

Multiple-Choice Questions

- Which of the following is the best term or phrase for a false belief, often of persecution, that may accompany psychotic disorders?
 - Psychosis
 - Schizophrenia
 - Delusion
 - Split mind
 - Dissociative identity disorder
- Which of the following is true?
 - Those born during winter and spring are less likely to develop schizophrenia later in life.
 - People born in densely populated areas are less likely to develop schizophrenia later in life.
 - Fetuses exposed to flu virus are more likely to develop schizophrenia later in life.
 - Maternal influenza during pregnancy does not affect brain development in monkeys.
 - The retrovirus HERV is found more often in people who do not develop schizophrenia.
- According to research, which of the following has been identified as an early warning sign of schizophrenia?
 - Emotional predictability
 - Poor peer relations and solo play
 - Long attention span
 - Good muscle coordination
 - High birth weight

Practice FRQs

- Name three possible warning signs of schizophrenia.

Answer

Score 1 point for any of the following (up to 3) possibilities.

- A mother whose schizophrenia was severe and long-lasting
- Birth complications, often involving oxygen deprivation and low weight
- Separation from parents
- Short attention span and poor muscle coordination
- Disruptive or withdrawn behavior
- Emotional unpredictability
- Poor peer relations and solo play

- Name and explain two brain abnormalities that help us understand schizophrenia.

(4 points)

Module 69

Other Disorders

Module Learning Objectives

- 69-1** Describe somatic symptom and related disorders.
- 69-2** Describe dissociative disorders, and discuss why they are controversial.
- 69-3** Explain how anorexia nervosa, bulimia nervosa, and binge-eating disorder demonstrate the influence of psychological and genetic forces.
- 68-4** Contrast the three clusters of personality disorders, and describe the behaviors and brain activity that characterize the antisocial personality.



Somatic Symptom and Related Disorders

- 69-1** What are somatic symptom and related disorders?

Among the most common problems bringing people into doctors' offices are "medically unexplained illnesses" (Johnson, 2008). Ellen becomes dizzy and nauseated in the late afternoon—shortly before she expects her husband home. Neither her primary care physician nor the neurologist he sent her to could identify a physical cause. They suspect her symptoms have an unconscious psychological origin, possibly triggered by her mixed feelings about her husband. In a **somatic symptom disorder** such as Ellen's, the distressing symptoms take a somatic (bodily) form without apparent physical causes. One person may have a variety of complaints—vomiting, dizziness, blurred vision, difficulty in swallowing. Another may experience severe and prolonged pain.

Culture has a big effect on people's physical complaints and how they explain them (Kirmayer & Sartorius, 2007). In China, psychological explanations of anxiety and depression are socially less acceptable than in many Western countries, and people less often express the emotional aspects of distress. The Chinese appear more sensitive to—and more willing to report—the physical symptoms of their distress (Ryder et al., 2008). Mr. Wu, a 36-year-old technician in Hunan, illustrates one of China's most common psychological disorders (Spitzer & Skodol, 2000). He finds work difficult because of his insomnia, fatigue, weakness, and headaches. Chinese herbs and Western medicines provide no relief. To his Chinese clinician, who treats the bodily symptoms, he seems not so much depressed as exhausted. Similar, generalized bodily complaints have often been observed in African cultures (Binitie, 1975).

somatic symptom disorder a psychological disorder in which the symptoms take a somatic (bodily) form without apparent physical cause. (See *conversion disorder* and *illness anxiety disorder*.)

conversion disorder a disorder in which a person experiences very specific genuine physical symptoms for which no physiological basis can be found. (Also called *functional neurological symptom disorder*.)

illness anxiety disorder a disorder in which a person interprets normal physical sensations as symptoms of a disease. (Formerly called *hypochondriasis*.)

dissociative disorders disorders in which conscious awareness becomes separated (dissociated) from previous memories, thoughts, and feelings.

Even to people in the West, somatic symptoms are familiar. To a lesser extent, we have all experienced inexplicable physical symptoms under stress. It is little comfort to be told that the problem is “all in your head.” Although the symptoms may be psychological in origin, they are nevertheless genuinely felt.

One rare type of disorder, more common in Freud’s day than in ours, is **conversion disorder** (also known as *functional neurological symptom disorder*), so called because anxiety presumably is converted into a physical symptom. (As we noted in Module 55, Freud’s effort to treat and understand psychological disorders stemmed from his puzzlement over ailments that had no physiological basis.) A patient with a conversion disorder might, for example, lose sensation in a way that makes no neurological sense. Yet the physical symptoms would be real; sticking pins in the affected area would produce no response. Other conversion disorder symptoms might be unexplained paralysis, blindness, or an inability to swallow. In each case, the person would be strangely indifferent to the problem.

