Poor parenting may place additional strain on a vulnerable person who is already at risk.

As we await the outcomes of long-term studies, other approaches may prove valuable for reducing the rates of this disorder. For example, we have seen that factors such as birth complications and certain early illnesses (for example, viruses) may trigger the onset of schizophrenia, especially among those individuals who are genetically predisposed. Therefore, interventions such as vaccinations against viruses for women of childbearing age and interventions related to improving prenatal nutrition and care may be effective preventive measures (McGrath, 2010).



On the Spectrum Emerging Views of Schizophrenia

Although *DSM-IV-TR* does not use this language, there is a recognition in the field of schizophrenia that the group of diagnoses that we cover in this chapter (and in others) constitute *schizophrenia spectrum disorders*. In fact, Eugen Bleuler, who coined the term *schizophrenia* in his book *Dementia Praecox or the Group of Schizophrenias* (1911), identified the different variants that were all included within this spectrum (Heckers, 2009). The *DSM* has struggled with this concept in its varied presentations over the years, and, as we describe in this chapter, *DSM-IV-TR* currently lists five subtypes of schizophrenia (paranoid, disorganized, catatonic, undifferentiated, and residual) and other related psychotic disorders that

fall under this heading (schizophreniform, schizoaffective, delusional, brief psychotic, and shared psychotic disorders). In addition, a personality disorder (schizotypal personality disorder, discussed in Chapter 11) and possibly two mood disorders (psychotic bipolar disorder and psychotic depression) are also considered by some to be included under this umbrella category of schizophrenia spectrum disorders. All of these difficulties seem to share features of extreme reality distortion (for example, hallucinations, delusions).

Discussions for *DSM-5* include the possible removal of the subtypes of schizophrenia and instead adding a dimensional rating for some of the core symptoms of schizophrenia (American

Psychiatric Association, 2010). For example, one possibility being discussed is to rate the extent to which an individual has and is distressed by the following dimensions: hallucinations, delusions, disorganization, abnormal psychomotor behavior, restricted emotional expression, avolition, impaired cognition, depression, and mania. This would allow clinicians the ability to provide a richer description of the complex problems faced by an individual that often go unspecified within single labels (for example, paranoid schizophrenia) that people are assigned. What is required is a thorough study of the soundness of these types of dimensional structures and a determination of whether or not they represent valid diagnoses.

Concept Check 12.3

Read the descriptions and then match them to the following words: (a) olanzapine, (b) extrapyramidal symptoms, (c) serotonin, (d) dopamine, (e) metabolites, (f) token economy, (g) vocational rehabilitation, (h) social skills training, (i) family intervention.

1. Setting up an elaborate _____ in which patients are fined for disruptive or inappropriate behavior and rewarded for appropriate behavior is beneficial in hospitals.
2. In _____ clinicians attempt to reteach such behaviors as basic conversation, assertiveness, and relationship building to people with schizophrenia.
3. Aside from social skills training, two psychosocial treatments for schizophrenia, _____ (teach-

ing family members to be supportive) and _____ (teaching meaningful jobs), may be helpful.

4. Recent studies sometimes indicate that the relationship of the neurotransmitters _____ and _____ may explain some positive symptoms of schizophrenia.
5. Because antipsychotic medications may cause serious side effects, some patients stop taking them. One serious side effect is called _____, which may include parkinsonian symptoms.
6. Difficult cases of schizophrenia seem to improve with a serotonin and dopamine antagonist called _____.

Summary

Clinical Description, Symptoms, and Subtypes

- › Schizophrenia is characterized by a broad spectrum of cognitive and emotional dysfunctions that include delusions and hallucinations, disorganized speech and behavior, and inappropriate emotions.
- › The symptoms of schizophrenia can be divided into positive, negative, and disorganized. Positive symptoms are active manifestations of abnormal behavior; or an excess or distortion of normal behavior; and include delusions and hallucinations. Negative symptoms in-

volve deficits in normal behavior on such dimensions as affect, speech, and motivation. Disorganized symptoms include rambling speech, erratic behavior, and inappropriate affect.

- › *DSM-IV-TR* divides schizophrenia into five subtypes. People with the paranoid type of schizophrenia have prominent delusions or hallucinations, whereas their cognitive skills and affect remain relatively intact. People with the disorganized type of schizophrenia tend to show marked disruption in their speech and behavior; they also show

flat or inappropriate affect. People with the catatonic type of schizophrenia have unusual motor responses, such as remaining in fixed positions (waxy flexibility), excessive activity, and being oppositional by remaining rigid. In addition, they display odd mannerisms with their bodies and faces, including grimacing. People who do not fit neatly into these subtypes are classified as having an undifferentiated type of schizophrenia. Some people who have had at least one episode of schizophrenia but who no longer have major symptoms are diagnosed as having the residual type of schizophrenia.

- › Several other disorders are characterized by psychotic behaviors, such as hallucinations and delusions; these include schizophreniform disorder (which includes people who experience the symptoms of schizophrenia for less than 6 months); schizoaffective disorder (which includes people who have symptoms of schizophrenia and who exhibit the characteristics of mood disorders, such as depression and bipolar affective disorder); delusional disorder (which includes people with a persistent belief that is contrary to reality, in the absence of the other characteristics of schizophrenia); brief psychotic disorder (which includes people with one or more positive symptoms, such as delusions, hallucinations, or disorganized speech or behavior over the course of less than a month); and shared psychotic disorder (which includes individuals who develop delu-

sions simply as a result of a close relationship with a delusional individual).

Prevalence and Causes of Schizophrenia

- › A number of causative factors have been implicated for schizophrenia, including genetic influences, neurotransmitter imbalances, structural damage to the brain caused by a prenatal viral infection or birth injury, and psychological stressors.
- › Relapse appears to be triggered by hostile and critical family environments characterized by high expressed emotion.

Treatment of Schizophrenia

- › Successful treatment for people with schizophrenia rarely includes complete recovery. However, the quality of life for these individuals can be meaningfully affected by combining antipsychotic medications with psychosocial approaches, employment support, and community-based and family interventions.
- › Treatment typically involves antipsychotic drugs that are usually administered with a variety of psychosocial treatments, with the goal of reducing relapse and improving skills in deficits and compliance in taking the medications. The effectiveness of treatment is limited because schizophrenia is typically a chronic disorder.

Key Terms

schizophrenia, 451
 catatonia, 451
 hebephrenia, 451
 paranoia, 451
 dementia praecox, 452
 associative splitting, 452
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 brief psychotic disorder, 460
 shared psychotic disorder (folie à deux), 460
 schizotypal personality disorder, 460
 schizophrenogenic mother, 470
 double bind communication, 470
 expressed emotion (EE), 470
 token economy, 474

Answers to Concept Checks

12.1

Part A

1. disorganized; 2. residual; 3. paranoid; 4. catatonic; 5. disorganized

Part B

6. c; 7. b; 8. a; 9. d

12.2

1. f, h, a; 2. a, a; 3. d, i

12.3

1. f; 2. h; 3. i, g; 4. d, c; 5. b; 6. a

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- › Schizophrenia
- › Positive Symptoms
- › Delusions
- › Hallucinations
- › Negative Symptoms
- › Avolition, Alogia, Anhedonia and Flat Affect
- › Disorganized Symptoms
- › Paranoid Type of Schizophrenia
- › Catatonic Type of Schizophrenia
- › Delusional Disorder
- › Brief Psychotic Disorder and Shared Psychotic Disorder
- › Expressed Emotion and Stress

Chapter Quiz

1. One distinction used to characterize symptoms of schizophrenia divides them into what two broad categories?
 - a. paranoid and catatonic
 - b. episodic and chronic
 - c. psychiatric and somatic
 - d. positive and negative
2. Emotional and social withdrawal, apathy, and poverty of speech and thought are examples of what type of symptoms in schizophrenia?
 - a. psychotic
 - b. negative
 - c. disorganized
 - d. positive

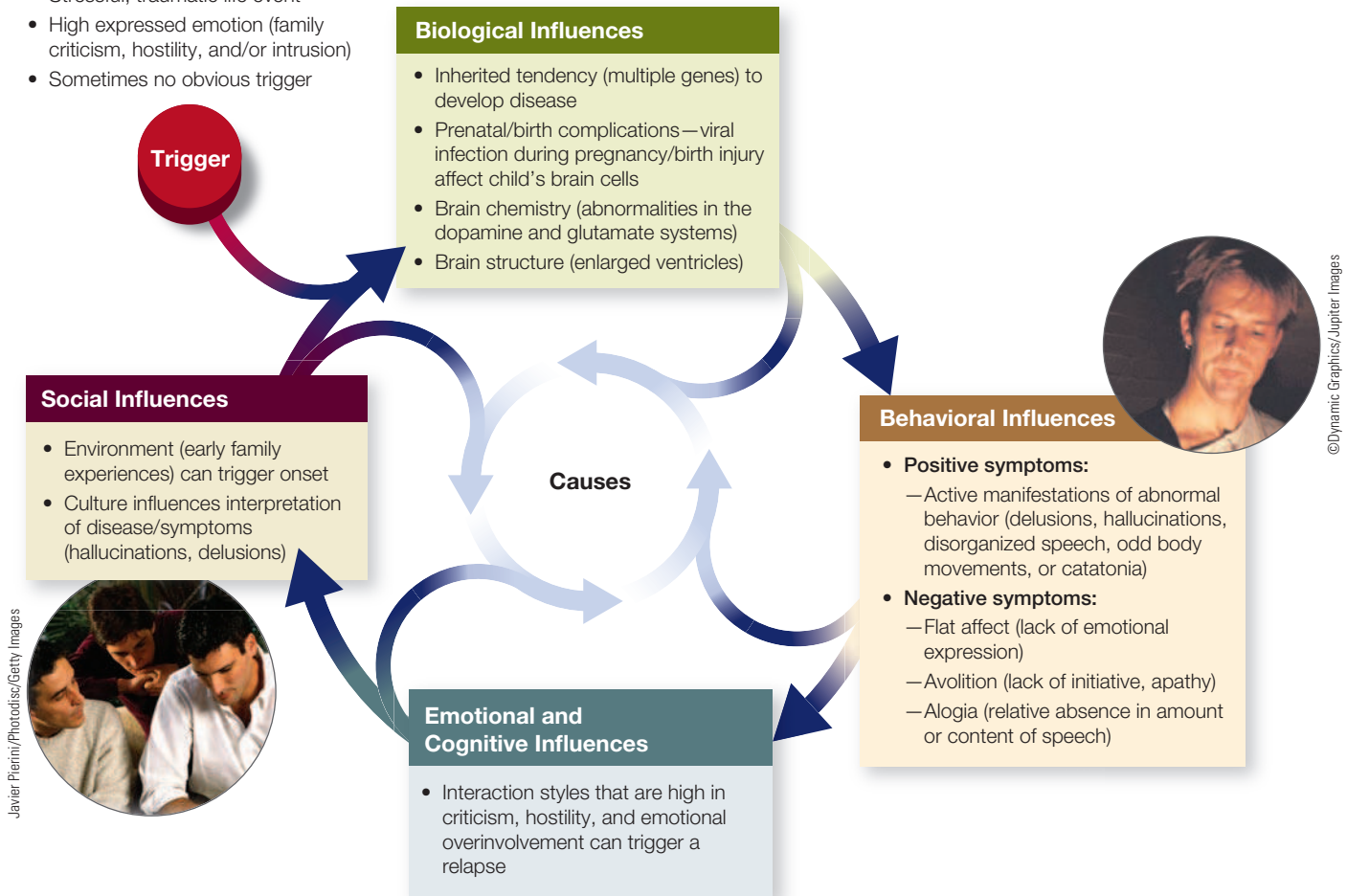
3. Rhonda fears that her employer is trying to poison her with gas emitted from the overhead lights in her office. Given what you know about Rhonda's thoughts, what subtype of schizophrenia is she most likely to have?
 - a. catatonic
 - b. disorganized
 - c. paranoid
 - d. undifferentiated
4. Which disorder is characterized by symptoms similar to those seen in schizophrenia but of shorter duration, often with successful remission of symptoms?
 - a. schizophreniform disorder
 - b. delusional disorder
 - c. schizoaffective disorder
 - d. bipolar disorder
5. Most people with schizophrenia:
 - a. have multiple episodes that get progressively worse
 - b. have only one episode with full recovery after it
 - c. have episodes of alternating positive and negative symptoms
 - d. have multiple episodes, with different degrees of impairment between episodes
6. Research on cultural factors and schizophrenia suggests that African Americans:
 - a. may have higher rates than other ethnic groups because of misdiagnosis
 - b. may have higher rates than other ethnic groups because they are exposed to more prejudice and bias
 - c. may be more vulnerable to schizophrenia because of chromosomal differences
 - d. with schizophrenia are more likely to experience negative symptoms than positive symptoms
7. Which sibling of an individual with schizophrenia is most likely to develop schizophrenia?
 - a. monozygotic twin raised in the same home
 - b. monozygotic twin raised in a different home
 - c. dizygotic twin raised in the same home
 - d. dizygotic twin raised in a different home
8. Which statement is true about antipsychotic medications and the treatment of schizophrenia?
 - a. Antipsychotic medications are not as effective as psychosocial treatments.
 - b. Different medications are effective with different people and to a different degree.
 - c. All antipsychotic medications appear to be equally effective for all patients.
 - d. Most patients go through a trial-and-error period to determine whether antipsychotic, antidepressant, or antianxiety medications are most effective for them.
9. Which type of psychosocial treatment has been most effective for treating the behavioral problems seen in schizophrenia?
 - a. psychodynamic psychotherapy
 - b. moral treatment
 - c. psychosurgery
 - d. token economies
10. Which two psychosocial interventions appear to be most helpful for people with schizophrenia?
 - a. hypnosis and psychosurgery
 - b. ECT and social skills training
 - c. psychoanalytic psychotherapy and expressed emotion management
 - d. family education and vocational rehabilitation

(See Appendix A for answers.)

Exploring Schizophrenia

- Schizophrenia disrupts perception of the world, thought, speech, movement, and almost every other aspect of daily functioning.
- Usually chronic with a high relapse rate; complete recovery from schizophrenia is rare.

- Stressful, traumatic life event
- High expressed emotion (family criticism, hostility, and/or intrusion)
- Sometimes no obvious trigger



TREATMENT OF SCHIZOPHRENIA

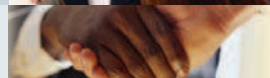
Treatment

Individual, Group, and Family Therapy



- Can help patient and family understand the disease and symptom triggers.
- Teaches families communication skills.
- Provides resources for dealing with emotional and practical challenges.

Social Skills Training



- Can occur in hospital or community settings.
- Teaches the person with schizophrenia social, self-care, and vocational skills.

Medications



- Taking neuroleptic medications may help people with schizophrenia to:
 - Clarify thinking and perceptions of reality
 - Reduce hallucinations and delusions
- Drug treatment must be consistent to be effective. Inconsistent dosage may aggravate existing symptoms or create new ones.

Photos (top to bottom):
David Buffington/Photodisc/Getty Images
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SYMPTOMS OF SCHIZOPHRENIA

People with schizophrenia do not all show the same kinds of symptoms. Symptoms vary from person to person and may be cyclical. Common symptoms include:

Symptoms

Delusions

Joshua Els-Hokin/Photodisc/Getty Images



- Unrealistic and bizarre beliefs not shared by others in the culture
- May be delusions of grandeur (that you are really Mother Teresa or Napoleon) or delusions of persecution (the cyclist who believed her competitors were sabotaging her by putting pebbles in the road)

Hallucinations

Don Farrall/Photodisc/Getty Images



- Sensory events that aren't based on any external event (hearing voices, seeing people who have died)
- Many have auditory hallucinations (David hears his dead uncle talking to him)

Disorganized Speech

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- Jumping from topic to topic
- Talking illogically (not answering direct questions, going off on tangents)
- Speaking in unintelligible words and sentences

Behavioral Problems

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- Pacing excitably, wild agitation
- Catatonic immobility
- Waxy flexibility (keeping body parts in the same position when they are moved by someone else)
- Inappropriate dress (coats in the summer, shorts in the winter)
- Inappropriate affect
- Ignoring personal hygiene

Withdrawal

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- Lack of emotional response (flat speech, little change in facial expressions)
- Apathy (little interest in day-to-day activities)
- Delayed and brief responses in conversation
- Loss of enjoyment in pleasurable activities (eating, socializing, sex)

TYPES OF SCHIZOPHRENIA

Paranoid

- Delusions of grandeur or persecution
- Hallucinations (especially auditory)
- Higher level of functioning between episodes
- May have stronger familial link than other types

Disorganized

- Disorganized speech and/or behavior
- Immature emotionality (inappropriate affect)
- Chronic and lacking in remissions

Catatonic

- Alternating immobility and excited agitation
- Unusual motor responses (waxy flexibility, rigidity)
- Odd facial or body mannerisms (often mimicking others)
- Rare

Residual

- Has had at least one schizophrenic episode but no longer shows major symptoms
- Still shows "leftover" symptoms (social withdrawal, bizarre thoughts, inactivity, flat affect)

Undifferentiated

- Symptoms of several types that taken together do not neatly fall into one specific category

CHAPTER 13

Developmental and Cognitive Disorders

Chapter Outline

Common Developmental Disorders

Attention Deficit/Hyperactivity Disorder

Learning Disorders

Pervasive Developmental Disorders

Autistic Disorder

Asperger's Disorder

Treatment of Pervasive Developmental Disorders

Intellectual Disability

Clinical Description

Statistics

Causes

Treatment

Prevention of Developmental Disorders

Cognitive Disorders

Delirium

Dementia

Amnesic Disorder

Abnormal Psychology Live Videos

Nature of the Disorder—Autism

Christina, a Student with Autism

Rebecca, an Autistic Child

Lauren, a Child with Down Syndrome

Tom, a Patient with Alzheimer's Disease

Mike, an Amnesic Patient

Neural Networks: Cognition and Dementia



Student Learning Outcomes*

Demonstrate knowledge and understanding representing appropriate breadth and depth in selected content areas of psychology:

› Biological bases of behavior and mental processes, including physiology, sensation, perception, comparative, motivation, and emotion (APA SLO 1.2.a (3)) (see textbook pages 499–500, 506–508, 520–522)

Use the concepts, language, and major theories of the discipline to account for psychological phenomena.

› Describe behavior and mental processes empirically, including operational definitions (APA SLO 1.3.a) (see textbook pages 485–487, 491–493, 496–499, 502–505, 511–520)

Identify appropriate applications of psychology in solving problems, such as:

› Origin and treatment of abnormal behavior (APA SLO 4.2.b) (see textbook pages 488–491, 493–495, 499–502, 505–513, 520–525)

*Portions of this chapter cover learning outcomes suggested by the American Psychological Association (2007) in their guidelines for the undergraduate psychology major. Chapter coverage of these outcomes is identified by APA Goal and APA Suggested Learning Outcome (SLO).



Common Developmental Disorders

- › What are the central defining features of attention deficit/hyperactivity disorder?
- › What are the main types of learning disorders, and how are they typically treated?

Almost all disorders described in this book are developmental disorders in the sense that they change over time. Most disorders originate in childhood, although the full presentation of the problem may not manifest itself until much later. Disorders that show themselves early in life often persist as the person grows older, so the term *childhood disorder* may be misleading. In this chapter, we cover those disorders that are revealed in a clinically significant way during a child's developing years and are of concern to families and educators. Remember, however, that these difficulties often persist through adulthood and are typically lifelong problems, not problems unique to children.

Again, a number of difficulties and, indeed, distinct disorders begin in childhood. In certain disorders, some children are fine except for difficulties with talking. Others have problems relating to their peers. Still other children have a combination of conditions that significantly hinder their development.

Before we discuss specific disorders, we need to address the broad topic of development in relation to disorders usually first diagnosed in infancy, childhood, or adolescence. For example, what effect do the early disruptions in skills have on a child's later life? Does it matter when in the developmental period certain problems arise? Are disruptions in development permanent, thus making any hope for treatment doubtful?

Childhood is considered particularly important because the brain changes significantly for several years after birth; this is also when critical developments occur in social, emotional, cognitive, and other important competency areas. These changes mostly follow a pattern: The child develops one skill before acquiring the next. Although this pattern of change is only one aspect of development, it is

an important concept at this point because it implies that any disruption in the development of early skills will, by the very nature of this sequential process, disrupt the development of later skills. For example, some researchers believe that people with autism suffer from a disruption in early social development, which prevents them from developing important social relationships, even with their parents. From a developmental perspective, the absence of early and meaningful social relationships has serious consequences. Children whose motivation to interact with others is disrupted may have a more difficult time learning to communicate—that is, they may not want to learn to speak if other people are not important to them. Researchers don't know whether a disruption in communication skills is a direct outcome of the disorder or a by-product of disrupted early social development.

Understanding this type of developmental relationship is important for several reasons. Knowing what processes are disrupted will help us understand the disorder better and may lead to more appropriate intervention strategies. It may be important to identify children with attention deficit/hyperactivity disorder, for example, because their problems with impulsivity may interfere with their ability to create and maintain friendships, an important developmental consideration. Similarly, identifying a disorder such as autism at an early age is important for these children so that their social deficits can be addressed before they affect other skill domains, such as language and communication. Too often, people see early and pervasive disruptions in developmental skills and expect a negative prognosis, with the problems predetermined and permanent. However, remember that biological and psychosocial influences continuously interact with each other.



Therefore, even for disorders such as attention deficit/hyperactivity disorder and autism that have clear biological bases, the presentation of the disorder is different for each individual. Changes at the biological or the psychosocial level may reduce the impact of the disorder.

One note of caution is appropriate here. There is real concern in the profession, especially among developmental psychologists, that some workers in the field may view aspects of normal development as symptoms of abnormality. For example, *echolalia*, which involves repeating the speech of others, was once thought to be a sign of autism. However, when we study the development of speech in children without disorders, we find that repeating what someone else says is an intermediate step in language development. In children with autism, therefore, echolalia is just a sign of relatively delayed language skills and not a symptom of their disorder (Tager-Flusberg et al., 2009). Knowledge of development is important for understanding the nature of psychological disorders.

With that caveat in mind, we now examine several disorders usually diagnosed first in infancy, childhood, or adolescence, including *attention deficit/hyperactivity disorder*, which involves characteristics of inattention or hyperactivity and impulsivity, and *learning disorders*, which are characterized by one or more difficulties in areas such as reading and writing. We then focus on *autistic disorder*, a more severe disability in which the child shows significant impairment in social interactions and communication and has restricted patterns of behavior, interest, and activities. We also discuss the less severe Asperger's disorder. Finally, we examine *intellectual disability*, which involves considerable deficits in cognitive abilities.

Attention Deficit/Hyperactivity Disorder

Do you know people who flit from activity to activity, who start many tasks but seldom finish one, who have trouble concentrating, and who don't seem to pay attention when others speak? These people may have **attention deficit/hyperactivity disorder (ADHD)**, one of the most common reasons children are referred for mental health services in the United States (Durand, 2011; Greenhill & Hechtman, 2009). The primary characteristics of such people include a pattern of inattention, such as not paying attention to school- or work-related tasks, or of hyperactivity and impulsivity. These deficits can significantly disrupt academic efforts and social relationships. Consider the case of Danny.

Danny ♦ The Boy Who Couldn't Sit Still

Danny, a handsome 9-year-old boy, was referred to us because of his difficulties at school and at home. Danny had a great deal of energy and loved playing most sports, especially baseball. Academically, his work was adequate, although his teacher reported

that his performance was diminishing and she believed he would do better if he paid more attention in class. Danny rarely spent more than a few minutes on a task without some interruption: He would get up out of his seat, riffle through his desk, or constantly ask questions. His peers were frustrated with him because he was equally impulsive during their interactions: He never finished a game, and in sports he tried to play all positions simultaneously.

At home, Danny was considered a handful. His room was in a constant mess because he became engaged in a game or activity only to drop it and initiate something else. Danny's parents reported that they often scolded him for not carrying out some task, although the reason seemed to be that he forgot what he was doing rather than that he deliberately tried to defy them. They also said that, out of their own frustration, they sometimes grabbed him by the shoulders and yelled, "Slow down!" because his hyperactivity drove them crazy.

Clinical Description

Danny has many characteristics of ADHD. Like Danny, people with this disorder have a great deal of difficulty sustaining their attention on a task or activity (Barkley, 2006e). As a result, their tasks are often unfinished and they often seem not to be listening when someone else is speaking. In addition to this serious disruption in attention, some people with ADHD display motor hyperactivity. Children with this disorder are often described as fidgety in school, unable to sit still for more than a few minutes. Danny's restlessness in his classroom was a considerable source of concern for his teacher and peers, who were frustrated by his impatience and excessive activity. In addition to hyperactivity and problems sustaining attention, impulsivity—acting apparently without thinking—is a common complaint made about people with ADHD. For instance, during meetings of his baseball team, Danny often shouted responses to the coach's questions even before the coach had a chance to finish his sentence.

For ADHD, the text revision of the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)* differentiates three types of symptoms. The first includes problems of *inattention*. People may appear not to listen to others; they may lose necessary school assignments, books, or tools; and they may not pay enough attention to details, making careless mistakes. The second type of symptom includes *hyperactivity*, which includes fidgeting, having trouble sitting for any length of time, and always being on the go. The third general symptom is *impulsivity*, which includes blurting out answers before questions have been completed and having trouble waiting turns. Either the first (inattention) or the second and third (hyperactivity and impulsivity) symptoms must be present for someone to be diagnosed with ADHD.



ADHD is most often diagnosed among boys and among children and adolescents. This has led some to question whether this disorder looks different in girls and adults than it does in young boys or whether ADHD is simply less common in these groups. Most research to date on ADHD has used research samples made up mostly of young boys, which has made it difficult to determine frequency and symptoms of ADHD in girls and adults. Some have suggested that part of the reason for the focus on young boys is that many researchers and clinicians have paid more attention to symptoms of hyperactivity than to problems with inattention because the former are more disruptive and easily measurable than the latter and that hyperactivity is more common in boys. So has ADHD

been overlooked among girls and adults because the symptoms of this disorder look different in these groups?

Several recent large-scale studies have begun to shed light on this question. In one study, researchers at the Pediatric Psychopharmacology Unit at the Massachusetts General Hospital tested whether the symptoms of ADHD differ between boys and girls (Biederman et al., 2001b). Of interest, they found that girls with ADHD are more likely than boys to have the inattentive subtype of ADHD and are less likely to have symptoms of hyperactivity, opposition, and other disruptive behaviors. A study by Fayyad and colleagues (2007) examined the occurrence of ADHD among adults in 10 countries. This study revealed that 3.4% of adults report having ADHD, with a slightly higher

rate found among men (4.1%) than among women (2.7%). Perhaps more concerning than this surprisingly high prevalence rate is that adult ADHD was found to be associated with significant levels of comorbidity and impairment at work. Moreover, few of those with adult ADHD reported receiving treatment for this problem (Fayyad et al., 2007).

Studies such as these suggest that, although ADHD may look a bit different among girls and adults, it certainly does occur and is associated with significant problems in functioning and unmet need for treatment. It is hopeful that, with a new understanding of how ADHD manifests differently across sex and age groups, efforts to accurately identify and effectively treat this problem will lead to improvements in the life of those affected by ADHD.

Inattention, hyperactivity, and impulsivity often cause other problems that appear secondary to ADHD. Academic performance tends to suffer, especially as the child progresses in school. Children with ADHD are likely to be unpopular and rejected by their peers (Nijmeijer et al., 2008). One study found that young girls with ADHD in general were likely to be rejected by peers but that this likelihood was more pronounced in those with hyperactivity, impulsivity, and inattention when compared to girls who had only the inattentive type (Hinshaw, 2002).

Statistics

ADHD is estimated to occur in 3% to 7% of school-age children in the United States, and an important analysis of prevalence suggests that the disorder is found in about 5.2% of the child populations across all regions of the world (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007). Boys are 3 times more likely to be diagnosed with ADHD than girls, and this discrepancy increases for children being seen in clinics (Spencer, Biederman, & Mick, 2007). The reason for this gender difference is largely unknown. It may be that adults are more tolerant of hyperactivity among girls, who tend to be less active than boys with ADHD. Boys tend to be more aggressive, which will more likely result in attention by mental health professionals (Barkley, 2006e). Girls with ADHD, however, tend to display more behaviors referred to as “internalizing”—specifically, anxiety and depression (Mick et al., 2011).

Children with ADHD are first identified as different from their peers around age 3 or 4; their parents describe

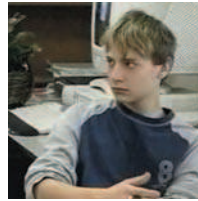
them as active, mischievous, slow to toilet train, and oppositional (Conners, March, Frances, Wells, & Ross, 2001). The symptoms of inattention, impulsivity, and hyperactivity become increasingly obvious during the school years. Despite the perception that children grow out of ADHD, their problems usually continue: It is estimated that about half of the children with ADHD have ongoing difficulties through adulthood (McGough, 2005). Over time, children with ADHD seem to be less impulsive, although inattention persists. During adolescence, the impulsivity manifests itself in different areas; for example, teens with ADHD are at greater risk for pregnancy and contracting sexually transmitted infections. They are also more likely to have driving difficulties, such as crashes; to be cited for speeding; and to have their licenses suspended (Barkley, 2006a). Several other *DSM-IV-TR* disorders, also found in children, appear to overlap significantly with this disorder. Specifically, oppositional defiant disorder (ODD), conduct disorder, and bipolar disorder all have characteristics seen in children with ADHD. ODD is a *DSM-IV-TR* disorder that includes symptoms such as “often loses temper,” “argues with adults,” “often deliberately annoys people,” “touchy and easily annoyed by others,” and “often spiteful and vindictive.” The impulsivity and hyperactivity observed in chil-

attention deficit/hyperactivity disorder (ADHD) Developmental disorder featuring maladaptive levels of inattention, excessive activity, and impulsiveness.

Edward: ADHD in a Gifted Student

“He’s very, very intelligent. His grades don’t reflect that because he will just neglect to do a 240-point assignment if somebody doesn’t stay behind it. . . . What I try to do with him is come in and cut it down to ‘this is what I want by tomorrow, this is what I want day after tomorrow.’”

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Motion Pictures

dren with ADHD can manifest themselves in some of these symptoms. It’s been estimated that at least half of those with ADHD could also be diagnosed with ODD (Durand, 2011). Similarly, conduct disorder—which, as you saw in Chapter 11, can be a precursor to antisocial personality disorder—is also observed in many children with ADHD (Nock, Kazdin, Hiripi, & Kessler, 2006). Bipolar disorder—one of

the mood disorders—also overlaps significantly with ADHD. This overlap can complicate diagnosis in these children.

Causes

As with many other disorders, we are at a period when important information about the genetics of ADHD is beginning to be uncovered (Kebir, Tabbane, Sengupta, & Joobar, 2009; Waldman & Gizer, 2006). Researchers have known for some time that ADHD is more common in families in which one person has the disorder. For example, the relatives of children with ADHD have been found to be more likely to have ADHD themselves than would be expected in the general population (Fliers et al., 2009). It is important to note that these families display an increase in psychopathology in general, including conduct disorder, mood disorders, anxiety disorders, and substance abuse (Faraone et al., 2000). This research and the comorbidity in the children themselves suggest that some shared genetic deficits may contribute to the problems experienced by individuals with these disorders (Brown, 2009).

ADHD is considered to be highly influenced by genetics, with a relatively small role played by environmental influences in the cause of the disorder when compared to many other disorders we discuss in this book. As with other disorders, researchers are finding that multiple genes are responsible for ADHD (Nikolas & Burt, 2010). Most attention to date focuses on genes associated with the neurochemical dopamine, although norepinephrine, serotonin, and gamma-aminobutyric acid (GABA) are also implicated in the cause of ADHD. More specifically, there is strong evidence that ADHD is associated with the dopamine D₄ receptor gene, the dopamine transporter gene (DAT1), and the dopamine D₅ receptor gene. DAT1 is of particular interest because methylphenidate (Ritalin)—one of the most common medical treatments for ADHD—inhibits this gene and increases the amount of dopamine available. As with several other disorders we’ve discussed, researchers are looking for endophenotypes, those basic deficits—such as specific attentional problems—characteristic of ADHD. The goal is to link these deficits to specific brain dysfunctions. It is not surprising that specific areas of current interest for ADHD are the brain’s attention system, working memory functions, inattentiveness, and impulsivity. Researchers are now trying to tie specific genetic defects to these cognitive processes to make the link between genes and behavior.

DSM Disorder Criteria Summary

Attention Deficit/Hyperactivity Disorder (ADHD)

A. Either (1) or (2):

- (1) six (or more) of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Inattention

(a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities; (b) often has difficulty sustaining attention in tasks or play activities; (c) often does not seem to listen when spoken to directly; (d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions); (e) often has difficulty organizing tasks and activities; (f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework); (g) often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools); (h) is often easily distracted by extraneous stimuli; (i) is often forgetful in daily activities

- (2) six (or more) of the following symptoms of hyperactivity/impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

(a) often fidgets with hands or feet or squirms in seat; (b) often leaves seat in classroom or in other situations in which remaining seated is expected; (c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness); (d) often has difficulty playing or engaging in leisure activities quietly; (e) is often “on the go” or often acts as if “driven by a motor”; (f) often talks excessively

Impulsivity

(g) often blurts out answers before questions have been completed; (h) often has difficulty awaiting turn; (i) often interrupts or intrudes on others (e.g., butts into conversations or games)

- B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.
C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home).
D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.
E. The symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).

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Some research indicates that poor “inhibitory control” (the ability to stop responding to a task when signaled) may be common among both children with ADHD and their unaffected family members (siblings and parents) and may be one genetic marker (an endophenotype) for this disorder (Goos, Crosbie, Payne, & Schachar, 2009).

The strong genetic influence in ADHD does not rule out any role for the environment (Ficks & Waldman, 2009). In one of a growing number of gene–environment interaction studies of ADHD, for example, researchers found that children with a specific mutation involving the dopamine system (called the DAT1 genotype) were more likely to exhibit the symptoms of ADHD if their mothers smoked during pregnancy (Kahn, Khoury, Nichols, & Lanphear, 2003). Prenatal smoking seemed to interact with this genetic predisposition to increase the risk for hyperactive and impulsive behavior. Other research is now pointing to additional environmental factors, such as low socioeconomic status and parental marital instability and discord, as involved in these gene–environment interactions (Ficks & Waldman, 2009).

For several decades, ADHD has been thought to involve brain damage, and this notion is reflected in the previous use of labels such as “minimal brain damage” or “minimal brain dysfunction” (Ross & Pelham, 1981). Researchers now know that the overall volume of the brain in those with this disorder is slightly smaller (3% to 4%) than in children without this disorder (Narr et al., 2009). A number of areas in the brains of those with ADHD appear affected (Valera, Faraone, Murray, & Seidman, 2007). In addition, more research is starting to focus on the structure and function of the brain in adults with ADHD.

A variety of such toxins as allergens and food additives have been considered as possible causes of ADHD over the years, although little evidence supports the association. The theory that food additives such as artificial colors, flavorings, and preservatives are responsible for the symptoms of ADHD has been highly controversial. Feingold (1975) presented this view along with recommendations for eliminating these substances as a treatment for ADHD. Hundreds of thousands of families have put their children on the Feingold diet, despite arguments by some that the diet has little or no effect on the symptoms of ADHD (Barkley, 1990; Kavale & Forness, 1983). However, some large-scale research now suggests that there may be a small but measurable impact of artificial food colors and additives on the behavior of young children. One study found that 3-year-old and 8- to 9-year-old children who consumed typical amounts of preservatives (sodium benzoate) and food colorings had increased levels of hyperactive behaviors (inattention, impulsivity, and overactivity) (McCann et



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ADHD: Sean

“[He] would never think before he did stuff. And actually, the thing that really made me go, ‘Something is desperately wrong here’—we had a little puppy. Real tiny little dog. And Sean was upstairs playing with it. And my daughter had gone upstairs, and went, ‘Mom, something’s wrong with the dog’s paw.’ And I looked and this poor little dog had a broken paw. Sean had dropped her. But—didn’t say anything to anyone. Just left the poor little dog sitting there. And I thought, ‘Wow. This is just not normal.’”

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al., 2007). Other research now points to the possible role of the pesticides found in foods as contributing to an increased risk of ADHD (Bouchard, Bellinger, Wright, & Weisskopf, 2010).

Psychological and social dimensions of ADHD may further influence the disorder itself—especially how the child fares over time. Negative responses by parents, teachers, and peers to the affected child’s impulsivity and hyperactivity may contribute to feelings of low self-esteem, especially in children who are also depressed (Anastopoulos, Sommer, & Schatz, 2009). Years of constant reminders by teachers and parents to behave, sit quietly, and pay attention may create a negative self-image in these children, which, in turn, can negatively affect their ability to make friends. Thus, the possible biological influences on impulsivity, hyperactivity, and



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▲ A child with ADHD is likely to behave inappropriately regardless of the setting.

attention, combined with attempts to control these children, may lead to rejection and consequent poor self-image. An integration of the biological and psychological influences on ADHD suggests that both need to be addressed when designing effective treatments (Durand, 2011).

Treatment of ADHD

Treatment for ADHD has proceeded on two fronts: biological and psychosocial interventions. Typically, the goal of biological treatments is to reduce the children's impulsivity and hyperactivity and to improve their attentional skills. Psychosocial treatments generally focus on broader issues such as improving academic performance, decreasing disruptive behavior, and improving social skills. Although these two kinds of approaches have typically developed independently, recent efforts combine them to have a broader impact on people with ADHD.

The first types of medication used for children with ADHD were stimulants. It is estimated that more than 2.5 million children in the United States are being treated with these medications (Centers for Disease Control and Prevention, 2005). Drugs such as methylphenidate (Ritalin, Metadate, Concerta) and D-amphetamine (Dexedrine, Dextrostat) have proved helpful for more than 70% of cases in at least temporarily reducing hyperactivity and impulsivity and improving concentration on tasks (Greenhill & Hechtman, 2009). Adderall, which is a longer-acting version of these psychostimulants, reduces the need for multiple doses for children during the day but has similar positive effects (Connor, 2006).

Originally, it seemed paradoxical or contrary to expect that children would calm down after taking a stimulant. However, on the same low doses, children and adults with and without ADHD react in the same way. It appears that stimulant medications reinforce the brain's ability to focus attention during problem-solving tasks (Connor, 2006). Although the use of stimulant medications remains controversial, especially for children, most clinicians recommend them temporarily, in combination with psychosocial interventions, to help improve children's social and academic skills.

The concerns over the use of stimulant medications now include their potential for abuse. In Chapter 10, we discussed that drugs such as Ritalin are sometimes abused for their ability to create elation and reduce fatigue (Setlik, Bond, & Ho, 2009). And the widespread misperception that use of these prescription medications is harmless is also of great concern (Desantis & Hane, 2010). This is particularly worrisome for children with ADHD because they are at increased risk for later substance abuse (Wagner & Pliszka, 2009). A newer drug—atomoxetine (Strattera)—also appears effective for some children with ADHD, but it is a selective norepinephrine-reuptake inhibitor and therefore does not produce the same “highs” when used in larger doses. Research suggests that other drugs, such as some antidepressants (bupropion, imipramine) and a drug used for treating high blood pressure (clonidine), may have similar effects as Strattera on people with ADHD (Wagner

& Pliszka, 2009). Not all children with ADHD have depression or high blood pressure (although depression can be a problem in some of these children), but these drugs work on the same neurotransmitter systems (norepinephrine and dopamine) involved in ADHD. All these drugs seem to improve compliance and decrease negative behaviors in many children, and their effects do not usually last when the drugs are discontinued.

Some portion of children with ADHD do not respond to medications, and most children who do respond show improvement in ability to focus their attention but do not show gains in the important areas of academics and social skills (Smith, Barkley, & Shapiro, 2006). In addition, the medications often result in unpleasant side effects, such as insomnia, drowsiness, or irritability (Kollins, 2008). Because of these findings, researchers have applied various behavioral interventions to help these children at home and in school (Ollendick & Shirk, 2011; Ramsay, 2009). In general, the programs set such goals as increasing the amount of time the child remains seated, the number of math papers completed, or appropriate play with peers. Reinforcement programs reward the child for improvements and, at times, punish misbehavior with loss of rewards. Other programs incorporate parent training to teach families how to respond constructively to their child's behaviors and how to structure the child's day to help prevent difficulties (Ollendick & Shirk, 2011). Social skills training for these children, which includes teaching them how to interact appropriately with their peers, also seems to be an important treatment component (de Boo & Prins, 2007).

For adults with ADHD, cognitive-behavioral intervention to reduce distractibility and improve organizational skills appears quite helpful. Most clinicians typically recommend a combination of approaches designed to individualize treatments for those with ADHD, targeting both short-term management issues (decreasing hyperactivity and impulsivity) and long-term concerns (preventing and reversing academic decline and improving social skills).

Helpful “Designer Drugs”

Get ready to learn a new word—*psychopharmacogenetics*.

Psychopharmacogenetics is the study of how your genetic makeup influences your response to certain drugs. The hope for this field is that medications can be matched or even “designed” for individuals to better complement their specific needs (Weinshilboum, 2003). For example, one study looked at the use of methylphenidate (Ritalin) for children and adolescents with ADHD (Polanczyk, Zeni, et al., 2007). For those who had a specific gene defect—the adrenergic alpha-2A receptor gene (ADRA2A)—methylphenidate had a strong positive effect, especially on their problems with inattention. This was not the case for those with ADHD who did not have the ADRA2A gene defect. Currently, the use of drug treatments tends to be by trial and error: A medication is attempted at a particular dose; if it is not effective, the dose is changed. If that does not work, a different medication is tried. This new study holds the promise

of potentially eliminating this guesswork and tailoring the treatment to the individual.

This exciting new approach to medical treatment for mental illness brings with it some weighty concerns. Central to these concerns are issues of privacy and confidentiality. Genetic screening to identify defects is likely to identify any number of potential genetic problems in each of us. How will schools, employment sites, and insurance companies view this information if they have access? The concern is that people will be discriminated against based on this information (for example, having the genes that may or may not lead to having ADHD or another disorder). Will the desire to better target drug treatments outweigh these types of ethical concerns? Most new technical advances, like those promised with psychopharmacogenetics, also uncover new problems, and it is essential that ethical issues be part of the discussion as researchers move forward in this area.

Evaluating Treatment Approaches

To determine whether a combined approach to treatment is the most effective, a large-scale study initiated by the National Institute of Mental Health was conducted by six teams of researchers (Jensen et al., 2001). Labeled the Multimodal Treatment of Attention Deficit/Hyperactivity Disorder (MTA) study, this 14-month study included 579 children who were randomly assigned to one of four groups. One group of the children received routine care without medication or specific behavioral interventions (community care). The three treatment groups consisted of medication management (usually methylphenidate), intensive be-

havioral treatment, and a combination of the two treatments. Initial reports from the study suggested that the combination of behavioral treatments and medication, and medication alone, were superior to behavioral treatment alone and community intervention for ADHD symptoms. For problems that went beyond the specific symptoms of ADHD, such as social skills, academics, parent-child relations, oppositional behavior, and anxiety or depression, results suggested slight advantages of combination over single treatments (medication management, behavioral treatment) and community care.

