

## Key Questions/ Chapter Outline

## Core Concepts

## Psychology Matters

### 14.1 What Causes Stress?

Traumatic Stressors  
Chronic Stressors

- Traumatic events, chronic lifestyle conditions, major life changes, and even minor hassles can all cause stress.

#### Student Stress

College students face some unique stressors, in addition to typical developmental stressors.

### 14.2 How Does Stress Affect Us Physically?

Physiological Responses to Stress  
Stress and the Immune System

- The physical stress response begins with arousal, which stimulates a series of physiological responses that in the short term are adaptive but that can turn harmful after prolonged stress.

#### Using Drugs for Stress Relief: A Costly Defense

Smoking is one of the most common defenses for stress, but causes more health problems than it solves.

### 14.3 Who Is Most Vulnerable to Stress?

Type A Personality and Hostility  
Locus of Control  
Hardiness  
Optimism  
Resilience

- Personality characteristics affect our individual responses to stressful situations and, consequently, on the degree to which we feel stress when exposed to potential stressors.

#### Using Psychology to Learn Psychology

Anyone—even people who don't think of themselves as "good writers"—can use writing as a valuable tool in the "coping strategies" toolbox.

### 14.4 How Can We Reduce the Impact of Stress on Our Health?

Psychological Coping Strategies  
Positive Lifestyle Choices: A "Two-for-One" Benefit to Your Health  
Putting It All Together: Developing Happiness and Subjective Well-Being

- Coping strategies reduce the impact of stress on our health, and positive lifestyle choices reduce both our perceived stress and its impact on our health.

#### Health Psychology and Behavioral Medicine

These exciting new fields focus on how psychological and social factors influence health, and also on how these same factors can be applied to successful prevention of illness.

## Critical Thinking Applied

### Is Change Really Hazardous to Your Health?

# chapter 14

## stress, health, and well-being



On September 11, 2001, at 8:46 A.M., retired firefighter Dennis Smith sat outside a New York clinic, waiting for his annual physical, when a nurse rushed in and announced that a plane had just crashed into the North tower of the World Trade Center in lower Manhattan (Smith, 2003b). The engine and ladder companies of New York's fire department (FDNY) were already responding to the alarms—trucks racing to the scene and firefighters running into the same buildings that hordes of people desperately sought to escape. Smith asked himself what conditions his coworkers were facing: the heat of the fire, the best access to the buildings, the stairwells' integrity. How many were already trapped inside and facing death?

One firefighter later described the chaos: "It looked like a movie scene, where the monster was coming . . . [W]e got showered with debris. . . . Things were hitting—bing, bang, boom—over your head" (Smith, 2003b, pp. 70–71). He had climbed high into the North Tower when the South Tower was hit, and "suddenly, there was this



*Firefighters and other emergency workers responding to the September 11 terrorist attacks needed to quickly determine the conditions they faced and the resources they had to meet those demands.*

loud, loud noise overhead.” He recalled huddling inside a stairwell, inventorying his resources: “I was thinking of my situation—what should I do, what can I do? What do I have that is positive? What tools do I have? . . . The main thing I had was my helmet. I remember thinking how important it was to have had that helmet. That was the biggie: the helmet, and holding on to my helmet . . .” (p. 75).

But the critical need for the helmet was forgotten in one ironic moment by Smith’s fellow firefighter, Father Mychael Judge. The FDNY chaplain was among the first to arrive and, after hearing that firefighters were trapped inside, rushed into the smoke. While performing last rites, he removed his helmet out of respectful habit—just as a shower of debris fell, killing him instantly (Downey, 2004).

In the weeks and months after the terrorist attacks, firefighters continued to search for bodies. They buried, memorialized, and mourned their brothers and sisters. Few of the 343 missing were ever recovered. Those who had made it—while others died just a few feet away—endured survivor’s guilt, ambivalent and uncertain why they deserved to live, asking themselves, “Why me?” Some developed symptoms of posttraumatic stress disorder (PTSD), reliving the terrifying moments of the disaster again and again. And the aftereffects of that day weren’t limited to those individuals personally involved: Millions of people around the world remained glued to their televisions for days, repeatedly watching the towers as they fell and hearing firsthand accounts from survivors.