As you can imagine, somatic symptom and related disorders send people not to a psychologist or psychiatrist but to a physician. This is especially true of those who experience **illness anxiety disorder** (formerly called *hypochondriasis*). In this relatively common disorder, people interpret normal sensations (a stomach cramp today, a headache tomorrow) as symptoms of a dreaded disease. Sympathy or temporary relief from everyday demands may reinforce such complaints. No amount of reassurance by any physician convinces the patient that the trivial symptoms do not reflect a serious illness. So the patient moves on to another physician, seeking and receiving more medical attention—but failing to confront the disorder’s psychological root.

Before You Move On

▶ ASK YOURSELF

Can you recall (as most people can) times when you have fretted needlessly over a normal bodily sensation?

▶ TEST YOURSELF

What does *somatic* mean?

Answers to the Test Yourself questions can be found in Appendix E at the end of the book.

Dissociative Disorders

69-2 What are dissociative disorders, and why are they controversial?

Among the most bewildering disorders are the rare **dissociative disorders**. These are disorders of consciousness, in which a person appears to experience a sudden loss of memory or change in identity, often in response to an overwhelmingly stressful situation. Chris Sizemore’s story, told in the book and movie *The Three Faces of Eve*, gave early visibility to what is now called *dissociative identity disorder*. One Vietnam veteran who was haunted by his comrades’ deaths, and who had left his World Trade Center office shortly before the 9/11 attack, disappeared en route to work one day and was discovered six months later in a Chicago homeless shelter, reportedly with no memory of his identity or family (Stone, 2006). In such *fugue state* cases, the person’s conscious awareness is said to *dissociate* (become separated) from painful memories, thoughts, and feelings. (Note that this explanation presumes the existence of repressed memories, which, as we noted in Modules 33 and 56, have been questioned by memory researchers.)

Dissociation itself is not so rare. Now and then, many people may have a sense of being unreal, of being separated from their body, of watching themselves as if in a movie.

Sometimes we may say, “I was not myself at the time.” Perhaps you can recall getting up to go somewhere and ending up at some unintended location while your mind was preoccupied elsewhere. Or perhaps you can play a well-practiced tune on a guitar or piano while talking to someone. Facing trauma, dissociative detachment may actually protect a person from being overwhelmed by emotion.

Dissociative Identity Disorder

A massive dissociation of self from ordinary consciousness characterizes those with **dissociative identity disorder (DID)**, in which two or more distinct identities are said to alternately control the person’s behavior. Each personality has its own voice and mannerisms. Thus the person may be prim and proper one moment, loud and flirtatious the next. Typically, the original personality denies any awareness of the other(s).

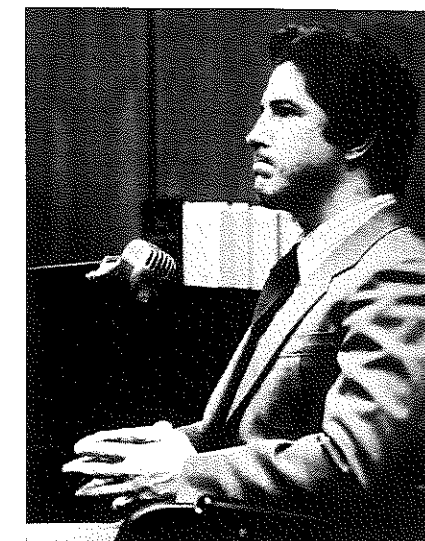
People diagnosed with DID (formerly called *multiple personality disorder*) are usually not violent, but cases have been reported of dissociations into a “good” and a “bad” (or aggressive) personality—a modest version of the Dr. Jekyll/Mr. Hyde split immortalized in Robert Louis Stevenson’s story. One unusual case involved Kenneth Bianchi, accused in the “Hillside Strangler” rapes and murders of 10 California women. During a hypnosis session with Bianchi, psychologist John Watkins (1984) “called forth” a hidden personality: “I’ve talked a bit to Ken, but I think that perhaps there might be another part of Ken that . . . maybe feels somewhat differently from the part that I’ve talked to. . . . Would you talk with me, Pat, by saying, ‘I’m here?’” Bianchi answered “Yes” and then claimed to be “Steve.”

Speaking as Steve, Bianchi stated that he hated Ken because Ken was nice and that he (Steve), aided by a cousin, had murdered women. He also claimed Ken knew nothing about Steve’s existence and was innocent of the murders. Was Bianchi’s second personality a ruse, simply a way of disavowing responsibility for his actions? Indeed, Bianchi—a practiced liar who had read about multiple personality in psychology books—was later convicted.