Some controversy surrounds the interpretation of these findings—specifically, whether or not the combination of behavioral and medical treatments is superior to medication alone (Biederman, Spencer, Wilens, & Greene, 2001; Pelham, 1999). One of the concerns surrounding the study was that although medication continued to be dispensed, the behavioral treatment was faded over time, which may account for the observed differences.

Practically, if there is no difference between these two treatments, most parents and therapists would opt for simply providing medication for these children. As we mentioned previously, behavioral interventions have the added benefit of improving aspects of the child and family that are not directly affected by medication. Reinterpretations of the data from this large-scale study continue, and more research likely will be needed to clarify the combined and separate effects of these two approaches to treatment (Ollendick & Shirk, 2011). Despite these advances, however, children with ADHD continue to pose a considerable challenge to their families and to the educational system.

Learning Disorders

Because parents often invest a great deal of time, resources, and emotional energy to ensure their children's academic success, it can be extremely upsetting when a child with no obvious intellectual deficits does not achieve as expected. In this section, we describe **learning disorders** in reading, mathematics, and written expression—all characterized by performance that is substantially below what would be expected given the person's age, intelligence quotient (IQ) score, and education. We also look briefly at disorders that involve how we communicate. Consider the case of Alice.

Alice • Taking a Reading Disorder to College

Alice, a 20-year-old college student, sought help because of her difficulty in several of her classes. She reported that she had enjoyed school and had been a good student until about the sixth grade, when her grades suffered significantly. Her teacher informed

her parents that she wasn't working up to her potential and she needed to be better motivated. Alice had always worked hard in school but promised to try harder. However, with each report card her mediocre grades made her feel worse about herself. She managed to graduate from high school, but by that time she felt she was not as bright as her friends.

Alice enrolled in the local community college and again found herself struggling with the work. Over the years, she had learned several tricks that seemed to help her study and at least get passing grades. She read the material in her textbooks aloud to herself; she had earlier discovered that she could recall the

learning disorders Reading, mathematics, or written expression performance substantially below the level expected relative to the person's age, intelligence quotient score, and education.

material much better this way than if she just read silently to herself. In fact, reading silently, she could barely remember any of the details just minutes later.

After her sophomore year, Alice transferred to the university, which she found even more demanding and where she failed most of her classes. After our first meeting, I suggested that she be formally assessed to identify the source of her difficulty. As suspected, Alice had a learning disability.

Scores from an IQ test placed her slightly above average, but she was assessed to have significant difficulties with reading. Her comprehension was poor, and she could not remember most of the content of what she read. We recommended that she continue with her trick of reading aloud because her comprehension for what she heard was adequate. In addition, Alice was taught how to analyze her reading—that is, how to outline and take notes. She was even encouraged to audiotape her lectures and play them back to herself as she drove around in her car. Although Alice did not become an A student, she was able to graduate from the university, and she now works with young children who themselves have learning disabilities.

Clinical Description

According to *DSM-IV-TR* criteria, Alice would be diagnosed as having a **reading disorder**, which is defined as a significant discrepancy between a person's reading achievement and what would be expected for someone of the same age—referred to by some as “unexpected underachievement” (Fletcher, Lyon, Fuchs, & Barnes, 2007). More specifically, the criteria require that the person read at a level significantly below that of a typical person of the same age, cognitive ability (as measured on an IQ test), and educational background. In addition, a diagnosis of reading disorder requires that the person's disability not be caused by a sensory difficulty, such as trouble with sight or hearing, and should not be the result of poor or absent instruction. Similarly, *DSM-IV-TR* defines a **mathematics disorder** as achievement below expected performance in mathematics and defines a **disorder of written expression** as achievement below expected performance in writing. In each of these disorders, the difficulties are sufficient to interfere with the students' academic achievement and to disrupt daily activities.

There is some controversy over using the discrepancy between IQ and achievement as part of the process of identifying children with learning disorders. Part of the criticism involves the delay between when learning problems occur and when they finally result in a large enough difference between IQ scores and achievement scores—which may not be measurable until later in a child's academic life. An alternative approach—called *response to intervention*—is now being used by many clinicians. It involves identifying a child as having a learning disorder when the response to a known effective intervention (for example, an early reading pro-

gram) is significantly inferior to the performance by peers (Jackson, Pretti-Frontczak, Harjusola-Webb, Grisham-Brown, & Romani, 2009). This provides an early warning system and focuses on providing effective instruction.

DSM Disorder Criteria Summary

Learning Disorders *for Reading Disorder (Developmental Reading Disorder), Mathematics Disorder (Developmental Arithmetic Disorder), and Disorder of Written Expression (Developmental Expressive Writing Disorder)

- A. (Reading achievement) (Mathematical ability) (Writing skill), as measured by individually administered standardized tests, is substantially below that expected given the person's chronological age, measured intelligence, and age-appropriate education.
- B. The disturbance in criterion A significantly interferes with academic achievement or activities of daily living that require (reading skills) (mathematical ability) (composition of written texts).
- C. If a sensory deficit is present, the learning difficulties are in excess of those usually associated with it.

*The three separate learning disorders are combined here because the basic criteria are identical, with the exception of the specific ability that is affected.

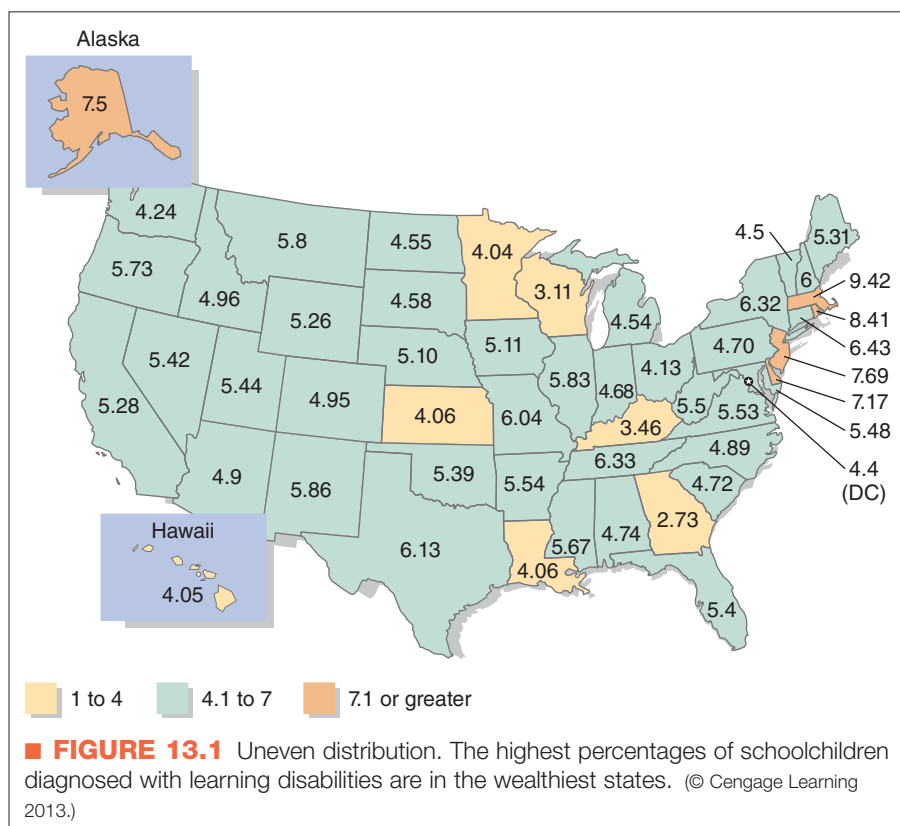
Source: Reprinted with permission from *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision). © 2000 American Psychiatric Association.

Statistics

Estimates of how prevalent learning disorders are range from 5% to 10% (Altarac & Saroha, 2007), although the frequency of this diagnosis appears to increase in wealthier regions of the country—suggesting that with better access to diagnostic services, more children are identified (■ Figure 13.1). It is currently believed that nearly 6 million children in the United States are diagnosed as having a specific learning disorder (Altarac & Saroha, 2007). There do appear to be racial differences in the diagnosis of learning disorders. Approximately 1% of white children and 2.6% of black children were receiving services for problems with learning in 2001 (Bradley, Danielson, & Hallahan, 2002). However, this research also suggests that the differences were related to the economic status of the child, not ethnic background.

Difficulties with reading are the most common of the learning disorders and occur in some form in 4% to 10% of the general population (Pennington & Bishop, 2009). Mathematics disorder appears in approximately 1% of the population (Tannock, 2009a), but there is limited information about the prevalence of disorder of written expression among children and adults. Early studies suggested that boys were more likely to have a reading disorder than girls, although more recent research indicates that boys and girls may be equally affected by this disorder (Feinstein & Phillips, 2006). Students with learning disorders are more likely to drop out of school (Vogel & Reder, 1998), more likely to be unemployed (Shapiro & Lentz, 1991), and more likely to have suicidal thoughts and attempt suicide (Daniel et al., 2006).

A group of disorders loosely identified as verbal or *communication disorders* seems closely related to learning dis-



orders. These disorders can appear deceptively benign, yet their presence early in life can cause wide-ranging problems later. For a brief overview of these disorders, which include **stuttering**, **expressive language disorder**, **selective mutism**, and **tic disorder**, see Table 13.1.

Causes

Theories about the causes of learning disorders include genetic, neurobiological, and environmental factors. The genetic research in this area is particularly complex. It is clear that learning disorders run in families, and sophisticated family and twin studies bear this out (Fletcher et al., 2007). Yet, analyses of the genes involved suggest that many effects are not specific—meaning that there are not different genes responsible for reading disorders and mathematics disorders. Instead, there are genes that affect learning and they may contribute to problems across domains (reading, mathematics, writing) (Plomin & Kovas, 2005).

The different problems associated with learning themselves have different origins. For example, children (and adults) often have very different problems associated with reading. Reading disorders are sometimes broken into problems with word recognition (difficulty decoding single words—sometimes called *dyslexia*), fluency (problems being able to read words and sentences smoothly and automatically), and comprehension (difficulty getting meaning from what is read) (Tannock, 2009b). Most research to date focuses on problems with word recognition, and there is evidence that some develop these problems primarily through

their genes, whereas others develop problems as a result of environmental factors (Shaywitz, Mody, & Shaywitz, 2006). Genes located on chromosomes 1, 2, 3, 6, 11, 12, 15, and 18 have all been repeatedly linked to these difficulties (Tannock, 2009b). At the same time, environmental influences such as the home reading habits of families can significantly affect outcomes—especially with skills such as word recognition—suggesting that reading to children at risk for reading disorders can reduce the impact of the genetic influence (Petrill, Deater-Deckard, Thompson, DeThorne, & Schatschneider, 2006).

Various forms of subtle brain impairment have also been thought responsible for learning disabilities; some of the earliest theories involve a neurological explanation (Hinshelwood, 1896). Research suggests structural, and functional, differences in the brains of people with learning disabilities. Specifically, three areas of the left hemisphere appear to be involved in problems with dyslexia (word recognition)—Broca's area (which affects articulation and word analysis), an area

in the left parietotemporal area (which affects word analysis), and an area in the left occipitotemporal area (which affects recognizing word form) (Shaywitz et al., 2006). A different area in the left hemisphere—the intraparietal sulcus—seems to be critical for the development of a sense of numbers and is implicated in mathematics disorder (Fletcher et al., 2007). In contrast, there is no current evidence for specific deficits responsible for disorders of written expression.

reading disorder Reading performance significantly below the standard for that age level.

mathematics disorder Mathematics performance significantly below the standard for that age level.

disorder of written expression Condition in which writing performance is significantly below the standard for that age level.

stuttering Disturbance in the fluency and time patterning of speech (for example, sound and syllable repetitions or prolongations).

expressive language disorder Individual's problems in spoken communication, as measured by significantly low scores on standardized tests of expressive language relative to nonverbal intelligence test scores. Symptoms may include a markedly limited vocabulary or errors in verb tense.

selective mutism Developmental disorder characterized by the individual's consistent failure to speak in specific social situations despite speaking in other situations.

tic disorder Disruption in early development involving involuntary motor movements or vocalizations.

Table 13.1 Communication and Related Disorders

Disorder	Clinical Description	Statistics	Causes	Treatments
Stuttering	A disturbance in speech fluency—repeating syllables or words, prolonging certain sounds, making obvious pauses, or substituting words to replace ones that are difficult to articulate.	Occurs twice as often among boys as among girls. Begins most often in children younger than age 3, and 98% of cases occur before the age of 10. Approximately 80% of children who stutter before they enter school will no longer stutter after they have been in school a year or so (Kroll & Beitchman, 2009).	Multiple brain pathways appear to be involved, and genetic influences may be a factor (Kroll & Beitchman, 2009).	Regulated-breathing method—the person is instructed to stop speaking when a stuttering episode occurs and then to take a deep breath (exhale, then inhale) before proceeding (Bothe, Davidow, Bramlett, & Ingham, 2006). Altered auditory feedback (electronically changing speech feedback to people who stutter) (Lincoln, Packman, & Onslow, 2006). Forms of self-monitoring, in which people modify their own speech for the words they stutter (Venkatagiri, 2005).
Expressive language disorders	Limited speech in <i>all</i> situations. <i>Expressive language</i> (what is said) is significantly below <i>receptive language</i> (what is understood); the latter is usually average.	Occurs in 10% to 15% of children younger than 3 years of age and is almost five times as likely to affect boys as girls (Koyama, Beitchman, & Johnson, 2009).	An unfounded psychological explanation is that the children's parents may not speak to them enough. A biological theory is that middle ear infection is a contributory cause.	May be self-correcting and may not require special intervention.
Selective mutism	Persistent failure to speak in specific situations—such as school—despite the ability to do so (Kearney, 2010).	Occurs in less than 1% of children and most often between the ages of 5 and 7. More prevalent among girls than boys.	Not much is known. Anxiety is one possible cause (Bergman & Lee, 2009).	<i>Contingency management:</i> Giving children praise and reinforcers for speaking while ignoring their attempts to communicate in other ways. Reinforcing successive approximations to speaking (Bergman & Lee, 2009).
Tic disorders	Involuntary motor movements (<i>tics</i>), such as head twitching, or vocalizations, such as grunts, that often occur in rapid succession, come on suddenly, and happen in idiosyncratic or stereotyped ways. In one type, <i>Tourette's disorder</i> , vocal tics often include the involuntary repetition of obscenities.	Of all children, up to 20% show some tics during their growing years, and 1 to 10 children out of every 1,000 have Tourette's disorder (Jummani & Coffey, 2009). Usually develops before the age of 14. High comorbidity between tics and ADHD and obsessive-compulsive disorder (Jummani & Coffey, 2009).	There are likely multiple vulnerability genes that influence the form and severity of tics (Jummani & Coffey, 2009).	<i>Psychological:</i> Self-monitoring, relaxation training, and habit reversal. <i>Pharmacological:</i> haloperidol; more recently, risperidone and ziprasidone.

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You saw that Alice persisted despite the obstacles caused by her learning disorder and by the reactions of teachers and others. What helped her continue toward her goal when others choose, instead, to drop out of school? Psychological and motivational factors that have been reinforced by others seem to play an important role in the eventual outcome of people with learning disorders. Factors such as socioeconomic status, cultural expectations, parental interactions and expectations, and child manage-

ment practices, together with existing neurological deficits and the types of support provided in the school, seem to determine outcome (Tannock, 2009b).

Treatment of Learning Disorders

As you will see in the case of intellectual disability, learning disorders primarily require educational intervention. Biological (drug) treatment is typically restricted to those individuals who may also have ADHD, which as we discussed

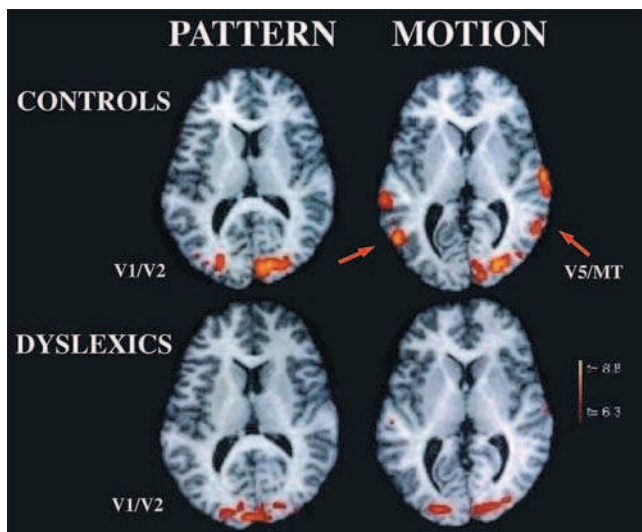
involves impulsivity and an inability to sustain attention and can be helped with certain stimulant medications, such as methylphenidate (Ritalin). Educational efforts can be broadly categorized into (1) specific skills instruction, including instruction on vocabulary, finding the main idea, and finding facts in readings; and (2) strategy instruction, which includes efforts to improve cognitive skills through decision making and critical thinking (Fletcher et al., 2007).

Many programs are used to assist children with their problems related to learning. One approach that has received considerable research support is called Direct Instruction (Coyne et al., 2009). This program includes several components; among them are systematic instruction (using highly scripted lesson plans that place students together in small groups based on their progress) and teach for mastery (teaching students until they understand all concepts). In addition, children are constantly assessed and plans are modified based on progress or lack of progress. Direct Instruction and several related training



Courtesy of Laureate Learning Systems Inc.

▲ Specially designed computer games may help children with learning disorders improve their language skills.



▲ These functional magnetic resonance imaging (fMRI) scans of composite data from six adults with dyslexia and eight controls show a horizontal slice through the brain, with the face at the top. Imaging shows atypical brain activity associated with dyslexia. The scans were performed while subjects tracked a pattern of moving dots on a computer screen. A brain area (V5/MT) normally active during such motion tasks did not switch on in dyslexic subjects (*right*). Their brain activity was more similar to that of controls during a pattern recognition task (*left*).

programs appear to significantly improve academic skills in children with learning disorders (Coyne et al., 2009).

How do these behavioral and educational approaches help children with reading difficulties? Are they just tricks or adaptations to learning, or do these treatments have a more profound effect on the way these children process information? Exciting research using brain-imaging technology is allowing us to answer these important questions. One study used functional magnetic resonance imaging scanning (fMRI) to compare how children with and without reading disorders processed simple tasks (Temple et al., 2003). The children with reading difficulties were then exposed to 8 weeks of intensive training on a computer program that helped them work on their auditory and language-processing skills. Not only did the children improve their reading skills, but also their brains started functioning in a way similar to the brains of their peers who were good readers. This and similar studies (Keller & Just, 2009) mirror results seen with other disorders—namely, that behavioral interventions can change the way the brain works and that we can use such interventions to help individuals with significant problems.

Concept Check 13.1

Assign a label to each of the following cases:

(a) ADHD, (b) attention deficit disorder without hyperactivity, (c) selective mutism, (d) Tourette's disorder, or (e) reading disorder.

1. Ten-year-old Cole can be frustrating to his parents, teachers, and friends. He has trouble waiting his turn during games and does things seemingly without thinking. He often calls out answers in school, sometimes before the complete question is asked. _____
2. At home, 6-year-old Miley has been excitedly telling her cousins about a recent trip to the beach. This would surprise her teachers, who have never heard her speak. _____
3. Eleven-year-old Jonathan is frequently off task at school. He works quickly, makes careless mistakes, and appears not to listen when someone else is

speaking. He often forgets to bring his homework to school and typically comes home without his assignment folder. _____

4. Trent's developmental disorder is characterized by uncontrollable yelps, sniffs, and grunting noises. _____
5. Kelly was a good student until the sixth grade. Her grades slowly began to drop, despite her increased studying. Now, as a high school senior concerned about graduation, and with hopes of going to college, Kelly has sought help. She places above average on an IQ test but shows significant problems with reading and comprehension. _____
6. Eight-year-old Chandra is described by everyone as a "handful." She fidgets constantly in class, drumming her fingers on the desk, squirming in her chair, and getting up and down. She has trouble waiting her turn at work or at play, and she sometimes has violent outbursts. _____

Pervasive Developmental Disorders

- › How are pervasive developmental disorders defined?
- › What are the three major characteristics of autistic disorder?

People with **pervasive developmental disorders** experience problems with language, socialization, and cognition (Durand, 2011). The word *pervasive* means that these problems are not relatively minor but significantly affect individuals throughout their lives. Included under the heading of pervasive developmental disorders are autistic disorder (or autism), **Asperger's disorder**, **Rett's disorder**, **childhood disintegrative disorder**, and **pervasive developmental disorder not otherwise specified**. We focus on two of the more prevalent pervasive developmental disorders—autistic disorder and Asperger's disorder; the other disorders are highlighted in Table 13.2. Note that discussions are under way to possibly reorganize these disorders under the title "autism spectrum disorders" in *DSM-5*; this spectrum of disorders would include autistic disorder (autism), Asperger's disorder, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (American Psychiatric Association, 2010d).

Autistic Disorder

Autistic disorder (autism) is a childhood disorder characterized by significant impairment in social interactions and communication and by restricted patterns of behavior, interest, and activities (Durand, 2011). Individuals with this disorder have a puzzling array of symptoms. Consider the case of Amy.

Amy • In Her Own World

Amy, 3 years old, spends much of her day picking up pieces of lint. She drops the lint in the air and then watches intently as it falls to the floor. She also licks the back of her hands and stares at the saliva. She hasn't spoken yet and can't feed or dress herself. Several times a day she screams so loudly that the neighbors at first thought she was being abused. She doesn't seem to be interested in her mother's love and affection but will take her mother's hand to lead her to the refrigerator. Amy likes to eat butter—whole pats of it, several at a time. Her mother uses the pats of butter that you get at some restaurants to help Amy learn and to keep her well-behaved. If Amy helps with dressing herself, or if she sits quietly for several minutes, her mother gives her some butter. Amy's mother knows that the butter isn't good for her, but it is the only thing that seems to get through to the child. The family's pediatrician has been concerned about Amy's developmental delays for some time and has recently suggested that she be evaluated by specialists. The pediatrician thinks Amy may have autism and the child and her family will probably need extensive support.

Table 13.2 Additional Pervasive Developmental Disorders

Disorder	Clinical Description	Statistics	Causes	Treatments
Rett's disorder	A progressive neurological disorder that primarily affects girls. Includes constant hand-wringing, increasingly severe intellectual disability, and impaired motor skills, <i>after</i> typical development (Sigafos et al., 2009). Motor skills deteriorate over time; social skills develop typically at first, decline between the ages of 1 and 3, and then partially improve. May be removed from <i>DSM-5</i> because it is minimally related to autism.	Rett's disorder is relatively rare, occurring in approximately 1 per 12,000 to 15,000 live female births.	A mutation of a gene on the X chromosome (MECP2) appears responsible for over 80% of cases (Toth & King, 2010).	Focuses on teaching self-help and communication skills and on efforts to reduce problem behaviors (Sigafos et al., 2009).
Childhood disintegrative disorder	Involves severe regression in language, adaptive behavior, and motor skills after a 2- to 4-year period of normal development (Volkmar et al., 2009).	Rare, occurring in 1 of approximately every 100,000 births.	Although no specific cause has been identified, several factors suggest an accumulation of a number of rare genetic mutations (Volkmar et al., 2009).	Typically involves behavioral interventions to regain lost skills and behavioral and pharmacological treatments to help reduce behavioral problems.
Pervasive developmental disorder not otherwise specified	Severe and pervasive impairments in social interactions but without all criteria for autistic disorder. These individuals may not display the early avoidance of social interaction but still may exhibit significant social problems. Their problems may become more obvious after 3 years of age.	Little good evidence for prevalence at this time, although appears more common than autistic disorder.	Some of the same genetic influences and neurobiological impairments common in autism are likely involved in these individuals also (Volkmar et al., 2009).	Focuses on teaching socialization and communication skills and on efforts to reduce problem behaviors.

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Clinical Description

Three major characteristics of autism are expressed in *DSM-IV-TR*: impairment in social interactions; impairment in communication; and restricted behavior, interests, and activities (American Psychiatric Association, 2000).

Impairment in Social Interactions. One of the defining characteristics of people with autistic disorder is that they do not develop the types of social relationships expected for their age (Volkmar, Klin, Schultz, & State, 2009). Amy never made friends among her peers and often limited her contact with adults to using them as tools—for example, taking the adult's hand to reach for something she wanted. For young children, the signs of social problems usually include a failure to engage in skills such as joint attention (Dawson et al., 2004; MacDonald et al., 2006). When sitting with a parent in front of a favorite toy, young children will typically look back and forth between the parent and the toy, smiling, in an attempt to engage the parent with the toy. However, this skill in joint attention is noticeably absent in children with autism.

Research using sophisticated eye-tracking technology shows how this social awareness problem evolves as the children grow older. In one study, scientists showed an adult man with autism scenes from some movies and compared how he looked at social scenes with how a man without

autism did so (Klin, Jones, Schultz, Volkmar, & Cohen, 2002). You can see from the photo that the man with autism (indicated by the red lines) scanned nonsocial aspects of the scene (the actors' mouth and jacket), whereas the man without autism looked at the socially meaningful sections (looking from eye to eye of the people conversing). This research suggests that people with autism—for reasons not yet fully understood—may not be interested in social situations and

pervasive developmental disorders One of several wide-ranging, significant, and long-lasting dysfunctions that appear before the age of 18.

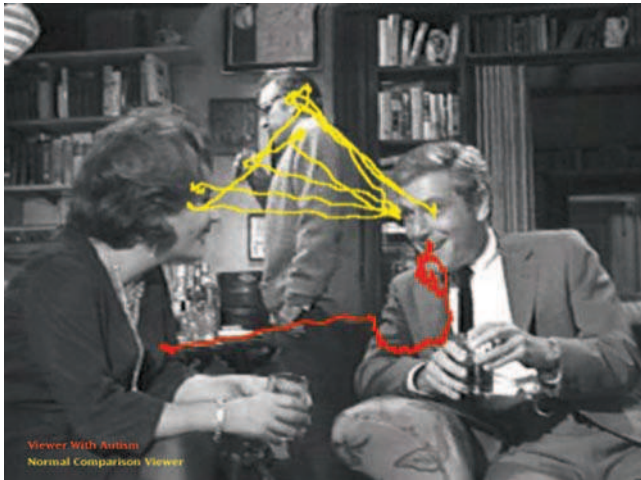
Asperger's disorder Pervasive developmental disorder characterized by impairments in social relationships and restricted or unusual behaviors but without the language delays seen in autism.

Rett's disorder Progressive neurological developmental disorder featuring constant hand-wringing, mental retardation, and impaired motor skills.

childhood disintegrative disorder Pervasive developmental disorder involving severe regression in language, adaptive behavior, and motor skills after a 2- to 4-year period of normal development.

pervasive developmental disorder not otherwise specified Wide-ranging, significant, and long-lasting dysfunctions that appear before the age of 18.

autistic disorder (autism) Pervasive developmental disorder characterized by significant impairment in social interactions and communication and restricted patterns of behavior, interest, and activity. Also known as *autism*.



▲ Researchers are exploring how people with autism view social interactions among other people. (Reprinted with permission from the *American Journal of Psychiatry*, (Copyright 2002). American Psychiatric Association.)

therefore may not enjoy meaningful relationships with others or have the ability to develop them.

Impairment in Communication. People with autism nearly always have severe problems with communicating. About one third never acquire speech (Tager-Flusberg et al., 2009). In those with some speech, much of their communication is unusual. Some repeat the speech of others, a pattern called echolalia we referred to earlier as a sign of delayed speech development. If you say, “My name is Eileen, what’s yours?” they will repeat all or part of what you said: “Eileen, what’s yours?” Often, not only are your words repeated, but so is your intonation. Some people with autism who can speak are unable or unwilling to carry on conversations with others.

Restricted Behavior, Interests, and Activities. The more striking characteristics of autism include *restricted patterns of behavior, interests, and activities*. Amy appeared to like things to stay the same: She became extremely upset if even a small change was introduced (such as moving her toys in her room). This intense preference for the status quo has been called *maintenance of sameness*. Often, people with autism spend countless hours in *stereotyped and ritualistic behaviors*, making such stereotyped movements as spinning around in circles, waving their hands in front of their eyes with their heads cocked to one side, or biting their hands (Durand, 2011).

Statistics

Autism was once thought to be a rare disorder, although more recent estimates of its occurrence seem to show an increase in its prevalence. Previous estimates found a rate of 2 to 20 per 10,000 people, although it is now believed to be as high as 1 in every 500 births (Shattuck, 2006). The prevalence of autism spectrum disorders (which include autistic disorder, pervasive developmental disorder not otherwise specified, and Asperger’s disorder) is estimated as high as 1 in every 110 births (Centers for Disease Control and Prevention, 2009). This rise in the rates may be the result of increased awareness on the part of professionals

DSM Disorder Criteria Summary

Autistic Disorder

- A. A total of six (or more) items from (1), (2), and (3), with at least two from (1), and one each from (2) and (3):
 - (1) qualitative impairment in social interaction, as manifested by at least two of the following:
 - (a) marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction; (b) failure to develop peer relationships appropriate to developmental level; (c) a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest); (d) lack of social or emotional reciprocity
 - (2) qualitative impairments in communication as manifested by at least one of the following:
 - (a) delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime); (b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others; (c) stereotyped and repetitive use of language or idiosyncratic language; (d) lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level
 - (3) restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:
 - (a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus; (b) apparently inflexible adherence to specific, nonfunctional routines or rituals; (c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole body movements); (d) persistent preoccupation with parts of objects
- B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.
- C. The disturbance is not better accounted for by Rett’s Disorder or Childhood Disintegrative Disorder.

Source: Reprinted with permission from *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision). © 2000 American Psychiatric Association.

who now distinguish the pervasive developmental disorders from intellectual disability. However, other environmental factors (such as exposure to toxic chemicals) cannot as yet be ruled out as contributing to this rise.

Gender differences for autism vary depending on the IQ level of the person affected. For people with IQs under 35, autism is more prevalent among females; in the higher IQ range, it is more prevalent among males. The reason for these differences is not known (Centers for Disease Control and Prevention, 2009). Autistic disorder appears to be a universal phenomenon, identified in every part of the world, including Sweden (Gillberg, 1984), Japan (Sugiyama & Abe, 1989), Russia (Lebedinskaya & Nikolskaya, 1993), and China (Chung, Luk, & Lee, 1990). Most people with autism develop the associated symptoms before the age of 36 months (American Psychiatric Association, 2000).

People with autism have a range of IQ scores. Earlier estimates placed the rate of intellectual disability among children with autism as high as 75%, although more recent work—using more appropriate tests for these children—indicates the range between 40% and 55% (Chakrabarti & Fombonne, 2001; Edelson, 2006). This means that 45% to 60% of people with autism have average or above-average IQs.

IQ measures are used to determine prognosis: The higher children score on IQ tests, the less likely they are to need extensive support by family members or people in the helping professions. Conversely, young children with autistic disorder who score poorly on IQ tests are more likely to be severely delayed in acquiring communication skills and to need a great deal of educational and social support as they grow older. Usually, language abilities and IQ scores are reliable predictors of how children with autistic disorder will fare later in life: The better the language skills and IQ test performance, the better the prognosis (Ben Itzhak, Lahat, Burgin, & Zachor, 2008).

Causes: Psychological and Social Dimensions

Autism is a puzzling condition, so you should not be surprised to find numerous theories of why it develops. One theory is that autistic disorder probably does not have a single cause (Durand, 2011; Volkmar et al., 2009). Instead, a number of biological contributions may combine with psychosocial influences to result in the unusual behaviors of people with autism.

Historically, autistic disorder was seen as the result of failed parenting (Bettelheim, 1967; Ferster, 1961; Tinbergen & Tinbergen, 1972). Mothers and fathers of children with autism were characterized as perfectionistic, cold, and aloof (Kanner, 1949), with relatively high socioeconomic status (Allen, DeMyer, Norton, Pontius, & Yang, 1971; Cox, Rutter, Newman, & Bartak, 1975) and higher IQs than the general population (Kanner, 1943). These views were devastating to a generation of parents, who felt guilty and responsible for their children's problems. More sophisticated research using larger samples of children and families suggests that the parents of individuals with autism may not differ substantially from parents of children without disabilities (Bhasin & Schendel, 2007).

Other theories about the origins of autism were based on the unusual speech patterns of some individuals—namely, their tendency to avoid first-person pronouns such as *I* and *me* and to use *he* and *she* instead. For example, if you ask a child with autism, “Do you want something to drink?” he might say, “He wants something to drink” (meaning “I want something to drink”). This observation led some theorists to wonder whether autism involves a lack of self-awareness (Goldfarb, 1963; Mahler, 1952). Such a debilitating view of the world was used to explain the unusual ways people with autism behaved. Theorists suggested that the withdrawal seen among people with autistic disorder reflected a lack of awareness of their own existence.

However, later research has shown that some people with autistic disorder do seem to have self-awareness (Lind & Bowler, 2009) and that it follows a developmental progression. Just like children without a disability, those with cognitive abilities below the level expected for a child of



Abnormal Psychology Inside Out,
produced by Ira Wohl, Only Child
Motion Pictures

Autism: Christina

“Last year she used [the communication book] a lot more in communicating with us. We have different pictures in the book. They’re called picture symbols to represent what she might want, what she might need, what she’s asking of us.”

Go to Psychology CourseMate at www.cengagebrain.com to watch this video.

18 to 24 months show little or no self-recognition, but people with more advanced abilities do demonstrate self-awareness. Self-concept may be lacking when people with autism also have cognitive disabilities or delays, not because of autism itself.

Myths about people with autism are perpetuated when the idiosyncrasies of the disorder are highlighted. These perceptions are furthered by portrayals such as Dustin Hoffman’s in *Rain Man*—his character could, for instance, instantaneously and accurately count hundreds of toothpicks falling to the floor. This type of ability—referred to as savant skills—is just not typical with autism. It is important always to separate myth from reality and to be aware that such portrayals do not accurately represent the full range of manifestations of this complex disorder.

The phenomenon of echolalia, repeating a word or phrase spoken by another person, was once believed to be an unusual characteristic of this disorder. Subsequent work in developmental psychopathology, however, has demonstrated that repeating the speech of others is part of the normally developing language skills observed in most young children (Dawson, Mottron, & Gernsbacher, 2008). Even a behavior as disturbing as the self-injurious behavior sometimes seen in people with autism is observed in milder forms, such as head banging, among typically developing infants (de Lissoy, 1961). This type of research has helped clinicians isolate the facts from the myths about autism and clarify the role of development in the disorder. One generally accepted conclusion is that social deficiencies are the primary distinguishing characteristic of people with autism.

Causes: Biological Dimensions

To the relief of many families, it is now clear that poor parenting is not responsible for autism. Deficits in such skills as socialization and communication appear to be biological in origin.

Genetic Influences. It is now clear that autism has a genetic component (Volkmar, Klin, & Schultz, 2005). Families that have one child with autism have a 5% to 10% risk of having another child with the disorder. This rate is 50 to 200 times the risk in the general population, providing strong evidence of a genetic component in the disorder. One area that is receiving attention involves the genes responsible for the brain chemical oxytocin. Because oxytocin is shown to have a role in how we bond with others and in our social memory, researchers are looking for whether



Rebecca: A First-Grader with Autistic Disorder

“Getting her out of her routine is something that sets her off. . . . Routine is extremely, extremely important with her.”

Go to Psychology CourseMate at www.cengagebrain.com to watch this video.



Abnormal Psychology Inside Out, produced by Ira Wohl, Only Child Motion Pictures

genes responsible for this neurochemical are involved with the disorder. Preliminary work identifies an association between autism and an oxytocin receptor gene (Wermter et al., 2010), and researchers expect more connections will be identified in the coming years.

Neurobiological Influences. As in the area of genetics, many neurobiological influences are being studied to help explain the social and communication problems observed in autism (Volkmar et al., 2009). One intriguing theory involves research on the amygdala—the area of the brain that, as you saw in Chapter 4, is involved in emotions such as anxiety and fear. Researchers studying the brains of people with autism after they died note that adults with and without the disorder have amygdalae of about the same size but that those with autism have fewer neurons in this structure (Schumann & Amaral, 2006). Earlier research showed that young children with autism actually have a larger amygdala. The theory being proposed is that the amygdala in children with autism is enlarged early in life—causing excessive anxiety and fear (perhaps contributing to their social withdrawal). With continued stress, the release of the stress hormone cortisol damages the amygdala, causing the relative absence of these neurons in adulthood. The damaged amygdala may account for the different way people with autism respond to social situations (Lombardo, Chakrabarti, & Baron-Cohen, 2009).

An additional neurobiological influence we mentioned in

the section on genetics involves the neuropeptide oxytocin. Remember that this is an important social neurochemical that influences bonding and is found to increase trust and reduce fear. Some research on children with autism found lower levels of oxytocin in their blood (Modahl et al., 1998), and giving people with autism oxytocin improved their ability to remember and process information with emotion content (such as remembering happy faces), a problem that is symptomatic of autism (Guastella et al., 2010).



Frederick M. Brown/Getty Images

▲ Temple Grandin has a PhD in animal science and a successful career designing humane equipment for handling livestock. She also has autism.

One highly controversial theory is that mercury—specifically, the mercury previously used as a preservative in childhood vaccines (thimerosal)—is responsible for the increases seen in autism over the last decade. Large epidemiological studies conducted in Denmark show that there is no increased risk of autism in children

who are vaccinated (Madsen et al., 2002; Parker, Schwartz, Todd, & Pickering, 2004). Despite this and other convincing evidence, the correlation between when a child is vaccinated for measles, mumps, and rubella (12–15 months) and when the symptoms of autism first become evident (before 3 years) continues to fuel the belief by many families that there must be some connection.

Asperger's Disorder

Asperger's disorder involves a significant impairment in the ability to engage in meaningful social interaction, along with restricted and repetitive stereotyped behaviors but without the severe delays in language or other cognitive skills characteristic of people with autism (American Psychiatric Association, 2000). First described by Hans Asperger in 1944, it was Lorna Wing in the early 1980s who recommended that Asperger's disorder be reconsidered as a separate disorder from autism, with an emphasis on the unusual and limited interests (such as train schedules) displayed by these individuals (Volkmar et al., 2009).

Clinical Description

People with Asperger's disorder display impaired social relationships and restricted or unusual behaviors or activities (such as following airline schedules or memorizing



Courtesy Lee-Yun Chiu

▲ Timothy plays violin and piano, and baseball. Autistic disorder occurs in all cultures and races.

ZIP codes), but unlike individuals with autism they can often be quite verbal. This tendency to be much more interested with esoteric facts than people, along with their often formal and academic style of speech, has led some to refer to the disorder as the “little professor syndrome.” Individuals with Asperger’s disorder show few severe cognitive impairments and usually have IQ scores within the average range (Volkmar et al., 2009). They often exhibit clumsiness and poor coordination. Some researchers think Asperger’s disorder may be a milder form of autism rather than a separate disorder.

Statistics

Until recently, most diagnosticians were relatively unfamiliar with Asperger’s disorder, and it is generally believed that many individuals with the disorder went undiagnosed. Current estimates of the prevalence are between 1 and 2 per 10,000, and it is believed to occur more often in boys than in girls (Volkmar et al., 2009).

Causes

Little research about the causes of Asperger’s disorder exists, although a possible genetic contribution is suspected. Asperger’s disorder does seem to run in families, and there appears to be a higher prevalence of both autism and Asperger’s disorder in some families. Because of the social-emotional disturbances observed in people with this disorder, as you just saw with autism, researchers are looking at the amygdala for its possible role in the cause (Schultz, Romanski, & Tsatsanis, 2000), although to date there is no conclusive evidence for a specific biological or psychological model.

Treatment of Pervasive Developmental Disorders

Most treatment research has focused on children with autism, so we primarily discuss treatment research for these individuals. However, because treatment for all of the pervasive developmental disorders relies on a similar approach, this research should be relevant across disorders. One generalization that can be made about autism, and the other pervasive developmental disorders, is that no completely effective treatment exists. Attempts to eliminate the social problems experienced by these individuals have not been successful to date. Rather, like the approach to individuals with intellectual disability, most efforts at treating people with pervasive developmental disorders focus on enhancing their communication and daily living skills and on reducing problem behaviors, such as tantrums and self-injury (Durand, 2011). We describe some of these approaches next, including work on early intervention for young children with autism.

Problems with communication and language are among the defining characteristics of this disorder. People with autism often do not acquire meaningful speech; they tend either to have limited speech or to use unusual speech, such as echolalia. Teaching people to speak in a useful way

is difficult. Think about how we teach languages: It mostly involves imitation. Imagine how you would teach a young girl to say the word *spaghetti*. You could wait for several days until she said a word that sounded something like *spaghetti* (maybe *confetti*) and then reinforce her. You could then spend several days or weeks trying to shape *confetti* into something closer to *spaghetti*. Or you could just prompt, “Say ‘spaghetti.’” Fortunately, most children can imitate and learn to communicate efficiently. But a child who has autism can’t or won’t imitate.

In the mid-1960s, the late Ivar Lovaas and his colleagues took a monumental first step toward addressing the difficulty of getting children with autism to respond. They used the basic behavioral procedures of shaping and discrimination training to teach these nonspeaking children to imitate others verbally (Lovaas, Berberich, Perloff, & Schaeffer, 1966). The first skill the researchers taught the children was to imitate other people’s speech. They began by reinforcing a child with food and praise for making any sound while watching the teacher. After the child mastered that step, they reinforced the child only if she made a sound after the teacher made a request—such as the phrase, “Say ‘ball’” (a procedure known as *discrimination training*). Once the child reliably made some sound after the teacher’s request, the teacher used *shaping* to reinforce only approximations of the requested sound, such as the sound of the letter “b.” Sometimes the teacher helped the child with physical prompting—in this case, by gently holding the lips together to help the child make the sound of “b.” Once the child responded successfully, a second word was introduced—such as “mama”—and the procedure was repeated. This continued until the child could correctly respond to multiple requests, demonstrating imitation by copying the words or phrases made by the teacher. Once the children could imitate, speech was easier, and progress was made in teaching some of them to use labels, plurals, sentences, and other more complex forms of language (Lovaas, 1977). Despite the success of some children in learning speech, other children do not respond to this training, and workers sometimes use alternatives to vocal speech, such as sign language and devices that have vocal output and can literally “speak” for the child (Tager-Flusberg et al., 2009).