The surviving firefighters continued to grieve. Many of them rejected false reverence or gloom in remembering their friends, preferring instead to laugh and joke about their fallen comrades’ quirks and screwups. Manhattan’s Engine 40/Ladder 35 lost 12 firefighters, more than any other firehouse, and like everyone else, wondered what really happened to the missing victims. Then, five months after 9/11, the members of 40/35 learned of a news tape that appeared to show their 12 lost partners entering the tower minutes before it collapsed on them. The video had been shot at a distance, but the moving figures gradually became recognizable. Staring intently at the screen, the surviving firefighters gazed once more on friends who had not returned. They played the video over and over again (Halberstam, 2002).

**PROBLEM:** Were the reactions and experiences of the 9/11 firefighters and others at the World Trade Center attacks typical of people in stressful situations? And what factors explain individual differences in our physical and psychological responses to stress?

Of course, running into a falling building is not a typical human response; rather, it is a learned response of trained rescue workers. But what about the survivor’s guilt and PTSD, or the repeated viewing of the disaster on websites and televisions around the world—are these “normal” stress responses? What connections can we make between these reactions and our own reactions to stress? In considering these questions, several related issues emerge:

- Stress isn’t limited to major tragedies, traumas, and disasters. All of us encounter potentially stressful situations in our everyday lives—at our jobs, in our relationships, at school, in traffic, or as the result of illness. Have you ever noticed, though, that some people seem to get “stressed out” at even minor annoyances, while others appear calm, cool, and collected even in a crisis situation? In addition, some people bounce back quickly after major stress, in contrast to others who have trouble regaining their equilibrium. How can we explain these individual differences in our reactions to stress?

- We must also consider how our stress responses have evolved over the years and millenia and how they aid our survival. Many cultures today live much faster-paced lives than those of previous generations. Are the stresses we face today similar to those faced by our ancient ancestors? What impact might the differences in our environments have on the effectiveness of our stress response?
- Multiple perspectives are necessary to understand our human response to stress. What goes on in the body and the brain that influence our reactions to stress? And how are these physiological responses mediated by our thought processes, our prior learning, our personality, our stage in life, and our social context? (See Figure 14.1.)
- Finally, to what extent do we have control over our own reactions to stress and to the potential toll that stress is taking on our physical and our mental health? Are we “stuck” with our current stress level, or are there specific changes we can make that are guaranteed to help us meet the challenges of stress more effectively?

As we explore these questions in this chapter, keep in mind the stresses you have faced and consider how this information can help you understand the sources of stress in your life—and improve the way you perceive and manage that stress.

## 14.1 KEY QUESTION WHAT CAUSES STRESS?

What images come to mind when you hear the word *stress*? Most people think of the pressures in their lives: difficult jobs, unhappy relationships, financial woes, health problems, and final exams. You may have some visceral associations with stress, too: a churning stomach, perspiration, headache, or tension in your neck or upper back. We use the word *stress* loosely in everyday conversation, referring to a situation that confronts us (Lazarus et al., 1985). For example, if your employer or professor has been giving you a difficult time, you may say that you are “under stress,” as though you were being squashed by a heavy object. You may also say you are “feeling stress” as a result. Thus, in everyday conversation, we use the word *stress* to refer both to an external threat and to the response we feel when exposed to it.

Psychologists, however, make a distinction between the pressure or event that causes stress and its impact on us as individuals. External events or situations that cause stress are referred to as **stressors**. The word **stress** denotes the physical and mental changes that occur in response to the stressor (Krantz et al., 1985). Thus, a stressor is the large, angry man climbing out of the car you just bashed into; stress is your response to that large, angry man—your racing heart, shaky hands, and sudden perspiration.

What are the common stressors faced by humans today? We begin this chapter with a review of the stressors that research has found to have the most impact on us. These include everything from petty hassles to relationship problems to terrorist attacks, as noted in our Core Concept for this section:

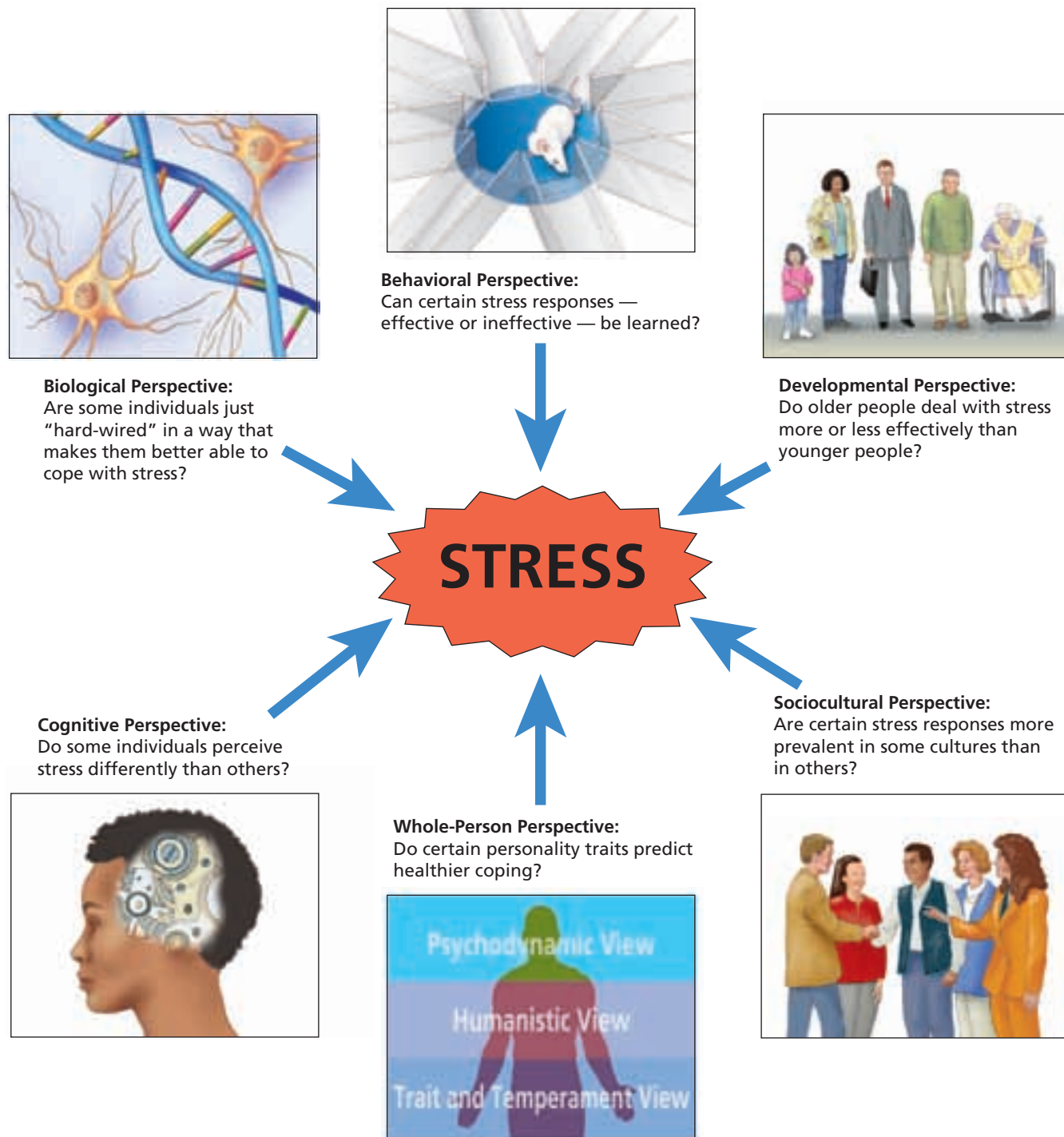
**Traumatic events, chronic lifestyle conditions, major life changes, and even minor hassles can all cause stress.**

### core concept

**Stressor** A stressful event or situation.

**Stress** The physical and mental response to a stressor.

Before embarking on our discussion of stressors, we should first recall the concept of cognitive interpretation from our study of emotion in Chapter 9. There, we learned that a key component in our emotional response to a situation is the interpretation we make of that situation. Stress is a type of emotional response—



**FIGURE 14.1**  
The Multiple Perspectives Applied to Stress

This figure suggests just a few examples of the many ways that multiple perspectives are necessary to understand the complex nature of stress.

**CONNECTION • CHAPTER 13**  
*Cognitive reappraisal* is at the heart of cognitive behavioral therapy.

**Cognitive appraisal** Our interpretation of a stressor and our resources for dealing with it.

consequently, **cognitive appraisal** or interpretation plays an important role in the degree of stress we feel when faced with a stressor. As we will see later in this chapter, cognitive appraisal accounts for some of the individual differences we see in how people respond to stressors. In the previous paragraph, for example, a person who felt entirely capable of defending himself against a large angry man may interpret that situation as less stressful (and thus feel less stress) than a person who felt defenseless.