Understanding Dissociative Identity Disorder

Skeptics question whether DID is a genuine disorder or an extension of our normal capacity for personality shifts. Nicholas Spanos (1986, 1994, 1996) asked college students to pretend they were accused murderers being examined by a psychiatrist. Given the same hypnotic treatment Bianchi received, most spontaneously expressed a second personality. This discovery made Spanos wonder: Are dissociative identities simply a more extreme version of our capacity to vary the “selves” we present—as when we display a goofy, loud self while hanging out with friends, and a subdued, respectful self around grandparents? Are clinicians who discover multiple personalities merely triggering role-playing by fantasy-prone people? Do these patients, like actors who commonly report “losing themselves” in their roles, then convince themselves of the authenticity of their own role enactments? Spanos was no stranger to this line of thinking. In a related research area, he had also raised these questions about the hypnotic state. Given that most DID patients are highly hypnotizable, whatever explains one condition—dissociation or role playing—may help explain the other.

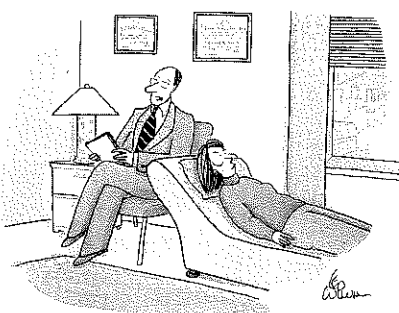
Skeptics also find it suspicious that the disorder is so localized in time and space. Between 1930 and 1960, the number of DID diagnoses in North America was 2 per decade. In the 1980s, when the DSM contained the first formal code for this disorder, the number of reported cases had exploded to more than 20,000 (McHugh, 1995a). The average number of displayed personalities also mushroomed—from 3 to 12 per patient (Goff & Simms, 1993). Outside North America, the disorder is much less prevalent, although in other cultures some people are said to be “possessed” by an alien spirit (Aldridge-Morris, 1989; Kluft, 1991). In Britain, DID—which some have considered “a wacky American fad” (Cohen, 1995)—is rare. In India and Japan, it is essentially nonexistent (or at least unreported).



The “Hillside Strangler” Kenneth Bianchi is shown here at his trial.

dissociative identity disorder (DID) a rare dissociative disorder in which a person exhibits two or more distinct and alternating personalities. Formerly called *multiple personality disorder*.

“Pretense may become reality.”
—CHINESE PROVERB



"Would it be possible to speak with the personality that pays the bills?"

"Though this be madness, yet there is method in 't." -WILLIAM SHAKESPEARE, *HAMLET*, 1600

Such findings, skeptics say, point to a cultural phenomenon—a disorder created by therapists in a particular social context (Merskey, 1992). Rather than being provoked by trauma, dissociative symptoms tend to be exhibited by suggestible, fantasy-prone people (Giesbrecht et al., 2008, 2010). Patients do not enter therapy saying "Allow me to introduce myself." Rather, note these skeptics, some therapists go fishing for multiple personalities: "Have you ever felt like another part of you does things you can't control? Does this part of you have a name? Can I talk to the angry part of you?" Once patients permit a therapist to talk, by name, "to the part of you that says those angry things," they begin acting out the fantasy. Like actors who lose themselves in their roles, vulnerable patients may "become" the parts they are acting out. The result may be the experience of another self.

Other researchers and clinicians believe DID is a real disorder. They find support for this view in the distinct brain and body states associated with differing personalities (Putnam, 1991). Handedness, for example, sometimes switches with personality (Henninger, 1992). Ophthalmologists have detected shifting visual acuity and eye-muscle balance as patients switched personalities, changes that did not occur among control group members trying to simulate DID (Miller et al., 1991). Dissociative disorder patients also have exhibited heightened activity in brain areas associated with the control and inhibition of traumatic memories (Elzinga et al., 2007).

Researchers and clinicians have interpreted DID symptoms from psychodynamic and learning perspectives. Both views agree that the symptoms are ways of dealing with anxiety. Psychodynamic theorists see them as defenses against the anxiety caused by the eruption of unacceptable impulses; a wanton second personality enables the discharge of forbidden impulses. Learning theorists see dissociative disorders as behaviors reinforced by anxiety reduction.