One of the most striking features of people with autism is their unusual reactions to other people. Although social deficits are among the more obvious problems experienced by people with autism, they can also be the most difficult to teach. A number of approaches are now used to teach social skills (for example, how to carry on a conversation and ask questions of other people), including the use of peers who do not have autism as trainers, and there is evidence that those with autism can improve their socialization skills (e.g., Cotugno, 2009).

Lovaas and his colleagues at the University of California, Los Angeles, reported on their early intervention efforts with young children (Lovaas, 1987). They used intensive behavioral treatment for communication and social skills problems for 40 hours or more per week, which seemed to improve intellectual and educational function-

ing. Follow-up suggests that these improvements are long lasting (McEachin, Smith, & Lovaas, 1993). These studies created considerable interest and controversy. Some critics question the research on practical, and experimental, grounds, claiming that one-on-one therapy for 40 hours per week was too expensive and time consuming; they also criticized the studies for having no proper control group. Nevertheless, the findings from this important work and a number of replications around the world suggest that early intervention is promising for children with autism (Eldevik et al., 2009).

Biological Treatments

No one medical treatment has been found to cure autism. In fact, medical intervention has had little success on the core symptoms of social and language difficulties. A variety of pharmacological treatments are used to decrease agitation, and the major tranquilizers and serotonin-specific reuptake inhibitors seem helpful here (Volkmar et al., 2009).

Because autism may result from a variety of deficits, it is unlikely that one drug will work for everyone with this disorder. Much current work is focused on finding pharmacological treatments for specific behaviors or symptoms.

Integrating Treatments

The treatment of choice for people with pervasive developmental disorder—including autism and Asperger's disorder—combines various approaches to the many facets of this disorder. For children, most therapy consists of school education with special psychological supports for problems with communication and socialization. Behavioral approaches have been most clearly documented as benefiting children in this area. Pharmacological treatments can help some of them temporarily. Parents also need support because of the great demands and stressors involved in living with and caring for such children. As children with autism grow older, intervention focuses on efforts to integrate them into the community, often with supported living arrangements and work settings. Because the range of abilities of people with autism is so great,

however, these efforts differ dramatically. Some people are able to live in their own apartments with only minimal support from family members. Others, with more severe forms of cognitive impairment, require more extensive efforts to support them in their communities.

Concept Check 13.2

Determine how well you are able to diagnose the disorder in each of the following situations by labeling them (a) autistic disorder, (b) Asperger's disorder, (c) Rett's disorder, (d) childhood disintegrative disorder, or (e) pervasive developmental disorder.

1. Six-year-old Tangelique has a low IQ and enjoys sitting in the corner by herself, where she arranges her toys or spins around in circles. She is unable to communicate verbally. She throws temper tantrums when her routine is changed even in the slightest way or when her parents try to get her to do something she doesn't want to do. _____
2. At an early age, Dwight became preoccupied with geography and could name all of the state capitals. His speech development was not delayed, but he does not like to play with other children or to be touched or held. _____
3. Five-year-old Alicia has increasingly severe intellectual disability and is beginning to have trouble walking on her own. One of the characteristics of her disorder is constant hand-wringing. _____
4. Once Rolondo turned 5, his parents noticed that his motor skills and language abilities were beginning to regress dramatically. _____
5. Six-year-old Megan doesn't entirely avoid social interactions, but she experiences many problems in communicating and dealing with people. _____

Intellectual Disability

› How is intellectual disability defined, and what categories are used to classify people with intellectual disabilities?

Intellectual disability (ID) (previously referred to as mental retardation) is a disorder evident in childhood as significantly below-average intellectual and adaptive functioning (Toth & King, 2010). People with intellectual disability experience difficulties with day-to-day activities to an extent that reflects both the severity of their cognitive deficits and the type and amount of assistance they receive. Perhaps more than any other group you have studied in

this text, people with intellectual disability have throughout history received treatment that can best be described as shameful (Scheerenberger, 1983). With notable exceptions, societies throughout the ages have devalued individuals whose intellectual abilities are deemed less than adequate. Although *DSM-IV-TR* uses the term “mental retardation,” we use “intellectual disability” throughout this chapter to be consistent with changes in terminology in



▲ Lauren Potter (an actress with Down syndrome) plays “Becky Jackson” in the popular television show *Glee*.

this field and possible changes in *DSM-5* (American Psychiatric Association, 2010b).

The manifestations of intellectual disability are varied. Some individuals function quite well, even independently, in our complex society. For example, Chris Burke (an actor with Down syndrome) was the first actor with an intellectual disability to star in a television series (*Life Goes On*) and also appeared on *Touched by an Angel*. Also, Lauren Potter (another actor with Down syndrome) played a cheerleader in the television show *Glee*. Others

with intellectual disability have significant cognitive and physical impairments and require considerable assistance to carry on day-to-day activities. Consider the case of James.

James ♦ Up to the Challenge

James’s mother contacted us because he was disruptive at school and at work. James was 17 and attended the local high school. He had Down syndrome and was described as likable and, at times, mischievous. He enjoyed skiing, bike riding, and many other activities common among teenage boys. His desire to participate was a source of some conflict between him and his mother: He wanted to take the driver’s education course at school, which his mother felt would set him up for failure, and he had a girlfriend he wanted to date, a prospect that also caused his mother concern.

School administrators complained because James didn’t participate in activities such as physical education, and at the work site that was part of his school program he was often sullen, sometimes lashing out at the supervisors. They were considering moving him to a program with more supervision and less independence.

James’s family had moved often during his youth, and they experienced striking differences in the way each community responded to James and his intellectual disability. In some school districts, he was immediately placed in classes with other children his age and his teachers were provided with additional assistance and consultation. In others, it was just as quickly recommended that he be taught separately. Sometimes the school district had a special classroom

in the local school for children with intellectual disability. Other districts had programs in other towns, and James would have to travel an hour to and from school each day. Every time he was assessed in a new school, the evaluation was similar to earlier ones. He received scores on his IQ tests in the range of 40 to 50, which placed him in the moderate range of intellectual disability. Each school gave him the same diagnosis: Down syndrome with moderate intellectual disability.

In high school, James had several academic classes in a separate classroom for children with learning problems, but he participated in some classes, such as gym, with students who did not have intellectual disability. His current difficulties in gym (not participating) and at work (being oppositional) were jeopardizing his placement in both programs. When I spoke with James’s mother, she expressed frustration that the work program was beneath him because he was asked to do boring, repetitious work such as folding paper. James expressed a similar frustration, saying that he was treated like a baby. He could communicate fairly well when he wanted to, although he sometimes would become confused about what he wanted to say and it was difficult to understand everything he tried to articulate. On observing him at school and at work, and after speaking with his teachers, we realized that a common paradox had developed. James resisted work he thought was too easy. His teachers interpreted his resistance to mean that the work was too hard for him, and they gave him even simpler tasks. He resisted or protested more vigorously, and they responded with even more supervision and structure.

Clinical Description

People with intellectual disability display a broad range of abilities and personalities. Individuals like James, who have mild or moderate impairments, can, with proper preparation, carry out most of the day-to-day activities expected of any of us. Those with more severe impairments may need help to eat, bathe, and dress themselves, although with proper training and support they can achieve a degree of independence. These individuals experience impairments that affect most areas of functioning. Language and communication skills are often the most obvious. James was only mildly impaired in this area, needing help with articulation. In contrast, people with more severe forms of intellectual disability may never learn to use speech as a form of communication, requiring alternatives such as sign lan-

intellectual disability A diagnosis received when one achieves a significantly below-average score on a test of intelligence and by limitations in the ability to function in areas of daily life.

- A. Significantly subaverage intellectual functioning: an IQ of approximately 70 or below on an individually administered IQ test (for infants, a clinical judgment of significantly subaverage intellectual functioning).
- B. Concurrent deficits or impairments in present adaptive functioning (i.e., the person's effectiveness in meeting the standards expected for his or her age by his or her cultural group) in at least two of the following areas: communication, selfcare, home living, social/interpersonal skills, use of community resources, self-direction, functional academic skills, work, leisure, health, and safety.
- C. The onset is before age 18 years.

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guage or special communication devices to express even their most basic needs. Because many cognitive processes are adversely affected, individuals with intellectual disability have difficulty learning, the level of challenge depending on how extensive the cognitive disability is.

Before examining the specific criteria for intellectual disability, note that, like the personality disorders we described in Chapter 11, intellectual disability is included on Axis II of *DSM-IV-TR*. Remember that separating disorders by axes serves two purposes: first, indicating that disorders on Axis II tend to be more chronic and less amenable to treatment, and second, reminding clinicians to consider whether these disorders, if present, are affecting an Axis I disorder. People can be diagnosed on both Axis I (for example, generalized anxiety disorder) and Axis II (for example, mild intellectual disability).

The *DSM-IV-TR* criteria for intellectual disability are in three groups. First, a person must have *significantly subaverage intellectual functioning*, a determination made with one of several IQ tests with a cutoff score set by *DSM-IV-TR* of approximately 70. Roughly 2% to 3% of the population score at 70 or below on these tests. The American Association on Intellectual and Developmental Disabilities (AAIDD), which has its own, similar definition of intellectual disability, has a cutoff score of approximately 70 to 75 (Thompson et al., 2009; Toth & King, 2010).

The second criterion of both *DSM-IV-TR* and the AAIDD definitions for intellectual disability calls for *concurrent deficits or impairments in adaptive functioning*. In other words, scoring “approximately 70 or below” on an IQ test is not sufficient for a diagnosis of intellectual disability; a person must also have significant difficulty in at least two of the following areas: communication, self-care, home living, social and interpersonal skills, use of community resources, self-direction, functional academic skills, work, leisure, health, and safety. To illustrate, although James had many strengths, such as his ability to communicate and his social and interpersonal skills (he had several good friends), he was not as proficient as other teenagers at caring for himself in areas such as home living, health, and safety or in academic areas. This aspect of the definition is important because it excludes

people who can function quite well in society but for various reasons do poorly on IQ tests. The final criterion for intellectual disability is the *age of onset*. The characteristic below-average intellectual and adaptive abilities must be evident before the person is 18. This cutoff is designed to identify affected individuals when the brain is developing and therefore when any problems should become evident. The age criterion rules out the diagnosis of intellectual disability for adults who suffer from brain trauma or forms of dementia that impair their abilities. The imprecise definition of intellectual disability brings up an important issue: Intellectual disability, perhaps more than any of the other disorders, is defined by society. The cutoff score of 70 or 75 is based on a statistical concept (two or more standard deviations from the mean), not on qualities inherent in people who supposedly have intellectual disability. There is little disagreement about the diagnosis for people with the most severe disabilities; however, the majority of people diagnosed with intellectual disability are in the mild range of cognitive impairment. They need some support and assistance, but remember that the criteria for using the label of intellectual disability are based partly on a somewhat arbitrary cutoff score for IQ that can (and does) change with changing social expectations.

People with intellectual disability differ significantly in their degree of disability. Almost all classification systems have differentiated these individuals in terms of their ability or on the cause of the intellectual disability (Toth & King, 2010). Traditionally (and still evident in *DSM-IV-TR*), classification systems have identified four levels of intellectual disability: *mild*, which is identified by an IQ score between 50–55 and 70; *moderate*, with a range of 35–40 to 50–55; *severe*, ranging from 20–25 to 35–40; and *profound*, which includes people with IQ scores below 20–25. It is difficult to categorize each level of intellectual disability according to “average” individual achievements by people at each level. A person with severe or profound intellectual disability tends to have extremely limited formal communication skills (no spoken speech or only one or two words) and may require great or even total assistance in dressing, bathing, and eating. Yet people with these diagnoses have a range of skills that depend on training and the availability of other supports. Similarly, people like James, who have mild or moderate intellectual disability, should be able to live independently or with minimal supervision; again, however, their achievement depends partly on their education and the community support available to them.

Perhaps the most controversial change being suggested in the new AAIDD definition of intellectual disability is its description of different levels of this disorder, which are based on the level of support or assistance people need: *intermittent*, *limited*, *extensive*, or *pervasive* (Thompson et al., 2009). The important difference is that the AAIDD system identifies the role of “needed supports” in determining level of functioning, whereas *DSM-IV-TR* implies that the ability of the person is the sole determining factor. The AAIDD system focuses on specific areas of assistance a person needs that can then be translated into training goals. Whereas his *DSM-IV-TR* diagnosis might be “moder-



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▲ Although he cannot speak, this man is learning to communicate with an eye-gaze board, pointing to or simply looking at the image that conveys his message.

ate intellectual disability,” James might receive the following AAIDD diagnosis: “a person with intellectual disability who needs limited supports in home living, health and safety, and in academic skills.” The AAIDD definition emphasizes the types of support James and others require, and it highlights the need to identify what assistance is available when considering a person’s abilities and potential. However, at this writing, the AAIDD system has not been assessed empirically to determine whether it has greater value than traditional (*DSM*) systems.

An additional method of classification has been used in the educational system to identify the abilities of students with intellectual disability. It relies on three categories: *educable intellectual disability* (based on an IQ of 50 to approximately 70–75), *trainable intellectual disability* (IQ of 30 to 50), and *severe intellectual disability* (IQ below 30) (Cipani, 1991). The assumption is that students with educable intellectual disability (comparable to mild intellectual disability) could learn basic academic skills; students with trainable intellectual disability (comparable to moderate intellectual disability) could not master academic skills but could learn rudimentary vocational skills; and students with severe intellectual disability (comparable to severe and profound intellectual disability) would not benefit from academic or vocational instruction. Built into this categorization system is the automatic negative assumption that certain individuals cannot benefit from certain types of training. This system and the potentially stigmatizing and limiting *DSM-IV-TR* categories (mild, moderate, severe, and profound intellectual disability) inspired the AAIDD categorization of needed supports. Current trends are away from the educational system of classification because it inappropriately creates negative expectations in teachers. Clinicians continue to use

the *DSM-IV-TR* system; time will tell whether the AAIDD categories will be widely adopted.

Statistics

Approximately 90% of people with intellectual disability fall under the label of mild intellectual disability (IQ of 50 to 70). When you add individuals with moderate, severe, and profound intellectual disability (IQ below 50), the total population of people with this disorder represents 1% to 3% of the general population (Toth & King, 2010).

The course of intellectual disability is chronic, meaning that people do not go through periods of remission, such as with substance use disorders or anxiety disorders. However, the prognosis for people with this disorder varies considerably. Given appropriate training and support, individuals with less severe forms of intel-

lectual disability can live relatively independent and productive lives. People with more severe impairments require more assistance to participate in work and community life.

Causes

There are literally hundreds of known causes of intellectual disability, including the following:

Environmental: For example, deprivation, abuse, and neglect

Prenatal: For instance, exposure to disease or drugs while still in the womb

Perinatal: Such as difficulties during labor and delivery

Postnatal: For example, infections and head injury



©Paul Conklin/PhotoEdit

▲ Intellectual disability can be defined in terms of the level of support people need.

As we mentioned in Chapter 10, heavy use of alcohol among pregnant women can produce a disorder in their children called *fetal alcohol syndrome*, a condition that can lead to severe learning disabilities. Other prenatal factors that can produce intellectual disability include the pregnant woman's exposure to disease and chemicals and poor nutrition. In addition, lack of oxygen (anoxia) during birth and malnutrition and head injuries during the developmental period can lead to severe cognitive impairments. Despite the large number of known causes of intellectual disability, it's important to remember one fact: Nearly 25% of cases either cannot be attributed to any known cause or are thought to be the result of social and environmental influences (Toth & King, 2010).

Biological Dimensions

Most research on the causes of intellectual disability focuses on biological influences. We next look at biological dimensions that appear to be responsible for the more common forms of intellectual disability.

Genetic Influences. Almost 300 genes have been identified as having the potential to contribute to intellectual disability, and it is expected that there are many more (Inlow & Restifo, 2004). A portion of the people with more severe intellectual disability have identifiable single-gene disorders, involving a *dominant gene* (expresses itself when paired with a normal gene), a *recessive gene* (expresses itself only when paired with another copy of itself), or an *X-linked gene* (present on the X or sex chromosome).

Only a few dominant genes result in intellectual disability, probably because of natural selection: Someone who carries a dominant gene that results in intellectual disability is less likely to have children and thus less likely to pass the gene to offspring. Therefore, this gene becomes less likely to continue in the population. However, some people, especially those with mild intellectual disability, do marry and have children, thus passing on their genes. One example of a dominant gene disorder, *tuberous sclerosis*, is relatively rare, occurring in one of approximately every 30,000 births. About 60% of the people with this disorder have intellectual disability, and most have seizures (uncontrolled electrical discharges in the brain) and characteristic bumps on the skin that during their adolescence resemble acne (Curatolo, Bombardieri, & Jozwiak, 2008).

The next time you drink a diet soda, notice the warning, "Phenylketonurics: Contains Phenylalanine." This is a caution for people with the recessive disorder called **phenylketonuria (PKU)**, which affects one of every 14,000 newborns and is characterized by an inability to break down a chemical in our diets called phenylalanine. Until the mid-1960s, the majority of people with this disorder had intellectual disability, seizures, and behavior problems, resulting from high levels of this chemical. However, researchers developed a screening technique that identifies the existence of PKU; infants are now routinely tested at birth, and any individuals identified with PKU can be successfully treated with a special diet that avoids the chemical phenyl-

alanine. This is a rare example of the successful prevention of one form of intellectual disability.

Because untreated maternal PKU can harm the developing fetus, there is concern now that women with PKU who are of childbearing age may not stick to their diets and inadvertently cause PKU-related intellectual disability in their children before birth. Many physicians recommend dietary restriction through the person's lifetime and especially during the childbearing period—thus the warnings on products with phenylalanine (Widaman, 2009).

Lesch-Nyhan syndrome, an X-linked disorder, is characterized by intellectual disability; signs of cerebral palsy (spasticity or tightening of the muscles); and self-injurious behavior, including finger and lip biting (Nyhan, 1978). Only males are affected because a recessive gene is responsible; when it is on the X chromosome in males, it does not have a normal gene to balance it because males do not have a second X chromosome. Women with this gene are carriers and do not show any of the symptoms.

As our ability to detect genetic defects improves, more disorders will be identified genetically. The hope is that our increased knowledge will be accompanied by improvements in our ability to treat or, as in the case of PKU, prevent intellectual disability and other negative outcomes.

Chromosomal Influences. It was only about 50 years ago that the number of chromosomes in human cells—46—was correctly identified (Tjio & Levan, 1956). Three years later, researchers found that people with Down syndrome (the disorder James displayed) had an additional small chromosome (Lejeune, Gauthier, & Turpin, 1959). Since that time, a number of other chromosomal aberrations that result in intellectual disability have been identified. We describe Down syndrome and fragile X syndrome in some detail, but there are hundreds of other ways in which abnormalities among the chromosomes can lead to intellectual disability.

Down syndrome, the most common chromosomal form of intellectual disability, was first identified by the British physician Langdon Down in 1866. Down had tried to develop a classification system for people with intellectual disability based on their resemblance to people of other races; he described individuals with this particular disorder as "mongoloid" because they resembled people from Mongolia (Scheerenberger, 1983). The term *mongoloidism* was used for some time but has been replaced with the term *Down syndrome*. The disorder is caused by the presence of an extra 21st chromosome and is therefore sometimes referred to as *trisomy 21*. For reasons not completely understood, during cell division two of the 21st chromosomes stick together (a condition called nondisjunction), creating one cell with one copy that dies and one cell with three copies that divide to create a person with Down syndrome.

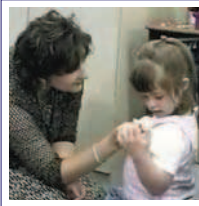
People with Down syndrome have characteristic facial features, including folds in the corners of their upwardly slanting eyes, a flat nose, and a small mouth with a flat roof that makes the tongue protrude somewhat. Like

James, they tend to have congenital heart malformations. Tragically, adults with Down syndrome have a greatly increased risk of dementia of the Alzheimer's type, a degenerative brain disorder that causes impairments in memory and other cognitive disorders (Wiseman, Alford, Tybulewicz, & Fisher, 2009). This disorder among people with Down syndrome occurs earlier than usual (sometimes in their early 20s) and has led to the finding that at least one form of Alzheimer's disease is attributable to a gene on the 21st chromosome.

The incidence of children born with Down syndrome has been tied to maternal age: As the age of the mother increases, so does her chance of having a child with this disorder (see ■ Figure 13.2). A woman at age 20 has a one in 2,000 chance of having a child with Down syndrome, at the age of 35 this risk increases to one in 500, and at the age of 45 it increases again to one in 18 births (Girirajan, 2009). Despite these numbers, many more children with Down syndrome are born to younger mothers simply because younger mothers have more children. The reason for the rise in incidence with maternal age is not clear. Some suggest that because a woman's ova (eggs) are all produced in youth, the older ones have been exposed to toxins, radiation, and other harmful substances over longer periods. This exposure may interfere with the normal meiosis (division) of the chromosomes, creating an extra 21st chromosome (Pueschel & Goldstein, 1991). Others believe the hormonal changes that occur as women age are responsible for this error in cell division (Crowley, Hayden, & Gulati, 1982).

For some time, it has been possible to detect the presence of Down syndrome—but not the degree of intellectual disability—through **amniocentesis**, a procedure that involves removing and testing a sample of the fluid that surrounds the fetus in the amniotic sac, and through **chorionic villus sampling (CVS)**, in which a small piece of placenta tissue is removed and tested. These types of test are not always desirable because it is an invasive procedure (inserting a needle that could cause unwanted damage to the developing fetus). Fortunately, there are now more sophisticated tests of a mother's blood that can be used to detect Down syndrome as early as the first trimester of pregnancy (Schmitz, Netzer, & Henn, 2009).

Fragile X syndrome is a second common chromosomally related cause of intellectual disability (Toth & King, 2010). As its name suggests, this disorder is caused by an abnormality on the X chromosome, a mutation that makes the tip of the chromosome look as though it were hanging from a thread, giving it the appearance of fragility. As with Lesch-Nyhan syndrome, which also involves the X chromosome, fragile X primarily affects males because they do



Abnormal Psychology Inside Out, produced by Ira Wohl, Only Child Motion Pictures

Lauren: A Kindergartner with Down Syndrome

"The speech has been the most difficult . . . and communication naturally just causes tremendous behavior difficulties. . . . If there is not a way for her to communicate to us what her needs are and how she's feeling . . . it really causes a lot of actual shutdowns with Lauren. . . . She knows exactly what she wants and she is going to let you know even though she can't verbalize it."

Go to Psychology CourseMate at www.cengagebrain.com to watch this video.



© Saturn Stills/SPL/Photo Researchers, Inc.

▲ Amniocentesis can detect the presence of Down syndrome in a fetus. Guided by an ultrasound image, the doctor withdraws amniotic fluid for analysis.

phenylketonuria (PKU) Recessive gene disorder involving the inability to break down a food chemical whose buildup causes mental retardation, seizures, and behavior problems. PKU can be detected by infant screening and prevented by a specialized diet.

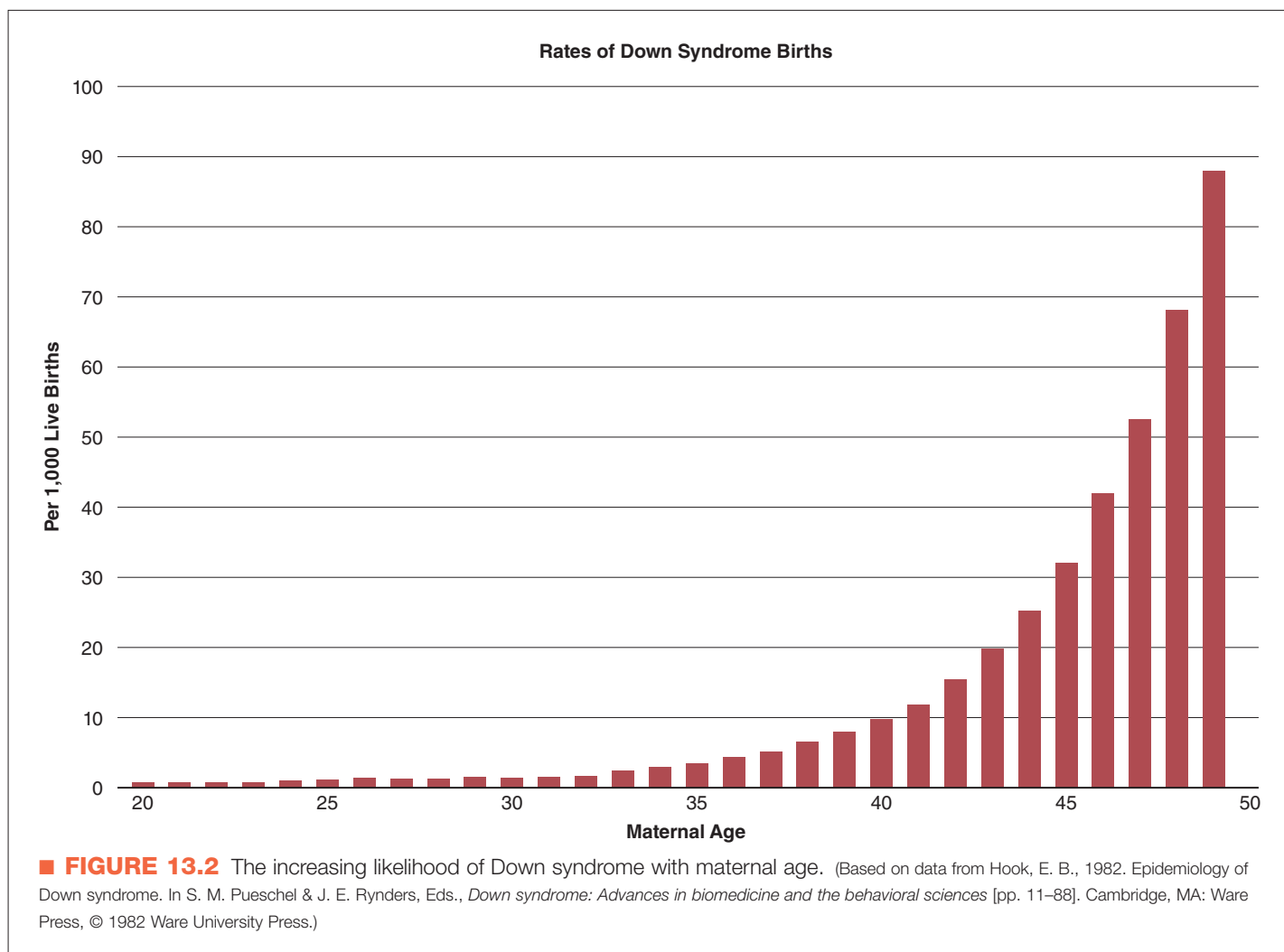
Lesch-Nyhan syndrome X-linked gene disorder characterized by mental retardation, signs of cerebral palsy, and self-injurious behavior.

Down syndrome Type of mental retardation caused by a chromosomal aberration (chromosome 21) and involving characteristic physical appearance. Also known as *trisomy 21*.

amniocentesis Prenatal medical procedure that allows the detection of abnormalities (for example, Down syndrome) in the developing fetus. It involves removal and analysis of amniotic fluid from the mother.

chorionic villus sampling (CVS) A genetic test conducted during early pregnancy that samples cells found in the placenta (chorionic villi) and assesses possible genetic or chromosomal problems in the fetus.

fragile X syndrome Pattern of abnormality caused by a defect in the X chromosome resulting in mental retardation, learning problems, and unusual physical characteristics.



not have a second X chromosome with a normal gene to balance out the mutation. Unlike Lesch-Nyhan carriers, however, women who carry fragile X syndrome commonly display mild to severe learning disabilities (Koukoui & Chaudhuri, 2007). Men with the disorder display moderate to severe levels of intellectual disability and have higher rates of hyperactivity, short attention spans, gaze avoidance, and perseverative speech (repeating the same words again and again). In addition, such physical characteristics as large ears, testicles, and head circumference are common. Estimates are that one of every 4,000 males and one of every 8,000 females are born with fragile X syndrome (Toth & King, 2010).

Psychological and Social Dimensions

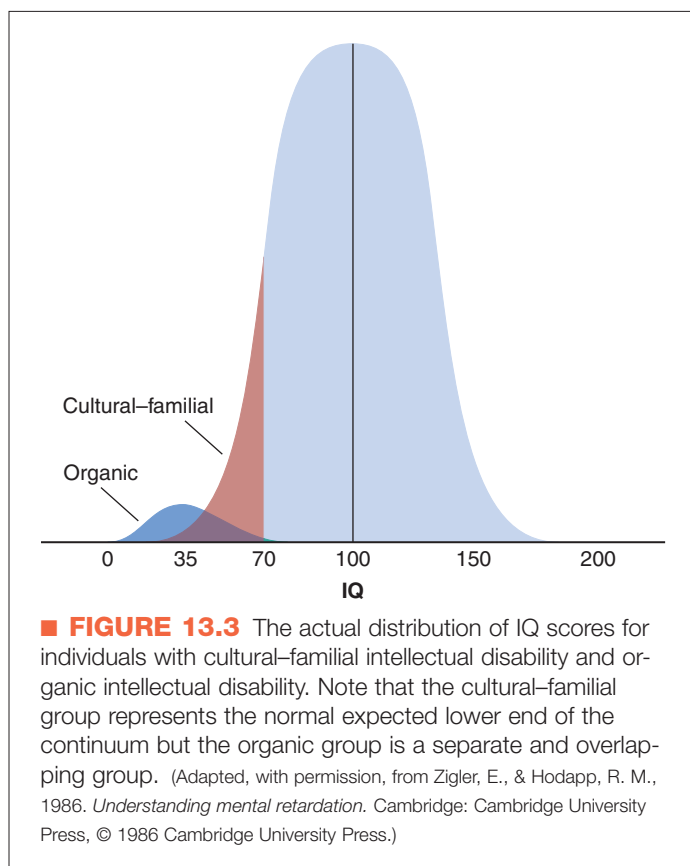
Up to 25% of the cases of intellectual disability fall in the mild range and are not associated with any obvious genetic or physical disorders. Sometimes referred to as **cultural-familial intellectual disability**, people with these characteristics are thought to have cognitive impairments that result from a combination of psychosocial and biological influences, although the specific mechanisms that lead to this type of intellectual disability are not yet understood.

The cultural influences that may contribute to this condition include abuse, neglect, and social deprivation.

It is sometimes useful to consider people with intellectual disability in two distinct groups: those with cultural-familial and those with biological (or “organic”) forms of intellectual disability. People in the latter group have more severe forms of intellectual disability that are usually traceable to known causes such as fragile X syndrome. ■ Figure 13.3 shows that the cultural-familial group is composed primarily of individuals at the lower end of the IQ continuum (in other words, just part of the normal distribution), whereas in the organic group, genetic, chromosomal, and other factors affect intellectual performance which explains the “bump” in their numbers at that end of the distribution. The organic group increases the number of people at the lower end of the IQ continuum so that it exceeds the expected rate for a normal distribution (Toth & King, 2010).

Treatment

Biological treatment of intellectual disability is currently not a viable option. Generally, the treatment of individuals with intellectual disability parallels that of people with



dividuals, regardless of their disability, can be taught to perform some skills.

Communication training is important for people with intellectual disability. Making their needs and wants known is essential for personal satisfaction and for participation in most social activities. The goals of communication training differ, depending on the existing skills. For people with mild levels of intellectual disability, the goals may be relatively minor (for example, improving articulation) or more extensive (for example, organizing a conversation) (Sigafoos, Arthur-Kelly, & Butterfield, 2006). Some, like James, have communication skills that are already adequate for day-to-day needs.

For individuals with the most severe disabilities, communication skills training can be particularly challenging because they may have multiple physical or cognitive deficits that make spoken communication difficult or impossible. Creative researchers, however, use alternative systems that may be easier for these individuals, including the sign language, used primarily by people with hearing disabilities, and *augmentative communication strategies*. Augmentative strategies may use picture books, teaching the person to make a request by pointing to a picture—for instance, pointing to a picture of a cup to request a drink (Sigafoos et al., 2009). A variety of computer-assisted devices can be programmed so that the individual presses a button to produce complete spoken sentences (for example, “Would you come here? I need your help.”). People with limited communication skills can be taught to use these devices, which helps them reduce the frustration of not being able to relate their feelings and experiences to other people (Durand, in press).

Concern is often expressed by parents, teachers, and employers that some people with intellectual disability can be physically or verbally aggressive or may hurt themselves. Considerable debate has ensued over the proper way to reduce these behavior problems; the most heated discussions involve whether to use painful punishers (Repp & Singh, 1990). Alternatives to punishment that may be equally effective in reducing behavior problems such as aggression and self-injury (Durand, in press) include teaching people how to communicate their need or desire for such things as attention that they seem to be getting with their problem behaviors. Important advances are being made in significantly reducing even severe behavior problems for some people.

In addition to ensuring that people with intellectual disability are taught specific skills, caretakers focus on the important task of supporting them in their communities. “Supported employment” involves helping an individual find and participate satisfactorily in a competitive job (Hall, Butterworth, Winsor, Gilmore, & Metzel, 2007). Research

cultural-familial intellectual disability Mild form of mental retardation that may be caused largely by environmental influences.

pervasive developmental disorders, attempting to teach them the skills they need to become more productive and independent. For individuals with mild intellectual disability, intervention is similar to that for people with learning disorders. Specific learning deficits are identified and addressed to help the student improve such skills as reading and writing. At the same time, these individuals often need additional support to live in the community. For people with more severe disabilities, the general goals are the same; however, the level of assistance they need is often more extensive. Remember that the expectation for all people with intellectual disability is that they will in some way participate in community life, attend school and later hold a job, and have the opportunity for meaningful social relationships. Advances in electronic and educational technologies have made this goal realistic even for people with profound intellectual disability.

Individuals with intellectual disability can acquire skills through the many behavioral innovations first introduced in the early 1960s to teach such basic self-care as dressing, bathing, feeding, and toileting to people with even the most severe disabilities (Durand, 2011). The skill is broken into its component parts (a procedure called a *task analysis*), and people are taught each part in succession until they can perform the whole skill. Performance on each step is encouraged by praise and by access to objects or activities the people desire (reinforcers). Success in teaching these skills is usually measured by the level of independence people can attain by using them. Typically, most in-



Beverly Farm Collections/University Archive/University of Illinois

▲ The Illinois Asylum for Feeble-Minded Children, about 1880. Today, great efforts are made to keep children with intellectual disability in their homes and communities.

has shown not only that people with intellectual disability can be placed in meaningful jobs but also that, despite the costs associated with supported employment, it can be cost-effective (Sandys, 2007). The benefits to people who achieve the satisfaction of being a productive part of society are incalculable.

There is general agreement about *what* should be taught to people with intellectual disability. The controversy in recent years has been over *where* this teaching should take place. Should people with intellectual disability, especially the severe forms, be taught in specially designed separate classrooms or workshops, or should they attend their neighborhood public schools and work at local businesses? Increasingly, teaching strategies to help these students learn are being used in regular classrooms and in preparing them to work at jobs in the community (Frankel & Gold, 2007).

Prevention efforts for the developmental disorders outlined in this chapter are in their early stages of development. One such effort—early intervention—has been described for the pervasive developmental disorders and appears to hold considerable promise for some children. In addition, early intervention can target and assist children who, because of inadequate environments, are at risk for developing cultural-familial intellectual disability (Eldevik, Jahr, Eikeseth, Hastings, & Hughes, 2010). The national Head Start program is one such effort at early intervention; it combines educational, medical, and social supports for these children and their families. One project identified a group of children shortly after birth and provided them with an intensive preschool program, along with medical and nutritional supports. This intervention continued until the children began formal education in kindergarten (Martin, Ramey, & Ramey, 1990). The researchers of this study found that for all but one of the children in a control group who received medical and nutritional support but not the intensive educational experiences, each had IQ scores below 85 at age 3, but that 3-year-olds in the experimental group all tested above 85. Such findings are important because they show the potential for creating a lasting impact on the lives of children with developmental disorders and their families (Engle et al., 2007).

Although it appears that many children can make significant progress if interventions are initiated early in life (Eldevik et al., 2010), a number of important questions remain regarding early intervention efforts. Not all children,

for example, benefit significantly from such efforts, and future research will need to resolve a number of lingering concerns. For example, researchers need to determine how best to identify children and families who will benefit from such programs, how early in the child's development programs should begin, and how long to continue these early intervention programs to produce desirable outcomes.

Given recent advances in genetic screening and technology, it may someday be possible to detect and correct genetic and chromosomal abnormalities; related ongoing research could fundamentally change our approach to children with developmental disorders. For example, one study used mice that were genetically engineered to model fragile X syndrome found in many individuals with intellectual disability (Suvrathan, Hoeffler, Wong, Klann, & Chattarji, 2010). Researchers found that they could improve the functioning of certain glutamate receptors in the amygdala of the mice with a drug that blocks these receptors. The results were more normalized functioning between these neurons, a potential early medical intervention for children with fragile X disorder (Suvrathan et al., 2010). Someday, it may be possible for similar research to be performed prenatally on children identified as having syndromes associated with intellectual disability. For example, it may soon be possible to conduct prenatal gene therapy, where a developing fetus that has been screened for a genetic disorder may be the target of intervention before birth (Ye, Mitchell, Newman, & Batshaw, 2001).

This prospect is not without its difficulties, however (Durand, 2001). One cause of concern is the reliability of gene therapy. This technology is not sufficiently advanced to produce the intended results consistently. Currently, any such intervention may cause unwanted mutations or other complications, which in turn could be fatal to the fetus. Gene therapy will probably not be practical for those disorders that involve numerous genes, but rather may be limited to single-gene disorders such as PKU.

Concept Check 13.3

In the following situations, label each level of intellectual disability as mild, moderate, severe, or profound. Also label the corresponding levels of necessary support: intermittent, limited, extensive, or pervasive.

1. Kevin received an IQ score of 20. He needs help with all his basic needs, including dressing, bathing, and eating. _____, _____
2. Adam received an IQ score of 45. He lives in a fully staffed group home and needs a great deal of help with many tasks. He is beginning to receive training for a job in the community. _____, _____
3. Jessica received an IQ score of 30. She lives in a fully staffed group home where she is trained in basic adaptive skills and communication. She is improving over time and can communicate by pointing or using her eye-gaze board. _____, _____
4. LeBron received an IQ score of 65. He lives at home, goes to school, and is preparing to work when he is through with school. _____, _____

Cognitive Disorders

- › What are the symptoms of delirium and dementia?
- › What are the principal causes of and treatments for amnestic disorder?

Whereas intellectual disability and other learning disorders are believed to be present from birth, most cognitive disorders develop much later in life. In the rest of this chapter, we review three classes of cognitive disorders: *delirium*, an often temporary condition displayed as confusion and disorientation; *dementia*, a progressive condition marked by gradual deterioration of a range of cognitive abilities; and *amnestic disorders*, dysfunctions of memory resulting from a medical condition or a drug or toxin.

The label “cognitive disorders” in the *DSM-IV-TR* reflects a shift in the way these disorders are viewed (Sweet, 2009). In previous editions of the *DSM* they were labeled “organic mental disorders,” along with mood, anxiety, personality, hallucinosis (an abnormal mental state involving hallucinations), and delusional disorders. The word *organic* indicated that brain damage or dysfunction was believed to be involved. Although brain dysfunction is still thought to be the primary cause of cognitive disorders, we now know that some dysfunction in the brain is involved in most disorders described in *DSM-IV-TR* (American Psychiatric Association Practice Guideline, 2000c).

Once the term *organic* was dropped, attention moved to developing a better label for delirium, dementia, and the amnestic disorders. The label “cognitive disorders” signifies that their predominant feature is the impairment of such cognitive abilities as memory, attention, perception, and thinking. Although disorders such as schizophrenia and depression also involve cognitive problems, cognitive

issues are not believed to be primary characteristics. Problems still exist with this term, however, because, although the cognitive disorders usually first appear in older adults, mental retardation and learning disorders (which are apparent early) also have cognitive impairment as a predominant characteristic. Currently, discussions are under way for *DSM-5* to keep the label “delirium” but to combine the other cognitive disorders (such as dementia and amnestic disorders) and call them “neurocognitive disorders”; their dimensional quality would be specified as either the “major” or “minor” subtype (American Psychiatric Association, 2010). In part, this may be the result of the overlap of the different types of dementia (e.g., Alzheimer’s disorder) and amnestic disorder found in people such that one person may actually suffer from multiple types of neurocognitive problems (Sweet, 2009).

As with certain other disorders, it may be useful to clarify why cognitive disorders are discussed in a textbook on abnormal psychology. Because they so clearly have organic causes, you could argue that they are purely medical concerns. You will see, however, that the consequences of a cognitive disorder often include profound changes in a person’s behavior and personality. Intense anxiety, depression, or both are common, especially among people with dementia. In addition, paranoia is often reported, as are extreme agitation and aggression. Families and friends are also profoundly affected by such changes. Imagine your emotional distress as a loved one is transformed into a different per-

son, often one who no longer remembers who you are or your history together. The deterioration of cognitive ability, behavior, and personality and the effects on others are major concerns for mental health professionals.

Delirium

The disorder known as **delirium** is characterized by impaired consciousness and cognition during the course of several hours or days. Delirium is one of the earliest-recognized mental disorders: Descriptions of people with these symptoms were written more than 2,400 years ago (Solai, 2009). Consider the case of Mr. J.

Mr. J. ♦ Sudden Distress

Mr. J., an older gentleman, was brought to the hospital emergency room. He didn't know his own name, and at times he didn't seem to recognize his daughter, who was with him. Mr. J. appeared confused, disoriented, and a little agitated. He had difficulty speaking clearly and could not focus his attention to answer even the most basic questions. Mr. J.'s daughter reported that he had begun acting this way the night before, had been awake most of the time since then, was frightened, and seemed even more confused today. She told the nurse that this behavior was not normal for him and she was worried that he was becoming senile. She mentioned that his doctor had just changed his hypertension medication and wondered whether the new medication could be causing her father's distress. Mr. J. was ultimately diagnosed as having substance-induced delirium (a reaction to his new medication); once the medication was stopped, he improved significantly over the course of the next 2 days.

Clinical Description and Statistics

People with delirium appear confused, disoriented, and out of touch with their surroundings. They cannot focus and sustain their attention on even the simplest tasks. There are marked impairments in memory and language. Mr. J. had trouble speaking; he was not only confused but also couldn't remember basic facts, such as his own name. As you saw, the symptoms of delirium do not come on gradually but develop over hours or a few days, and they can vary over the course of a day.

Delirium is estimated to be present in as many as 30% of older adults who are admitted into acute care facilities such as emergency rooms (Fearing & Inouye, 2009). It is most prevalent among older adults, people undergoing medical procedures, cancer patients, and people with acquired immunodeficiency syndrome (AIDS). Delirium subsides relatively quickly. Once thought to be only a temporary problem, more recent work indicates that the effects of delirium may be more lasting (Cole, Ciampi, Belzile, &

Zhong, 2009). Some individuals continue to have problems on and off; some even lapse into a coma and may die. Many medical conditions that impair brain function have been linked to delirium, including intoxication by drugs and poisons; withdrawal from drugs such as alcohol and sedative, hypnotic, and anxiolytic drugs; infections; head injury; and various other types of brain trauma (Fearing & Inouye, 2009).

DSM Disorder Criteria Summary Delirium

- A. Disturbance of consciousness (i.e., reduced clarity of awareness of the environment) with reduced ability to focus, sustain, or shift attention.
- B. A change in cognition (such as memory deficit, disorientation, language disturbance) or the development of a perceptual disturbance that is not better accounted for by a preexisting, established, or evolving dementia.
- C. The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day.
- D. There is evidence from the history, physical examination, or laboratory findings that the disturbance is caused by the direct physiological consequences of a general medical condition.

Source: Reprinted with permission from *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision). © 2000 American Psychiatric Association.

Causes

DSM-IV-TR recognizes several causes of delirium among its subtypes. The criteria for delirium due to a general medical condition include a disturbance of consciousness (reduced awareness of the environment) and a change in cognitive abilities such as memory and language skills, occurring over a short period and brought about by a general medical condition. Other subtypes include the diagnosis received by Mr. J.—substance-induced delirium—and delirium due to multiple causes and delirium not otherwise specified. The rise in the use of drugs such as ecstasy (methylenedioxymethamphetamine) is of particular concern because of such drugs' potential to produce delirium (Solai, 2009). The last two categories indicate the often complex nature of delirium.

That delirium can be brought on by the improper use of medication, which is a particular problem for older adults because they tend to use prescription medications more than any other age group. The risk of problems among the elderly is increased further because they tend to eliminate drugs from their systems less efficiently than younger individuals. It is not surprising, then, that adverse drug reactions resulting in hospitalization are almost 6 times higher among elderly people than in other age groups (Olivier et al., 2009). And it is believed that delirium is responsible for many of the falls that cause debilitating hip fractures in the elderly (Stenvall et al., 2006). Although there has been some improvement in the use of medication among older adults with physicians using more care with drug dosages and the use of multiple drugs, improper use continues to produce serious side effects, including symptoms of delir-

ium (Olivier et al., 2009). Because possible combinations of illnesses and medications are so numerous, determining the cause of delirium is extremely difficult (Solai, 2009).

Delirium may be experienced by children who have high fevers or who are taking certain medications and is often mistaken for noncompliance (Smeets et al., 2010). It often occurs during the course of dementia; as many as 50% of people with dementia suffer at least one episode of delirium (Kwok, Lee, Lam, & Woo, 2008). Because many of the primary medical conditions can be treated, delirium is often reversed within a relatively short time. Yet, in about a quarter of cases, delirium can be a sign of the end of life (Wise, Hilty, & Cerda, 2001).

Factors other than medical conditions can trigger delirium. Age itself is an important factor; older adults are more susceptible to developing delirium as a result of mild infections or medication changes (Fearing & Inouye, 2009). Sleep deprivation, immobility, and excessive stress can also cause delirium (Solai, 2009).

Treatment

Delirium brought on by withdrawal from alcohol or other drugs is usually treated with haloperidol or other antipsychotic medications, which help calm the individual. Infections, brain injury, and tumors are given the necessary and

appropriate medical intervention, which often then resolves the accompanying delirium. The antipsychotic drug haloperidol is also prescribed for individuals in acute delirium when the cause is unknown (Fearing & Inouye, 2009).

The recommended first line of treatment for a person experiencing delirium is psychosocial intervention. The goal of nonmedical treatment is to reassure the individual to help him or her deal with the agitation, anxiety, and hallucinations of delirium. A person in the hospital may be comforted by familiar personal belongings such as family photographs (Fearing & Inouye, 2009). Also, a patient who is included in all treatment decisions retains a sense of control (Katz, 1993). This type of psychosocial treatment can help the person manage during this disruptive period until the medical causes are identified and addressed. Some evidence suggests that this type of support can also delay institutionalization for elderly patients (Rahkonen et al., 2001).

Prevention

Preventive efforts may be most successful in assisting people who are susceptible to delirium. Proper medical care for illnesses and therapeutic drug monitoring can play significant roles in preventing delirium (Fearing & Inouye, 2009). For example, the increased number of older adults involved in managed care and patient counseling on drug use appear to have led to more appropriate use of prescription drugs among the elderly (U.S. General Accounting Office, 1995).



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▲ Patients in care facilities are often comforted by having their personal belongings nearby.

Concept Check 13.4

Match the terms with the following descriptions of delirium: (a) memory, (b) cause, (c) counseling, (d) confused, (e) elderly, and (f) trauma.

1. Managed care and patient _____ have been successful in preventing delirium in older adults.
2. Treatment of delirium depends on the _____ of the episode and can include medications, psychosocial intervention, or both.
3. Delirium severely affects people's _____, making tasks such as recalling one's own name difficult.
4. The _____ population is at the greatest risk of experiencing delirium resulting from improper use of medications.
5. Various types of brain _____, such as head injury or infection, have been linked to delirium.
6. People who suffer from delirium appear to be _____ or out of touch with their surroundings.

delirium Rapid-onset reduced clarity of consciousness and cognition, with confusion, disorientation, and deficits in memory and language.

Dementia

Few things are more frightening than the possibility that you will one day not recognize those you love, that you will not be able to perform the most basic of tasks, and—worse yet—that you will be acutely aware of this failure of your mind. When family members show these signs, initially adult children often deny any difficulty, coming up with excuses (“I forget things, too”) for their parents’ failing abilities. **Dementia** is the cognitive disorder that makes these fears real: a gradual deterioration of brain functioning that affects judgment, memory, language, and other advanced cognitive processes. Dementia is caused by several medical conditions and by the abuse of drugs or alcohol that cause negative changes in cognitive functioning. Some of these conditions—for instance, infection or depression—can cause dementia, although it is often reversible through treatment of the primary condition. Some forms of the disorder, such as Alzheimer’s disease, are at present irreversible. Although delirium and dementia can occur together, dementia has a gradual progression as opposed to delirium’s acute onset; people with dementia are not disoriented or confused in the early stages, unlike people with delirium. Like delirium, however, dementia has many causes, including a variety of traumas to the brain such as stroke (which destroys blood vessels), the infectious diseases of syphilis and HIV, severe head injury, the introduction of certain toxic or poisonous substances, and diseases such as Parkinson’s, Huntington’s, and, the most common cause of dementia, Alzheimer’s. Consider the personal account by Diana, a woman who poignantly writes of her experiences with this disorder (McGowin, 1993).

Diana ♦ Humiliation and Fear

At the age of 45, Diana Friel McGowin was a successful legal assistant, wife, and mother, but she was beginning to experience “lapses.” She writes about developing these problems just before a party she was planning for her family.

Nervously, I checked off the table appointments on a list retrieved from my jumpsuit pocket. Such a list had never been necessary before, but lately I noticed frequent little episodes of confusion and memory lapses.

I had decided to “cheat” on this family buffet and have the meal prepared on a carry-out basis. Cooking was also becoming increasingly difficult, due to what my children and my husband Jack teasingly referred to as my “absentmindedness.” (pp. 1–2)

In addition to memory difficulties, other problems began at this time, including brief dizzy spells. Diana wrote of her family’s growing awareness of the additional symptoms.

Shaun walked past me on his way to the kitchen, and paused. “Mom, what’s up? You look ragged,” he com-

mented sleepily. “Late night last night, plenty of excitement, and then up early to get your father off to work,” I answered. Shaun laughed disconcertingly. I glanced up at him ruefully. “What is so funny?” I demanded. “You, Mom! You are talking as though you are drunk or something! You must really be tired!” (pp. 4–5)

In the early stages of her dementia, Diana tended to explain these changes in herself as temporary, with such causes as tension at work. However, the extent of her dysfunction continued to increase, and she had more frightening experiences. In one episode, she describes an attempt to drive home from a brief errand.

Suddenly, I was aware of car horns blowing. Glancing around, nothing was familiar. I was stopped at an intersection and the traffic light was green. Cars honked impatiently, so I pulled straight ahead, trying to get my bearings. I could not read the street sign, but there was another sign ahead; perhaps it would shed some light on my location. A few yards ahead, there was a park ranger building. Trembling, I wiped my eyes, and breathing deeply, tried to calm myself. Finally, feeling ready to speak, I started the car again and approached the ranger station. The guard smiled and inquired how he could assist me. “I appear to be lost,” I began, making a great effort to keep my voice level, despite my emotional state. “Where do you need to go?” the guard asked politely. A cold chill enveloped me as I realized I could not remember the name of my street. Tears began to flow down my cheeks. I did not know where I wanted to go. (pp. 7–8)

Diana’s difficulties continued. She sometimes forgot the names of her children, and once she astounded her nephew when she didn’t recognize him. If she left home, she almost invariably got lost. She learned to introduce herself as a tourist from out of town because people would give her better directions. She felt as if there “was less of me every day than there was the day before” (p. 33).

During initial medical examinations, Diana didn’t recall this type of problem in her family history. However, a look through some of her late mother’s belongings revealed that she was not the first to experience symptoms of dementia.

Then I noticed the maps. After mother’s death I had found mysterious hand drawn maps and bits of directions scribbled on note papers all over her home. They were in her purses, in bureau drawers, in the desks, seemingly everywhere. Too distraught at the time to figure out their purpose, I simply packed them all away with other articles in the box. Now I smoothed out each map and scrawled note, and placed them side by side. They covered the bedroom floor. There were maps to every place my mother went about town, even to my home and my brother’s home. As I deciphered each note and map, I began recollecting my mother’s other

eccentric habits. She would not drive out of her neighborhood. She would not drive at night. She was teased by both myself and my brother about “memory goofs” and would become irate with both of her children over their loving teasing.

Then with a chill, I recalled one day when I approached my mother to tell her something, and she did not recognize me. (p. 52)

After several evaluations, which included magnetic resonance imaging (MRI) showing some damage in several parts of her brain, Diana’s neurologist concluded that she had dementia. The cause could be a stroke she had had years before that damaged several small areas of her brain by breaking or blocking several blood vessels. The dementia could also indicate Alzheimer’s disease. People at the same stage of decline as Diana will continue to deteriorate and eventually may die from complications of their disorder.

Clinical Description and Statistics

Depending on the individual and the cause of the disorder, the gradual progression of dementia may have somewhat different symptoms, although all aspects of cognitive functioning are eventually affected. In the initial stages, memory impairment is typically seen as an inability to register ongoing events. In other words, a person can remember how to talk and may remember events from many years ago but will have trouble remembering what happened in the past hour. For example, Diana still knew how to use the stove but couldn’t remember whether she had turned it on or off.

Diana couldn’t find her way home because visuospatial skills are impaired among people with dementia. **Agnosia**, the inability to recognize and name objects, is one of the most familiar symptoms. **Facial agnosia**, the inability to recognize even familiar faces, can be extremely distressing to family members. Diana failed to recognize not only her nephew but also coworkers she had seen daily for years. A general deterioration of intellectual function results from impairment in memory, planning, and abstract reasoning.

Perhaps partly because people suffering from dementia are aware that they are deteriorating mentally, emotional changes often occur also. Common side effects are delusions (irrational beliefs), depression, agitation, aggression, and apathy (Richards & Sweet, 2009). Again, it is difficult to establish the cause-and-effect relationship. It is not known how much behavioral change is caused by progressive brain deterioration directly and how much is a result of the frustration and discouragement that inevitably accompany the loss of function and the isolation of “losing” loved ones. Cognitive functioning continues to deteriorate until the person requires almost total support to carry out day-to-day activities. Ultimately, death occurs as the result of inactivity, combined with the onset of other illnesses, such as pneumonia.

Dementia can occur at almost any age, although this disorder is more frequent in older adults. Current estimates in

the United States suggest a prevalence of a little more than 5% in people older than 65; this rate increases to 20% to 40% in those older than 85 (Richards & Sweet, 2009). Estimates of the increasing number of people with just one form of dementia—dementia of the Alzheimer’s type—are alarming. Table 13.3 illustrates how the prevalence of dementia of the Alzheimer’s type is projected to dramatically increase in older adults, partly as a result of the increase of baby boomers who will become senior citizens (Hebert, Scherr, Bienias, Bennett, & Evans, 2003). Among the eldest of adults, research on centenarians (people 100 years and older) indicates that up to 100% showed signs of dementia (Imhof et al., 2007). Dementia of the Alzheimer’s type rarely occurs in people under 45 years of age.

A problem with confirming prevalence figures for dementia is that survival rates alter the outcomes. Because adults are generally living longer and therefore more are at greater risk of developing dementia, it is not surprising that dementia is more prevalent. Incidence studies, which count the number of new cases in a year, may thus be the most reliable method for assessing the frequency of dementia, especially among the elderly. Research shows that the rate for new cases doubles with every 5 years of age after age 75. Many studies find greater increases of dementia among women (Richards & Sweet, 2009), although this may be because of the tendency of women to live longer. Dementia of the Alzheimer’s type may, as we discuss later, be more prevalent among women. Together, results suggest that dementia is a relatively common disorder among older adults and the chances of developing it increase rapidly after the age of 75.

In addition to the human costs of dementia, the financial costs are staggering. Estimates of the costs of caring for people with dementia of the Alzheimer’s type are often quoted to be about \$100 billion per year in the United

Table 13.3 Estimates of Prevalence of Alzheimer’s Disease in the United States Through 2050 (in millions)

Year	Age 65–74	Age 75–84	Age 85 and Older
2000	0.3	2.4	1.8
2010	0.3	2.4	2.4
2020	0.3	2.6	2.8
2030	0.5	3.8	3.5
2040	0.4	5.0	5.6
2050	0.4	4.8	8.0

Source: Adapted from Hebert, L. E., Scherr, P. A., Bienias, J. L., Bennett, D. A., & Evans, D. A. (2003). Alzheimer disease in the U.S. population: Prevalence estimates using the 2000 Census. *Archives of Neurology*, 60, 1119–1122.

dementia Gradual-onset deterioration of brain functioning, involving memory loss, inability to recognize objects or faces, and problems in planning and abstract reasoning. These are associated with frustration and discouragement.

agnosia Inability to recognize and name objects; may be a symptom of dementia or other brain disorders.

facial agnosia Type of agnosia characterized by a person’s inability to recognize even familiar faces.



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▲ People with facial agnosia, a common symptom of dementia, are unable to recognize faces, even of their closest friends and relatives.

States. One estimate indicates that the total worldwide societal cost of dementia is more than \$315 billion (Wimo, Winblad, & Jonsson, 2007). However, these numbers do not factor in the costs to businesses for health care in the form of insurance and for those who care for these individuals—estimated to be more than \$140 billion in the United States alone (Weiner et al., 2010). Many times, family members care for an afflicted person around the clock, which is an inestimable personal and financial commitment (Richards & Sweet, 2009).

The statistics on prevalence and incidence cover dementias that arise from a variety of causes. *DSM-IV-TR* groups are based on presumed cause, but determining the cause of dementia is an inexact process. Sometimes, as with dementia of the Alzheimer's type, clinicians rely on ruling out alternative explanations—identifying all the things that are not the cause—instead of determining the precise origin.

Five classes of dementia based on etiology have been identified: (1) dementia of the Alzheimer's type; (2) vascular dementia; (3) dementia due to other general medical conditions; (4) substance-induced persisting dementia; (5) dementia due to multiple etiologies; and (6) dementia not otherwise specified, when cause cannot be determined. We emphasize dementia of the Alzheimer's type because of its prevalence (almost half of those with dementia exhibit this type) and the relatively large amount of research conducted on its etiology and treatment.

Dementia of the Alzheimer's Type

The German psychiatrist Alois Alzheimer first described the disorder that bears his name in 1907. He wrote of a 51-year-old woman who had a “strange disease of the cerebral cortex” that manifested as a progressive memory impairment and other behavioral and cognitive problems, including suspiciousness (Richards & Sweet, 2009). He

called the disorder an “atypical form of senile dementia”; thereafter, it was referred to as **Alzheimer's disease**.

The *DSM-IV-TR* diagnostic criteria for **dementia of the Alzheimer's type** include multiple cognitive deficits that develop gradually and steadily. Predominant are impairment of memory, orientation, judgment, and reasoning. The inability to integrate new information results in failure to learn new associations. Individuals with Alzheimer's disease forget important events and lose objects. Their interest in nonroutine activities narrows. They tend to lose interest in others and, as a result, become more socially isolated. As the disorder progresses, they can become agitated, confused, depressed, anxious, or even combative. Many of these difficulties become more pronounced late in the day—in a phenomenon referred to as “sundowner syndrome”—perhaps as a result of fatigue or a disturbance in the brain's biological clock (Lemay & Landreville, 2010).

People with dementia of the Alzheimer's type also display one or more other cognitive disturbances, including aphasia (difficulty with language), apraxia (impaired motor functioning), agnosia (failure to recognize objects), or difficulty with activities such as planning, organizing, sequencing, or abstracting information. These cognitive impairments have a serious negative impact on social and occupational functioning, and they represent a significant decline from previous abilities.

Research using brain scans is being conducted on people with mild cognitive impairment to see whether changes in brain structure early in the development of Alzheimer's disease can be detected, which can lead to early diagnosis. In the past, a definitive diagnosis of Alzheimer's disease could be made only after an autopsy determined that certain characteristic types of damage were present in the brain. However, there is now growing evidence that the use of sophisticated brain scans along with new chemical tracers may soon be able to help clinicians identify the presence of Alzheimer's disease before the significant declines in cognitive abilities (through a project called the Alzheimer's Disease Neuroimaging Initiative [ADNI]) or death (Weiner et al., 2010). Currently, to make a diagnosis without direct examination of the brain, a simplified version of a mental status exam is used to assess language and memory problems (see Table 13.3).

In an interesting, somewhat controversial study—referred to as the “Nun Study”—the writings of a group of Catholic nuns collected over several decades appeared to indicate early in life which women were most likely to develop Alzheimer's disease later (Snowdon et al., 1996). Researchers observed that samples from the nuns' journals over the years differed in the number of ideas each contained, which the scientists called “idea density.” In other words, some sisters described events in their lives simply: “I was born in Eau

Claire, Wis, on May 24, 1913 and was baptized in St. James Church.” Others were more elaborate in their prose: “The happiest day of my life so far was my First Communion Day which was in June nineteen hundred and twenty when I was but eight years of age, and four years later in the same month I was confirmed by Bishop D. D. McGavich” (Snowdon et al., 1996, pg. 530). When findings of autopsies on 14 of the nuns were correlated with idea density, the simple writing (low idea density) occurred among all five nuns with Alzheimer’s disease (Snowdon et al., 1996). This is an elegant research study because the daily lives of the nuns were similar, which ruled out many other possible causes. However, there is some concern about overgeneralizing from this one study and we must be cautious about depending too much on these observations because only a small number of people were examined. It is not yet clear that dementia of the Alzheimer’s type has such early signs, but research continues in the hope of early detection so that early intervention can be developed (Tyas et al., 2007).

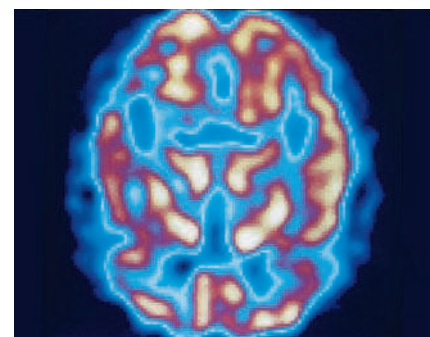
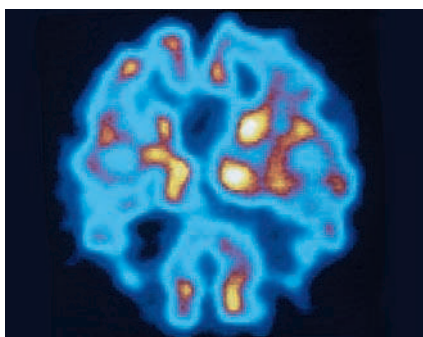
Cognitive deterioration of the Alzheimer’s type is slow during the early and later stages but more rapid during the middle stages (Richards & Sweet, 2009). The average survival time is estimated to be about 8 years, although many individuals live dependently for more than 10 years. In some forms, the disease can occur relatively early, during the 40s or 50s (sometimes referred to as *presenile dementia*), but it usually appears during the 60s or 70s. Approximately 50% of the cases of dementia are found to be the result of Alzheimer’s disease, which is believed to afflict more than 5 million Americans and millions more worldwide (Alzheimer’s Association, 2010).

Some early research on prevalence suggested that Alzheimer’s disease may occur more often in people who are poorly educated (Fratiglioni et al., 1991; Korszyn, Kahana, & Galper, 1991). Greater impairment among uneducated people might indicate a much earlier onset, suggesting that Alzheimer’s disease causes intellectual dysfunction that in turn hampers educational efforts. Or there could be something about intellectual achievement that prevents or delays the onset of symptoms of the disorder. Later research seems to confirm the latter explanation. It appears that educational level may predict a delay in the observation of symptoms (Pernecky et al., 2009). Unfortunately, people who attain a higher level of education also decline more rapidly once the symptoms start to occur (Scarmeas, Albert, Manly, & Stern, 2006), suggesting that education does not prevent Alzheimer’s disease but just provides a buffer period of better functioning. Educational attainment may somehow create a mental “reserve,” a learned set of skills that help someone cope longer with the cognitive deterioration that marks the beginning of dementia. Like Diana’s mother, who made copious notes and maps to help her function despite her cognitive deterioration, some people may adapt more successfully than others and thus escape detection longer.

Brain deterioration may thus be comparable for both groups, but better-educated individuals may be able to function successfully on a day-to-day basis for a longer period. This tentative hypothesis may prove useful in designing treatment strategies, especially during the early stages of the disorder.

A biological version of this theory—the cognitive reserve hypothesis—suggests that the more synapses a person develops throughout life, the more neuronal death must take place before the signs of dementia are obvious (Stern, 2009). Mental activity that occurs with education presumably builds up this reserve of synapses and serves as an initial protective factor in the development of the disorder. It is likely that both skill development and the changes in the brain with education may contribute to how quickly the disorder progresses.

Research suggests that Alzheimer’s disease may be more prevalent among women (Craig & Murphy, 2009), even when women’s higher survival rate is factored into the statistics. In other words, because women live longer than men on average, they are more likely to experience Alzheimer’s and other diseases, but longevity alone does not account for the higher prevalence of the disorder among women. A tentative explanation involves the hormone estrogen. Women lose estrogen as they grow older, so perhaps estrogen is protective against the disease. A large and important study—the Women’s Health Initiative Memory Study—looked at hormone use among women and its effect on Alzheimer’s disease (Shumaker et al., 2004). In its initial findings, the study followed women over age 65 using a type of combined estrogen plus progestin known as Prempro and, contrary to the belief that giving women estrogen would decrease their chance of developing dementia, they observed an *increased* risk for Alzheimer’s disease (Coker et al., 2010). More research is ongoing into the individual effects of these two types of hormones on dementia.



▲ The PET scan of a brain afflicted with Alzheimer’s disease (*left*) shows significant tissue deterioration in comparison with a normal brain (*right*).

Alzheimer’s disease Disease of the cerebral cortex that causes an atypical form of senile dementia, discovered in 1906 by German psychiatrist Alois Alzheimer.

dementia of the Alzheimer’s type Gradual onset of cognitive deficits caused by Alzheimer’s disease, principally identified by a person’s inability to recall newly or previously learned material. The most common form of dementia.

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DSM Disorder Criteria Summary

Alzheimer's Disease

- A. The development of multiple cognitive deficits manifested by both (1) memory impairment (impaired ability to learn new information or to recall previously learned information); (2) one (or more) of the following cognitive disturbances: (a) aphasia (language disturbance); (b) apraxia (impaired ability to carry out motor activities despite intact motor function); (c) agnosia (failure to recognize or identify objects despite intact sensory function); (d) disturbance in executive functioning (i.e., planning, organizing, sequencing, abstracting)
- B. The cognitive deficits in Criteria A1 and A2 each cause significant impairment in social or occupational functioning and represent a significant decline from a previous level of functioning.
- C. The course is characterized by gradual onset and continuing cognitive decline.
- D. The cognitive deficits in Criteria A1 and A2 are not due to any of the following:
 - (1) other central nervous system conditions that cause progressive deficits in memory and cognition (e.g., cerebrovascular disease, Parkinson's disease, Huntington's disease, subdural hematoma, normal-pressure hydrocephalus, brain tumor);
 - (2) systemic conditions that are known to cause dementia (e.g., hypothyroidism, vitamin B₁₂ or folic acid deficiency, niacin deficiency, hypercalcemia, neurosyphilis, HIV infection);
 - (3) substance-induced conditions
- E. The deficits do not occur exclusively during the course of a delirium.
- F. The disturbance is not better accounted for by another Axis I disorder (e.g., Major Depressive Disorder, Schizophrenia).

Source: Reprinted with permission from *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision). © 2000 American Psychiatric Association.

Finally, there appear to be questions about the prevalence of Alzheimer's disease according to racial identity. Early research seemed to suggest that certain populations (such as those with Japanese, Nigerian, certain Native American, and Amish backgrounds) were less likely to be affected (for example, see Pericak-Vance et al., 1996; Rosenberg et al., 1996). However, more recent work indicates that some of these differences may have been the result of differences in who seeks assistance (which is seen as unacceptable in some cultural groups) and differences in education (which we saw may delay the onset of obvious symptoms) (Wilson et al., 2010). Alzheimer's disease is found in roughly the same numbers across all ethnic groups, with one study finding a slightly lower rate among American Indians (Weiner, Hynan, Beekly, Koepsell, & Kukull, 2007). As you will see, findings like these help bring us closer to understanding the causes of this devastating disease.

Vascular Dementia

Each year, 500,000 people die from strokes (any diseases or traumas to the brain that result in restriction or cessation of blood flow). Although stroke is the third-leading cause of death in the United States, many people survive, but one potential long-term consequence can be severely debilitating. **Vascular dementia** is a progressive brain disorder that is a common cause of dementia (Richards & Sweet, 2009).

The word *vascular* refers to blood vessels. When the blood vessels in the brain are blocked or damaged and no longer carry oxygen and other nutrients to certain areas of

brain tissue, damage results. MRI scans of Diana's brain showed a number of damaged areas, or multiple infarctions, left by a stroke several years earlier; this was one probable cause of her dementia. Because multiple sites in the brain can be damaged, the profile of degeneration—the particular skills that are impaired—differs from person to person. *DSM-IV-TR* lists as criteria for vascular dementia the memory and other cognitive disturbances that are identical to those for dementia of the Alzheimer's type. However, certain neurological signs of brain tissue damage, such as abnormalities in walking and weakness in the limbs, are observed in many people with vascular dementia but not in people in the early stages of dementia of the Alzheimer's type. However, this distinction between vascular dementia and dementia of the Alzheimer's type is controversial and the two types may overlap more than previously thought (Lyketos, 2009).

In comparison with research on dementia of the Alzheimer's type, there are fewer studies on vascular dementia, perhaps because of its lower incidence rates. The prevalence of vascular dementia is approximately 1.5% in people 70 to 75 years of age and increases to 15% for those over the age of 80 (Neugroschi, Kolevzon, Samuels, & Marin, 2005). The risk for men is slightly higher than among women, in contrast with the higher risk among women for Alzheimer's type dementia, and this has been reported in many developed and developing countries (Kalaria et al., 2008). The relatively high rate of cardiovascular disease among men in general may account for their increased risk of vascular dementia. The onset of vascular dementia is typically more sudden than the onset for the Alzheimer's type, probably because the disorder is the result of stroke, which inflicts brain damage immediately. The outcome, however, is similar for people with both types: Ultimately, they will require formal nursing care until they succumb to an infectious disease such as pneumonia, to which they are susceptible because of weakening of the immune system.

Dementia Due to Other General Medical Conditions

In addition to Alzheimer's disease and vascular damage, a number of other neurological and biochemical processes can lead to dementia. As you will see next, a variety of diseases can cause the loss of previous levels of cognitive abilities.

DSM-IV-TR lists several other types of dementia with specific causes, including dementia due to HIV disease, dementia due to head trauma, dementia due to Parkinson's disease, dementia due to Huntington's disease, dementia due to Pick's disease, and dementia due to Creutzfeldt-Jakob disease. Each of these is discussed here. Other medical conditions that can lead to dementia include normal pressure hydrocephalus (excessive water in the cranium, resulting from brain shrinkage), hypothyroidism (an underactive thyroid gland), brain tumor, and vitamin B₁₂ deficiency. There is increasing recognition of dementia in former boxers or other athletes who receive repeated blows to the head. In the past this type of dementia was referred to as *dementia pugilistica* (which suggested that it was restricted to boxers or pugilists) but it is currently referred to as *chronic traumatic encephalopathy* (CTE). CTE is caused

by repetitive **head trauma** that can provoke distinctive neurodegeneration (Gavett, Stern, Cantu, Nowinski, & McKee, 2010). In their effect on cognitive ability, all of these disorders are comparable to the other forms of dementia we have discussed so far.

The **human immunodeficiency virus type 1 (HIV-1)**, which causes AIDS, can also cause dementia (Rappaport & Berger, 2010). This impairment seems to be independent of the other infections that accompany HIV; in other words, the HIV infection itself seems to be responsible for the neurological impairment. The early symptoms of dementia resulting from HIV are cognitive slowness, impaired attention, and forgetfulness. Affected individuals also tend to be clumsy, to show repetitive movements such as tremors and leg weakness, and to become apathetic and socially withdrawn.

People with HIV seem particularly susceptible to impaired thinking in the later stages of HIV infection, although significant declines in cognitive abilities may occur earlier. Cognitive impairments were highly common among those infected with AIDS, but with the introduction of new medications (highly active antiretroviral therapies, or HAARTs) less than 10% of patients now experience dementia (Neugroschi et al., 2005). HIV-1 accounts for a relatively small percentage of people with dementia compared to Alzheimer's disease and vascular causes, but its presence can complicate an already-devastating set of medical conditions.

Like dementia from Parkinson's disease, Huntington's disease, and several other causes, dementia resulting from HIV is sometimes referred to as *subcortical dementia* because it affects primarily the inner areas of the brain, below the outer layer called the cortex (Bourgeois, Seaman, & Servis, 2003). The distinction between cortical (including dementia of the Alzheimer's type) and subcortical dementia is important because of the different expressions of dementia in these two categories (see Table 13.3). **Aphasia**, which involves impaired language skills, occurs among people with dementia of the Alzheimer's type but not among people with subcortical dementia. In contrast, people with subcortical dementia are more likely to experience severe depression and anxiety than those with dementia of the Alzheimer's type. In general, motor skills including speed and coordination are impaired early on among those with subcortical dementia. The differing patterns of impairment can be attributed to the different areas of the brain affected by the disorders causing the dementia.

Parkinson's disease is a degenerative brain disorder that affects about 1 in every 1,000 people worldwide (Marsh & Margolis, 2009). Movie and television star Michael J. Fox and former Attorney General Janet Reno both suffer from this progressive disorder. Motor problems are characteristic among people with Parkinson's disease, who tend to have stooped posture, slow body movements (called *bradykinesia*), tremors, and jerkiness in walking. The voice is also affected; afflicted individuals speak in a soft monotone. The changes in motor movements are the result of damage to dopamine pathways. Because dopamine is involved in complex movement, a reduction in this neurotransmitter makes affected individuals increasingly unable to control their

muscle movements, which leads to tremors and muscle weakness. The course of the disease varies widely, with some individuals functioning well with treatment.

It is estimated that about 75% of people who survive more than 10 years with Parkinson's disease develop dementia; conservative estimates place the rate at 4 to 6 times that found in the general population (Aarsland & Kurz, 2010). The pattern of impairments for these individuals fits the general pattern of subcortical dementia (see Table 13.3).

Huntington's disease is a genetic disorder that initially affects motor movements, typically in the form of *chorea*, involuntary limb movements (Marsh & Margolis, 2009). People with Huntington's disease can live for 20 years after the first signs of the disease appear, although skilled nursing care is often required during the last stages. Just as with Parkinson's disease, only a portion of people with Huntington's disease go on to display dementia—somewhere between 20% and 80%—although some researchers believe that all patients with Huntington's disease would eventually display dementia if they lived long enough (Marsh & Margolis, 2009). Dementia resulting from Huntington's disease also follows the subcortical pattern.

For some time, researchers have known that the disease is inherited as an autosomal dominant disorder, meaning that approximately 50% of the offspring of an adult with Huntington's disease will develop the disease. Since 1979, behavioral scientist Nancy Wexler and a team of researchers have been studying the largest known extended family in the world afflicted by Huntington's disease, in small villages in Venezuela. The villagers have cooperated with the research, partly because Wexler herself lost her mother,



Jed Jacobsohn/Getty Images Entertainment/Getty Images

▲ Michael J. Fox provides his time and celebrity status to efforts to cure Parkinson's disease, a degenerative disease that is severely affecting his life.

vascular dementia Progressive brain disorder involving loss of cognitive functioning, caused by blockage of blood flow to the brain, that appears concurrently with other neurological signs and symptoms.

head trauma Injury to the head and, therefore, to the brain, typically caused by accidents; can lead to cognitive impairments, including memory loss.

human immunodeficiency virus type 1 (HIV-1) Disease that causes AIDS.

aphasia Impairment or loss of language skills resulting from brain damage caused by stroke, Alzheimer's disease, or other illness or trauma.

Parkinson's disease Degenerative brain disorder principally affecting motor performance (for example, tremors and stooped posture) associated with reduction in dopamine. Dementia may be a result as well.

Huntington's disease Genetic disorder marked by involuntary limb movements and progressing to dementia.

three uncles, and her maternal grandfather to Huntington's disease, and she, too, may develop the disorder (Wexler & Rawlins, 2005). Using genetic linkage analysis techniques (see Chapter 3), these researchers first mapped the deficit to an area on chromosome 4 (Gusella et al., 1983) and then identified the elusive gene (Huntington's Disease Collaborative Research Group, 1993). Finding that one gene causes a disease is exceptional; research on other inherited mental disorders typically points to multiple gene (polygenic) influences.

Pick's disease is a rare neurological condition—occurring in about 5% of those people with dementia—that produces a cortical dementia similar to that of Alzheimer's disease. The course of this disease is believed to last from 5 to 10 years, although its cause is as yet unknown (Richards & Sweet, 2009). Like Huntington's disease, Pick's disease usually occurs relatively early in life—during a person's 40s or 50s—and is therefore considered an example of presenile dementia. An even rarer condition, **Creutzfeldt-Jakob disease**, is believed to affect only one in every million individuals (Heath et al., 2010). An alarming development in the study of Creutzfeldt-Jacob disease is the finding of 10 cases of a new variant that may be linked to bovine spongiform encephalopathy, more commonly referred to as “mad cow disease” (Neugroschi et al., 2005). This discovery led to a ban on exporting beef from the United Kingdom because the disease might be transmitted from infected cattle to humans. We do not yet have definitive information about the link between mad cow disease and the new form of Creutzfeldt-Jacob disease (Wiggins, 2009).

Substance-Induced Persisting Dementia

Prolonged drug use, especially combined with poor diet, can damage the brain and, in some circumstances, can lead to dementia. This impairment unfortunately lasts beyond the period involved in intoxication or withdrawal from these substances.

DSM-IV-TR identifies several drugs that can lead to symptoms of dementia, including alcohol, inhalants such as glue or gasoline (which some people inhale for the euphoric feeling they produce), and sedative, hypnotic, and anxiolytic drugs (see Chapter 10). These drugs pose a threat because they create dependence, making it difficult for a user to stop ingesting them. The resulting brain damage can be permanent and can cause the same symptoms as seen in dementia of the Alzheimer's type. The *DSM-IV-TR* criteria for substance-induced persisting dementia are essentially the same as those for the other forms of dementia; they include memory impairment and at least one of the following cognitive disturbances: aphasia (language disturbance), apraxia (inability to carry out motor activities despite intact motor function), agnosia (failure to recognize or identify objects despite intact sensory function), or a disturbance in executive functioning (such as planning, organizing, sequencing, and abstracting).

Causes of Dementia

A complete description of what is known about the origins of this type of brain impairment is beyond the scope of this book, but we highlight some insights available for more common forms of dementia.

Biological Influences. Cognitive abilities can be adversely compromised in many ways. As you have seen, dementia can be caused by a number of processes: Alzheimer's disease, Huntington's disease, Parkinson's disease, head trauma, substance abuse, and others. The most common cause of dementia, Alzheimer's disease, is also the most mysterious. Because of its prevalence and our relative ignorance about the factors responsible for it, Alzheimer's disease has held the attention of many researchers, who are trying to find the cause and ultimately a treatment or cure for this devastating condition.

A lesson in scientific caution comes from research that demonstrates a negative correlation between cigarette smoking and Alzheimer's disease (Brenner et al., 1993). In other words, the study found that smokers are less likely than nonsmokers to develop Alzheimer's disease. Does this mean smoking has a protective effect, shielding a person against the development of this disease? On close examination, the finding may instead be the result of the differential survival rates of those who smoke and those who do not. In general, nonsmokers tend to live longer and are thereby more likely to develop Alzheimer's disease, which appears later in life. Some even believe the relative inability of cells to repair themselves, a factor that may be more pronounced among people with Alzheimer's disease, may interact with cigarette smoking to shorten the lives of smokers who are at risk for Alzheimer's disease (Riggs, 1993). Put another way, smoking may exacerbate the degenerative process of Alzheimer's disease, causing people with the disease who also smoke to die earlier than nonsmokers who have Alzheimer's disease. These types of studies and the conclusions drawn from them should make us sensitive to the complicated nature of the disorders.

What do we know about Alzheimer's disease, the most common cause of dementia? After the death of the patient he described as having a “strange disease of the cerebral cortex,” Alois Alzheimer performed an autopsy. He found that the brain contained large numbers of tangled, strand-like filaments within the brain cells (referred to as *neurofibrillary tangles*). This type of damage occurs in everyone with Alzheimer's disease. A second type of degeneration results from gummy protein deposits—called *amyloid plaques* (also referred to as *neuritic* or *senile plaques*)—that accumulate between the neurons in the brains of people with this disorder. Amyloid plaques are also found in older adults who do not have symptoms of dementia, but they have far fewer of them than do individuals with Alzheimer's disease (Richards & Sweet, 2009). Both forms of damage—neurofibrillary tangles and amyloid plaques—accumulate over the years and are believed to produce

Table 13.4 Characteristics of Dementias

Characteristic	Dementia of the Alzheimer's Type	Subcortical Dementias
Language	Aphasia (difficulties with articulating speech)	No aphasia
Memory	Both recall and recognition are impaired	Impaired recall; normal or less impaired recognition
Visuospatial skills	Impaired	Impaired
Mood	Less severe depression and anxiety	More severe depression and anxiety
Motor speed	Normal	Slowed
Coordination	Normal until late in the progression	Impaired

Source: Adapted, with permission of Oxford University Press, from Cummings, J. L. (Ed.) (1990). *Subcortical dementia*. New York, NY: Oxford University Press, © 1990 Jeffrey L. Cummings.

the characteristic cognitive disorders we have been describing.

These two types of degeneration affect extremely small areas and can be detected only by a microscopic examination of the brain. As mentioned earlier, scientists are close, however, to developing the neuroimaging technology that may soon detect the early development of these types of brain cell damage without having to rely on an autopsy (Weiner et al., 2010). In addition to having neurofibrillary tangles and amyloid plaques, over time the brains of many people with Alzheimer's disease atrophy (shrink) to a greater extent than would be expected through normal aging (Richards & Sweet, 2009). Because brain shrinkage has many causes, however, only by observing the tangles and plaques can a diagnosis of Alzheimer's disease be properly made.

Rapid advances are being made toward uncovering the genetic bases of Alzheimer's disease (e.g., Seshadri et al., 2010). As with most other behavioral disorders we have examined, multiple genes seem to be involved in the development of Alzheimer's disease. Table 13.4 illustrates what we know so far. Genes on chromosomes 21, 19, 14, 12, and 1 have all been linked to certain forms of Alzheimer's disease (Neugroschi et al., 2005). The link to chromosome 21 was discovered first, and it resulted from the unfortunate observation that individuals with Down syndrome, who have three copies of chromosome 21 instead of the usual two, developed the disease at an unusually high rate (Report of the Advisory Panel on Alzheimer's Disease, 1995). More recent work has located relevant genes on other chromosomes. These discoveries indicate that there is

more than one genetic cause of Alzheimer's disease. Some forms, including the one associated with chromosome 14, have an early onset. Diana may have an early-onset form because she started noting symptoms at the age of 45. In contrast, Alzheimer's disease associated with chromosome 19 seems to be a late-onset form of the disease that has an effect only after the age of about 60.

Some genes that are now identified are **deterministic**, meaning that if you have one of these genes you have a nearly 100% chance of developing Alzheimer's disease (Bettens, Sleegers, & Van Broeckhoven, 2010). Deterministic genes such as the precursor gene for small proteins called *amyloid beta peptides* (also referred to as beta-amyloid or A β) and the *Presenilin 1* and *Presenilin 2* genes will inevitably lead to Alzheimer's disease, but, fortunately, these genes are also rare in the general population. For treatment purposes, this means that even if researchers can find a way to prevent these genes from leading to Alzheimer's disease, it will only help a relatively small number of people. However, some genes—including the *apolipoprotein E4* (*apo E4*) gene—are known as **susceptibility** genes. These genes only slightly increase the risk of developing Alzheimer's disease, but in contrast to the deterministic genes, these are more common in the general population (Bettens et al., 2010). If future research can find ways to interfere with the apo E4 gene, many people will be helped.

Although closing in on the genetic origins of Alzheimer's disease has not brought immediate treatment implications, researchers are nearer to understanding how the disease develops, which may result in medical interventions. Genetic research has advanced our knowledge of how the amyloid plaques develop in the brains of people with Alzheimer's disease and may hold a clue to its origins. In the core of the plaques is a solid waxy substance made up of A β . Just as cholesterol buildup on the walls of blood vessels chokes the blood supply, deposits of A β are believed by some researchers to cause the cell death associated with Alzheimer's disease (Gatz, 2007). This type of research holds the potential for better understanding the complex nature of Alzheimer's disease and may lead to important prevention strategies (such as lowering cholesterol levels and exercising regularly) (Pedersen, 2010).

For all disorders described in this book, we have identified the role of biological, psychological, or both types of

Pick's disease Rare neurological disorder that results in presenile dementia.