Other clinicians include dissociative disorders under the umbrella of posttraumatic stress disorder—a natural, protective response to "histories of childhood trauma" (Putnam, 1995; Spiegel, 2008). Many DID patients recall suffering physical, sexual, or emotional abuse as children (Gleaves, 1996; Lilienfeld et al., 1999). In one study of 12 murderers diagnosed with DID, 11 had suffered severe, torturous child abuse (Lewis et al., 1997). One was set afire by his parents. Another was used in child pornography and was scarred from being made to sit on a stove burner. Some critics wonder, however, whether vivid imagination or therapist suggestion contributes to such recollections (Kihlstrom, 2005).

So the debate continues. On one side are those who believe multiple personalities are the desperate efforts of the traumatized to detach from a horrific existence. On the other are the skeptics who think DID is a condition contrived by fantasy-prone, emotionally vulnerable people, and constructed out of the therapist-patient interaction. If the skeptics' view wins, predicted psychiatrist Paul McHugh (1995b), "this epidemic will end in the way that the witch craze ended in Salem. The [multiple personality phenomenon] will be seen as manufactured."

Before You Move On

► ASK YOURSELF

In a more normal way, do you ever flip between displays of different aspects of your personality?

► TEST YOURSELF

The psychodynamic and learning perspectives agree that dissociative identity disorder symptoms are ways of dealing with anxiety. How do their explanations differ?

Answers to the Test Yourself questions can be found in Appendix E at the end of the book.

Eating Disorders

69-3

How do anorexia nervosa, bulimia nervosa, and binge-eating disorder demonstrate the influence of psychological and genetic forces?

Our bodies are naturally disposed to maintain a steady weight, including stored energy reserves for times when food becomes unavailable. Yet sometimes psychological influences overwhelm biological wisdom. This becomes painfully clear in three eating disorders.

- **Anorexia nervosa** typically begins as a weight-loss diet. People with anorexia—usually adolescents and 9 times out of 10 females—drop significantly below normal weight. Yet they feel fat, fear being fat, and remain obsessed with losing weight, and sometimes exercise excessively. About half of those with anorexia display a binge-purge-depression cycle.
- **Bulimia nervosa** may also be triggered by a weight-loss diet, broken by gorging on forbidden foods. Binge-purge eaters—mostly women in their late teens or early twenties—eat in spurts, sometimes influenced by friends who are bingeing (Crandall, 1988). In a cycle of repeating episodes, overeating is followed by compensatory purging (through vomiting or laxative use), fasting, or excessive exercise (Wonderlich et al., 2007). Preoccupied with food (craving sweet and high-fat foods), and fearful of becoming overweight, binge-purge eaters experience bouts of depression and anxiety during and following binges (Hinze & Williamson, 1987; Johnson et al., 2002). Unlike anorexia, bulimia is marked by weight fluctuations within or above normal ranges, making the condition easy to hide.
- Those who do significant binge eating, followed by remorse—but do not purge, fast, or exercise excessively—are said to have **binge-eating disorder**.

A national study funded by the U.S. National Institute of Mental Health reported that, at some point during their lifetime, 0.6 percent of people meet the criteria for anorexia, 1 percent for bulimia, and 2.8 percent for binge-eating disorder (Hudson et al., 2007). So, how can we explain these disorders?

Eating disorders do *not* provide (as some have speculated) a telltale sign of childhood sexual abuse (Smolak & Murnen, 2002; Stice, 2002). The family environment may provide a fertile ground for the growth of eating disorders in other ways, however.

- Mothers of girls with eating disorders tend to focus on their own weight and on their daughters' weight and appearance (Pike & Rodin, 1991).
- Families of bulimia patients have a higher-than-usual incidence of childhood obesity and negative self-evaluation (Jacobi et al., 2004).
- Families of anorexia patients tend to be competitive, high-achieving, and protective (Pate et al., 1992; Yates, 1989, 1990).

Those with eating disorders often have low self-evaluations, set perfectionist standards, fret about falling short of expectations, and are intensely concerned with how others perceive them (Pieters et al., 2007; Polivy & Herman, 2002; Sherry & Hall, 2009). Some of these factors also predict teen boys' pursuit of unrealistic muscularity (Ricciardelli & McCabe, 2004).

Genetics also influence susceptibility to eating disorders. Twins are more likely to share the disorder if they are identical rather than fraternal (Culbert et al., 2009; Klump et al., 2009; Root et al., 2010). Scientists are now searching for culprit genes, which may influence the body's available serotonin and estrogen (Klump & Culbert, 2007).