Creutzfeldt-Jakob disease Extremely rare condition that causes dementia.

deterministic In genetics, genes that lead to nearly a 100% chance of developing the associated disorder. These are rare in the population.

susceptibility In genetics, genes that only slightly increase the risk of developing the disorder, but in contrast to the deterministic genes, these are more common in the population.

stressors as partially responsible for the onset of the disorder. Does dementia of the Alzheimer's type—which appears to be a strictly biological event—follow the same pattern? One of the leading candidates for an external contributor to this disorder is head trauma. As we have seen, it appears that repeated blows to the head can bring on *dementia pugilistica*, named after the boxers who suffer from this type of dementia. Fighters who carry the apo E4 gene may be at greater risk for developing dementia attributed to head trauma (Jordan et al., 1997). In addition to boxers, news accounts suggest links to the trauma experienced by NFL players and the development of dementia in these former athletes (Schwarz, 2007). Because it is now known that not only boxers are affected by this type of dementia, the disorder is now termed *chronic traumatic encephalopathy (CTE)*. Head trauma may be one of the stressors that initiates the onset of dementias of varying types. Other such stressors include having diabetes, high blood pressure, or herpes simplex virus-1 (Richards & Sweet, 2009). As with each of the disorders discussed, psychological and biological stressors may interact with physiological processes to produce Alzheimer's disease.

Psychological and Social Influences. Research has mostly focused on the biological conditions that produce dementia. Although few would claim that psychosocial influences directly cause the type of brain deterioration seen in people with dementia, they may help determine onset and course. For example, a person's lifestyle may involve contact with factors that can cause dementia. You saw, for instance, that substance abuse can lead to dementia and, as we discussed previously (see Chapter 10), whether a person abuses drugs is determined by a combination of biological and psychosocial factors. In the case of vascular dementia, a person's biological vulnerability to vascular disease will influence the chances of strokes that can lead to this form of dementia. Lifestyle issues such as diet, exercise, and stress influence cardiovascular disease and therefore help determine who experiences vascular dementia.

Cultural factors may also affect this process. For example, hypertension and strokes are prevalent among African Americans and certain Asian Americans (King, Mainous III, & Geesey, 2007), which may explain why vascular dementia is more often observed in members of these groups. In an extreme example, exposure to a viral infection can lead to dementia similar in form to Creutzfeldt-Jakob disease through a condition known as kuru. This virus is passed on through a ritual form of cannibalism practiced in Papua New Guinea as a part of mourning (Collinge et al., 2006). Dementia caused by head trauma and malnutrition are relatively prevalent in preindustrial rural societies (Del Parigi, Panza, Capurso, & Solfrizzi, 2006). Not getting enough of vitamins B₉ and B₁₂ in particular seems to lead to dementia, although the process is as yet unknown. These findings suggest that occupational safety (such as protecting workers from head injuries) and economic con-

ditions influencing diet also affect the prevalence of certain forms of dementia.

Psychosocial factors themselves influence the course of dementia. Recall that educational attainment may affect the onset of dementia (Richards & Sweet, 2009). Having certain skills may help some people cope better than others with the early stages of dementia. As you saw earlier, Diana's mother was able to carry on her day-to-day activities by making maps and using other tricks to help compensate for her failing abilities. The early stages of confusion and memory loss may be better tolerated in cultures with lowered expectations of older adults. In certain cultures, including the Chinese, younger people are expected to take the demands of work and care from older adults after a certain age, and symptoms of dementia are viewed as a sign of normal aging (Gallagher-Thompson et al., 2006; Hinton, Guo, Hillygus, & Levkoff, 2000). Dementia may go undetected for years in these societies.

Much remains to be learned about the cause and course of most types of dementia. As you saw with Alzheimer's disease and Huntington's disease, certain genetic factors make some individuals vulnerable to progressive cognitive deterioration. In addition, brain trauma, some diseases, and exposure to certain drugs, such as alcohol, inhalants, and sedative, hypnotic, and anxiolytic drugs, can cause the characteristic decline in cognitive abilities. We also noted that psychosocial factors can help determine who is subject to these causes and how they cope with the condition. Looking at dementia from this integrative perspective should help you view treatment approaches in a more optimistic light. It may be possible to protect people from conditions that lead to dementia and to support them in dealing with the devastating consequences of having it.

Treatment

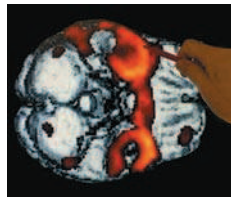
For many of the disorders discussed in other chapters, treatment prospects are fairly good. Clinicians can combine various strategies to reduce suffering significantly. Even when treatment does not bring expected improvements, mental health professionals have usually been able to stop problems from progressing. This is not the case in the treatment of dementia.

One factor preventing major advances in the treatment of dementia is the nature of the damage caused by this disorder. The brain contains billions of neurons, many more than are used. Damage to some can be compensated for by others because of plasticity. However, there is a limit to where and how many neurons can be destroyed before vital functioning is disrupted. Researchers are closing in on how to use the brain's natural process of regeneration to potentially reverse the damage caused in dementia (Khachaturian, 2007). Currently, however, with extensive brain damage, no known treatment can restore lost abilities. The goals of treatment therefore become (1) trying to prevent certain conditions, such as substance abuse, that may bring on dementia; (2) trying to delay the onset of

symptoms to provide better quality of life; and (3) attempting to help these individuals and their caregivers cope with the advancing deterioration. Most efforts in treating dementia have focused on the second and third goals, with biological treatments aimed at stopping the cerebral deterioration and psychosocial treatments directed at helping patients and caregivers cope.

A troubling statistic further clouds the tragic circumstances of dementia: More than 23% of caregivers of people with dementia—usually relatives—have the symptoms characteristic of one or more anxiety disorders and 10% are clinically depressed (Katona & Livingston, 2009). Compared with the public, these caregivers use more psychotropic medications (designed to reduce symptoms of various psychological disorders) and report stress symptoms at 3 times the normal rate. Caring for people with dementia, especially in its later stages, is clearly a trying experience. In fact, there is some evidence to suggest that the stress associated with caring for a person with dementia may place the caregiver at greatly increased risk for developing dementia themselves (Norton et al., 2010). As a result, clinicians are becoming increasingly sensitive to the needs of these caregivers, and research is now exploring interventions to assist them in caring for people with dementia (Lee, Czaja, & Schulz, 2010).

Biological Treatments. Dementia resulting from known infectious diseases, nutritional deficiencies, and depression can be treated if it is caught early. Unfortunately, however, no known treatment exists for most types of dementia that are responsible for the vast majority of cases. Dementia caused by stroke, HIV, Parkinson's disease, or Huntington's disease is not currently treatable because there is no effective treatment for the primary disorder. However, exciting research in several related areas has brought us closer to helping individuals with these forms of dementia. A substance that may help preserve and perhaps restore neurons—called glial cell-derived neurotrophic factor—may someday be used to help reduce or reverse the progression of degenerative brain diseases (Zuccato & Cattaneo, 2009). Researchers are also looking into the possible benefits of transplanting stem cells (fetal brain tissue) into the brains of people with such diseases. Initial results from these studies are still preliminary but appear promising (Arenas, 2010). Dementia brought on by strokes may now be more preventable by new drugs that help prevent much of the damage inflicted by the blood clots characteristic of stroke (Richards & Sweet, 2009). Most current attention is on a treatment for dementia of the Alzheimer's type because it affects so many people. Here, too, however, success has been modest at best.



Abnormal Psychology Inside Out,
produced by Ira Wohl, Only Child
Motion Pictures

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Computer Simulations and Senile Dementia

"Our cognitive activity arises from the neural networks in the brain. Whenever you lose an individual neuron, you're not losing an idea, you're just losing a tiny bit of the resolution, or the crispness, of that idea."

Much work has been directed at developing drugs that will enhance the cognitive abilities of people with dementia of the Alzheimer's type. Many seem to be effective initially, but long-term improvements have not been observed in placebo-controlled studies (Richards & Sweet, 2009). Several drugs (called *cholinesterase inhibitors*) have had a modest impact on cognitive abilities in some patients and include donepezil (Aricept), rivastigmine (Exelon), and galantamine (Reminyl). *Tacrine hydrochloride* (Cognex), another in this family of drugs, is rarely used today because of the potential for liver damage (Rabins, 2006). These drugs prevent the breakdown of the neurotransmitter acetylcholine (which is deficient in people with Alzheimer's disease), thus making more acetylcholine available to the brain. Research suggests that, when using these drugs, people's cognitive abilities improve to the point where they were 6 months earlier (Lyketos, 2009). But the gain is not permanent. Even people who respond positively do not stabilize but continue to experience the cognitive decline associated with Alzheimer's disease. In addition, if they stop taking the drug—as almost three-quarters of the patients do because of negative side effects such as liver damage and nausea—they lose even that 6-month gain (Lyketos, 2009). Newer drugs are now being investigated for the treatment of Alzheimer's disease. These include drugs that target the beta-amyloid (plaques) in the brain, and it is hoped that these advances will finally provide a positive prognosis for this devastating disease (Rafii & Aisen, 2009).

Several other medical approaches are being explored to slow the course of Alzheimer's disease, but initial excitement generated by these approaches has waned with the findings from researchers. For example, most of you have heard of using *Ginkgo biloba* (maidenhair) to improve memory. Initial research suggested that this herbal remedy may produce modest improvements in the memory of people with Alzheimer's disease, but other studies have not replicated this benefit (DeKosky et al., 2008). Similarly, the effects of vitamin E have been evaluated. One large study found that among individuals with moderately severe impairment, high doses of the vitamin (2,000 international units per day) delayed progression compared to a placebo (Sano et al., 1997), but it did not prevent the development of the disease. Further research, in fact, indicates that tak-

ing high doses of vitamin E may actually increase mortality and therefore this intervention is no longer recommended (Richards & Sweet, 2009). Modest slowing of the progression of the disease also may be obtained by introducing exercise to patients (Rockwood & Middleton, 2007; Teri et al., 2003). To date, however, no medical interventions are available that directly treat and therefore stop the progression of the conditions that cause the cerebral damage in Alzheimer's disease.

Medical interventions for dementia also include the use of drugs to help with some associated symptoms. A variety of antidepressants—such as serotonin-specific reuptake inhibitors—are commonly recommended to alleviate the depression and anxiety that too often accompany the cognitive decline. Antipsychotic medication is sometimes used for those who become unusually agitated (Richards & Sweet, 2009).

Psychosocial Treatments. Psychosocial treatments are now receiving a great deal of attention for their ability to delay the onset of severe cognitive decline. These efforts focus on enhancing the lives of people with dementia and those of their families. People with dementia can be taught skills to compensate for their lost abilities. Recall that Diana's mother learned on her own to make maps to help her get from place to place. Diana herself began making lists so that she would not forget important things. Some researchers have evaluated more formal adaptations to help people in the early stages of dementia. Michelle Bourgeois (2007) created "memory wallets" to help people with dementia carry on conversations. On white index cards inserted into a plastic wallet are printed declarative statements such as, "My husband John and I have 3 children," or "I was born on January 6, 1921, in Pittsburgh." In one of her studies, Bourgeois (1992) found that adults with dementia could, with minimal training, use this memory aid to improve their conversations with others. Adaptations such as these help people communicate with others,



Power™ Cognitive Fitness System: Kara Kenna photographer.
www.dakim.com

▲ A resident of an assistive living facility practices cognitive stimulation using one of several computer-based systems (the Dakim™ Power Brain Fitness System).

help them remain aware of their surroundings, and can reduce the frustration that comes with the awareness of their own decline.

Cognitive stimulation—encouraging people with dementia to practice learning and memory skills—seems to be an effective method for delaying the onset of the more severe cognitive effects of this disorder (Knowles, 2010). These activities include word games, tests of memory of famous and familiar faces, and practice with numbers (for example, how much change back you would receive from a purchase). These types of skill-building exercises can maintain cognitive activity and improve the quality of life in those patients when compared to controls.

Individuals with advanced dementia are not able to feed, bathe, or dress themselves. They cannot communicate with or recognize even familiar family members. They may wander away from home and become lost. Because they are no longer aware of social stigma, they may engage in public displays of sexual behavior, such as masturbation. They may be frequently agitated or even physically violent. To help both the person with dementia and the caregiver, researchers have explored interventions for dealing with these consequences of the disorder (Richards & Sweet, 2009). For example, some research indicates that a combination of exercise for patients and instruction for caregivers on how to handle behavior problems can improve the overall health and the depression in people with Alzheimer's disease (Logsdon, McCurry, Pike, & Teri, 2009; Teri et al., 2003).

Of great concern is the tendency of people with dementia to wander. Sometimes they wind up in places or situations that may be dangerous (for example, stairwells or the street). Often, the person is tied to a chair or bed, or sedated, to prevent roaming. Unfortunately, physical and medical restraint has its own risks, including additional medical complications; it also adds greatly to the loss of control and independence that already plague the person with dementia. Psychological treatment as an alternative to restraint sometimes involves providing cues for people to help them safely navigate around their home or other areas. New innovations in surveillance technology—creating a "smart home" that can monitor the location of the patient and warn caregivers—may provide more peace of mind for those who care for these patients. At the same time, ethical concerns are being raised about the use of this technology because of its ability to invade privacy (Bharucha et al., 2009; Mahoney et al., 2007).

Someone with dementia can become agitated and sometimes verbally and physically aggressive. This behavior is understandably stressful for people trying to provide care. In these situations, medical intervention is often used, although many times with only modest results (Testad, Ballard, Brønnick, & Aarsland, 2010). Caregivers are often given assertiveness training to help them deal with hostile behaviors (Table 13.5). Otherwise, caregivers may either passively accept all criticism inflicted by the

person with dementia, which increases stress, or become angry and aggressive in return. This last response is of particular concern because of the potential for elder abuse. Withholding food or medication or inflicting physical abuse is most common among caregivers of elderly people who have cognitive deficits (Post, Page, Conner, & Prokhorov, 2010). It is important to teach caregivers how to handle stressful circumstances so that they do not escalate into abusive situations. Not a great deal of objective evidence supports the usefulness of assertiveness training for reducing caregiver stress, and more research is needed to guide future efforts.

In general, families of people with dementia can benefit from supportive counseling to help them cope with the frustration, depression, guilt, and loss that take a heavy emotional toll. However, clinicians must first recognize that the ability to adapt to stressors differs among people. One study, for example, found cultural differences in the coping styles of caregivers. In one area of rural Alabama, white caregivers used acceptance and humor as coping strategies, and black caregivers used religion and denial (Kosberg, Kaufman, Burgio, Leeper, & Sun, 2007). Another large-scale study of 555 principal caregivers over a 3-year period identified a number of steps that can be taken to support caregivers through this difficult time (Aneshensel, Pearlin, Mullan, Zarit, & Whitlatch, 1995). However, despite numerous studies aimed at supporting caregivers, the results to date remain weak and additional work is needed to determine how best to support these individuals (Schoenmakers, Buntinx, & DeLepeleire, 2010).

Overall, the outlook for slowing (but not stopping) the cognitive decline characteristic of dementia is optimistic. The best available medications provide some recovery of function, but they do not stop the progressive deterioration. Psychological interventions may help people cope more effectively with the loss of cognitive abilities, especially in the earlier stages of this disorder. In addition, emphasis is placed on helping caregivers—the other victims of dementia—as the person they care for continues to decline.

Prevention

Without treatment, we need to rely even more heavily on prevention strategies for dementia. You can imagine that it is difficult to study prevention efforts for dementia because of the need to follow individuals for long periods to see whether the efforts are effective. One major study conducted in Sweden—where socialized medicine provides complete medical histories of all residents—looked at many of the risk factors (those factors that increase the chance of having dementia) and protective factors (those that decrease the risk) under study today (Fratiglioni, Winblad, & von Strauss, 2007). They looked at the medical records of 1,810 participants who were older than 75 at the time and followed them for about 13 years. Through interviews and medical histories, they came to two major conclusions: Control your blood pressure, and lead an active physical and social life. These two recommendations came out as the major factors that individuals can change—because you cannot change your genetics, for example—that will decrease the chances of developing dementia. Additional prevention research is ongoing, and there may be other potentially fruitful research areas that can lead to the successful prevention of this devastating disorder.

DSM Disorder Criteria Summary Alzheimer's Disease

Features of dementia of the Alzheimer's type include the following:

- ▶ Multiple cognitive deficits, including memory impairment, and at least one of the following disturbances: aphasia, apraxia, agnosia, or disturbance in executive functioning (e.g., planning, sequencing)
- ▶ Significant impairment in functioning involving a decline from the previous level
- ▶ Gradual onset and continuing cognitive decline

Source: Based on *DSM-IV-TR*. Reprinted with permission from *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision). © 2000 American Psychiatric Association.

Table 13.5 Genetic Factors in Alzheimer's Disease

Gene	Chromosome	Age of Onset (years)
APP	21	43 to 59
Presenilin 1	14	33 to 60
Presenilin 2	1	50 to 90
apo E4	19	60
A2M	12	70

A2M = alpha-2-macroglobulin; APP = amyloid precursor protein; apo E4 = apolipoprotein E4.

Concept Check 13.5

Part A

Identify the following symptoms of dementia from the descriptions: (a) facial agnosia, (b) agnosia, and (c) aphasia.

1. Timmy's elderly grandmother does not recognize her own home any more. _____
2. She can no longer form complete, coherent sentences. _____

3. She no longer recognizes Timmy when he visits, even though he is her only grandchild.

Part B

Identify the cognitive disorders described.

4. Julian is a recovering alcoholic. When asked about his wild adventures as a young man, his stories usually end quickly because he can't remember the whole tale. He even has to write down things he has to do in a notebook; otherwise, he's likely to forget. _____
5. Mr. Brown has suffered from a number of strokes but can still care for himself. However, his ability to remember important things has been declining steadily for the past few years. _____
6. A decline in cognitive functioning that is gradual and continuous and has been associated with neurofibrillary tangles and amyloid plaques is called _____.

ented to time. She was unable to recall her birthplace, the ages of her children, or any recent presidents of the United States. She could not remember three objects for 1 minute, nor recall what she had eaten for her last meal. She could not name the color of any object shown to her but could correctly name the color related to certain words—for example, *grass* and *sky*. Object naming was normal. Examined 1 year later, she could repeat five digits forward and backward but could not recall her wedding day, the cause of her husband's death, or her children's ages. She did not know her current address or phone number and remembered none of three objects after 5 minutes. Although she was described by her family as extremely hard-working before her illness, after hospitalization she spent most of her time sitting and watching television. She was fully oriented, displayed normal language function, and performed simple calculations without error (Cole, Winkelman, Morris, Simon, & Boyd, 1992, pp. 63–64).

Amnestic Disorder

Say these three words to yourself: *apple, bird, roof*. Try to remember them, and then count backward from 100 by 3s. After about 15 seconds of counting, can you still recall the three words? Probably so. However, people with **amnestic disorder** will not remember them, even after such a short period (Bourgeois, Seaman, & Servis, 2008). The loss of this type of memory, which we described as a primary characteristic of dementia, can occur without the loss of other high-level cognitive functions. The main deficit of amnestic disorder appears to be the inability to transfer information like the list we just described into long-term memory, which can cover minutes, hours, or years. This disturbance in memory is caused by either the physiological effects of a medical condition, such as head trauma, or the long-term effects of a drug. Consider the case of S. T.

S. T. ♦ Remembering Fragments

S. T., a 67-year-old white woman, suddenly fell but did not lose consciousness. She appeared bewildered and anxious but oriented to person and place. Language functioning was normal, yet she was not ori-

The *DSM-IV-TR* criteria for amnestic disorder describe the inability to learn new information or to recall previously learned information. As with all cognitive disorders, memory disturbance causes significant impairment in social and occupational functioning. The woman just described was diagnosed with a type of amnestic disorder called *Wernicke-Korsakoff syndrome*, which is caused by damage to the thalamus, a small region deep inside the brain that acts as a relay station for information from many other parts of the brain. In her case, the damage to the thalamus was believed to be the result of a stroke that caused vascular damage. Another common cause of Wernicke-Korsakoff syndrome is chronic heavy alcohol use.

As you saw with the other cognitive impairments, a range of traumas to the brain can cause permanent amnestic disorders. Research has focused on attempting to prevent the damage associated with Wernicke-Korsakoff syndrome. Specifically, a deficiency in thiamine (vitamin B₁) resulting from alcohol abuse in people developing Wernicke-Korsakoff syndrome is leading researchers to try supplementing this vitamin, especially for heavy drinkers (Sechi & Serra, 2007). To date, however, there is little research pointing to successful long-term assistance in treating people with amnestic disorders (Bourgeois et al., 2008).



The developmental disorders described in this chapter represent a broad range of problems first evident in childhood (Durand, 2011). Some of the disorders discussed may be considered part of a spectrum of disorders. For instance, some of the pervasive developmental disorders are being studied under the category of “autism spectrum disorders” and this change is being discussed for possible inclusion in *DSM-5*. Autistic disorder and Asperger’s disorder are thought to be related in the spectrum, although re-

search continues on the co-occurrence of childhood disintegrative disorder and pervasive developmental disorder not otherwise specified (PDD-NOS) (Swedo, Thorsen, & Pine, 2008).

Two other major disorders—conduct disorder (CD) and oppositional defiant disorder (ODD)—may be part of a spectrum of “disruptive behavior disorders,” although this research is in a beginning stage (Shaffer, Leibenluft, Rohde, Sirovatka, & Regier, 2009). There is also considerable

comorbidity among attention deficit disorder, CD, and ODD, although any conclusion about their being part of a spectrum of disorders is premature (Shaffer, Leibenluft, Rohde, Sirovatka, & Regier, 2009). To move this research ahead in the coming years, researchers are examining the complex genetics of CD and ODD to see if there are meaningful ways to view these childhood problems and their apparent overlap (some children have some symptoms of both disorders).

Summary

Common Developmental Disorders

- › What are the central defining features of attention deficit/hyperactivity disorder?

Developmental psychopathology is the study of how disorders arise and change with time. These changes usually follow a pattern, with the child mastering one skill before acquiring the next. This aspect of development is important because it implies that any disruption in the acquisition of early skills will, by the very nature of the developmental process, also disrupt the development of later skills.

The primary characteristics of people with attention deficit/hyperactivity disorder are a pattern of inattention (such as not paying attention to school- or work-related tasks), hyperactivity/impulsivity, or both. These deficits can significantly disrupt academic efforts and social relationships.

- › What are the main types of learning disorders, and how are they typically treated?

DSM-IV-TR groups the learning disorders as reading disorder, mathematics disorder, and disorder of written expression. All are defined by performance that falls far short of expectations based on intelligence and school preparation.

Verbal or communication disorders seem closely related to learning disorders. They include stuttering, a disturbance in speech fluency; expressive language disorder, limited speech in all situations but without the types of cognitive deficits that lead to language problems in people with intellectual disability or one of the pervasive developmental disorders; selective mutism, refusal to speak despite having the ability to do so; and tic disorders, which include involuntary motor movements such as head twitching and vocalizations

such as grunts that occur suddenly, in rapid succession, and in idiosyncratic or stereotyped ways.

Pervasive Developmental Disorders

- › How are pervasive developmental disorders defined?

People with pervasive developmental disorders all experience trouble progressing in language, socialization, and cognition. The use of the word *pervasive* means these are not relatively minor problems (like learning disabilities) but are conditions that significantly affect how individuals live. Included in this group are autistic disorder, Rett’s disorder, Asperger’s disorder, and childhood disintegrative disorder.

- › What are the three major characteristics of autistic disorder?

Autistic disorder, or autism, is a childhood disorder characterized by significant impairment in social interactions, gross and significant impairment in communication, and restricted patterns of behavior, interest, and activities. It probably does not have a single cause; instead, a number of biological conditions may contribute, and these, in combination with psychosocial influences, result in the unusual behaviors displayed by people with autism.

Asperger’s disorder is characterized by impairments in social relationships and restricted or unusual behaviors or activities, but people with Asperger’s disorder do not have the language delays observed in people with autism.

amnesic disorder Deterioration in the ability to transfer information from short- to long-term memory, in the absence of other dementia symptoms, as a result of head trauma or drug abuse.

Rett's disorder, almost exclusively observed in females, is a progressive neurological disorder characterized by constant hand-wringing, intellectual disability, and impaired motor skills.

Childhood disintegrative disorder involves severe regression in language, adaptive behavior, and motor skills after a period of normal development for 2 to 4 years.

Pervasive developmental disorder not otherwise specified is a childhood disorder characterized by significant impairment in social interactions; gross and significant impairment in communication; and restricted patterns of behavior, interest, and activities. Children who have this disorder are similar to those with autism but may not meet the age criterion for autism or may not meet the criteria for some symptoms of autism.

Intellectual Disability

- › How is intellectual disability defined, and what categories are used to classify people with intellectual disabilities?

The definition of intellectual disability has three parts: significantly subaverage intellectual functioning, concurrent deficits or impairments in present adaptive functioning, and onset before the age of 18.

Down syndrome is a type of intellectual disability caused by the presence of an extra 21st chromosome. It is possible to detect the presence of Down syndrome in a fetus through a process known as amniocentesis.

Two other types of intellectual disability are common: fragile X syndrome, which is caused by a chromosomal abnormality of the tip of the X chromosome, and cultural-familial intellectual disability, the presumed cause, possi-

bly by a combination of psychosocial and biological factors, of up to 75% of intellectual disability.

Cognitive Disorders

- › What are the symptoms of delirium and dementia?

Delirium is a temporary state of confusion and disorientation that can be caused by brain trauma, intoxication by drugs or poisons, surgery, and a variety of other stressful conditions, especially among older adults.

Dementia is a progressive and degenerative condition marked by gradual deterioration of a range of cognitive abilities including memory, language, and planning, organizing, sequencing, and abstracting information.

Alzheimer's disease is the leading cause of dementia, affecting approximately 4 million Americans; there is currently no known cause or cure.

To date, there is no effective treatment for the irreversible dementias caused by Alzheimer's disease, Parkinson's disease, Huntington's disease, and various less common conditions that produce this progressive cognitive impairment. Treatment often focuses on helping patients cope with the continuing loss of cognitive skills and helping caregivers deal with the stress of caring for affected individuals.

Amnestic Disorder

- › What are the principal causes of and treatments for amnestic disorder?

Amnestic disorders involve a dysfunction in the ability to recall recent and past events. The most common is Wernicke-Korsakoff syndrome, a memory disorder usually associated with chronic alcohol abuse.

Key Terms

attention deficit/hyperactivity disorder (ADHD), 486
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Answers to Concept Checks

13.1

1. b; 2. c; 3. b; 4. d; 5. e; 6. a

13.2

1. a; 2. b; 3. d; 4. e; 5. c

13.3

1. profound, pervasive support;
2. moderate, limited support;

3. severe, extensive support;
4. mild, intermittent support

13.4

1. c; 2. b; 3. a; 4. e; 5. f; 6. d

13.5

Part A

1. b; 2. c; 3. a

Part B

4. substance-induced persisting dementia; 5. vascular dementia; 6. dementia of Alzheimer's type

13.6

1. T; 2. F; 3. T; 4. T

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Abnormal Psychology Videos

- › *Nature of the Disorder—Autism*: Mark Durand's research program deals with the motivation behind problem behaviors and how communication training can be used to reduce such behaviors.
- › *Christina, a Student with Autism*: This clip shows Christina's school, where you see how she spends a typical day in a mainstreamed classroom. There are interviews with her teacher's aide and a background interview with Mark Durand to describe functional communication issues and other cutting-edge research trends in autism.
- › *Rebecca, an Autistic Child*: This segment shows an autistic child in a mainstreamed first-grade classroom and interviews her teachers about what strategies work best in helping Rebecca learn and control her behavior.
- › *Lauren, a Child with Down Syndrome*: The teacher and mother of a kindergartner with Down syndrome are interviewed to discuss strategies for teaching her new skills and managing her behavior difficulties.
- › *Tom, a Patient with Alzheimer's Disease*: This is a rather moving clip in which Tom's family talks about him and you see a surprising example of memory that still works.
- › *Mike, an Amnesic Patient*: Following an accident, Mike struggles with memory problems that affect his employment, his relationship, and his sense of self. You'll notice how he expresses himself both in his language and in the flatness of his emotion.
- › *Neural Networks: Cognition and Dementia*: In this clip, James McClelland proposes that computer simulations

of the brain's neural networks can reveal how human cognition works—and even how cognition fails in dementia.

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3. When finished, click "Grade It Now" to see which areas you have mastered, which need more work, and for detailed explanations of every answer.

Video Concept Reviews

CengageNOW also contains Mark Durand's *Video Concept Reviews* on these challenging topics.

- › Attention Deficit/Hyperactivity Disorder (ADHD)
- › Reading Disorder
- › Mathematics Disorder
- › Pervasive Developmental Disorders
- › Autistic Disorder (Autism)
- › Asperger's Disorder
- › Intellectual Disability

CHAPTER QUIZ

1. According to the *DSM-IV-TR*, the two symptoms that are characteristic of ADHD are:
 - a. inattention and hyperactivity
 - b. echolalia and impulsivity
 - c. hallucinations and delusions
 - d. obsessions and compulsions
2. Echolalia is characterized by which of the following behaviors?
 - a. continuously reading the same sentence or words
 - b. repeating the speech of others
 - c. mimicking the movements of others
 - d. staring ahead without blinking for long periods
3. Behavioral techniques are often used to address communication problems that occur with autism. _____ involves rewarding the child for progressive approximations of speech, and _____ involves rewarding the child for making sounds that the teacher requests.
 - a. Shaping; discrimination training
 - b. Modeling; syntax training
 - c. Imitating; expression training
 - d. Processing; academic training
4. Research has shown that ADHD in children is associated with:
 - a. chronic neglect
 - b. having an alcoholic father
 - c. maternal smoking during pregnancy
 - d. death of a parent in early childhood
5. The regulated breathing method, a behavioral technique used to reduce _____, involves taking a deep breath when an episode occurs before continuing.
 - a. motor tics
 - b. stuttering
 - c. mutism
 - d. impulsivity
6. _____ is a form of intellectual disability caused by the presence of an extra 21st chromosome.
 - a. Down syndrome
 - b. Fragile X syndrome
 - c. PKU syndrome
 - d. Fetal alcohol syndrome
7. Joe has a mild intellectual disability. His therapist is teaching him a skill by breaking it down into its component parts. Joe's therapist is implementing what technique?
 - a. skills treatment
 - b. biofeedback
 - c. component processing
 - d. task analysis
8. _____ is characterized by acute confusion and disorientation; whereas _____ is marked by deterioration in a broad range of cognitive abilities.
 - a. Delirium; amnesia
 - b. Amnesia; delirium
 - c. Dementia; delirium
 - d. Delirium; dementia

9. Which disorder can be diagnosed definitively only at autopsy by the presence of large numbers of amyloid plaques and neurofibrillary tangles?
- a. vascular dementia
 - b. dementia of the Alzheimer's type
 - c. delirium
 - d. Parkinson's disease
10. Psychological and social influences are important to consider when studying dementia because they:
- a. can accelerate the type of brain damage seen in this disease
 - b. provide a rationale for psychopharmacological intervention
 - c. may help determine the time of onset and course of dementia
 - d. can be used to reverse the progression of Alzheimer's disease
- (See Appendix A for answers.)

Exploring Developmental Disorders

Disorders that appear early in life disrupt the normal course of development.

- › Interrupting or preventing the development of one skill impedes mastery of the skill that is normally acquired next.
- › Knowing what skills are disrupted by a particular disorder is essential to developing appropriate intervention strategies.

COGNITION

LANGUAGE

SOCIALIZATION

Scott T. Baxter/Photodisc/Getty Images



Infancy

Photodisc/Getty Images



Childhood

Photodisc/Getty Images



Adolescence

TYPES OF DEVELOPMENTAL DISORDERS

Attention Deficit/Hyperactivity Disorder (ADHD)

©Sky Bonillo/Photodisc



Description

- Inattentive, overactive, and impulsive behavior
- Disrupted schooling and relationships
- Symptoms may change with maturity, but problems persist.
- More prevalent in boys than girls

Causes

- Research suggests hereditary factor
- Abnormal neurology
- Possible link with maternal smoking
- Negative responses by others create low self-esteem.

Treatment

- Biological (medication)
 - improves compliance
 - decreases negative behaviors
 - effects not long term
- Psychological (behavioral)
 - goal setting and reinforcement

Learning Disorders

Courtesy of Laureate Learning Systems Inc.



- Reading, math, and written expression fall behind IQ, age, and education.
- May also be accompanied by ADHD

- Theories assume genetic, neurobiological, and environmental factors.

- Education intervention
 - basic processing
 - cognitive and behavioral skills

Communication Disorders

Closely related to learning disorders, but comparatively benign. Early appearance, wide range of problems later in life.

©Photodisc/Getty Images



Types

Stuttering

Description

Disturbance in speech fluency (repeating words, prolonging sounds, extended pauses)

Treatment

- Psychological
- Pharmacological

Expressive Language Disorders

Limited speech in all situations

- May be self-correcting

Selective Mutism

Failure to speak in specific situations (e.g., school)




- Contingency management

Tic Disorders


Involuntary motor movements (tics), such as physical twitches or vocalizations

- Psychological
- Pharmacological

PERVASIVE DEVELOPMENTAL DISORDERS

	Description	Causes	Treatment
Autistic Disorder	<ul style="list-style-type: none"> Severely impaired socialization and communication Restricted behavior, interests, and activities <ul style="list-style-type: none"> – echolalia – maintenance of sameness – stereotyped, ritualistic behaviors Symptoms almost always develop before 36 months of age. 	<ul style="list-style-type: none"> Little conclusive data Numerous biological factors <ul style="list-style-type: none"> – clear genetic component – evidence of brain damage (cognitive deficits) combined with psychosocial influences 	<ul style="list-style-type: none"> Behavioral focus <ul style="list-style-type: none"> – communication – socialization – living skills Inclusive schooling Temporary benefits from medication
Asperger's Disorder	<p>Impaired socialization and restricted/unusual behaviors, but without language delays</p> <ul style="list-style-type: none"> Few cognitive impairments (average IQ) May be mild autism, not separate disorder 		
Rett's Disorder	<p>Progressive neurological disorder after apparently normal early development</p> <ul style="list-style-type: none"> Primarily affects girls Mental retardation Deteriorating motor skills Constant hand-wringing 		
Childhood Disintegrative Disorder	<p>Severe regression after 2–4 years normal development</p> <ul style="list-style-type: none"> Affects language, adaptive behavior, and motor skills Evidence of neurological origin 		

INTELLECTUAL DISABILITY

	Description	Causes	Treatment
	<ul style="list-style-type: none"> Adaptive and intellectual functioning significantly below average <ul style="list-style-type: none"> – language and communication impairments Wide range of impairment—from mild to profound—in daily activities (90% of affected individuals have mild impairments) 	<ul style="list-style-type: none"> Hundreds of identified factors <ul style="list-style-type: none"> – genetic – prenatal – perinatal – postnatal – environmental Nearly 75% of cases cannot be attributed to any known cause. 	<ul style="list-style-type: none"> No biological intervention Behavioral focus similar to that for autism Prevention <ul style="list-style-type: none"> – genetic counseling – biological screening – maternal care

Exploring Cognitive Disorders

- › When the brain is damaged, the effects are irreversible, accumulating until learning, memory, or consciousness are obviously impaired.
- › Cognitive disorders develop much later than intellectual disability and other learning disorders, which are believed to be present at birth.

TYPES OF COGNITIVE DISORDERS

Delirium



Todd Pearson/Digital Vision/Getty Images

Description

- Impaired consciousness and cognition for several hours or days
 - confusion, disorientation, inability to focus
- Most prevalent among older adults, people with AIDS, and patients on medication

Causes (subtypes)

- Delirium due to a general medical condition
- Substance-induced delirium
- Delirium due to multiple etiologies
- Delirium not otherwise specified

Treatment

- Pharmacological
 - benzodiazepines
 - antipsychotics
- Psychosocial
 - reassurance
 - presence of personal objects
 - inclusion in treatment decisions



PhotoLink/Photodisc/Getty Images

Amnestic Disorder



Keith Brofsky/Photodisc/Getty Images

Description

- Permanent short-term memory loss without impairment of other cognitive functions
 - inability to learn new information or recall previously learned information
 - significant impairment in social and occupational functioning

Causes

- Medical condition such as head trauma
- Lasting effects of a drug, even after the substance is no longer ingested

Treatment

- Prevention: proper medical care and drug monitoring
- No long-term success at combating damage

Subtype





Wernicke/Korsakoff Syndrome

Caused by damage to the thalamus from injury (stroke) or chronic heavy alcohol use (thiamine depletion)

Dementia

- › Gradual deterioration of brain functioning that affects judgment, memory, language, and other advanced cognitive processes
- › Caused by medical condition or drug abuse
- › Some forms are irreversible, some are resolved by treatment of primary condition.

TYPES OF DEMENTIA

		Description	Causes	Treatment
Dementia of the Alzheimer's Type	 ©Gabriela Medina/Blend Images/Jupiter Images	<ul style="list-style-type: none"> • Increasing memory impairment and other multiple behavioral and cognitive deficits, affecting language, motor functioning, ability to recognize people or things, and/or planning • Most prevalent dementia • Subject of most research 	<ul style="list-style-type: none"> • Progressive brain damage, evident in neurofibrillary tangles and neuritic plaque, confirmed by autopsy but assessed by simplified mental status exam • Involves multiple genes 	<ul style="list-style-type: none"> • No cure so far, but hope lies in genetic research and amyloid protein in neurine plaques. • Management may include lists, maps, and notes to help maintain orientation. • New medications that prevent acetylcholine breakdown and vitamin therapy show promise.
Substance-induced Persisting Dementia	 ©Photodisc/Getty Images	<ul style="list-style-type: none"> • Caused by brain damage due to prolonged drug use, especially in combination with poor diet, as in alcohol dependency; other substances may include inhalants, and the sedative, hypnotic, and anxiolytic drugs • Treatment focuses on prevention. 		
Vascular Dementia	 Stockbyte/Getty Images	<ul style="list-style-type: none"> • Permanent deterioration due to blocked or damaged blood vessels in the brain (stroke) • Symptoms identical to Alzheimer's and may also include problems with walking and weakness of limbs • Treatment focuses on coping. 		
Dementia Due to Other General Medical Conditions	 ©Harmut Schwarzbach/Peter Arnold/PhotoLibrary	<ul style="list-style-type: none"> • Similar in effect to other cognitive disorders, but caused by: <ul style="list-style-type: none"> – head trauma – HIV, Parkinson's, Huntington's, Pick's, or Creutzfeldt-Jakob disease – hydrocephalus, hypothyroidism, brain tumor, and vitamin B12 deficiency • Treatment of primary condition is sometimes possible. 		

CHAPTER 14

Mental Health Services: Legal and Ethical Issues

Chapter Outline

Civil Commitment

- Criteria for Civil Commitment
- Changes Affecting Civil Commitment
- An Overview of Civil Commitment

Criminal Commitment

- The Insanity Defense
- Reactions to the Insanity Defense

Therapeutic Jurisprudence

- Competence to Stand Trial
- Duty to Warn
- Mental Health Professionals as Expert Witnesses

Patients' Rights and Clinical Practice Guidelines

- The Right to Treatment
- The Right to Refuse Treatment
- Research Participants' Rights
- Evidence-Based Practice and Clinical Practice Guidelines



Abnormal Psychology Live Videos

- False Memory Research



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Student Learning Outcomes*

Identify appropriate applications of psychology in solving problems, such as:

› Psychology-based interventions in clinical, counseling, educational, industrial/organizational, community, and other settings and their empirical evaluation (APA SLO 4.2.d)
(see textbook pages 537–540, 548–553)

Articulate how psychological principles can be used to explain social issues and inform public policy.

› Use psychological principles to explain social issues and inform public policy (APA SLO 4.3)
(see textbook pages 540–548)

*Portions of this chapter cover learning outcomes suggested by the American Psychological Association (2007) in their guidelines for the undergraduate psychology major. Chapter coverage of these outcomes is identified by APA Goal and APA Suggested Learning Outcome (SLO).

We begin this chapter with a return to Arthur, who we described in Chapter 12 as having psychotic symptoms.

Arthur • A Family's Dilemma

As you may remember, Arthur was brought to our clinic by family members because he was speaking and acting strangely. He talked incessantly about his “secret plan” to save all the starving children in the world. His family’s concern intensified when Arthur said he was planning to break into the German embassy and present his plan to the German ambassador. Alarmed by his increasingly inappropriate behavior and fearing he would be hurt, the family was astounded to learn they could not force him into a psychiatric hospital. Arthur could admit himself—which was not likely, given his belief that nothing was wrong with him—but they had no power to admit him involuntarily unless he was in danger of doing harm to himself or others. Even if they sincerely believed some harm might be forthcoming, this wasn’t sufficient reason to admit him involuntarily. The family coped with this emergency as best they could for several weeks until the worst of Arthur’s behaviors began to diminish.

Why wouldn’t the mental health facility admit Arthur, who was clearly out of touch with reality and in need of help? Why couldn’t his own family authorize the mental health facility to act? What would have happened if Arthur had entered the German embassy and hurt or even killed someone? Would he have gone to jail, or would he have finally received help from the mental health community? Would Arthur have been held responsible if he hurt other people while he was delusional? These are just a few of the many issues that surface when we try to balance the rights of people who have psychological disorders with the responsibilities of society to provide care.

Mental health professionals face such questions daily. They must both diagnose and treat people and consider individual and societal rights and responsibilities. As we describe how systems of ethics and legal concepts have developed, remember they change with time and with shifting societal and political perspectives on mental illness. How we treat people with psychological disorders is partly a function of how society views these people. For example, do people with mental illness need help and protection, or does society need protection from them? As public opinion about people with mental illness changes, so do the relevant laws, and legal and ethical issues affect both research and practice. As you will see, the issues affecting research and practice are often complementary. For example, confidentiality is required to protect the identity of a participant in a research study and of a patient seeking help for a psychological disorder. Because people who receive mental health services often simultaneously participate in research studies, we must consider the concerns of both constituencies.

Civil Commitment

- › How does the legal concept of mental illness differ from a clinically diagnosed psychological disorder?
- › What is the relationship between dangerousness and mental illness?
- › What are the interactions among mental illness, deinstitutionalization, and homelessness?

Laws have been designed to protect people who display abnormal behavior and to protect society. Often, achieving

this protection is a delicate balancing act, with the scales sometimes thought to be tipped in favor of the rights of

individuals and at other times in favor of society. For example, each state has **civil commitment laws** that detail when a person can be legally declared to have a mental illness and be placed in a hospital for treatment (Simon & Shuman, 2009). When Arthur's family tried to have him involuntarily committed to a mental health facility, hospital officials decided that because he was not in imminent danger of hurting himself or others he could not be committed against his will. In this case, the laws protected Arthur from involuntary commitment, but they also put him and others at potential risk by not compelling him to get help.

Civil commitment laws in the United States date back to the late 19th century. Before this time, almost all people with severe mental illness were cared for by family members or the community or were left to care for themselves. With the development of a large public hospital system devoted to treating such individuals came an alarming trend: involuntary commitment of people for reasons unrelated to mental illness (Simon & Shuman, 2009). There were even instances in which women were committed to psychiatric hospitals by their husbands simply for holding differing personal or political views. In the 1800s, Mrs. E. P. W. Packard crusaded for better civil commitment laws after being involuntarily confined to a psychiatric hospital for 3 years (Grob, 2009).