But these disorders also have cultural and gender components. Ideal shapes vary across culture and time. In impoverished areas of the world, including much of Africa—where plumpness means prosperity and thinness can signal poverty or illness—bigger

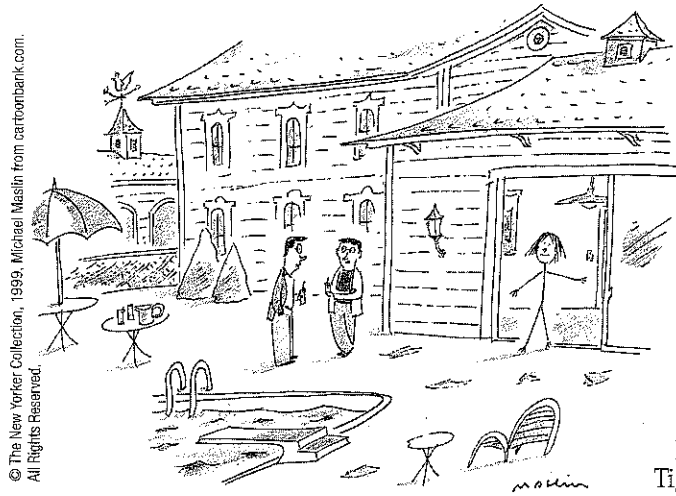


Dying to be thin Anorexia was identified and named in the 1870s, when it appeared among affluent adolescent girls (Brumberg, 2000). Many modern-day celebrities, including Lady Gaga, have struggled publicly with eating disorders.

anorexia nervosa an eating disorder in which a person (usually an adolescent female) maintains a starvation diet despite being significantly (15 percent or more) underweight.

bulimia nervosa an eating disorder in which a person alternates binge eating (usually of high-calorie foods) with purging (by vomiting or laxative use), excessive exercise, or fasting.

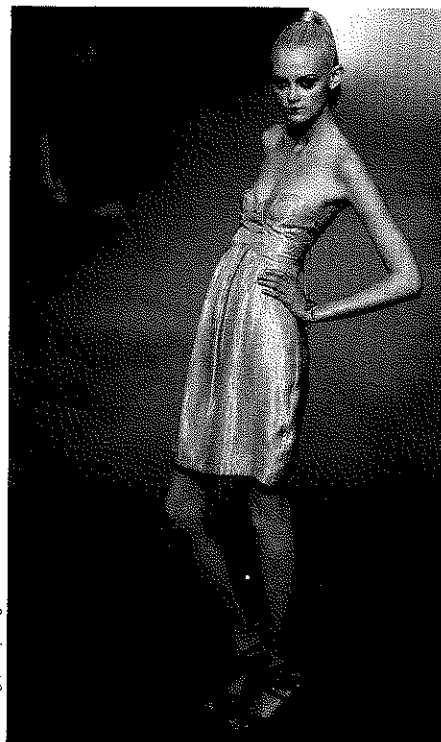
binge-eating disorder significant binge-eating episodes, followed by distress, disgust, or guilt, but without the compensatory purging or fasting that marks bulimia nervosa.



"Gee, I had no idea you were married to a supermodel."

"Skeletons on Parade" A newspaper article used this headline in criticizing the display of superthin models. Do such models make self-starvation fashionable?

"Why do women have such low self-esteem? There are many complex psychological and societal reasons, by which I mean Barbie." -DAVE BARRY, 1999



WireImage/Getty Images

seems better (Knickmeyer, 2001; Swami et al., 2010). Bigger does not seem better in Western cultures, where, according to 222 studies of 141,000 people, the rise in eating disorders over the last 50 years has coincided with a dramatic increase in women having a poor body image (Feingold & Mazzella, 1998).

Those most vulnerable to eating disorders are also those (usually women or gay men) who most idealize thinness and have the greatest body dissatisfaction (Feldman & Meyer, 2010; Kane, 2010; Stice et al., 2010). Should it surprise us, then, that when women view real and doctored images of unnaturally thin models and celebrities, they often feel ashamed, depressed, and dissatisfied with their own bodies—the very attitudes that predispose eating disorders (Grabe et al., 2008; Myers & Crowther, 2009; Tiggemann & Miller, 2010)? Researchers tested this modeling idea by giving some adolescent girls (but not others) a 15-month subscription to an American teen-fashion magazine (Stice et al., 2001). Compared with

their counterparts who had not received the magazine, vulnerable girls—defined as those who were already dissatisfied, idealizing thinness, and lacking social support—exhibited increased body dissatisfaction and eating disorder tendencies. But even ultra-thin models do not reflect the impossible standard of the classic Barbie doll, who had, when adjusted to a height of 5 feet 7 inches, a 32–16–29 figure (in centimeters, 82–41–73) (Norton et al., 1996).