Criteria for Civil Commitment

Historically, states have permitted commitment when several conditions have been met: (1) The person has a “mental illness” and is in need of treatment, (2) the person is dangerous to himself or herself or others, or (3) the person is unable to care for himself, a situation considered a “grave disability.” How these conditions are interpreted has varied over the years and has always been controversial. It is important to see that the government justifies its right to act against the wishes of an individual—in this case, to commit someone to a mental health facility—under two types of authority: police power and *parens patriae* (“state or country as the parent”) power. Under police power, the government takes responsibility for protecting the public health, safety, and welfare and can create laws and regulations to ensure this protection. Criminal offenders are held in custody if they are a threat to society. The state applies *parens patriae* power when citizens are not likely to act in their own best interest—for example, to assume custody of children who have no living parents. Similarly, it is used to commit individuals with severe mental illness to mental health facilities when it is believed that they might be harmed because they are unable to secure the basic ne-

cessities of life, such as food and shelter (grave disability) or because they do not recognize their need for treatment (Simon & Shuman, 2008). Under *parens patriae* power, the state acts as a surrogate parent, presumably in the best interests of a person who needs help.

A person in need of help can always voluntarily request admission to a mental health facility; after an evaluation by a mental health professional, a patient may be accepted for treatment. However, when an individual does not voluntarily seek help but others feel that treatment or protection is necessary, the formal process of civil commitment can be initiated. The specifics of this process differ from state to state, but it usually begins with a petition by a relative or mental health professional to a judge. The court may then request an examination to assess psychological status, ability for self-care, need for treatment, and potential for harm. The judge considers this information and decides whether commitment is appropriate. This process is similar to other legal proceedings, and the person under question has all the rights and protections provided by the law. In most states, the person can even request that a jury hear the evidence and make a determination. In all cases, the person must be notified that the civil commitment proceedings are taking place, must be present during the trial, must have representation by an attorney, and can examine the witnesses and request an independent evalu-



▲ The government can exert *parens patriae* to protect people from hurting themselves.

ation. These safeguards are built into the civil commitment process to guarantee the rights of the person being examined and to ensure that no one is involuntarily committed to a psychiatric facility for other than legitimate reasons.

In emergency situations, when there is clearly immediate danger, a short-term commitment can be made without the formal proceedings required of a civil commitment. Family members or sometimes police officers certify that the person presents a “clear and present danger” to herself or to others (Simon & Shuman, 2009). Arthur’s family was unsuccessful in having him admitted on an emergency basis because it was not clear that anyone was in immediate danger, only that someone might be hurt. Again, deciding what is a clear and present danger sometimes requires a great deal of subjective judgment from the court and from mental health professionals.

Defining Mental Illness

The concept of mental illness figures prominently in civil commitment, and it is important to understand how it is defined. **Mental illness** is a legal concept, typically meaning severe emotional or thought disturbances that negatively affect an individual’s health and safety. Each state has its own definition. For example, in New York “[m]ental illness’ means an affliction with a mental disease or mental condition which is manifested by a disorder or disturbance in behavior, feeling, thinking, or judgment to such an extent that the person afflicted requires care, treatment and rehabilitation” (*New York Mental Hygiene Law*, 1992). In contrast, in Connecticut “[m]entally ill person’ means a person who has a mental or emotional condition that has substantial adverse effects on his or her ability to function and who requires care and treatment, and specifically excludes a person who is an alcohol-dependent person or a drug-dependent person” (Conn. Gen. Stat. Ann., 1992). Many states exclude cognitive disability or substance-related disorders from the definition of mental illness.

Mental illness is *not* synonymous with psychological disorder; in other words, receiving a diagnosis according to the text revision of the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)* does not necessarily mean that a person’s condition fits the legal definition of mental illness. Although the *DSM* is quite specific about criteria that must be met for diagnosis, there is considerable ambiguity about what constitutes a “mental condition” or what are “adverse effects on his or her ability to function.” This allows flexibility in making decisions individually, but it also maintains the possibility of subjective impression and bias as influences on these decisions.

Dangerousness

Assessing whether someone is a danger to self or others is a critical determinant of the civil commitment process. **Dangerousness** is a particularly controversial concept to

describe people with mental illness: Popular opinion tends to be that people who are mentally ill are more dangerous than those who are not. Although this conclusion is questionable, it is still widespread, partly because of sensational media reports.

There is a widespread popular belief that mental illness causes a person to be violent (Kobau, DiIorio, Chapman, & Delvecchio, 2010). The results of research on dangerousness and mental illness are often mixed, but evidence points to a moderately increased rate of violence among people with mental illness (Elbogen & Johnson, 2009). Closer examination of this kind of research reveals that although having a mental illness generally does increase the likelihood of future violence, specific symptoms (such as hallucinations, delusions, or having a comorbid personality disorder) appear to be associated with people at increased risk of violence (Lurigio & Harris, 2009). Even previously violent individuals with mental illness are not necessarily going to commit violent crimes after they are released, although the presence of certain symptoms may increase the risk.

Unfortunately, the widely held misperception that people with mental illness are more dangerous may differentially affect ethnic minorities (Vinkers, de Vries, van Baars, & Mulder, 2010). Black males are often perceived as dangerous, even when they don’t exhibit any violent behavior, which may partly explain why blacks are over-represented among those who are involuntarily committed to state psychiatric institutions (Lindsey, Joe, Muroff, & Ford, 2010).

To return to the general issue, how do you determine whether a person is dangerous to others? How accurate are mental health professionals at predicting who will and who will not later be violent? The answers bear directly on the process of civil commitment and on protection for society. If we can’t accurately predict dangerousness, how can we justify involuntary commitment?

Clinicians are better at assessing the relative risk required of the legal system than determining dangerousness case by case (Scott, Quanbeck, & Resnick, 2008). Stated in another way, mental health professionals can identify groups of people who are at greater risk than the general population for being violent—such as having a previous history of both violence and drug or alcohol dependence—and can so advise the court. What clinicians cannot yet do is predict with certainty whether a particular person will or will not become violent.

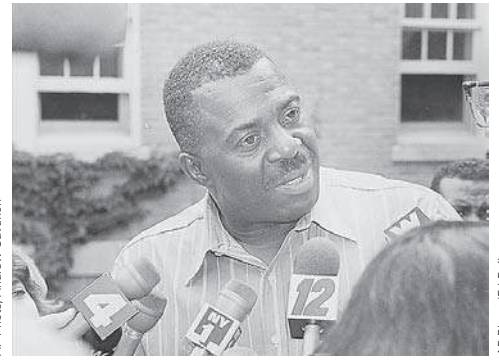
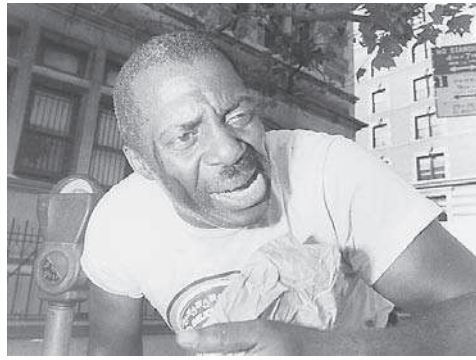
civil commitment laws Legal proceeding that determines a person is mentally disordered and may be hospitalized, even involuntarily.

mental illness Term formerly used to mean psychological disorder but less preferred because it implies that the causes of the disorder can be found in a medical disease process.

dangerousness Tendency to violence that, contrary to popular opinion, is not more likely among mental patients.

Changes Affecting Civil Commitment

Clearly, there are significant problems with the process of civil commitment. In particular, deciding whether a person has a mental illness or is dangerous requires considerable subjective judgment, and, because of varying legal language, this determination can differ from state to state. These problems have resulted in a number of significant legal developments.



▲ Larry Hogue was involuntarily committed to a psychiatric hospital because, homeless and under the influence of drugs (*left*), he terrorized residents of a New York City neighborhood for years. Once off drugs (*right*), Hogue was able to control himself.

The Supreme Court and Civil Commitment

In 1957, the parents of Kenneth Donaldson had him committed to the Florida State Hospital for treatment of paranoid schizophrenia. Donaldson was not considered dangerous, yet, despite repeated offers of placement in a halfway house or with a friend, Dr. O'Connor, the superintendent of the hospital, refused to release him for almost 15 years, during which Donaldson received virtually no treatment (Donaldson, 1976). Donaldson successfully sued Dr. O'Connor for damages, winning \$48,500. In deciding the case, the Supreme Court found that “a State cannot constitutionally confine . . . a non-dangerous individual who is capable of surviving safely in freedom by himself or with the help of willing and responsible family and friends” (*O'Connor v. Donaldson*, 1975).

Here, and in a subsequent decision known as *Addington v. Texas* (1979), the Supreme Court said that more than just a promise of improving quality of life is required to commit someone involuntarily. If nondangerous people can survive in the community with the help of others, they should not be detained against their will. Needing treatment or having a grave disability was not sufficient to commit someone involuntarily with a mental illness. The effect of this decision was to limit substantially the government's ability to commit individuals unless they were dangerous (Simon & Shuman, 2008).

Criminalization

Because of the tightened restrictions on involuntary commitment that prevailed in the 1960s and 1970s, many people who would normally have been committed to mental health facilities for treatment were instead being handled by the criminal justice system. In other words, people with severe mental illness were now living in the community, but many were not receiving the mental health services they needed and would eventually run afoul of the legal system because of their behavior. This “criminalization” of the mentally ill was of great concern because the criminal justice system was not prepared to care for these individuals (Lamb, 2009; Lamb & Weinberger, 2009). Fam-

ily members were increasingly frustrated that they couldn't obtain treatment for their loved ones, who were instead languishing in jail without help.

Deinstitutionalization and Homelessness

In addition to criminalization, two other trends emerged at this time, starting in the 1980s: an increase in the number of people who were homeless and **deinstitutionalization**, the movement of people with severe mental illness out of institutions. Remember that homelessness is not exclusively a problem of the mentally ill. Approximately 2 million to 3 million people will experience a night of homelessness in the United States each year, and estimates place the numbers of homeless people at up to 800,000 on any given night (Hudson & Vissing, 2010). Best estimates suggest that diagnoses of severe mental illness (for example, schizophrenia and bipolar disorder) among homeless persons range from 3% to 42%, depression from 4% to 41%, and personality disorders from 3% to 71% (Fazel, Khosla, Doll, & Geddes, 2008). For reasons not yet fully understood, ethnicity may also play a part in who among people with mental illness becomes homeless. In a large study in San Diego County, for example, Latinos and Asian Americans with mental illness were less likely to become homeless, but African Americans were more likely to be homeless (Folsom et al., 2005).

Information on the characteristics of people who are homeless is important because it provides us with clues about why people become homeless, and it dispels the notion that all homeless people have mental health problems. For a time, homelessness was blamed on strict civil commitment criteria and deinstitutionalization (Colp, 2009)—that is, policies to severely limit who can be involuntarily committed, the limits placed on the hospital stays of people with severe mental illness, and the concurrent closing of large psychiatric hospitals were held responsible for the substantial increase in homelessness during the 1980s. Although a sizable percentage of homeless people have mental illness, the rise in homelessness is also the result of such



©Michal Besser/Alamy

▲ People become homeless because of many factors, including economic conditions, mental health status, and drug use.

economic factors as increased unemployment and a shortage of low-income housing (Wright, 2009). Yet the perception that civil commitment restrictions and deinstitutionalization caused homelessness resulted in movements to change commitment procedures.

Reforms in civil commitment that made it more difficult to commit someone involuntarily occurred at the same time the policy of deinstitutionalization was closing large psychiatric hospitals (Lamb & Weinberger, 2009). Deinstitutionalization had two goals: (1) to close the large state mental hospitals and (2) to create a network of community mental health centers where the released individuals could be treated. Although the first goal appears to have been substantially accomplished, with about a 75% decrease in the number of hospitalized patients (Kiesler & Sibulkin, 1987), the essential goal of providing alternative community care appears not to have been attained. Instead, there was **transinstitutionalization**, or the movement of people with severe mental illness from large psychiatric hospitals to nursing homes or other group residences, including jails and prisons, many of which provide only marginal services (Lamb & Weinberger, 2009). Because of the deterioration in care for many people who had previously been served by the mental hospital system, deinstitutionalization is largely considered a failure. Although many praise the ideal of providing community care for people with severe mental illness, the support needed to provide this type of care has been severely deficient.

Reactions to Strict Commitment Procedures

Arthur's psychotic reaction and his family's travails in trying to get help occurred during the mid-1970s, a time characterized by greater concern for individual freedom than

for society's rights and by the belief that people with mental illness were not properly served by being forced into treatment. Others, however, especially relatives of afflicted people, felt that by not coercing some individuals into treatment, the system was sanctioning their mental decline and placing them at grave risk of harm. The culmination of a number of factors—such as the lack of success with deinstitutionalization, the rise in homelessness, and the criminalization of people with severe mental illness—gave rise to a backlash against their perceived causes, including the strict civil commitment laws. The case of Joyce Brown captures this clash of concerns between individual freedoms for people with mental illness and society's responsibility to treat them.

Joyce Brown ♦ Homeless but Not Helpless

During a 1988 winter emergency in New York City, Mayor Ed Koch ordered that all homeless people who appeared to be mentally ill should be involuntarily committed to a mental health facility for their protection. He used the legal principle of *parens patriae* to justify this action, citing the need to protect these individuals from the cold and from themselves. One of the people who was taken off the streets, 40-year-old Joyce Brown, was picked up against her will and admitted to Bellevue Hospital, where she received a diagnosis of paranoid schizophrenia. She had been homeless for some time, swearing at people as they walked by; at one point, she adopted the name Billie Boggs after a New York television personality with whom she fantasized a relationship. Supported by the New York Civil Liberties Union, Brown contested her commitment and was released after 3 months (Tushnet, 2008).

This case is important because it illustrates the conflicting interests over civil commitment. Brown's family had for some time been concerned about her well-being and had tried unsuccessfully to have her involuntarily committed. Although she had never hurt anyone or tried to commit sui-

deinstitutionalization Systematic removal of people with severe mental illness or mental retardation from institutions like psychiatric hospitals.

transinstitutionalization Movement of people with severe mental illness from large psychiatric hospitals to smaller group residences.

cide, they felt that living on the streets of New York City was too hazardous, and they feared for her welfare. City officials expressed concern for Brown and others like her, especially during the dangerously cold winter, although some suspected that this was an excuse to remove people with disturbing behavior from the streets of affluent sections (Kasindorf, 1988). Brown chose not to seek treatment and resisted efforts to place her in alternative settings. At times, she could be articulate in making a case for her freedom of choice. Only weeks after she was released from the hospital, she was again living on the streets. Rulings such as *O'Connor v. Donaldson* and *Addington v. Texas* had argued that mental illness and dangerousness should be criteria for involuntary commitment. However, because of cases like Brown's and concerns about homelessness and criminalization, a movement emerged calling for a return to broader civil procedures that would permit commitment not only of those who showed dangerousness to self or others, but also of individuals who were not dangerous but were in need of treatment and of those with grave disability. Groups including the National Alliance on Mental Illness, a coalition of family members of people with mental illness, argued for legal reform to make involuntary commitment easier—an emotional response to the failure to protect and treat people with mental illness. Several states in the late 1970s and early 1980s changed their civil commitment laws in an attempt to address these concerns. For example, the state of Washington revised its laws in 1979 to allow commitment of people who were judged to be in need of treatment, which produced a 91% increase in the number of involuntary commitments in the first year it was in effect (Durham & La Fond, 1985). There was essentially no change in the size of the hospital population at this time, only in the status under which patients were committed (La Fond & Durham, 1992). Whereas people were previously detained because of violence, they were now admitted under *parens patriae* powers; also, whereas most admissions had been voluntary, they were now involuntary. Hospitals began to fill up because of longer stays and repeated admissions and they accepted only involuntary admissions; therefore, the result of easing the procedure for involuntarily committing people with mental illness was only to change the authority under which they were admitted.

The special case of sex offenders has attracted public attention in recent years, and the issue of how to treat repeat offenders is at the heart of the concerns over civil commitment. In the years between 1930 and 1960, some states passed “sexual psychopath laws” that provided hospitalization instead of incarceration but for an indefinite period (Saleh, Malin, Grudzinskas Jr., & Vitacco, 2010). Sex offenders (rapists and pedophiles) could be civilly committed until they demonstrated that treatment was effective. However, because treatment is often unsuccessful when attempted with uncooperative clients (see Chapter 9) and because public opinion moved from a priority to treat to a priority to punish, these laws were repealed or went unused. Recent efforts have focused on incarcerating sex offenders for their crimes and, if they are judged still dangerous at the end of their sentences, civilly committing



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▲ A significant number of the homeless are individuals with mental disorders, many of whom live with their children in shelters or on the streets.

them. Such “sexual predator” laws were first enacted in 1990, and the Kansas version was upheld as constitutional by the U.S. Supreme Court (*Kansas v. Hendricks*, 1997). Confinement of this type was viewed by the court as acceptable because it was seen as treatment, even though the justices conceded that such treatment is often ineffective (Zonana & Buchanan, 2009). Some are greatly concerned that these types of laws give the government too much latitude in using civil commitment (as opposed to incarceration) just to keep certain individuals away from others in society (La Fond, 2005).

An Overview of Civil Commitment

What should the criteria be for involuntarily committing someone with severe mental illness to a mental health facility? Should imminent danger to self or others be the only justification, or should society act as a parent and coerce people who appear to be in distress and in need of asylum or safety? How do we address the concerns of families like Arthur's who see their loved ones overcome by psychological problems? And what of our need not to be harassed by people like Brown? When do these rights take precedence over the rights of an individual to be free from unwanted incarceration? It is tempting to conclude that the legal system has failed to address these issues and reacts only to the political whims of the times.

However, from another point of view, the periodic change in laws is a sign of a healthy system that responds to the limitations of previous decisions. The reactions by the Supreme Court in the 1970s to the coercive and arbitrary nature of civil commitment were as understandable as more recent attempts to make it easier to commit people in obvious need of help. As the consequences of these changes become apparent, the system responds to correct injustices. Although improvements may seem excruciat-



Mental disorders are associated with significant psychological distress and impairment but also can have a huge negative impact on people's ability to earn a living and carry out their day-to-day activities. For instance, several recent studies have shown that serious forms of mental illness, such as depressive disorders (such as both unipolar and bipolar depression) are associated with significantly decreased work performance (Kessler et al., 2006) and reduced earnings (Kessler et al., 2008). It is estimated that mental disorders cost U.S. society approximately \$193.2 billion per year, with 75% of this because of lost earnings among those with serious mental illness and 25% because of not being employed as a result of having a mental illness (Kessler et al., 2008).

Of note, some negative effects of mental disorders seem to hit some groups harder than others. One recent study of 10,340 residents of San Diego,

California, found that 15% of patients receiving treatment for a serious mental illness (such as schizophrenia, bipolar disorder, and major depression) had an episode of homelessness in the past year and, more importantly, that African American patients were at significantly higher risk of homelessness than all other patients (Folsom et al., 2005). Also, Latino and Asian American patients were at significantly lower risk of homelessness relative to Caucasian and African American patients. These differences remained even after controlling for differences in the rates of psychiatric disorders, substance abuse, medical benefits, and overall level of functioning (Folsom et al., 2005), which suggests that some other factors are needed to explain the differences in rates of homelessness among these different ethnic groups. The researchers suggest that this difference may be the result not of ethnicity but of cultural differences in

the availability of social and community resources for each group—with Latinos and Asian Americans offering higher levels of support and resources than Caucasian and African Americans.

Another potential explanation is that differences exist in the treatments provided to these groups and that these differences could influence patients' ability to find housing and regular employment. In support of this view, a recent study by Kuno and Rothbard (2002) revealed that African American Medicaid recipients are significantly less likely than Caucasian recipients to receive newer and more effective antipsychotic treatments. Although the exact reasons for these differences are not currently known, these studies make it clear that gaining greater clarity about the interactions of mental illness, occupational function, homeless, and culture must be a top priority for mental health researchers and clinicians.

ingly slow and may not always correctly address the issues in need of reform, the fact that laws can be changed should make us optimistic that the needs of individuals and of society can ultimately be addressed through the courts.

Concept Check 14.1

Check your understanding of civil commitment by filling in the blanks.

Several conditions must be met before the state is permitted to commit a person involuntarily: The person has a(n) (1) _____ and is in need of treat-

ment, the person is considered (2) _____ to herself or others, and the person is unable to care for himself or herself, also known as (3) _____. Mental illness is a(n) (4) _____ concept, typically meaning severe emotional or thought disturbances that negatively affect an individual's health and safety, although this definition differs from state to state. When the laws about civil commitment emerged, (5) _____ (movement of disabled individuals out of mental institutions) and (6) _____ (movement of disabled individuals to a lesser facility) also occurred.

Criminal Commitment

› What are the legal standards for invoking the insanity defense and determining competency to stand trial?

What would have happened if Arthur had been arrested for trespassing on embassy grounds or, worse yet, if he had hurt or killed someone in his effort to present his plan for saving the world? Would he have been held responsible for his actions, given his obvious disturbed mental state? How would a jury have responded to him when he seemed fine

just several days later? If he was not responsible for his behavior then, why does he seem so normal now?

These questions are of enormous importance as we debate whether people should be held responsible for their criminal behavior despite the possible presence of mental illness. Cases such as that of Andrea Yates, who was first

convicted and sentenced to life in prison for drowning her five children in a bathtub in 2001 but later found not guilty by reason of insanity (NGRI), cause some to wonder whether the laws have gone too far. **Criminal commitment** is the process by which people are held because (1) they have been accused of committing a crime and are detained in a mental health facility until they can be assessed as fit or unfit to participate in legal proceedings against them or (2) they have been found not guilty of a crime by reason of insanity.

The Insanity Defense

The purpose of our criminal justice system is to protect our lives, our liberty, and our pursuit of happiness, but not all people are punished for criminal behavior. The law recognizes that, under certain circumstances, people are not responsible for their behavior and it would be unfair and perhaps ineffective to punish them. Current views originate from a case recorded more than 150 years ago in England. Daniel M’Naghten today might receive the diagnosis of paranoid schizophrenia. He held the delusion that the English Tory party was persecuting him, and he set out to kill the British prime minister. He mistook the man’s secretary for the prime minister and killed the secretary instead. In what has become known as the M’Naghten rule, the English court decreed that people are not responsible for their criminal behavior if they do not know what they are doing or if they don’t know that what they are doing is

wrong. This ruling was, in essence, the beginning of the *insanity defense* (see summary in Table 14.1). For more than 100 years, this rule was used to determine culpability when a person’s mental state was in question.

In the intervening years, other standards have been introduced to modify the M’Naghten rule because many critics felt that simply relying on an accused person’s knowledge of right or wrong was too limiting and a broader definition was needed (Simon & Shuman, 2009). Mental illness alters not only a person’s cognitive abilities, but also that person’s emotional functioning, and mental health professionals believed the entire range of functioning should be taken into account when a person’s responsibility was determined. One influential decision, known as the Durham rule, was initiated in 1954 by Judge David Bazelon of the Federal Circuit Court of Appeals for the District of Columbia and based on the case *Durham v. United States* (1954). The Durham rule broadened the criteria for responsibility from knowledge of right or wrong to include the presence of a “mental disease or defect” (see Table 14.1). This decision was initially hailed by mental health professionals because it allowed them to present to a judge or jury a complete picture of the person with mental illness. Unfortunately, it was soon apparent that mental health professionals did not have the expertise to assess reliably whether a person’s mental illness caused the criminal behavior in question and therefore that decisions were being based on unscientific opinions (Simon & Shuman, 2009). Although the Durham rule is no longer used, it

Table 14.1 Important Factors in the Evolution of the Insanity Defense

Factor	Date	Quotation
M’Naghten rule	1843	[I]t must be clearly proved that at the time of committing the act, the party accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; or if he did know it, that he did not know he was doing what was wrong. (101 Cl. & F. 200, 8 Eng. Rep. 718, H.L. 1843)
Durham rule	1954	An accused is not criminally responsible if his unlawful act was the product of mental disease or mental defect. (<i>Durham v. United States</i> , 1954)
American Law Institute (ALI) rule	1962	1. A person is not responsible for criminal conduct if at the time of such conduct as a result of mental disease or defect he lacks substantial capacity either to appreciate the criminality (wrongfulness) of his conduct or to conform his conduct to the requirements of law. 2. As used in the Article, the terms “mental disease or defect” do not include an abnormality manifested only by repeated criminal or otherwise antisocial conduct. (American Law Institute, 1962)
Diminished capacity	1978	Evidence of abnormal mental condition would be admissible to affect the degree of crime for which an accused could be convicted. Specifically, those offenses requiring intent or knowledge could be reduced to lesser included offenses requiring only reckless or criminal neglect. (New York State Department of Mental Hygiene, 1978)
Insanity Defense Reform Act	1984	A person charged with a criminal offense should be found not guilty by reason of insanity if it is shown that, as a result of mental disease or mental retardation, he was unable to appreciate the wrongfulness of his conduct at the time of his offense. (American Psychiatric Association, 1983, p. 685)

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caused a reexamination of the criteria used in the insanity defense.

An influential study of this question was conducted around the same time as the Durham decision by a group of attorneys, judges, and law scholars who belonged to the American Law Institute (ALI). Their challenge was to develop criteria for determining whether a person's mental competence makes him answerable for criminal behavior. The ALI first reaffirmed the importance of distinguishing the behavior of people with mental illness from that of people without mental disorders. Its members pointed out that the threat of punishment was unlikely to deter someone who had severe mental illness; the group's position was that these individuals should instead be treated until they improve and should then be released. (The ALI concluded that people are not responsible for their criminal behavior if, because of their mental illness, they cannot recognize the inappropriateness of their behavior or control it (ALI, 1962). The criteria shown in Table 14.1, known as the ALI test, stipulate that a person must either be unable to distinguish right from wrong—as set forth in the M'Naghten rule—or be incapable of self-control to be shielded from legal consequences.

The ALI also included provisions for the concept of **diminished capacity**, which holds that people's ability to understand the nature of their behavior and therefore their criminal intent can be diminished by their mental illness. The theory of criminal intent—otherwise called *mens rea*, or having a “guilty mind”—is important legally because to convict someone of a crime, there must be proof of the physical act (*actus rea*) and the mental state (*mens rea*) of the person committing the act (Simon & Shuman, 2009). For example, if a woman accidentally hits someone who steps in front of her car and the person subsequently dies, the woman would not be held criminally responsible; although a person was killed, there was no criminal intent—the driver didn't deliberately hit the person and attempt murder. The diminished capacity concept proposes that a person with mental illness who commits a criminal offense may not, because of the illness, have criminal intent and therefore cannot be held responsible.

Reactions to the Insanity Defense

Judicial rulings through the 1960s and 1970s regarding criminal responsibility parallel the course of civil commitment. An effort was made to focus on the needs of people with mental illness who also broke the law, providing mental health treatment instead of punishment. However, the successful use of concepts such as *insanity* or *diminished capacity* in criminal cases alarmed large segments of the population. For instance, in 1979 a man successfully pleaded NGRI after being arrested for writing bad checks. His case was based on the testimony of an expert witness who said he suffered from pathological gambling disorder and he therefore could not distinguish right from wrong (*State v. Campanaro*, 1980). Other successful defenses were based on disorders in the *DSM*, such as posttraumatic

stress disorder and kleptomania (Novak, 2010), and on disorders not covered in the *DSM*, including battered wife syndrome (Cookson, 2009).

Without question, the case that prompted the strongest outrage against the insanity defense and the most calls for its abolition is that of John W. Hinckley, Jr. (Zapf, Zottoli, & Pirelli, 2009). On March 31, 1981, as President Ronald Reagan walked out of the Washington Hilton Hotel, Hinckley fired several shots, hitting and seriously wounding the president, a Secret Service agent, and James Brady, the president's press secretary. In an instant, Secret Service agents tackled and disarmed Hinckley. Hinckley was obsessed with actress Jodie Foster; he claimed he tried to kill the president to impress her. Hinckley was judged by a jury to be NGRI, using the ALI standard. The verdict sent shock waves throughout the country and legal community (Zapf et al., 2009). Although the insanity defense had already been criticized, about 75% of the U.S. states substantially changed their insanity defense rules after Hinckley's verdict, making it more difficult to use this defense (Simon & Shuman, 2008). As you have seen before, such impulses often are based more on emotion than on fact. Highly publicized cases such as those of Hinckley, Charles Manson, Jeffrey Dahmer, and Ted Kaczynski, with the media characterization of people with mental illness as excessively violent, have created an unfavorable public perception of the insanity defense. One telephone survey study found that 91% of people who responded agreed with the statement, “[J]udges and juries have a hard time telling whether the defendants are really sane or insane” (Hans, 1986). Almost 90% agreed the “insanity plea is a loophole that allows too many guilty people to go free.”

Is there hard evidence that the insanity defense is used too often? A study of the public's impression of the insanity defense compared it to the actual use of the defense and its outcomes (Silver, Cirincione, & Steadman, 1994). As Table 14.2 shows, the public's perception that this defense is used in 37% of all felony cases is a gross overestimate; the actual figure is less than 1%. The public also overestimates how often the defense is successful and how often people judged NGRI are set free. People tend to underestimate the length of hospitalization of those who are acquitted. This last issue is important: In contrast to public perceptions, the length of time a person is confined to a hospital after being judged NGRI may exceed the time the person would have spent in jail had that person been convicted of the crime (Simon & Shuman, 2008). Hinckley, for example, has been a patient in St. Elizabeth's Hospital for more than

criminal commitment Legal procedure by which a person found not guilty of a crime by reason of insanity must be confined in a psychiatric hospital.

diminished capacity Evidence of an abnormal mental condition in people that causes criminal charges against them requiring intent or knowledge to be reduced to lesser offenses requiring only reckless or criminal neglect.

Table 14.2 Comparison of Public Perceptions with the Actual Occurrence of the Insanity Defense

	Public Perception (%)	Actual Occurrence (%)
Use of Insanity Defense		
Felony indictments resulting in an insanity plea	37.0	0.9
Insanity pleas resulting in acquittal	44.0	26.0
Disposition of Insanity Acquittees		
Insanity acquittees sent to a mental hospital	50.6	84.7
Insanity acquittees set free	25.6	15.3
—Conditional release		11.6
—Outpatient		2.6
—Release		1.1
Length of Confinement of Insanity Acquittees (in months)		
All crimes	21.8	32.5
—Murder		76.4

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30 years. Other research shows that individuals with mental illness who are found guilty of *nonviolent* crimes can be committed more than 8 times as long as those people without mental illness placed in prison (Perlin, 2000). In contrast to public perception, people with mental illness apparently do not often “beat the rap” as a result of being judged NGRI.

Despite sound evidence that it is not used excessively and does not result in widespread early release of dangerous individuals, major changes were made in the criteria for the insanity defense after the Hinckley verdict. Both the American Psychiatric Association (1983) and the American Bar Association (1984) recommended modifications, moving back toward M’Naghten-like definitions. Shortly afterward, Congress passed the Insanity Defense Reform Act of 1984, which incorporated these suggestions and made successful use of the insanity defense more difficult.

Another attempt at reforming the insanity plea has been to replace the NGRI verdict with a verdict

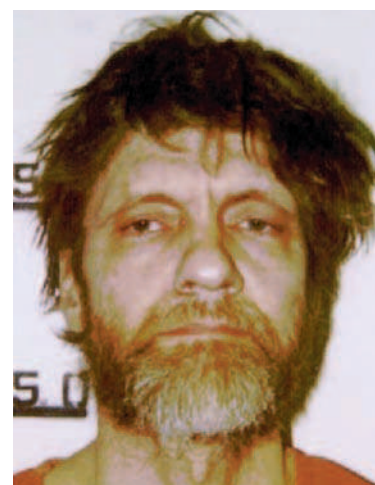
of guilty but mentally ill (GBMI) (Torry & Billick, 2010). Although there are several versions of the GBMI verdict, the shared premise is that the consequences for a person ruled GBMI are different from those for a person who is NGRI. People found to be NGRI are not sent to prison but are evaluated at a psychiatric facility until such time as they are judged ready for release. A person determined to be no longer mentally ill must be released. If Arthur had committed a crime and was found NGRI, because his brief psychotic disorder was quickly resolved, he would probably have been released immediately. In contrast, one version of the GBMI verdict in theory allows the system both to treat and to punish the individual. The person found guilty is given a prison term just as if there were no question of mental illness. Whether the person is incarcerated in prison or in a mental health facility is decided by legal authorities. If the person recovers from mental illness before the sentence has passed, that person can be confined in prison for the maximum length of the term. If Arthur were found GBMI under this system, he could serve a full prison sentence, even though his mental illness was resolved. This version of GBMI has been adopted by a number of states (Simon & Shuman, 2008).

The second version of GBMI is even harsher for the mentally ill offender. Convicted individuals are imprisoned, and prison authorities may provide mental health services if they are available. The verdict itself is simply a declaration by the jury that the person was mentally ill at the time the crime was committed and does not result in differential treatment for the perpetrator. Idaho, Montana, and Utah have abandoned the insanity defense altogether and have adopted this version of GBMI (“The Evolving Insanity Defense,” 2006).

As noted, the GBMI verdict was a reaction to the perceived loophole provided by the insanity defense. It has been



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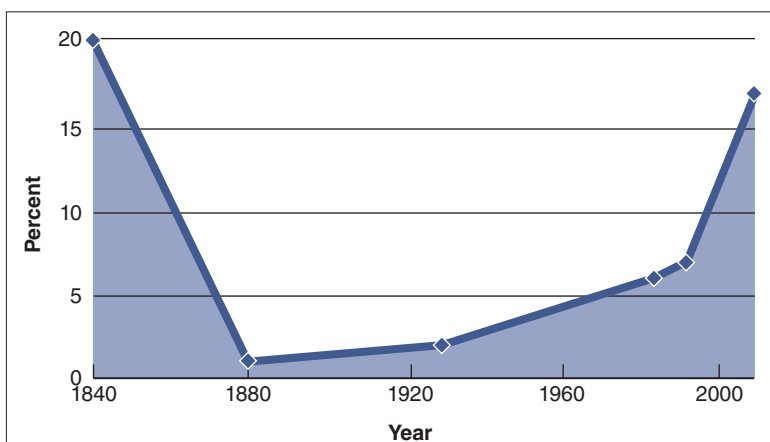


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▲ Theodore Kaczynski, once a promising mathematician (*left*), became a notorious terrorist who killed three people and injured 23 more with hand-made bombs sent through the mail. Awaiting trial as the Unabomber (*right*), Kaczynski refused to cooperate with his lawyers, who fought to have him declared mentally ill to save his life. Ironically, the prosecution, in pressing for the death penalty, supported his claim of sanity. (In the end, Kaczynski pleaded guilty and accepted a life sentence.)

used in several states for more than 15 years, and its effects have been investigated by researchers. Two studies have shown that people who receive the GBMI verdict are more likely to be imprisoned and to receive longer sentences than people pleading NGRI (Callahan, McGreevy, Cirincione, & Steadman, 1992; Keilitz, 1987). Research also indicates that individuals receiving GBMI verdicts are no more likely to receive treatment than other prisoners who have mental illness (Keilitz, 1987; Smith & Hall, 1982). Currently, the type of verdicts available (NGRI versus GBMI) depends on the laws of the particular state where the crimes were committed.

Overall, some estimate that there are more than 3 times the number of people with severe mental illness in jails than in hospitals, pointing to the consequences of these changes in mental health laws (Torrey, Eslinger, Lamb, & Pavle, 2010). Figure 14.1 illustrates how people with severe mental illness are increasingly being placed in prisons rather than in special mental health facilities. The percentage of placements in prisons is approaching rates comparable to that of those more than 150 years ago, before adequate services were available.



■ **Figure 14.1** The percentage of jail and prison inmates with serious mental illness. The graph shows the increasing trend over the past few decades to incarcerate people with severe mental illness rather than to provide treatment. (From Torrey, E., Eslinger, S., Lamb, R., & Pavle, J. [2010]. *More mentally ill persons are in jails and prisons than hospitals: A survey of the states* [p. 13]. Arlington, VA: Treatment Advocacy Center.)

Therapeutic Jurisprudence

There is a built-in tension between the judicial system and the mental health system. The legal system is, by design, adversarial. In other words, it was created with prosecutors and defendants, winners and losers. In contrast, the mental health system is set up to find solutions to important psychological problems without placing blame on any parties. The goal is for both sides to “win.” Fortunately, there is an increasing recognition in the legal system that a strict adversarial approach to dealing with people with mental health problems may be harmful to everyone. As a result of this change in thinking, when individuals with psychological disorders break the law, they may now find themselves in one of a variety of “problem-solving courts” (King & Wexler, 2010). These new courts are designed to address the unique needs of people with specific problems. For example, today in many states you can find drug treatment courts, domestic violence courts, and mental health courts, among others. It is interesting that models of problem-solving courts have their roots in the legal systems of tribal societies in the United States, Canada, Australia, and New Zealand (King & Wexler, 2010).

These problem-solving courts are based on the concept of therapeutic jurisprudence—in essence, using what we know about behavior change to help people in trouble with the law. In drug treatment court, for example, a judge might be assigned to all criminal cases involving drug-addicted defendants. The judge would have the leeway to

delay sentencing under the condition that the accused obtained and held a job for 6 months, received drug treatment during that time, and remained drug free. Similarly, a defendant in a mental health court might be helped by referrals to existing programs in the community and involvement of family members. Rather than simply trying to decide between prison and freedom, the court can serve as an instrument of social change. This evolving concept may provide effective alternatives in the criminal justice system for people with severe mental illness.

Society has long recognized the need to identify criminals who may not be in control of their behavior and who may not benefit from simple incarceration. The challenge is in trying to do what may be impossible: determining whether the person knew what she was doing, knew right from wrong, and could control her behavior. Mental health professionals cannot assess mental health retrospectively. An additional dilemma is the desire, on the one hand, to provide care to people with mental illness and, on the other, to treat them as responsible individuals. Finally, we must resolve the simultaneous and conflicting interests of wanting to assist people with mental illness and wanting to be protected from them. The recent trend of using problem-solving courts may be one way to address these concerns. We must reach a national consensus about the basic value of people with mental illness to decide how they should be dealt with legally.

Competence to Stand Trial

Before people can be tried for a criminal offense, they must be able to understand the charges against them and to assist with their own defense, criteria outlined by the Supreme Court in *Dusky v. United States* (1960). Thus, in addition to interpreting a person's state of mind during the criminal act, experts must also anticipate his state of mind during the subsequent legal proceedings. A person could be ruled NGRI because of his mental illness at the time of the criminal act yet still be competent to stand trial, a situation that would have occurred in Arthur's case had he committed a crime.

A person determined to be incompetent to stand trial typically loses the authority to make decisions and faces commitment. Because a trial requires a determination of **competence**, most people with obvious and severe impairments who commit crimes are never tried. Some observers estimate that for every person who receives a verdict of NGRI, 45 others are committed to a mental health facility with a diagnosis of severe mental illness (Butler, 2006). The length of stay is the time it takes the committed person to regain competence. Because this period can be drawn out, the courts have ruled it cannot be indefinite and that, after a reasonable amount of time, the person must be found competent, set free, or committed under civil law (*Jackson v. Indiana*, 1972). Laws are often not precise in their language, and the phrase "reasonable amount of time" is open to a great deal of interpretation.

A final issue relates to the legal concept of burden of proof, the weight of evidence needed to win a case. In decisions of competence to stand trial, an important ruling placed responsibility on the defendant to provide the burden of proof—in this case, that she is incompetent to stand trial (*Medina v. California*, 1992). Again, public concern that dangerous individuals with mental illness are routinely acquitted and let loose on society after committing multiple violent offenses flies in the face of the facts. More realistically, a person with mental illness commits a nonviolent crime and receives treatment through legal actions, such as the competence proceedings.

Duty to Warn

What are the responsibilities of professionals who suspect that someone with whom they are working may hurt or even kill another person? Must they contact the appropriate authority or the person who may be harmed, or are they forbidden to discuss information disclosed during therapy sessions?

These issues were the subject of a tragic case known as *Tarasoff v. Regents of the University of California* (1974, 1976). In 1969, Prosenjit Poddar, a graduate student at the University of Califor-

nia, killed a fellow student, Tatiana Tarasoff, who had previously rejected his romantic advances. At the time of the murder, he was being seen by two therapists at the University Health Center and had received a diagnosis of paranoid schizophrenia. At his last session, Poddar hinted that he was going to kill Tarasoff. His therapist believed this threat was serious and contacted the campus police, who investigated the allegation and received assurances from Poddar that he would leave Tarasoff alone. Weeks later, after repeated attempts to contact her, Poddar shot and stabbed Tarasoff until she died.

After learning of the therapists' role in the case, Tarasoff's family sued the university, the therapists, and the university police, saying they should have warned Tarasoff that she was in danger. The court agreed, and the Tarasoff case has been used ever since as a standard for therapists concerning their **duty to warn** a client's potential victims. Related cases have further defined the role of the therapist in warning others (Masona, Worsleyb, & Coylea, 2010). Courts have generally ruled that the threats must be specific. In *Thompson v. County of Alameda* (1980), the California Supreme Court ruled that a therapist does not have a duty to warn when a person makes nonspecific threats against nonspecific people. It is difficult for therapists to know their exact responsibilities for protecting third parties from their clients. Good clinical practice dictates that any time they are in doubt they should consult with colleagues.

Mental Health Professionals as Expert Witnesses

Judges and juries often have to rely on **expert witnesses**, individuals who have specialized knowledge, to assist them in making decisions (Mullen, 2010). We have alluded



▲ Elizabeth Loftus, a psychologist at the University of Washington in Seattle and an expert in human memory, testifies during the pretrial hearing of former White House official Lewis "Scooter" Libby.

AP Photo/Don Shrubshell, Pool

to several instances in which mental health professionals serve in such a capacity, providing information about a person's dangerousness or ability to understand and participate in the defense. The public's perception of expert witnesses is characterized by ambivalence. On one hand, they see the value of persuasive expert testimony in educating a jury; on the other, they see expert witnesses as "hired guns" whose opinions suit the side that pays their bills (Simon & Shuman, 2009). How reliable are the judgments of mental health professionals who act as expert witnesses?

To take one example, in deciding whether someone should be civilly committed, the assessor must determine the person's potential for future violence. Research suggests that mental health professionals can make reliable predictions of dangerousness over the short term, for 2 to 20 days after the evaluation (Scott et al., 2008). However, they have not been able to make reliable predictions of violence after longer periods (Tardiff, 2003). A second area in which mental health professionals are often asked to provide consultation is in assigning a diagnosis. In Chapter 3, we discussed the development of systems to ensure the reliability of diagnoses. Recent revisions of diagnostic criteria, most notably *DSM-III-R* and the current *DSM-IV-TR*, have addressed this issue directly, thus helping clinicians make diagnoses that are generally reliable. Remember, however, that the legal definition of mental illness is not matched by a comparable disorder in *DSM-IV-TR*. Therefore, statements about whether someone has a "mental illness" reflect determinations made by the court, not by mental health professionals.