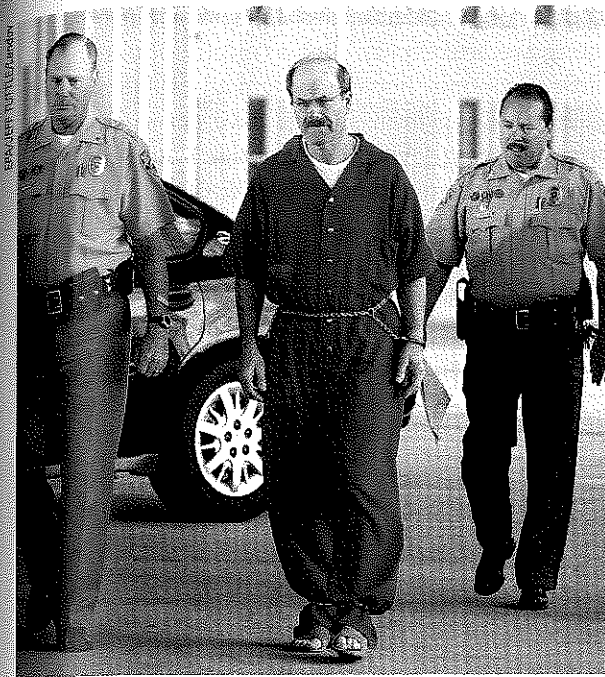
It seems clear that the sickness of today's eating disorders lies in part within our weight-obsessed culture—a culture that says, in countless ways, "Fat is bad," that motivates millions of women to be "always dieting," and that encourages eating binges by pressuring women to live in a constant state of semistarvation. If cultural learning contributes to eating behavior, then might prevention programs increase acceptance of one's body? Reviews of prevention studies answer *Yes*, and especially if the programs are interactive and focused on girls over age 15 (Stice et al., 2007; Vocks et al., 2010).

Personality Disorders

69-4 What are the three clusters of personality disorders? What behaviors and brain activity characterize the antisocial personality?

Some dysfunctional behavior patterns impair people's social functioning without depression or delusions. Among them are **personality disorders**—disruptive, inflexible, and enduring behavior patterns that impair one's social functioning. Anxiety is a feature of one cluster of these disorders, such as a fearful sensitivity to rejection that predisposes the withdrawn *avoidant personality disorder*. A second cluster expresses eccentric or odd behaviors, such as the emotionless disengagement of the *schizoid personality disorder*. A third cluster exhibits dramatic or impulsive behaviors, such as the attention-getting *histrionic personality disorder* and the self-focused and self-inflating *narcissistic personality disorder*.

personality disorders psychological disorders characterized by inflexible and enduring behavior patterns that impair social functioning.



No remorse Dennis Rader, known as the "BTK killer" in Kansas, was convicted in 2005 of killing 10 people over a 30-year span. Rader exhibited the extreme lack of conscience that marks antisocial personality disorder.

AP® Exam Tip

Notice how different antisocial personality disorder is from the other disorders you have studied in this unit. Because individuals with antisocial personality disorder so often behave badly, they tend to be viewed differently from people with disorders such as depression or phobia.

Antisocial Personality Disorder

The most troubling and heavily researched personality disorder is the **antisocial personality disorder**. The person (sometimes called a *sociopath* or a *psychopath*) is typically a male whose lack of conscience becomes plain before age 15, as he begins to lie, steal, fight, or display unrestrained sexual behavior (Cale & Lilienfeld, 2002). About half of such children become antisocial adults—unable to keep a job, irresponsible as a spouse and parent, and assaultive or otherwise criminal (Farrington, 1991). When the antisocial personality combines a keen intelligence with amorality, the result may be a charming and clever con artist, a ruthless corporate executive (*Snakes in Suits* is a book on antisocial behavior in business)—or worse.

Despite their remorseless and sometimes criminal behavior, criminality is not an essential component of antisocial behavior (Skeem & Cooke, 2010). Moreover, many criminals do not fit the description of antisocial personality disorder. Why? Because they actually show responsible concern for their friends and family members.

Antisocial personalities behave impulsively, and then feel and fear little (Fowles & Dindo, 2009). The results sometimes are horrifying, as they were in the case of Henry Lee Lucas. He killed his first victim when he was 13. He felt little regret then or later. He confessed that, during his 32 years of crime, he had brutally beaten, suffocated, stabbed, shot, or mutilated some 360 women, men, and children. For the last 6 years of his reign of terror, Lucas teamed with Elwood Toole, who reportedly slaughtered about 50 people he "didn't think was worth living anyhow" (Darrach & Norris, 1984).

Understanding Antisocial Personality Disorder

Antisocial personality disorder is woven of both biological and psychological strands. No single gene codes for a complex behavior such as crime, but twin and adoption studies reveal that biological relatives of those with antisocial and unemotional tendencies are at increased risk for antisocial behavior (Larsson et al., 2007; Livesley & Jang, 2008). Molecular geneticists have identified some specific genes that are more common in those with antisocial personality disorder (Gunter et al., 2010). The genetic vulnerability of people



"Thursday is out. I have jury duty."

Many criminals, like this one, exhibit a sense of conscience and responsibility in other areas of their life, and thus do not exhibit antisocial personality disorder.

antisocial personality disorder a personality disorder in which a person (usually a man) exhibits a lack of conscience for wrongdoing, even toward friends and family members. May be aggressive and ruthless or a clever con artist.

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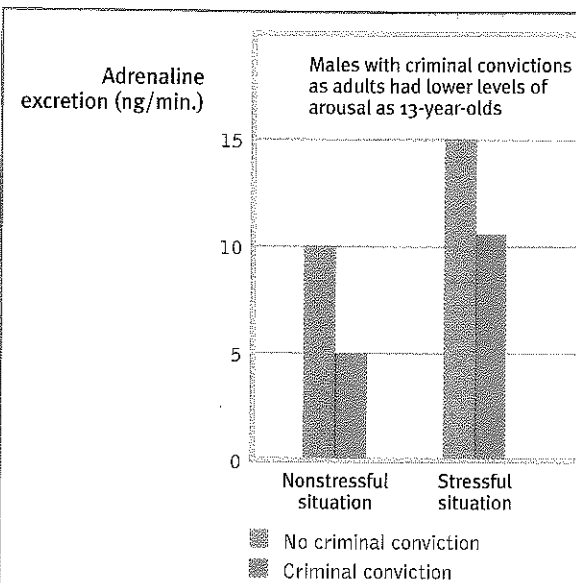


Figure 69.1

Cold-blooded arousability and risk of crime Levels of the stress hormone adrenaline were measured in two groups of 13-year-old Swedish boys. In both stressful and nonstressful situations, those who would later be convicted of a crime as 18- to 26-year-olds showed relatively low arousal. (From Magnusson, 1990.)

with antisocial and unemotional tendencies appears as a fearless approach to life. Awaiting aversive events, such as electric shocks or loud noises, they show little autonomic nervous system arousal (Hare, 1975; van Goozen et al., 2007). Long-term studies have shown that their levels of stress hormones were lower than average when they were youngsters, before committing any crime (FIGURE 69.1). Three-year-olds who are slow to develop conditioned fears are later more likely to commit a crime (Gao et al., 2010).

Other studies have found that preschool boys who later became aggressive or antisocial adolescents tended to be impulsive, uninhibited, unconcerned with social rewards, and low in anxiety (Caspi et al., 1996; Tremblay et al., 1994). If channeled in more productive directions, such fearlessness may lead to courageous heroism, adventurism, or star-level athleticism (Poulton & Milne, 2002). Lacking a sense of social responsibility, the same disposition may produce a cool con artist or killer (Lykken, 1995). The genes that put people at risk for antisocial behavior also put people at risk for substance use disorders, which helps explain why

these disorders often appear in combination (Dick, 2007).

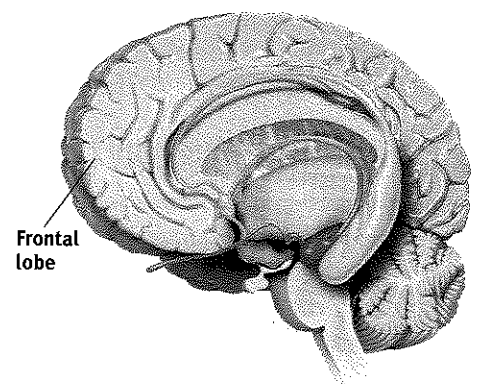
Genetic influences, often in combination with child abuse, help wire the brain (Dodge, 2009). Adrian Raine (1999, 2005) compared PET scans of 41 murderers' brains with those from people of similar age and sex. Raine found reduced activity in the murderers' frontal lobes, an area of the cortex that helps control impulses (FIGURE 69.2). This reduction was especially apparent in those who murdered impulsively. In a follow-up study, Raine and his team (2000) found that violent repeat offenders had 11 percent less frontal lobe tissue than normal. This helps explain why people with antisocial personality disorder exhibit marked deficits in frontal lobe cognitive functions, such as planning, organization, and inhibition (Morgan & Lilienfeld, 2000). Compared with people who feel and display empathy, their brains also respond less to facial displays of others' distress (Deeley et al., 2006).