Mental health professionals appear to have expertise in identifying *malinger* and in assessing competence. Remember that to mangle is to fake or grossly exaggerate symptoms, usually to be absolved from blame. For example, a person might claim to have been actively hallucinating at the time of the crime and therefore not responsible. Research indicates that the Minnesota Multiphasic Personality Inventory test is extremely accurate in revealing malingering in people claiming to have serious mental illness. The examiners look for true symptoms but ones people with mental illness rarely report. Malingerers, in their rush to fake their illness, will often overreport these problems, perhaps to convince others they are mentally ill (Gassen, Pietz, Spray, & Denney, 2007). Mental health professionals also appear capable of providing reliable information about a person's competence, or ability to understand and assist with a defense (Shulman, Cohen, Kirsh, Hull, & Champine, 2007). Overall, mental health professionals can provide judges and juries with reliable and useful information in certain areas (Scott et al., 2008).

The research described here does not indicate how accurate expert testimony is under everyday conditions. In other words, under the right circumstances, experts can make accurate determinations of the short-term risks that a person will commit an act of violence, is faking certain symptoms, or is competent to stand trial and of what diagnosis should be made. Still, other factors conspire to influ-

ence expert testimony. Personal and professional opinions that exceed the competence of the expert witness can influence what information is or is not presented and how it is relayed to the court (Simon & Shuman, 2009). For instance, if the expert witness believes generally that people should not be involuntarily committed to mental health facilities, this opinion will likely influence how the witness presents clinical information in civil commitment court proceedings.

Concept Check 14.2

Check your understanding of criminal commitment by identifying the following concepts: (a) competence to stand trial, (b) diminished capacity, (c) American Law Institute rule, (d) Durham rule, (e) M'Naghten rule, (f) malingering, (g) expert witness, and (h) duty to warn.

1. The defendant does not go to trial because she is unable to understand the proceedings and assist in the defense. _____
2. The person could not distinguish between right and wrong at the time of the crime. _____
3. The person is not responsible for the crime if he is not able to appreciate the wrongfulness of behavior caused by mental disease or defect. _____
4. One of my clients threatened his mother's life during his session today. Now I must decide whether I have a(n) _____.
5. A mental disorder could reduce a person's ability to understand criminal behavior and to form criminal intent. _____
6. Dr. Z testified in court that the defendant was faking and exaggerating symptoms to evade responsibility. Dr. Z is acting as a(n) _____, and the defendant is _____.
7. The person is not criminally responsible if the crime was the result of "mental disease or mental defect." _____

competence Ability of legal defendants to participate in their own defense and understand the charges and the roles of the trial participants.

duty to warn Mental health professional's responsibility to break confidentiality and notify the potential victim whom a client has specifically threatened.

expert witness Person who because of special training and experience is allowed to offer opinion testimony in legal trials.



› What are the key rights of patients in the mental health system?

Until about 30 years ago, people in mental health facilities were accorded few rights. What treatment they received and whether they could make phone calls, send and receive mail, or have visitors were typically decided by hospital personnel who rarely consulted with the patient. However, abuses of this authority led to legal action and subsequent rulings by the courts concerning the rights of people in these facilities.

The Right to Treatment

One of the most fundamental rights of people in mental health facilities is the right to treatment. For too many people and for too long, conditions were poor and treatment was lacking in numerous large mental health facilities. Starting in the early 1970s, a series of class-action lawsuits (filed on behalf of many individuals) helped establish the rights of people with mental illness and mental retardation. A landmark case, *Wyatt v. Stickney* (1972), grew out of a lawsuit filed by the employees of large institutions in Alabama who were fired because of funding difficulties and established for the first time the minimum standards that facilities had to meet in relation to the people who were hospitalized. Among the standards set by *Wyatt v. Stickney* were minimum staff–patient ratios and physical requirements, such as a certain number of showers and toilets for a given number of residents. The case also mandated that facilities make positive efforts to attain treatment goals for their patients.

Wyatt v. Stickney went further and expanded on a concept called the “least restrictive alternative,” indicating that, wherever possible, people should be provided with care and treatment in the least confining and limiting environment possible. For example, the court noted the following for those with mental retardation:

Residents shall have a right to the least restrictive conditions necessary to achieve the purpose of habilitation. To this end the institution shall make every attempt to move residents from (1) more to less structured living; (2) large to smaller facilities; (3) large to smaller living units; (4) group to individual residences; (5) segregated from the community to integrated into the community; (6) dependent living to independent living. (*Wyatt v. Stickney*, 1972)

Despite this movement to secure treatment for people in mental health facilities, a gap was left as to what constituted proper treatment. The case of *Youngberg v. Romeo* (1982) reaffirmed the need to treat people in nonrestrictive settings but essentially left to professionals the decision about the type of treatment to be provided. This concerned patient advocates because, historically, leaving treatment to professional judgment has not always resulted in the intended end for the people in need of help. In 1986, Congress provided a

number of safeguards by passage of the Protection and Advocacy for Mentally Ill Individuals Act (Woodside & Legg, 1990), which established a series of protection and advocacy agencies in each state to investigate allegations of abuse and neglect and to act as legal advocates.

The Right to Refuse Treatment

One of the most controversial issues in mental health today is the right of people, especially those with severe mental illness, to refuse treatment (Simon & Shuman, 2009). In recent times, the argument has centered on the use of antipsychotic medications. On one side of the issue are the mental health professionals who believe that, under certain circumstances, people with severe mental illness are not capable of making a decision in their own best interest and that the clinician is therefore responsible for providing treatment, despite the protestations of the affected people. On the other side, patients and their advocates argue that all people have a fundamental right to make decisions about their own treatment, even if doing so is not in their own best medical interests.

Although this controversy is not yet resolved, one court case has responded to a related question: Can people be “forced” to become competent to stand trial? This is an interesting dilemma: If people facing criminal charges are delusional or have such frequent severe hallucinations that they cannot fully participate in the legal proceedings, can they be forced against their will to take medication to reduce these symptoms, thereby making them competent to stand trial? A Supreme Court ruling, *Riggins v. Nevada* (1992), stated that, because of the potential for negative side effects (such as the involuntary motor movements associated with tardive dyskinesia), people cannot be forced to take antipsychotic medication. Although this decision does not settle the issue of refusing treatment, it does indicate the high court’s wish to honor individual choice (Simon & Shuman, 2008).

Research Participants' Rights

Throughout this text we have described research conducted worldwide with people who have psychological disorders. We also touched briefly on the issue of the rights of these individuals. In general, people who participate in psychological research have the following rights (American Psychological Association, 2010a, 2010b):

1. The right to be informed about the purpose of the research study
2. The right to privacy
3. The right to be treated with respect and dignity
4. The right to be protected from physical and mental harm

5. The right to choose to participate or to refuse to participate without prejudice or reprisals
6. The right to anonymity in the reporting of results
7. The right to the safeguarding of their records

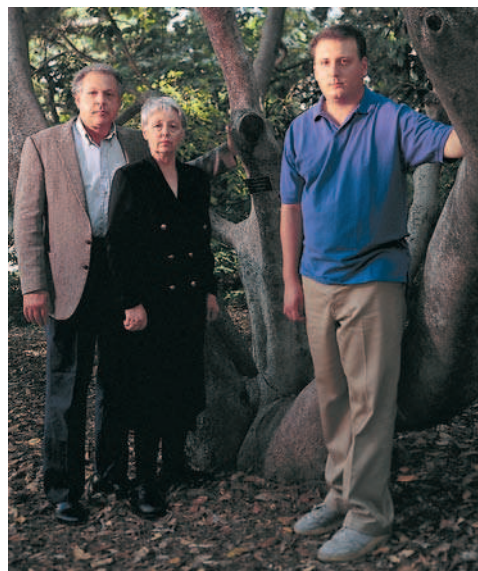
These rights are particularly important for people with psychological disorders who may not be able to understand them fully. One of the most important concepts in research is that those who participate must be fully informed about the risks and benefits of the study. Simple consent is not sufficient; it must be *informed consent*, or formal agreement by the subject to participate after being fully apprised of all important aspects of the study, including any possibility of harm. An important case underlines the significance of informed consent and the sometimes-gray areas that exist in applied research.

Greg Aller • Concerned about Rights

In 1988, 23-year-old Greg Aller signed a consent form agreeing to participate in a treatment study at the University of California at Los Angeles (UCLA) Neuropsychiatric Institute (Willwerth, 1993). Since the previous year, Greg had experienced vivid and frightening hallucinations and delusions about space aliens. His parents had contacted UCLA for assistance. They learned that the university was initiating a new study to evaluate people in the early stages of schizophrenia and to assess the effects of the withdrawal of medication. If Greg participated, he could receive extremely expensive drug therapy and counseling free. After taking the drug Prolixin for 3 months as part of the study, he improved dramatically; the hallucinations and delusions were gone.

Although overjoyed with the results, Greg's parents were concerned about the second phase of the study, which involved taking him off the medication. They were reassured by the researchers that this was an important and normal part of treatment for people with schizophrenia and that the potential for negative side effects of taking the drug for too long was great. They were also told the researchers would put Greg back on the medication if he grew considerably worse without it.

Toward the end of 1989, Greg was slowly taken off the drug, and he soon started having delusions about then-President Ronald Reagan and space aliens. Although his deterioration was obvious to his parents, Greg did not indicate to the researchers that he needed the medication or tell them of his now-continuous hallucinations and delusions. Greg continued to deteriorate, at one point threatening to kill his parents. After several more months, Greg's parents persuaded him to ask for more medication. Although better than he was earlier, Greg has still not returned to the much-improved state he achieved following his first round of medication.



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▲ Greg Aller (*right*, with his parents) participated in a drug study at UCLA and suffered a severe relapse of psychotic symptoms when medication was withdrawn. He and his family subsequently raised the issue of informed consent for such research.

This case highlights the conflicts that can arise when researchers attempt to study important questions in psychopathology. Administrators at the National Institutes of Health reported that the UCLA researchers did not give Greg and his family all the information about the risks of treatment and the possibility of other approaches (Aller & Aller, 1997). Critics claim that informed consent in this and similar situations is too often not fully met and that information is often colored to ensure participation. However, the UCLA researchers note that what they did was no different from what would have happened outside the research study: They attempted to remove Greg from potentially dangerous antipsychotic medication. The controversy emerging from this case should be an added warning to researchers about their responsibilities to people who participate in their studies and their obligation to design added safeguards to protect the welfare of their study subjects. Some are now exploring methods to assess formally whether participants with mental illness fully understand the risks and benefits associated with these studies (e.g., Jeste et al., 2009).

Evidence-Based Practice and Clinical Practice Guidelines

Governments and health-care policy makers are increasingly promoting evidence-based practice (EBP)—health-care practices supported by research findings demonstrating that they are effective. EBP is one of those ideas that comes along occasionally and takes the world by storm. Although some tenets of EBP have been around for decades, it is only in the past 15 years that EBP has been formally identified as a

systematic method of delivering clinical care (Institute of Medicine, 2001; Sackett, Strauss, Richardson, Rosenberg, & Haynes, 2000). The American Psychological Association Presidential Task Force in 2006 adopted as policy a report describing EBP in psychology and encouraging wide adoption of the notion of basing principles of psychological practice on evidence (American Psychological Association, 2006).

As described throughout this book, evidence has accumulated on the effectiveness of psychological treatments for specific disorders both in research clinics and in clinics that serve the public directly. When this evidence is put in the form of recommendations on how to treat a particular problem, these recommendations are called clinical practice guidelines. In 1989, legislation established a new branch of the federal government called the Agency for Health Care Policy and Research. In 1999, this agency was reauthorized by Congress and renamed the Agency for Healthcare Research and Quality. The purpose of this agency is to establish uniformity in the delivery of effective health and mental health care and to communicate to practitioners, policy makers, and patients alike throughout the country the latest developments in treating certain disorders effectively. The agency is also responsible for research into improving systems for the delivery of health and mental health services. Now with the passage in 2010 of legislation to provide a form of national health insurance in the United States (the Patient Protection and Affordable Care Act), making health care more efficient and effective is more important than ever.

The government hopes not only to reduce costs by eliminating unnecessary or ineffective treatments but also to facilitate the utilization of effective interventions based on the latest research evidence. In recent years, governments have allocated billions of dollars to facilitate dissemination and implementation of evidence-based psychological treatments in various health-care systems such as the Veterans Health Administration in the United States and the National Health Service in the United Kingdom (McHugh & Barlow, 2010). Treating people effectively—alleviating their pain and distress—is the most important way to reduce health-care costs because these individuals will no longer request one treatment after another in an unending search for relief. To this end, the new legislation creates the Patient-Centered Outcomes Research Institute to facilitate research on which treatments for what conditions are most effective, and to disseminate this information widely (Dickersin, 2010).

Anticipating the importance of this trend and the necessity that clinical practice guidelines be sound and valid, a task force of the American Psychological Association composed a template, or set, of principles for constructing and evaluating guidelines for clinical interventions for both psychological disorders and psychosocial aspects of physical disorders. These principles were published in 1995 and revised in 2002 with relatively few changes (American Psychological Association, 2002a and b).

The task force decided that clinical practice guidelines for specific disorders should be constructed on the basis of two simultaneous considerations, or axes: the clinical efficacy axis and the clinical utility axis. The **clinical efficacy axis** is a thorough consideration of the scientific evidence to determine whether the intervention in question is effective. This evidence would answer the question, Is the treatment effective when compared to an alternative treatment or to no treatment in a controlled clinical research context?

In Chapter 3, we reviewed the various research strategies used to determine whether an intervention is effective. As you will remember, for many reasons, a treatment might seem effective when it is not. For instance, if patients improve on their own while being treated simply because of the passage of time or the natural healing process, the treatment had little to do with the improvement. It is possible that nonspecific effects of the treatment—perhaps just meeting with a caring health professional—are enough to make someone feel better without any contribution from the particular treatment technique. To determine clinical efficacy, experiments called clinical trials must establish whether the intervention in question is better than no therapy, better than a nonspecific therapy, or better than an alternative therapy. Clinicians might also rely on information collected from various clinics where a large number of practitioners are treating the disorder in question. If these clinicians collect systematic data on the outcomes of their patients, they can ascertain how many are “cured,” how many improve somewhat without recovering, and how many fail to respond to the intervention. Such data are referred to as *quantified clinical observations* or *clinical replication series*. Finally, a *clinical consensus* of leading experts is also a valuable source of information, although not as valuable as data from quantified clinical observations or randomized controlled trials (in which individuals are assigned randomly to a treatment or a control condition to evaluate the efficacy of the treatment).

The **clinical utility axis** is concerned with the effectiveness of the intervention in the practice setting in which it is to be applied, regardless of research evidence on its efficacy; in other words, will an intervention with proven efficacy in a research setting also be effective in the various clinical settings where the interventions are most often applied? Also, is application of the intervention in the settings where it is needed feasible and cost-effective? This axis is concerned with external validity, the extent to which an internally valid intervention is effective in different settings or under different circumstances from those where it was tested, and how easily it can be disseminated and implemented in those settings.

The first major issue to consider on the clinical utility axis is feasibility. Will patients accept the intervention and comply with its requirements, and is it relatively easy to administer? As noted in Chapter 6, electroconvulsive therapy is an effective treatment for severe depression in many

Table 14.3 Overview of Template for Constructing Psychological Intervention Guidelines

Clinical Efficacy (Internal Validity)	Clinical Utility (External Validity)
<ul style="list-style-type: none"> A. Better than alternative therapy (randomized controlled trials, or RCTs) B. Better than nonspecific therapy (RCTs) C. Better than no therapy (RCTs) D. Quantified clinical observations E. Clinical consensus <ul style="list-style-type: none"> 1. Strongly positive 2. Mixed 3. Strongly negative 4. Contradictory evidence 	<ul style="list-style-type: none"> A. Feasibility <ul style="list-style-type: none"> 1. Patient acceptability (cost, pain, duration, side effects, and so on) 2. Patient choice in face of relatively equal efficacy 3. Probability of compliance 4. Ease of dissemination (number of practitioners with competence, requirements for training, opportunities for training, need for costly technologies or additional support personnel, and so on) B. Generalizability <ul style="list-style-type: none"> 1. Patient characteristics <ul style="list-style-type: none"> a. Cultural background issues b. Gender issues c. Developmental level issues d. Other relevant patient characteristics 2. Therapist characteristics 3. Issues of robustness when applied in practice settings with different time frames, and so on 4. Contextual factors regarding setting in which treatment is delivered C. Costs and benefits <ul style="list-style-type: none"> 1. Costs of delivering intervention to individual and society 2. Costs to individual and society of withholding intervention

Note: Confidence in treatment efficacy is based on both (a) absolute and relative efficacy of treatment and (b) quality and replicability of studies in which this judgment is made.

Note: Confidence in clinical utility as reflected on these three dimensions should be based on systematic and objective methods and strategies for assessing these characteristics of treatment as they are applied in actual practice. In some cases, randomized controlled trials will exist. More often, data will be in the form of quantified clinical observations (clinical replication series) or other strategies, such as health economic calculations.

Source: Reprinted, with permission, from American Psychological Association Board of Professional Affairs Task Force on Psychological Intervention Guidelines. (1995). *Template for developing guidelines: Interventions for mental disorders and psychosocial aspects of physical disorders*. Approved by APA Council of Representatives, February 1995. Washington, D.C.: American Psychological Association, © 1995 American Psychological Association.

cases, but it is extremely frightening to patients, many of whom refuse it. The treatment also requires sophisticated procedures and close supervision by medical personnel, usually in a hospital setting. Therefore, it is not particularly feasible and is used only as a last resort.

A second issue on the clinical utility axis is generalizability, which refers to the extent to which an intervention is effective with patients of differing backgrounds (ethnicity, age, or sex) and in different settings (inpatient, outpatient, or community) or with different therapists. Again, an intervention could be effective in a research setting with one group of patients but generalize poorly across different ethnic groups. In summary, a treatment can be highly effective as determined by the clinical efficacy axis, but unless the treatment is widely generalizable, feasible, and cost-effective, it is unlikely to be disseminated or implemented. For a summary of these two axes, see Table 14.3.

In 2010, the American Psychological Association decided to develop its own set of clinical practice guidelines on providing the best evidence-based psychological care for people with psychological disorders.

In Chapter 1, we reviewed various activities that make up the role of scientist-practitioners in the mental health

professions, who take a scientific approach to their clinical work to provide the most effective assessment procedures and interventions. Changes in the delivery of mental health services are likely to be accompanied by considerable disruption because this is a major system that affects millions of people. But the change will also bring opportunities. Scientist-practitioners will contribute to the process of guidelines development in several ways. For example, as attempts are made to assess the clinical utility or external validity of interventions, the collected experience of thousands of mental health professionals will be immensely valuable. Most information relevant to clinical utility or external validity will be collected by these clinicians in the course of their practice.

clinical efficacy axis One of a proposed set of guidelines for evaluating clinical interventions on the evidence of their effectiveness (compare with clinical utility axis).

clinical utility axis One of a proposed set of guidelines for evaluating clinical interventions by whether they can be applied effectively and cost effectively in real clinical settings (compare with clinical efficacy axis).

Concept Check 14.3

Identify the following situation using one of these terms: (a) informed consent, (b) refuse treatment, (c) clinical utility, (d) clinical efficacy, and (e) reduce costs.

1. Recently, clinical practice guidelines were established on two axes. The _____ axis is a consideration of the scientific evidence to determine whether the intervention in question is effective.
2. The _____ axis is concerned with an intervention's effectiveness in the clinical setting where it will be applied, not in the research setting.
3. The clinical researcher knows the potential for harm of the participants is slight but is nevertheless careful to tell them about it and asks them whether they agree to give their _____.
4. Clinical practice guidelines are designed to safeguard clients and _____.
5. The Supreme Court ruling in *Riggins v. Nevada* helped support a patient's right to _____.

Summary

Civil Commitment

How does the legal concept of mental illness differ from a clinically diagnosed psychological disorder?

What is the relationship between dangerousness and mental illness?

What are the interactions among mental illness, deinstitutionalization, and homelessness?

- › Civil commitment laws determine the conditions under which a person may be certified legally to have a mental illness and therefore to be placed in a hospital, sometimes in conflict with the person's own wishes.
- › Historically, states have permitted commitment when several conditions have been met: (1) the person has a mental illness and is in need of treatment, (2) the person is dangerous to himself or to others, or (3) the person is unable to care for himself.
- › *Mental illness* as used in legal system language is not synonymous with *psychological disorder*; each state has its own definition of mental illness, usually meant to include people with severe disturbances that negatively affect their health and safety.
- › Having a mental illness does not seem to increase the likelihood of dangerousness, that is, that a person will commit violent acts in the future, although having symptoms of hallucinations and delusions does seem to indicate more risk for behaving violently.
- › The combination of the lack of success with deinstitutionalization, which has resulted instead in transinstitutionalization; the rise in homelessness; and the criminalization of people with severe mental illness led to a backlash against the perceived causes of these factors, including the strict civil commitment laws.

Criminal Commitment

What are the legal standards for invoking the insanity defense and determining competency to stand trial?

- › Criminal commitment is the process by which people are held for one of two reasons: (1) They have been accused of committing a crime and are detained in a mental health facility until they can be determined fit or unfit to participate in legal proceedings against them, or (2) they have been found not guilty of a crime by reason of insanity.
- › The insanity defense is defined by a number of legal rulings: The M'Naghten rule states that people are not responsible for criminal behavior if they do not know what they are doing, or if they do know and they don't know it is wrong. The Durham rule broadened the criteria for responsibility from knowledge of right or wrong to the presence of a "mental disease or defect." The American Law Institute criteria concluded that people were not responsible for their criminal behavior if, because of their mental illness, they lacked either the cognitive ability to recognize the inappropriateness of their behavior or the ability to control their behavior.
- › The concept of diminished capacity holds that people's ability to understand the nature of their behavior and therefore their criminal intent could be lessened by their mental illness.
- › A determination of competence must be made before an individual can be tried for a criminal offense: To stand trial, people must be competent—able to understand the charges against them and to assist with their own defense.
- › Duty to warn is a standard that sets forth the responsibility of the therapist to warn potential victims that a client may attempt to hurt or kill them.

- › Individuals who have specialized knowledge and who assist judges and juries in making decisions, especially about such issues as competence and malingering, are called expert witnesses.

Patients' Rights and Clinical Practice Guidelines

What are the key rights of patients in the mental health system?

- › One of the more fundamental rights of patients in mental health facilities is their right to treatment—that is, they have a legal right to some sort of ongoing effort to both define and strive toward treatment goals. By contrast, a great deal of controversy exists over whether all patients are capable of making a decision to refuse treatment. This is an especially difficult dilemma in the case of antipsychotic medications that may improve

patients' symptoms but bring with them severe negative side effects.

- › Subjects who participate in any research study must be fully informed of the risks and benefits and formally give their informed consent to indicate they have been fully informed.
- › Clinical practice guidelines can play a major role in providing information about types of interventions that are likely to be effective for a specific disorder, thereby setting the stage for evidence-based practice. Critical to such a determination are measures of clinical efficacy (internal validity) and clinical utility (external validity); in other words, the former is a measure of whether a treatment works, and the latter is a measure of whether the treatment is effective in a variety of settings and can be implemented in those settings.

Key Terms

civil commitment laws, 538
 mental illness, 539
 dangerousness, 539
 deinstitutionalization, 540

transinstitutionalization, 541
 criminal commitment, 544
 diminished capacity, 545
 competence, 548

duty to warn, 548
 expert witness, 548
 clinical efficacy axis, 552
 clinical utility axis, 552

Answers to Concept Checks

14.1

1. mental disorder; 2. dangerous;
3. grave disability; 4. legal;
5. deinstitutionalization;
6. transinstitutionalization

14.2

1. a; 2. e; 3. c; 4. h; 5. b; 6. g, f; 7. d

14.3

1. d; 2. c; 3. a; 4. e; 5. b

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- › Concept Check: How Can Juries Decide Insanity?
- › The Insanity Defense
- › Competence
- › Expert Witness

CHAPTER QUIZ

1. According to a recent review by La Fond and Durham, since the 1960s mental health law in the United States has followed what pattern?
 - a. A commitment to protecting society, followed by a shift in emphasis to protecting the individual.
 - b. A commitment to protecting the individual, followed by a shift in emphasis to protecting society.
 - c. A consistent protection of the individual above protection of society.
 - d. A consistent protection of society above protection of the individual.
2. Sally has stopped eating because of her delusional belief that extraterrestrial aliens are trying to poison her. Because of her symptoms, Sally is placed in a psychiatric hospital involuntarily based on what civil authority?
 - a. malingering
 - b. uninformed consent
 - c. police power
 - d. *parens patriae*
3. Which statement is true regarding the relationship between mental illness and dangerousness?
 - a. Men with mental illness who are Hispanic are more likely to be dangerous than men with mental illness from other ethnic groups.
 - b. People with mental illness are more likely to be dangerous if they have been committed to a mental health facility against their will.
 - c. Women with mental illness are more likely to be dangerous than women without mental illness.
 - d. Most studies suggest that people with mental illness are no more likely to be dangerous than people without mental illness.
4. One goal of taking people out of mental health facilities (deinstitutionalization) was to:
 - a. create mental health centers in the community that could provide a network of supportive treatments
 - b. reduce the need for civil commitments, which had become too ethically complex
 - c. allow families to provide more intensive care in more familiar environments
 - d. test the effectiveness of new antipsychotic medications that had just been developed
5. The M'Naghten rule incorporated what criterion to determine whether a person's mental state influenced guilt or innocence?
 - a. whether the act was within the individual's control
 - b. whether an "average citizen" would excuse the act
 - c. whether the individual knew that the act committed was wrong
 - d. whether the individual felt remorse for the act
6. "Diminished capacity" is a legal concept that proposes that when people with mental illness commit a crime they may lack:
 - a. intent
 - b. guilt
 - c. remorse
 - d. memory
7. Research regarding use of the not guilty by reason of insanity (NGRI) defense has found that:
 - a. the public underestimates how often people use the defense in felony cases
 - b. the public overestimates how often people use this defense successfully
 - c. the public underestimates how often people who use the defense are set free
 - d. the public overestimates how long people who are judged NGRI are confined to a hospital
8. The guilty but mentally ill (GBMI) verdict is different from the NGRI verdict in that:
 - a. only in GBMI are people assumed to have no knowledge that what they did was wrong
 - b. people convicted of GBMI can be treated successfully for their mental illness yet still serve a full term in prison
 - c. people convicted of GBMI can be taken to prison, but they must receive treatment for their mental illness
 - d. people convicted of GBMI are detained in psychiatric hospitals, not prisons

9. An individual who commits a crime but is judged to be incompetent to stand trial may be:
 - a. immediately released
 - b. sent to prison without a trial
 - c. committed to a mental health facility until he is competent
 - d. committed to a mental health facility indefinitely
10. According to the Tarasoff verdict, a therapist can release confidential information about a client when:
 - a. the therapist suspects the client may be dangerous, even though a threat has not been made
 - b. the client has made a nonspecific threat but the client has a history of violent behavior
 - c. the client poses a threat to the safety of a specific individual
 - d. the client has made any threat of violence, even a nonspecific threat(See Appendix A for answers.)

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APPENDIX A: ANSWERS TO CHAPTER QUIZZES

Chapter 1 (page 26)

1. b 2. c 3. d 4. a 5. d 6. b 7. b
8. c 9. d 10. c

Chapter 2 (page 68)

1. b 2. b 3. d 4. d 5. b 6. b 7. c
8. c 9. d 10. c

Chapter 3 (page 114)

1. c 2. b 3. a 4. d 5. a 6. d 7. b
8. c 9. a 10. c

Chapter 4 (page 160)

1. c 2. a 3. b 4. d 5. d 6. a 7. c
8. a 9. a 10. d

Chapter 5 (page 196)

1. d 2. a 3. c 4. d 5. b 6. b 7. b
8. a 9. d 10. d

Chapter 6 (page 245)

1. b 2. c 3. a 4. a 5. c 6. b 7. b
8. d 9. c 10. a

Chapter 7 (page 280)

1. a 2. a 3. d 4. c 5. a 6. c 7. a
8. b 9. c 10. a

Chapter 8 (page 326)

1. b 2. d 3. a 4. b 5. b 6. a 7. d
8. b 9. b 10. c

Chapter 9 (page 367)

1. b 2. b 3. d 4. c 5. c 6. d 7. a
8. c 9. c 10. a

Chapter 10 (page 408)

1. c 2. a 3. d 4. c 5. d 6. c 7. a
8. c 9. b 10. a

Chapter 11 (page 446)

1. c 2. a 3. b 4. b 5. a 6. c 7. c
8. c 9. d 10. a

Chapter 12 (page 480)

1. d 2. b 3. c 4. a 5. d 6. a 7. a
8. b 9. d 10. d

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1. a 2. b 3. a 4. c 5. b 6. a 7. d
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8. b 9. c 10. c

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GLOSSARY

abnormal behavior Actions that are unexpected and often evaluated negatively because they differ from typical or usual behavior.

acetylcholine Neurotransmitter; pervasive throughout the nervous system, that contributes to movement, attention, arousal, and memory. A deficiency of acetylcholine is found in people with **Alzheimer's disease**.

actigraph Small electronic device that is worn on the wrist like a watch and records body movements. This device can be used to record sleep–wake cycles.

acute onset Sudden beginning of a disease or disorder (contrast with **insidious onset**).

acute pain Pain that typically follows an injury and disappears once the injury heals or is effectively treated.

acute PTSD **Posttraumatic stress disorder** diagnosed 1 to 3 months following the traumatic event.

acute stress disorder Severe reaction immediately following a terrifying event, often including amnesia about the event, emotional numbing, and **derealization**. Many victims later develop **posttraumatic stress disorder**.

addiction Informal term for **substance dependence**.

adoption studies In genetics research, the study of first-degree relatives reared in different families and environments. If they share common characteristics, such as a disorder, this finding suggests that those characteristics have a genetic component.

advanced sleep phase type of circadian rhythm sleep disorder Type of circadian rhythm problem, not a *DSM-IV-TR* disorder, involving a persistent pattern of early sleep onset and awakening times.

affect Conscious, subjective aspect of an **emotion** that accompanies an action at a given time.

age of onset Person's age when developing or exhibiting symptoms of a disease or condition.

agnosia Inability to recognize and name objects; may be a symptom of **dementia** or other brain disorders.

agonist In **neuroscience**, a chemical substance that effectively increases the activity of a **neurotransmitter** by imitating its effects.

agonist substitution A replacement of a drug on which a person is dependent with one that has a similar chemical makeup, an **agonist**. Used as a treatment for **substance dependence**.

agoraphobia **Anxiety** about being in places or situations from which escape might be difficult.

agreeableness One of the dimensions of the five-factor model of personality and individual differences, involving being warm,

kind, and trusting as opposed to hostile, selfish, and mistrustful.

AIDS-related complex (ARC) Group of minor health problems such as weight loss, fever, and night sweats that appears after HIV infection but before development of full-blown AIDS.

akinesia **Extrapyramidal symptom** involving slow motor activity, an expressionless face, and emotionless speech.

alcohol By-product of the fermentation of yeasts, sugar, and water; the most commonly used and abused **depressant** substance.

alcohol dehydrogenase (ADH) An enzyme that helps humans metabolize **alcohol**. Different levels of its subtypes may account for different susceptibilities to disorders such as **fetal alcohol syndrome**.

alcohol use disorders A cognitive, biological, behavioral, and social problem associated with **alcohol** use and abuse.

alogia A deficiency in the amount or content of speech, a disturbance often seen in people with **schizophrenia**.

alpha wave Regular pattern of brain-wave voltage changes typical of calm relaxation.

alpha-adrenergic receptor Nervous system receptor stimulated by the **neurotransmitter norepinephrine**.

alters Shorthand term for *alter ego*, one of the different personalities or identities in **dissociative identity disorder**.

altruistic suicide Formalized suicide approved of and even expected by some cultures.

Alzheimer's disease Disease of the cerebral cortex that causes an atypical form of senile dementia, discovered in 1906 by German **psychiatrist** Alois Alzheimer.

amnesic disorder Deterioration in the ability to transfer information from short- to long-term memory, in the absence of other **dementia** symptoms, as a result of **head trauma** or drug abuse.

amniocentesis Prenatal medical procedure that allows the detection of abnormalities (for example, **Down syndrome**) in the developing fetus. It involves removal and analysis of amniotic fluid from the mother.

amok One of several running disorders seen in non-Western cultures—as in “running amok”—in which individuals enter a trance-like state and may commit violent acts. Later, they have amnesia about the episode.

amphetamine **Stimulant** medication used to treat **hypersomnia** by keeping the person awake during the day and to treat **narcolepsy**, including sudden-onset episodes, by suppressing **rapid eye movement sleep**.

amphetamine use disorders Psychological, biological, behavioral, and social problems associated with **amphetamine** use and abuse.

amygdala Part of the brain's limbic system that regulates **emotions** and the ability to learn and control impulses; figures prominently in some **psychopathology**.

amyloid plaque Clusters of dead **neurons** found during autopsy in the brains of people with **Alzheimer's disease**. Also known as **neuritic plaque**.

amyloid beta peptide Large protein, controlled by a **gene** on chromosome 21, that breaks down to contribute to the **amyloid plaque** characteristic of people with **Alzheimer's disease**. Also known as *beta-amyloid* or *A(b)*.

amyloid protein Solid, waxy substance forming the core of the **amyloid plaque** characteristic of people with **Alzheimer's disease**.

analgesic rebound headache Headache, more severe than the original one, that occurs after the medication used to treat headache pain has “worn off.”

analog model Approach to research that employs subjects who are similar to clinical clients, allowing replication of a clinical problem under controlled conditions.

anandamide Neurochemical that seems to be a naturally occurring version of the active chemical in **marijuana**.

angina pectoris Chest pain caused by partial blockage of the arteries that supply blood to the heart.

anhedonia An inability to experience pleasure, associated with some **mood** and schizophrenic disorders.

animal phobia Unreasonable, enduring **fear** of animals or insects that usually develops early in life.

anomic suicide Suicide motivated by loss and confusion caused by a major life disruption.

anorexia nervosa An eating disorder characterized by recurrent food refusal, leading to dangerously low body weight.

antagonist In **neuroscience**, a chemical substance that decreases or blocks the effects of a **neurotransmitter**.

antagonist drug The medication that blocks or counteracts the effects of a psychoactive drug.

antibody Highly specific molecule, called an immunoglobulin, produced by a **B cell** to combine with and neutralize an **antigen**.

antigens Foreign material that enters the body, including bacteria and parasites.

antisocial personality disorder A cluster B (dramatic, emotional, or erratic) **personality disorder** involving a pervasive pattern of disregard for and violation of the rights of others. Similar to the non-*DSM-IV-TR* label **psychopathy** but with greater emphasis on overt behavior than on personality traits.

anxiety Mood state characterized by marked **negative affect** and bodily symptoms of tension in which a person apprehensively anticipates future danger or misfortune. Anxiety may involve feelings, behaviors, and physiological responses.

apathy See **avolition**.

aphasia Impairment or loss of language skills resulting from brain damage caused by **stroke**, **Alzheimer's disease**, or other illness or trauma.

apolipoprotein E4 (apo E4) Protein involved in the transport of cholesterol. High concentration of one subtype, controlled by a **gene** on chromosome 19, is associated with **Alzheimer's disease**.

arrhythmia Irregular heartbeat.

Asperger's disorder **Pervasive developmental disorder** characterized by impairments in social relationships and restricted or unusual behaviors but without the language delays seen in **autism**.

assertiveness training Instruction in which individuals learn to cope with **stress** by rehearsing ways to protect their time and personal rights in appropriate ways to avoid being exploited and feeling used. For example, caregivers of people with **Alzheimer's disease** learn assertiveness to prevent them from resorting to abuse in frustration.

assessment gender bias Possibility that gender differences in the reported prevalence or **diagnosis** of certain diagnostic categories may be the result of prejudice in the assessment measures or the ways in which they are used.

association studies Research strategy for comparing **genetic markers** in groups of people with and without a particular disorder.

associative splitting A separation among basic functions of human personality (for example, cognition, **emotion**, and perception) seen by some as the defining characteristic of **schizophrenia**.

asylum Safe refuge; specifically, an institution to house mentally disordered people.

atherosclerosis Process by which a fatty substance or plaque builds up inside arteries to form obstructions.

attention deficit/hyperactivity disorder (ADHD) Developmental disorder featuring maladaptive levels of inattention, excessive activity, and impulsiveness.

atypical depressive episode Depressive episode characterized by some ability to experience interest and pleasure, increased **anxiety**, overeating, and oversleeping.

auditory hallucination Psychotic disturbance in perception in which a person hears a sound or a voice although it is not real or actually present. The voice is often critical, accusatory, or demanding.

augmentative communication strategy Picture or computer aid to assist people with communication deficits so that they can communicate.

autism See **autistic disorder**.

autistic disorder **Pervasive developmental disorder** characterized by significant impairment in social interactions and communication and restricted patterns of behavior, interest, and activity. Also known as **autism**.

autoimmune disease Condition in which the body's **immune system** attacks healthy tissue rather than **antigens**.

autonomic nervous system Part of the **peripheral nervous system** that regulates cardiovascular (heart and blood vessel), endocrine (**hormone**), and digestive functions. Includes the **sympathetic** and **parasympathetic nervous systems**.

autonomic restrictor Term for someone with **generalized anxiety disorder** because such people show lower heart rate, blood pressure, skin conductance, and respiration rate activity than do people with other anxiety disorders.

avoidant personality disorder A cluster C (anxious or fearful) **personality disorder** featuring a pervasive pattern of social inhibition, feelings of inadequacy, and hypersensitivity to criticism.

avolition An inability to initiate or persist in important activities. Also known as **apathy**.

axis One of several dimensions for which information is provided in **DSM-IV-TR diagnosis** protocols—for example, clinical disorders and medical conditions.

axon Nerve cell branch that transmits outgoing electrochemical impulses to other **neurons**.

B cell Special type of white blood cell produced in bone marrow. B cells release into the humoral branch of the **immune system** molecules that circulate in the blood to seek, identify, and neutralize **antigens**.

barbiturates A sedative (and addictive) drug such as Amytal, Seconal, or Nembutal that is used as a sleep aid.

bariatric surgery Surgical approach to extreme **obesity**, usually accomplished by stapling the stomach to create a small stomach pouch or bypassing the stomach through gastric bypass surgery.

basal ganglia Brain area at the base of the **forebrain** that seems to control motor behavior and to be involved in **obsessive-compulsive disorder**.

baseline Measured rate of a behavior before introduction of an intervention that allows comparison and assessment of the effects of the intervention.

behavior rating scale Structured assessment instrument used before and during treatment to evaluate the frequency and severity of a specific behavior.

behavior therapy Array of therapeutic methods based on the principles of behavioral and **cognitive science**, as well as principles of learning as applied to clinical problems. It considers specific behaviors rather than inferred conflicts as legitimate targets for change.

behavioral assessment Measuring, observing, and systematically evaluating (rather than inferring) the client's thoughts, feelings, and behavior in the actual problem situation or context.

behavioral inhibition system (BIS) **Brain circuit** in the **limbic system** that responds to threat signals by inhibiting activity and causing **anxiety**.

behavioral medicine Interdisciplinary approach applying behavioral science to the prevention, **diagnosis**, and treatment of medical problems. Also known as *psychosomatic medicine*.

behavioral model Explanation of human behavior, including dysfunction, based on principles of learning and adaptation derived from experimental psychology.

behaviorism Explanation of human behavior, including dysfunction, based on principles of learning and adaptation derived from experimental psychology.

Bender Visual-Motor Gestalt Test Neuropsychological test for children in which they copy a variety of lines and shapes.

benzodiazepines An antianxiety drug such as Valium, Xanax, Dalmane, or Halcion also used to treat insomnia. Effective against **anxiety** (and, at high potency, **panic disorder**), benzodiazepines show some side effects, such as some cognitive and motor impairment, and may result in **substance dependence**. Relapse rates are extremely high when such a drug is discontinued.

beta-adrenergic receptor Nervous system **receptor** stimulated by the **neurotransmitter norepinephrine** to increase blood pressure and heart rate. Drugs called beta-blockers act at this level to control high blood pressure.

beta-amyloid See **beta peptide**.

binge A relatively brief episode of uncontrolled, excessive consumption, usually of food or **alcohol**.

binge-eating disorder (BED) A pattern of eating involving distress-inducing **binges** not followed by purging behaviors; being considered as a new **DSM** diagnostic category.

biofeedback Use of physiological monitoring equipment to make individuals aware of their own bodily functions, such as blood pressure or brain waves, that they cannot normally access, with the purpose of controlling these functions.

biological model Explanation of psychological dysfunction that primarily emphasizes brain disorder or illness as the cause.

bipolar I disorder Alternation of **major depressive episodes** with full **manic episodes**.

bipolar II disorder Alternation of **major depressive episodes** with **hypomanic episodes** (not full **manic episodes**).

bisexuality Attraction to both same- and opposite-sex sexual partners.

blindsight Phenomenon in which a person is able to perform visual functions while having no awareness or memory of these abilities. Also called *unconscious vision*.

blood-injury-injection phobia Unreasonable **fear** and avoidance of exposure to blood, injury, or the possibility of an injection. Victims experience fainting and a drop in blood pressure.

body dysmorphic disorder (BDD) **Somatoform disorder** featuring a disruptive preoccupation with some imagined defect in appearance ("imagined ugliness").

borderline personality disorder A cluster B (dramatic, emotional, or erratic) **personality disorder** involving a pervasive pattern of instability of interpersonal relationships, self-image, affect, and control over impulses.

bradykinesia Slowed body movements, as occur in **Parkinson's disease**.

brain circuits **Neurotransmitter** current or neural pathway in the brain.

brain stem Ancient lower part of the brain responsible for many life-sustaining automatic functions, such as breathing and coordinated movement.

breathalyzer test Measure of **alcohol** intoxication that uses a breath sample because some consumed alcohol is vaporized in the lungs and exhaled.