A biologically based fearlessness, as well as early environment, helps explain the reunion of long-separated sisters Joyce Lott, 27, and Mary Jones, 29—in a South Carolina prison where both were sent on drug charges. After a newspaper story about their reunion, their long-lost half-brother Frank Strickland called. He explained it would be a while before he could come see them—because he, too, was in jail, on drug, burglary, and larceny charges (Shepherd et al., 1990).

Genetics alone is hardly the whole story of antisocial crime, however. A study of criminal tendencies among young Danish men illustrates the usefulness of a complete biopsychosocial approach. Another Adrian Raine-led study (1996) checked criminal records on nearly 400 men at ages 20 to 22, knowing that these men either had experienced biological risk factors at birth (such as premature birth) or came from family backgrounds marked by

Figure 69.2

Murderous minds Researchers have found reduced activation in a murderer's frontal lobes. This brain area (shown in a left-facing brain) helps brake impulsive, aggressive behavior (Raine, 1999).



FYI

Does a full Moon trigger "madness" in some people? James Rotton and I. W. Kelly (1985) examined data from 37 studies that related lunar phase to crime, homicides, crisis calls, and mental hospital admissions. Their conclusion: There is virtually no evidence of "Moon madness." Nor does lunar phase correlate with suicides, assaults, emergency room visits, or traffic disasters (Martin et al., 1992; Raison et al., 1999).

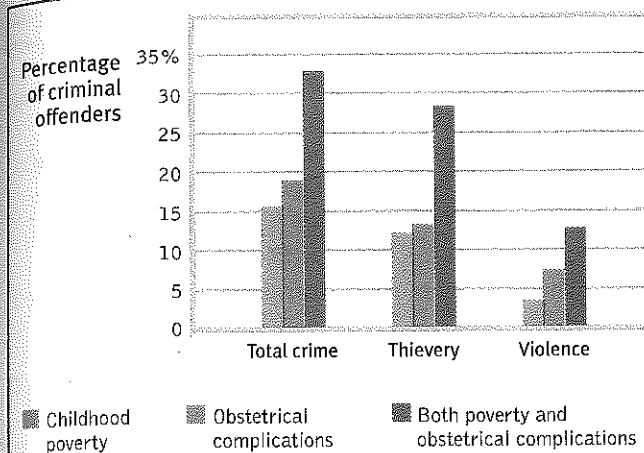


Figure 69.3

Biopsychosocial roots of crime Danish male babies whose backgrounds were marked both by obstetrical complications and social stresses associated with poverty were twice as likely to be criminal offenders by ages 20 to 22 as those in either the biological or social risk groups. (From Raine et al., 1996.)

poverty and family instability. The researchers then compared each of these two groups with a third *biosocial* group whose lives were marked by *both* the biological and social risk factors. The biosocial group had double the risk of committing a crime (FIGURE 69.3). Similar findings emerged from a famous study that followed 1037 children for a quarter-century: Two combined factors—childhood maltreatment and a gene that altered neurotransmitter balance—predicted antisocial problems (Caspi et al., 2002). Neither "bad" genes alone nor a "bad" environment alone predisposed later antisocial behavior. Rather, genes predisposed some children to be more sensitive to maltreatment. Within "genetically vulnerable segments of the population," environmental influences matter—for better or for worse (Belsky et al., 2007; Moffitt, 2005).

With antisocial behavior, as with so much else, nature and nurture interact and together leave their marks on the brain. To explore the neural basis of antisocial behavior, neuroscientists are identifying brain activity differences in criminals who display antisocial personality disorder. Shown emotionally evocative photographs, such as a man holding a knife to a woman's throat, they display lower heart rate and perspiration responses, and less activity in brain areas that typically respond to emotional stimuli (Harenski et al., 2010; Kiehl & Buckholz, 2010). They also display a hyper-reactive dopamine reward system that predisposes their impulsive drive to do something rewarding, despite the consequences (Buckholtz et al., 2010). Such data provide another reminder: Everything psychological is also biological.

Before You Move On

▶ ASK YOURSELF

Given what we have learned in earlier units about the powers and limits of parental influence, how much do you think parental training might affect the risk of a child's developing antisocial personality disorder?

▶ TEST YOURSELF

What contribution do genes make to the development of antisocial personality disorder?

Answers to the Test Yourself questions can be found in Appendix E at the end of the book.