- breathing-related sleep disorders** A sleep disruption leading to excessive sleepiness or insomnia, caused by a breathing problem such as interrupted (**sleep apnea**) or labored (**hypoventilation**) breathing.
- Brief Psychiatric Rating Scale** Behavior rating scale used to assess the severity of patient problem areas, such as guilt feelings and preoccupation with health.
- brief psychotic disorder** A psychotic disturbance involving **delusions**, **hallucinations**, or **disorganized speech** or behavior but lasting less than 1 month; often occurs in reaction to a stressor.
- Briquet's syndrome** Obsolete term for **somatization disorder**.
- bulimia nervosa** An eating disorder involving recurrent episodes of uncontrolled excessive (**binge**) eating followed by compensatory actions to remove the food (for example, deliberate vomiting, laxative abuse, and excessive exercise).
- caffeine use disorders** Cognitive, biological, behavioral, and social problems associated with the use and abuse of caffeine.
- cancer** Category of often-fatal medical conditions involving abnormal cell growth and malignancy.
- cannabinoid** Member of a family of chemicals in **marijuana** believed to be responsible for its mood- and behavior-altering ability.
- cardiovascular disease** Afflictions in the mechanisms, including the heart, blood vessels, and their controllers, responsible for transporting blood to the body's tissues and organs. Psychological factors may play important roles in such diseases and their treatments.
- cardiovascular system** Heart, blood vessels, and their controlling mechanisms, all of which transport blood and nutrients to the tissues of the body.
- case study method** Research procedure in which a single person or small group is studied in detail. The method does not allow conclusions about cause-and-effect relationships, and findings can be generalized only with great caution (contrast with **single-case experimental design**).
- castration anxiety** In **psychoanalysis**, the **fear** in young boys that they will be mutilated genitally because of their lust for their mothers.
- cataplexy** Motor movement disturbance seen in people with some psychoses and **mood disorders** in which body postures can be "sculpted" to remain fixed for long periods.
- cataplexy** Sudden loss of muscle tone that accompanies **narcolepsy**.
- catatonia** A disorder of movement involving immobility or excited agitation.
- catatonic immobility** A disturbance of motor behavior in which the person remains motionless, sometimes in an awkward posture, for extended periods.
- catatonic type of schizophrenia** A type of **schizophrenia** in which motor disturbances (rigidity, agitation, and odd mannerisms) predominate.
- catecholamine** Outdated, simplistic theory of the **etiology of mood disorders** stating that **norepinephrine** (a catecholamine) excess causes **mania**, and that low levels of it cause some forms of depression.
- catharsis** Rapid or sudden release of emotional tension thought to be an important factor in psychoanalytic therapy.
- caudate nucleus** Brain structure, part of the **basal ganglia**, that controls motor behavior and is implicated in **obsessive-compulsive disorder**.
- cellular branch** Branch of the **immune system** using specialized cells to protect the body cells against viral and parasite infections.
- central nervous system** Brain and spinal cord.
- central sleep apnea** Brief periods of cessation in respiratory activity during sleep that may be associated with **central nervous system** disorders. Most clients awaken often as a result but do not report sleepiness and may be unaware of any problem.
- cerebellum** Part of the **hindbrain** in the **brain stem** that controls motor coordination and may be involved in **autism**.
- cerebral cortex** Largest part of the **forebrain**, divided into two hemispheres; responsible for human functions such as perceiving, reasoning, planning, creating, and remembering.
- cerebral vascular accident (CVA)** See **stroke**.
- childhood disintegrative disorder** Pervasive **developmental disorder** involving severe regression in language, adaptive behavior, and motor skills after a 2- to 4-year period of normal development.
- chemical imbalance** Relative excess or deficit in brain chemicals, such as **neurotransmitters**, that may be implicated in some **psychological disorders**.
- choking phobia** Fear and avoidance of swallowing pills, foods, and fluids, which may lead to significant weight loss.
- chorea** Motor problems characterized by involuntary limb movements.
- chorionic villus sampling (CVS)** A genetic test conducted during early pregnancy that samples cells found in the placenta (chorionic villi) and assesses possible genetic or chromosomal problems in the villus.
- chronic fatigue syndrome (CFS)** Incapacitating exhaustion following only minimal exertion, accompanied by fever, headaches, muscle and joint pain, depression, and **anxiety**.
- chronic pain** Enduring pain that does not decrease over time; may occur in muscles, joints, and the lower back; and may be caused by enlarged blood vessels or degenerating or cancerous tissue. Other significant factors are social and psychological.
- chronic PTSD** **Posttraumatic stress disorder** that endures longer than 3 months and is associated with greater avoidance and a higher likelihood of **comorbidity** with additional disorders.
- chronological age** Person's age in calendar years.
- circadian rhythm sleep disorder** A sleep disturbance resulting in sleepiness or insomnia, caused by the body's inability to synchronize its sleep patterns with the current pattern of day and night.
- civil commitment laws** Legal proceeding that determines a person is mentally disordered and may be hospitalized, even involuntarily.
- classical categorical approach** **Classification** method founded on the assumption of clear-cut differences among disorders, each with a different known cause. Also known as *pure categorical approach*.
- classical conditioning** Fundamental learning process first described by Ivan Pavlov. An event that automatically elicits a response is paired with another stimulus event that does not (a neutral stimulus). After repeated pairings, the neutral stimulus becomes a **conditioned stimulus** that by itself can elicit the desired response.
- classification** Assignment of objects or people to categories on the basis of shared characteristics.
- clinical assessment** Systematic evaluation and measurement of psychological, biological, and social factors in a person presenting with a possible **psychological disorder**.
- clinical description** Details of the combination of behaviors, thoughts, and feelings of an individual that make up a particular disorder.
- clinical efficacy axis** One of a proposed set of guidelines for evaluating clinical interventions on the evidence of their effectiveness (compare with **clinical utility axis**).
- clinical psychologist** Person who has earned a Ph.D. or related degree (for example, Psy.D.) in psychology and is trained to conduct research into the causes and treatment of severe **psychological disorders**, as well as to diagnose, assess, and treat them.
- clinical significance** Degree to which research findings have useful and meaningful applications to real problems.
- clinical utility axis** One of a proposed set of guidelines for evaluating clinical interventions by whether they can be applied effectively and cost effectively in real clinical settings (compare with **clinical efficacy axis**).
- clonidine** Medical treatment for **hypertension** that is often used to reduce the **negative symptoms** of **withdrawal** from **opiates**.
- cocaine** Derivative of coca leaves used medically as a local anesthetic and narcotic; often a substance of abuse.
- cocaine use disorders** Cognitive, biological, behavioral, and social problems associated with the use and abuse of **cocaine**.
- cognitive restructuring** **Cognitive therapy** procedure used to change negative or unrealistic thoughts or attributions.
- cognitive science** Field of study that examines how humans and other animals acquire, process, store, and retrieve information.
- cognitive therapy** Treatment approach that involves identifying and altering negative thinking styles related to **psychological disorders** such as depression and **anxiety** and replacing them with more positive beliefs and attitudes—and, ultimately, more adaptive behavior and coping styles.
- cognitive-behavioral treatment (CBT)** Group of treatment procedures aimed at identifying and modifying faulty thought processes, attitudes and attributions, and problem behaviors; often used synonymously with **cognitive therapy**.
- cohort** Participants in each age group of a study with a **cross-sectional design**.
- cohort effect** Observation that people of different age groups differ in their values and experiences.
- collective unconscious** Accumulated wisdom of a culture collected and remembered across generations, a psychodynamic concept introduced by Carl Jung.

- communication disorder** Problem in transmitting or conveying information, including **stuttering**, **selective mutism**, and **expressive language disorder**.
- community intervention** Approach to treating and preventing disorders by directing action at the organizational, agency, and community levels rather than at individuals.
- comorbidity** Presence of two or more disorders in an individual at the same time.
- comparative treatment research** Outcome research that contrasts two or more treatment methods to determine which is most effective.
- competence** Ability of legal defendants to participate in their own defense and understand the charges and the roles of the trial participants.
- Comprehensive System** Standardized system of administering and scoring the **Rorschach inkblot test** that seeks to improve its **reliability** and **validity**.
- compulsions** Repetitive, ritualistic, time-consuming behavior or mental act a person feels driven to perform.
- computerized axial tomography (CAT) scan** Noninvasive imaging procedure useful in identifying abnormalities in the structure or shape of the brain. Also known as a *CT scan*.
- concurrent validity** Condition of testing in which the results from one test correspond to the results of other measures of the same phenomenon. Also known as *descriptive validity*.
- conditioned response (CR)** Learned reaction, similar to the **unconditioned response**, elicited by a **conditioned stimulus** following **classical conditioning**.
- conditioned stimulus (CS)** Environmental event that acquires the ability to elicit a learned response as a result of **classical conditioning** associated with an **unconditioned stimulus**.
- conditioning** Process by which behaviors can be learned or modified through interaction with the environment. See **classical conditioning** and **operant conditioning**.
- confound** Any factor occurring in a study that makes the results uninterpretable because its effects cannot be separated from those of the variables being studied.
- confounding variable** Variable in a research study that was not part of the intended design and that may contribute to changes in the **dependent variable**.
- conscientiousness** One of the dimensions of the five-factor model of personality and individual differences involving being organized, thorough, and reliable as opposed to careless, negligent, and unreliable.
- construct validity** Degree to which signs and symbols used to categorize a disorder relate to one another while differing from those for other disorders.
- content validity** Degree to which the characteristics of a disorder are a true sample of the phenomenon in question.
- contingency management** Encouragement of those reinforcers that promote and maintain desired behaviors and removal of those reinforcers that maintain undesired behaviors.
- control group** Group of individuals in a study who are similar to the experimental subjects in every way but are not exposed to the treatment received by the experimental group. Their presence allows for a comparison of the differential effects of the treatment.
- controlled drinking** An extremely controversial treatment approach to **alcohol** dependence, in which severe abusers are taught to drink in moderation.
- conversion disorder** Physical malfunctioning, such as blindness or paralysis, suggesting neurological impairment but with no organic pathology to account for it.
- conversion hysteria** Obsolete term for **conversion disorder** derived from the Freudian notion that physical symptoms represented a conversion of **unconscious** conflicts into a more acceptable form.
- coronary heart disease (CHD)** Blockage of the arteries supplying blood to the heart muscle; a major cause of death in Western culture, with social and psychological factors involved.
- correlation** Degree to which two variables are associated. In a **positive correlation**, the two variables increase or decrease together. In a **negative correlation**, one variable decreases as the other increases.
- correlation coefficient** Computed statistic reflecting the strength and direction of any association between two variables. It can range from 21.00 through 0.00 (indicating no association) to 11.00, with the absolute value indicating the strength and the sign reflecting the direction.
- correlational study** Research procedure in which variables are measured and compared to detect any association but are not manipulated. Conclusions about cause-and-effect relationships are not permissible.
- corticotropin-releasing factor (CRF)** **Neuromodulator hormone** secreted into the blood by the **hypothalamus**. It stimulates the pituitary gland as part of a reaction chain called the **stress** response. It may be implicated in **mood disorders**, as well as physical problems.
- cortisol** **Stress hormone** secreted by the cortex of the adrenal glands as part of the **stress** response.
- counseling psychologist** Person who has earned a Ph.D. or related degree in psychology and is trained to study and treat adjustment and vocational issues in relatively healthy people.
- course** Pattern of development and change of a disorder over time.
- covert sensitization** A cognitive-behavioral intervention to reduce unwanted behaviors by having clients imagine the extremely aversive consequences of the behaviors and establish negative rather than positive associations with them.
- crack** **Cocaine** in a highly potent, solid, rocklike form.
- Creutzfeldt-Jakob disease** Extremely rare condition that causes **dementia**.
- criminal commitment** Legal procedure by which a person found not guilty of a crime by reason of **insanity** must be confined in a psychiatric hospital.
- criterion gender bias** Possibility that gender differences in the reported prevalence or **diagnosis** of certain diagnostic categories may be the result of prejudice in the defining criteria for the disorder or the ways in which they are used.
- criterion validity** Extent to which categorization accurately predicts the future **course** of a disorder, whether treated or untreated. See also **predictive validity**.
- cross-generational effect** Limit on the **generalizability** of longitudinal research because the group under study may differ from others in culture and experience.
- cross-sectional design** Methodology to examine a characteristic by comparing individuals of different ages (contrast with **longitudinal design**).
- cross-tolerant** Condition in which a person may replace **addiction** to one drug with addiction to another when the two drugs have similar chemical makeup and act on the same **neurotransmitter receptors**.
- CT scan** See **computerized axial tomography (CAT) scan**.
- cultural-familial intellectual disability** Mild form of **intellectual disability** that may be caused largely by environmental influences.
- cyclothymic disorder** Chronic (at least 2 years) **mood disorder** characterized by alternating **mood** elevation and depression levels that are not as severe as **manic** or **major depressive episodes**.
- dangerousness** Tendency to violence that, contrary to popular opinion, is not more likely among mental patients.
- defense mechanism** Common pattern of behavior, often an adaptive coping style when it occurs in moderation, observed in response to a particular situation. Psychoanalytic theory suggests that defense mechanisms are **unconscious** processes originating in the **ego**.
- deinstitutionalization** Systematic removal of people with severe **mental illness** or **intellectual disability** from institutions like psychiatric hospitals.
- delayed sleep phase type of circadian rhythm sleep disorder** Persistent pattern of late sleep onset and awakening time.
- delayed-onset PTSD** **Posttraumatic stress disorder** with onset more than 6 months after the traumatic event.
- delirium** Rapid-onset reduced clarity of consciousness and cognition, with confusion, disorientation, and deficits in memory and language.
- delirium tremens (DT)** See **withdrawal delirium**.
- delta wave** Relatively slow and irregular pattern of brain waves typical of the deepest, most relaxed stage of sleep. This is the time when sleeping **panic attacks** may occur. Delta activity during wakefulness may indicate brain dysfunction. Also known as *slow wave sleep*.
- delusions** A psychotic symptom involving disorder of thought content and presence of strong beliefs that are misrepresentations of reality.
- delusion of grandeur** Psychotic symptom; people's unfounded belief that they are more famous or important than is true.
- delusion of persecution** People's unfounded belief that others seek to harm them.
- delusional disorder** A psychotic disorder featuring a persistent belief contrary to reality (**delusion**) but no other symptoms of **schizophrenia**.
- dementia** Gradual-onset deterioration of brain functioning, involving memory loss, inability to recognize objects or faces, and problems in planning and abstract reasoning. These are associated with frustration and discouragement.

- dementia of the Alzheimer's type** Gradual onset of cognitive deficits caused by **Alzheimer's disease**, principally identified by a person's inability to recall newly or previously learned material. The most common form of **dementia**.
- dementia praecox** The Latin term meaning premature loss of mind; an early label for what is now called **schizophrenia**, emphasizing the disorder's frequent appearance during adolescence.
- dendrite** Nerve cell branches that receive incoming electrochemical information for transmission along the **neuron**.
- dependent personality disorder** A cluster C (anxious or fearful) **personality disorder** characterized by a person's pervasive and excessive need to be taken care of, a condition that leads to submissive and clinging behavior and fears of separation.
- dependent variable** In an experimental study, the phenomenon that is measured and expected to be influenced (compare with **independent variable**).
- depersonalization** Altering of perception that causes people to temporarily lose a sense of their own reality; most prevalent in people with the **dissociative disorders**. There is often a feeling of being outside observers of their own behavior.
- depersonalization disorder** **Dissociative disorder** in which feelings of **depersonalization** are so severe they dominate the individual's life and prevent normal functioning.
- depressant** A **psychoactive substance** that results in behavioral sedation; such substances include **alcohol** and the sedative, hypnotic, and anxiolytic drugs.
- depressive cognitive triad** Thinking errors by depressed people negatively focused in three areas: themselves, their immediate world, and their future.
- depressive personality disorder** Pervasive pattern dominated by dejection, self-criticism, and a judgmental stance toward other people; under consideration as a future *DSM* category.
- depressive stupor** Rare but severe depressive episode experienced by someone with a **mood disorder**, featuring, usually, substantial reduction in spontaneous motor movement or, occasionally, agitation or odd mannerisms.
- derailment** See **loose association**.
- derealization** Situation in which the individual loses a sense of the reality of the external world.
- descriptive validity** See **concurrent validity**.
- deterministic** In genetics, **genes** that lead to nearly a 100% chance of developing the associated disorder. These are rare in the population.
- developmental psychology** Study of changes in behavior that occur over time.
- developmental psychopathology** Study of changes in **abnormal behavior** that occur over time.
- deviation IQ** Intelligence test score that estimates how much a child's school performance is likely to deviate from the average performance of others of the same age.
- diagnosis** Process of determining whether a **presenting problem** meets the established criteria for a specific **psychological disorder**.
- Diagnostic and Statistical Manual, Fourth Edition, Text Revision (DSM-IV-TR)** Current version of the official **classification system** for **psychological disorders**, published by the American Psychiatric Association.
- dialectical behavioral therapy** A promising treatment for **borderline personality disorder** that involves exposing the client to stressors in a controlled situation, as well as helping the client regulate **emotions** and cope with stressors that might trigger suicidal behavior.
- diastolic blood pressure** Blood pressure level when the heart is at rest or between heartbeats.
- diathesis-stress model** Hypothesis that both an inherited tendency (a **vulnerability**) and specific stressful conditions are required to produce a disorder.
- dimensional approach** Method of categorizing characteristics on a continuum rather than on a binary, either-or, or all-or-none basis.
- dimethyltryptamine (DMT)** Natural **hallucinogen** from the bark of trees that grow in Central and South America.
- diminished capacity** Evidence of an abnormal mental condition in people that causes criminal charges against them requiring intent or knowledge to be reduced to lesser offenses requiring only reckless or criminal neglect.
- directionality** Possibility that when two variables, A and B, are correlated variable A causes variable B or variable B causes variable A.
- discrimination training** Arrangement of experiences in which the person or animal learns to respond under certain conditions and not to respond under other conditions.
- disease conviction** Core feature of **hypochondriasis**; people's firm belief that they currently have a disease, based on the misinterpretation of their own symptoms and sensations.
- disease model of chemical dependence** View that drug dependence is caused by a physiological disorder. This implies the user is a blameless victim of an illness.
- disorder of written expression** Condition in which writing performance is significantly below the standard for that age level.
- disorganized speech** A style of talking often seen in people with **schizophrenia**, involving incoherence and a lack of typical logic patterns.
- disorganized type of schizophrenia** A type of **schizophrenia** featuring disrupted speech and behavior, disjointed **delusions** and **hallucinations**, and silly or **flat affect**.
- displacement** **Defense mechanism** in which a person directs a problem impulse toward a safe substitute.
- dissociation** Detachment or loss of integration between identity or reality and consciousness.
- dissociative amnesia** **Dissociative disorder** featuring the inability to recall personal information; usually of a stressful or traumatic nature.
- dissociative disorder** Disorder in which individuals feel detached from themselves or their surroundings and feel reality, experience, and identity may disintegrate.
- dissociative fugue** **Dissociative disorder** featuring sudden, unexpected travel away from home, along with an inability to recall the past, sometimes with assumption of a new identity.
- dissociative identity disorder (DID)** Disorder in which as many as 100 personalities or fragments of personalities coexist within one body and mind. Formerly known as *multiple personality disorder*.
- dissociative trance disorder (DTD)** Altered state of consciousness in which people firmly believe they are possessed by spirits; considered a disorder only where there is distress and dysfunction.
- disulfiram** Chemical (trade name Antabuse) used as an aversion treatment for heavy drinking because it causes a buildup in the body of an **alcohol** by-product, making the person vomit after drinking. Clients must continue taking it for the chemical to remain effective.
- dominant gene** One **gene** of any pair of genes that determines a particular trait.
- dopamine** **Neurotransmitter** whose generalized function is to activate other neurotransmitters and to aid in exploratory and pleasure-seeking behaviors (thus balancing **serotonin**). A relative excess of dopamine is implicated in **schizophrenia** (although contradictory evidence suggests the connection is not simple), and its deficit is involved in **Parkinson's disease**.
- dopaminergic system** Parts of the nervous system activated by the **neurotransmitter dopamine**; involved in many functions, including the experience of reward.
- dorsal horn of the spinal cord** One of several sections of the spinal cord responsible for transmitting sensory input to the brain. These sections function as a "gate" that allows transmission of pain sensations if the stimulation is sufficiently intense.
- double bind communication** According to an obsolete, unsupported theory, the practice of transmitting conflicting messages that was thought to cause **schizophrenia**.
- double depression** Severe **mood disorder** typified by **major depressive episodes** superimposed over a background of **dysthymic disorder**.
- double-blind control** Procedure in **outcome research** that prevents bias by ensuring that neither the subjects nor the providers of the experimental treatment know who is receiving treatment and who is receiving a **placebo**.
- Down syndrome** Type of **intellectual disability** caused by a chromosomal aberration (chromosome 21) and involving characteristic physical appearance. Also known as *trisomy 21*.
- dream analysis** Psychoanalytic therapy method in which dream content is examined as symbolic of **id** impulses and **intrapsychic conflicts**.
- duty to warn** Mental health professional's responsibility to break confidentiality and notify the potential victim whom a client has specifically threatened.
- dyslexia** Learning disability involving problems in reading.
- dysmorphophobia** Literally, "fear of ugliness," an obsolete term for **body dysmorphic disorder**.
- dyspareunia** See **sexual pain disorder**.
- dysphoric manic episode**, See **mixed manic episode**.
- dyssomnia** A problem in getting to sleep or in obtaining sleep of sufficient quality.

- dysthymic disorder** **Mood disorder** involving persistently depressed **mood**, with low self-esteem, **withdrawal**, pessimism, or despair, present for at least 2 years, with no absence of symptoms for more than 2 months.
- echolalia** Repeating or echoing the speech of others, a normal intermediate step in the development of speech skills. Originally thought to be a unique symptom of **autism**, it is now seen as evidence of developmental delay involved in that disorder.
- echopraxia** Involuntary imitation of the movement of another person.
- educable intellectual disability** Term referring to a level of **intellectual disability** comparable to the *DSM-IV-TR* designation of **mild intellectual disability** that assumes the individual can learn basic academic skills.
- effect size** A statistical process that eliminates how large a change in measure occurred. Often used before and after a clinical treatment to determine its relative success.
- ego** In **psychoanalysis**, the psychic entity responsible for finding realistic and practical ways to satisfy **id** drives.
- ego psychology** Psychoanalytic theory that emphasizes the role of the **ego** in development and attributes **psychological disorders** to failure of the ego to manage impulses and internal conflicts. Also known as *self-psychology*.
- egoistic suicide** Suicide that occurs in the context of diminished social supports, as in the case of some elderly people who have lost friends and family contacts.
- Electra complex** In **psychoanalysis**, a young girl's intrapsychic desire to replace her mother, possess her father, and acquire a penis. The resolution of this complex results in development of the **superego**.
- electrocardiogram** Measure of electrical activity generated by heart muscle exertion used to detect and evaluate heart diseases.
- electroconvulsive therapy (ECT)** Biological treatment for severe, chronic depression involving the application of electrical impulses through the brain to produce seizures. The reasons for its effectiveness are unknown.
- electroencephalogram (EEG)** Measure of electrical activity patterns in the brain, taken through electrodes placed on the scalp.
- electromyogram (EMG)** Measure of muscle movement.
- electrooculogram (EOG)** Measure of eye muscle movement particularly relevant to detecting dream stages during sleep.
- emotion** Pattern of action elicited by an external event and a feeling state, accompanied by a characteristic physiological response.
- emotion contagion** Situation in which an emotional reaction spreads from one individual to others nearby.
- empathy** Condition of sharing and understanding the **emotions** of another person.
- endocrine system** Network of glands that affect bodily functions by releasing **hormones** into the bloodstream. Some endocrine activity is implicated in **psychological disorders**.
- endogenous opioids** Substance occurring naturally throughout the body that functions like a **neurotransmitter** to shut down pain sensation even in the presence of marked tissue damage. These opioids may contribute to psychological problems such as eating disorders. Also known as an *endorphin* or *enkephalin*.
- endophenotype** Genetic mechanism that contributes to the underlying problems causing the symptoms and difficulties experienced by people with **psychological disorders**.
- endorphin** See **endogenous opioid**.
- enkephalin** See **endogenous opioid**.
- epidemiology** **Psychopathology** research method examining the prevalence, distribution, and consequences of disorders in populations.
- epigenetics** The study of factors other than inherited DNA sequence, such as new learning or stress, that alter the phenotypic expression of **genes**.
- episodic course** Pattern of a disorder alternating between recovery and recurrence.
- equifinality** **Developmental psychopathology** principle that a behavior or disorder may have several causes.
- erotomanic type** Type of **delusional disorder** featuring the belief that another person, usually of higher status, is in love with the individual.
- erotophobia** Learned negative reaction to or attitude about sexual activity, perhaps developed as a result of a negative or even traumatic event, such as rape.
- essential hypertension** High blood pressure with no verifiable physical cause, which makes up the overwhelming majority of high blood pressure cases.
- etiology** Cause or source of a disorder.
- event-related potential (ERP)** Brain's electrical reaction to a psychologically meaningful environment event, as measured by the **electroencephalogram**. Also known as *evoked potential*.
- evoked potential** See **event-related potential (ERP)**.
- exhibitionism** A sexual gratification attained by exposing genitals to unsuspecting strangers.
- exorcism** Religious ritual that attributes disordered behavior to possession by demons and seeks to treat the individual by driving the demons from the body.
- expectancy effect** People's response to a substance on the basis of their beliefs about it, even if it contains no active ingredient. This phenomenon demonstrates that cognitive, as well as physiological, factors are involved in drug reaction and dependence.
- experiment** Research method that can establish causation by manipulating the variables in question and controlling for alternative explanations of any observed effects.
- expert witness** Person who because of special training and experience is allowed to offer opinion testimony in legal trials.
- expressed emotion (EE)** Hostility, criticism, and over-involvement demonstrated by some families toward a family member with a **psychological disorder**. This can often contribute to the person's **relapse**.
- expressive language** Communication with words.
- expressive language disorder** Individual's problems in spoken communication, as measured by significantly low scores on standardized tests of **expressive language** relative to nonverbal intelligence test scores. Symptoms may include a markedly limited vocabulary or errors in verb tense.
- extensive support disability** **Intellectual disability** level characterized by the long-term and regular care required for individuals with this degree of disability.
- external validity** Extent to which research findings generalize, or apply, to people and settings not involved in the study.
- extinction** Learning process in which a response maintained by **reinforcement** in **operant conditioning** or pairing in **classical conditioning** decreases when that reinforcement or pairing is removed; also the procedure of removing that reinforcement or pairing.
- extrapyramidal symptom** Serious side effect of **neuroleptic** medications resembling the motor difficulties of **Parkinson's disease**. Such symptoms include **akinesia** and **tardive dyskinesia**. Also known as a *parkinsonian symptom*.
- extroversion** One of the dimensions of the five-factor model of personality and individual differences, involving being talkative, assertive, and active as opposed to silent, passive, and reserved.
- eye-tracking** See **smooth-pursuit eye movement**.
- facial agnosia** Type of **agnosia** characterized by a person's inability to recognize even familiar faces.
- factitious disorder** Nonexistent physical or **psychological disorder** deliberately faked for no apparent gain except, possibly, sympathy and attention.
- failure to thrive** Stunted physical growth and maturation in children, often associated with psychosocial factors such as lack of love and nurturing.
- false negative** Assessment error in which no pathology is noted (that is, test results are negative) when one is actually present.
- false positive** Assessment error in which pathology is reported (that is, test results are positive) when none is actually present.
- familial aggregation** Extent to which a disorder would be found among a patient's relatives.
- family studies** Genetic study that examines patterns of traits and behaviors among relatives.
- fatalistic suicide** Suicide in the context of a person's hopelessness and loss of the feeling of control over personal destiny.
- fear** Emotion of an immediate alarm reaction to present danger or life-threatening emergencies.
- fearlessness hypothesis** One of the major theories of the **etiology** of **antisocial personality disorder**, stating that psychopaths are less prone to **fear** and thus less inhibited from dangerous or illicit activities.
- female orgasmic disorder** The recurring delay or absence of orgasm in some women following a normal sexual excitement phase, relative to their prior experience and current stimulation. Also known as **inhibited orgasm** (female).
- female sexual arousal disorder** The recurrent inability in some women to attain or maintain adequate lubrication and sexual excitement swelling responses until completion of sexual activity.
- fetal alcohol syndrome (FAS)** A pattern of problems, including learning difficulties, behavior deficits, and characteristic physical flaws, resulting from heavy drinking by the victim's mother when she was pregnant with the victim.
- fetishism** Long-term, recurring, intense sexually arousing urges, fantasies, or behavior

- involving the use of nonliving, unusual objects, which cause distress or impairment in life functioning.
- fight/flight system (FFS)** **Brain circuit** in animals that when stimulated causes an immediate alarm-and-escape response resembling human panic.
- fixation** Psychoanalytic concept suggesting that clients stop at or concentrate on a psychosexual stage because of a lack of appropriate gratification at that stage.
- flashback** Sudden, intense reexperiencing of a previous, usually traumatic, event.
- flat affect** An apparently emotionless demeanor (including toneless speech and vacant gaze) when a reaction would be expected.
- flight or fight response** Biological reaction to alarming stressors that musters the body's resources (for example, blood flow and respiration) to resist or flee a threat.
- fluoxetine** **Serotonin-specific reuptake inhibitor** (trade name Prozac) that acts on the serotonergic system as a treatment for depression, **obsessive-compulsive disorder**, and **bulimia nervosa**.
- flurazepam** Long-acting medication for insomnia (trade name Dalmane) that may cause daytime sleepiness.
- folie à deux** See **shared psychotic disorder**.
- forebrain** Top section of the brain that includes the limbic system, **basal ganglia**, **caudate nucleus**, and **cerebral cortex**.
- formal observation** Structured recording of behaviors that are measurable and well defined.
- fragile X syndrome** Pattern of **abnormality** caused by a defect in the **X chromosome** resulting in **intellectual disability**, learning problems, and unusual physical characteristics.
- free association** Psychoanalytic therapy technique intended to explore threatening material repressed into the **unconscious**. The patient is instructed to say whatever comes to mind without censoring.
- frenzy witchcraft** Running frenzy disorder among the Navajo tribe that seems equivalent to **dissociative fugue**.
- frontal lobe** Forward section of each cerebral hemisphere most responsible for thinking, reasoning, memory, the experience of reward, and social behavior and thus most likely to be involved in a range of **psychopathologies**.
- frotteurism** **Paraphilia** in which the person gains sexual gratification by rubbing against unwilling victims in crowds from which they cannot escape.
- functional communication training** Teaching of speech or nonspeech communication skills to replace undesired behavior. The new skills are useful to the person and are maintained because of the effects they have on others.
- functional genomics** Study of how genes function to create changes in the organism.
- GABA-benzodiazepine system** Chemical **benzodiazepines** (minor tranquilizers) that facilitate the effects of the **neurotransmitter gamma-aminobutyric acid** in reducing **anxiety**. Such a system suggests the existence of natural benzodiazepines in the nervous system that have not yet been discovered.
- gamma-aminobutyric acid (GABA)** **Neurotransmitter** that reduces activity across the **synaptic cleft** and thus inhibits a range of behaviors and **emotions**, especially generalized **anxiety**.
- gate control theory of pain** View that psychological factors can enhance or diminish the sensation and perception of pain by influencing the transmission of pain impulses through the section of the spinal cord that acts as a "gate."
- gender identity disorder** A psychological dissatisfaction with biological gender, or a disturbance in the sense of identity as a male or female. The primary goal is not sexual arousal but rather to live the life of the opposite gender.
- gender nonconformity** Individuals expressing behavior and attitudes consistently characteristic of the opposite sex.
- general adaptation syndrome (GAS)** Sequence of reactions to sustained **stress** described by Hans Selye. These stages are alarm, resistance, and exhaustion, which may lead to death.
- generalizability** Extent to which research results apply to a range of individuals not included in the study.
- generalized amnesia** Loss of memory of all personal information, including identity.
- generalized anxiety disorder (GAD)** **Anxiety** disorder characterized by intense, uncontrollable, unfocused, chronic, and continuous worry that is distressing and unproductive, accompanied by physical symptoms of tenseness, irritability, and restlessness.
- genes** Long deoxyribonucleic acid (DNA) molecule, the basic physical unit of heredity that appears as a location on a chromosome.
- genetic linkage analysis** Study that seeks to match the inheritance pattern of a disorder to that of a **genetic marker**. This helps researchers establish the location of the **gene** responsible for the disorder.
- genetic marker** Inherited characteristic for which the chromosomal location of the responsible **gene** is known.
- genome** All of the hereditary information of an organism that is encoded in DNA.
- genotype** Specific genetic makeup of an individual.
- globus hystericus** Sensation of a lump in the throat causing the person difficulty in swallowing, eating, and talking. A conversion symptom or part of choking phobia.
- glutamate** Amino acid **neurotransmitter** that excites many different **neurons**, leading to action.
- glutamate system** Excitatory **neurotransmitter** system that may be the avenue by which **alcohol** affects cognitive abilities.
- graduated extinction** Monitoring of a desired behavior, such as sleeping or compliance by children, with decreasing frequency to encourage independence.
- grandiose type** Type of **delusional disorder** featuring beliefs of inflated worth, power, knowledge, identity, or a special relationship to a deity or famous person.
- hallucinations** A psychotic symptom of perceptual disturbance in which something is seen, heard, or otherwise sensed although it is not actually present.
- hallucinogen** Any **psychoactive substance**, such as **LSD** or **marijuana**, that can produce **delusions**, **hallucinations**, **paranoia**, and altered sensory perception.
- hallucinogen use disorders** Cognitive, biological, behavioral, and social problems associated with the use and abuse of hallucinogenic substances.
- Halstead-Reitan Neuropsychological Battery** Relatively precise instrument that helps identify and locate organic damage by testing various skills, including rhythm, grip, and tactile performance.
- head trauma** Injury to the head and, therefore, to the brain, typically caused by accidents; can lead to cognitive impairments, including memory loss.
- health psychology** Subfield of **behavioral medicine** that studies psychological factors important in health promotion and maintenance.
- hebephrenia** A silly and immature emotionality, a characteristic of some types of **schizophrenia**.
- helper T cell** T cell-type lymphocyte that enhances the **immune system** response by signaling **B cells** to produce **antibodies** and other **T cells** to destroy **antigens**.
- hermaphrodite** See **intersex individual**.
- heterosexual behavior** Sexual activity with members of the opposite gender.
- hierarchy of needs** Ranking of human necessities from basic food to self-actualization, proposed by Abraham Maslow.
- high blood pressure** See **hypertension**.
- hindbrain** Lowest part of the **brain stem**; regulates many automatic bodily functions, such as breathing and digestion, and includes the **medulla**, **pons**, and **cerebellum**.
- hippocampus** Part of the brain's **limbic system** that regulates **emotions** and the ability to learn and control impulses; figures prominently in some **psychopathology**.
- histrionic personality disorder** A cluster B (dramatic, emotional, or erratic) **personality disorder** involving a pervasive pattern of excessive emotionality and attention seeking.
- homosexual behavior** Sexual activity with members of the same gender.
- hormone** Chemical messenger produced by the endocrine glands.
- human genome project** Ongoing scientific attempt to develop a comprehensive map of all human **genes**.
- human immunodeficiency virus type 1 (HIV-1)** Disease that causes AIDS.
- humor** Bodily fluid (blood, black and yellow bile, or phlegm) that early theorists believed controlled normal and abnormal functioning.
- humoral theory** Ancient belief that **psychological disorders** were caused by imbalances in bodily **humors** or fluids.
- Huntington's disease** Genetic disorder marked by involuntary limb movements and progressing to **dementia**.
- hypersomnia** Abnormally excessive sleep. A person with this condition falls asleep several times a day.
- hypertension** Major risk factor for **stroke** and heart and kidney disease that is intimately related to psychological factors. Also known as *high blood pressure*.
- hypnagogic hallucination** Characteristic of **narcolepsy** involving a frightening and vivid experience during sleep that is visual, tactile, aural, and mobile.
- hypoactive sexual desire disorder** Apparent lack of interest in sexual activity or fantasy that would not be expected considering the person's age and life situation.
- hypochondriasis** **Somatoform disorder** involving severe **anxiety** over belief in having a disease process without any evident physical cause.

- hypofrontality** Relative deficiency in activity in the **frontal lobes** of the brains of people with **schizophrenia**; associated with the **negative symptoms** of the disorder.
- hypomanic episode** Less severe and less disruptive version of a **manic episode** that is one of the criteria for several **mood disorders**.
- hypothalamic-pituitary-adrenocortical (HPA) axis** Brain-endocrine system connection implicated in some **psychological disorders**.
- hypothalamus** Part of the brain that lies beneath the **thalamus** and is broadly involved in the regulation of behavior and **emotion**.
- hypothesis** Educated guess or statement to be tested by research.
- hypoventilation** Reduced or labored breathing—for example, during sleep.
- id** In **psychoanalysis**, the **unconscious** psychic entity present at birth representing basic drives.
- idea of reference** Person's **delusion** that the actions, thoughts, laughter, and meaningless activities of others are directed toward or refer to that person.
- idiographic strategy** A close and detailed investigation of an individual emphasizing what makes that person unique. (Compare with **nomothetic strategy**.)
- illness phobia** Extreme **fear** of the possibility of contracting a disease (as opposed to the belief in already having it), combined with irrational behaviors to avoid contracting it.
- imaginal exposure** Presentation or **systematic exposure** of **emotions** or fearful or traumatic experiences in the imagination.
- imipramine** One of the **tricyclic antidepressant** drugs affecting the serotonergic and noradrenergic **neurotransmitter** systems. It blocks **panic attacks** but not more generalized **anxiety** and causes side effects such as dry mouth, dizziness, and occasionally, **sexual dysfunction**; effective in some **mood** and **anxiety** disorders, as well as other disorders.
- immune system** Body's means of identifying and eliminating any foreign materials (for example, bacteria, parasites, and even transplanted organs) that enter.
- impacted grief reaction** See **pathological grief reaction**.
- implicit memory** Condition of memory in which a person cannot recall past events despite acting in response to them.
- impulse-control disorders** A disorder in which a person acts on an irresistible, but potentially harmful, impulse.
- inappropriate affect** An emotional display that is improper for the situation.
- incest** A deviant sexual attraction (**pedophilia**) directed toward a family member; often the attraction of a father toward a daughter who is maturing physically.
- incidence** Number of new cases of a disorder appearing during a specific period (compare with **prevalence**).
- independent variable** Phenomenon manipulated by the experimenter in a study and expected to influence the **dependent variable**.
- inferiority complex** Feeling of being inferior to others while striving for superiority.
- informal observation** Attention paid to behavior but without defining or recording it in any systematic fashion.
- information transmission** Warnings about the feared object repeated so often that the person develops a **phobia** solely on the basis of hearing them.
- informed consent** Ethical requirement whereby research subjects agree to participate in a study only after they receive full disclosure about the nature of the study and their own role in it.
- inhibited orgasm** An inability to achieve orgasm despite adequate sexual desire and arousal; commonly seen in women but relatively rare in men.
- insanity** Legal rather than psychological or medical concept involving both a **psychological disorder** and an inability to know or appreciate the wrongfulness of criminal acts.
- insanity defense** Legal plea that a defendant should not be held responsible for a crime because that person was mentally ill at the time of the offense.
- insidious onset** Development of a disorder that occurs gradually over an extended period (contrast with **acute onset**).
- insight** In **psychoanalysis**, recognition of the causes of emotional distress.
- insulin shock therapy** Dangerous biological treatment involving the administration of large doses of insulin to induce seizures.
- intellectual disability** A diagnosis received when one achieves a significantly below-average score on a test of intelligence and by limitations in the ability to function in areas of daily life. Significantly subaverage intellectual functioning paired with deficits in adaptive functioning such as self-care or occupational activities, appearing before age 18.
- intelligence quotient (IQ)** Score on an intelligence test estimating a person's deviation from average test performance.
- intermittent explosive disorder** The episodes during which a person acts on aggressive impulses that result in serious assaults or destruction of property.
- intermittent support disability** **Intellectual disability** level characterized by the need for only episodic special care—for example, during crises and difficult life changes.
- internal validity** Extent to which the results of a study can be attributed to the **independent variable** after confounding alternative explanations have been ruled out.
- interoceptive avoidance** Avoidance of situations or activities, such as exercise, that produce internal physical arousal similar to the beginnings of a **panic attack**.
- interpersonal psychotherapy (IPT)** Brief treatment approach that emphasizes resolution of interpersonal problems and stressors, such as role disputes in marital conflict, forming relationships in marriage, or a new job. It has demonstrated effectiveness for such problems as depression.
- interrater reliability** Degree to which two or more observers make the same ratings or measurements.
- intersex individual** Person born with ambiguous genitalia and hormonal abnormalities. Such a person is assigned a gender at birth and then often provided **hormones** and surgery to complete the correspondence. Also known as *hermaphrodite*.
- intrapsychic conflicts** In psychoanalytic theory, a struggle among the **id**, **ego**, and **superego**.
- introjection** In **object relations** theory, the process of incorporating memories and values of individuals who are important and close to the person.
- introspection** Early, nonscientific approach to the study of psychology involving systematic attempts to report thoughts and feelings that specific stimuli evoked.
- inverse agonist** In **neuroscience**, a chemical substance that produces effects opposite those of a particular **neurotransmitter**.
- isolated sleep paralysis** Period upon going to sleep or upon awakening during which a person cannot perform voluntary movements.
- ischemia** Narrowing of arteries caused by plaque buildup within the arteries.
- jealous type** Type of **delusional disorder** featuring **delusions** that the individual's sexual partner is unfaithful.
- jet lag type of circadian rhythm sleep disorder** Disorder in which sleepiness and alertness patterns conflict with local time and occur after recent or repeated travel across time zones.
- kleptomania** A recurrent failure to resist urges to steal things not needed for personal use or their monetary value.
- koro** In Malaysia, a condition of **mass hysteria** or group **delusion** in which people believe their genitals are retracting into their bodies.
- la belle indifférence** Lack of distress shown by some individuals presenting **conversion**, **somatization**, or **amnesic disorders**.
- labeling** Applying a name to a phenomenon or a pattern of behavior. The label may acquire negative connotations or be applied erroneously to the person rather than that person's behaviors.
- large fiber** Nerve fiber in the **dorsal horns of the spinal cord** that regulates the pattern and intensity of pain sensations. Large fibers close the gate, decreasing the transmission of painful stimuli.
- lateral ventricle** Naturally occurring cavity in the brain filled with cerebrospinal fluid. Some individuals with **schizophrenia** have enlarged ventricles, probably resulting from insufficient development or atrophy of surrounding tissue.
- law of effect** Edward Thorndike's principle that behaviors are strengthened or weakened by the environmental events that follow them.
- learned helplessness theory of depression** Martin Seligman's theory that people become anxious and depressed when they make an attribution that they have no control over the **stress** in their lives (whether or not they actually have control).
- learning disorder** Reading, mathematics, or written expression performance substantially below the level expected relative to the person's age, **intelligence quotient** score, and education.
- Lesch-Nyhan syndrome** X-linked gene disorder characterized by **intellectual disability**, signs of cerebral palsy, and **self-injurious** behavior.
- leukocyte** White blood cell of one of several types that plays a specialized role in the **immune system** to fight viral and parasitic infections.
- level** Degree of behavior change with different interventions (for example, high or low).