To make an effective appraisal of the situation, we must have a concrete understanding of the nature of the threat. For example, the victims of the 9/11 terrorist attacks indisputably experienced stress, recognizing the specific dangers in which they were immersed. But much later, any person might also feel some stress when the Homeland Security Advisory System announces an increase from Yellow to Orange Alert. These color-coded warnings cannot in themselves harm anyone, but each successive color symbolizes an increasing level of threat. If you know and accept the psychological meaning of the color alerts, you experience stress, although it may not be clear how you should behave or what you should do differently under Orange as opposed to Yellow conditions (Zimbardo, 2004a). This uncertainty can add to the perceived stress of the situation. The key role of interpretation, and its dependence on the context of the world we live in, suggests how both severe trauma and vague threats can evoke the same human stress response

## Traumatic Stressors

Catastrophic events, such as natural disasters and terrorist attacks, qualify as **traumatic stressors**—situations that threaten your own or others' physical safety, arousing feelings of fear, horror, or helplessness. On a more personal level, a sudden major life change, such as the loss of a loved one, constitutes a trauma as well—despite the fact that death and separation are likely to affect everyone at some time. We will examine traumatic stress by first considering natural and human-made catastrophes, then personal loss, and finally posttraumatic stress.

**Catastrophe** In August 2005, Hurricane Katrina devastated the city of New Orleans and the surrounding areas. In May 2008, a massive earthquake in China killed more than 67,000 people. Natural disasters such as this, as well as human-made tragedies like terrorist attacks and warfare, comprise the category of traumatic stressors known as **catastrophic events**. These sudden, violent calamities are inevitably accompanied by extreme stress and loss: Anyone caught up in such a catastrophic event can lose loved ones or possessions. Less obvious is the fact that one's response to a catastrophe can have devastating effects on physical and mental health, which creates additional stress. Moreover, the consequences can last far longer than the original event, as in the weeks after 9/11, when firefighters and emergency workers sometimes found themselves reliving the events in nightmares and in daytime flashbacks.

Studies of catastrophe survivors provide some insight into the various ways individuals respond to these ordeals (Asarnow et al., 1999; Sprang, 1999). It's worth noting here that research of this type is difficult: Ethics prevent psychologists from creating disastrous events to study their effects on volunteer subjects. Instead, researchers must get to the scene immediately after the catastrophe, hearing the story from survivors while it is fresh in their minds.

**A Laboratory for Disaster** One opportunity to understand disaster response presented itself in San Francisco in the early fall of 1989, just as the baseball World Series was about to begin at Candlestick Park. Spectators were settling into their seats when the entire stadium began to shake violently, the lights went out, and the scoreboard turned black. Sixty thousand fans fell silent. They were experiencing a major earthquake. Elsewhere in the city, fires erupted, a bridge collapsed, highways were crushed—and people were dying.

One week after the quake, a team of research psychologists began a series of follow-up surveys with about 800 regional residents. Survey responses revealed a pattern: The lives of respondents who experienced the earthquake continued to revolve heavily around the disaster for about a month. After this period, they ceased obsessing about the quake, but at the same time reported an increase in other stress-related symptoms including sleep disruption and relationship

**Traumatic stressor** A situation that threatens one's physical safety, arousing feelings of fear, horror, or helplessness.

**Catastrophic event** A sudden, violent calamity, either natural or man-made, that causes trauma.



*Survivors of catastrophic events, such as the May 2008 earthquake in China, often suffer long-term psychological effects.*

problems. Some survivors relived the trauma in frequent nightmares about earthquakes (Wood et al., 1992). Over the next two months, most symptoms diminished, although one year later as many as 20% of San Francisco area residents remained distressed about the quake (Pennebaker & Harber, 1991).

Both natural disasters and human-made catastrophes are violent, destroying life and property in the affected area. But human-made catastrophes such as massive crime and terrorism have an added dimension of threat because they are produced intentionally by other people. **Terrorism** has been defined as a type of disaster caused by “human malevolence” with the goal of disrupting society by creating fear and danger (Hall et al., 2002). Like survivors of natural disasters, terrorism survivors report elevated symptoms of distress that substantially subside after several months (Galea et al., 2003). What appears to be different about the experience of surviving a terror attack, however, is the long-term change in perception of threat. Studies of individuals affected—both directly and indirectly—by the 9/11 attacks in America or by the 2005 bombings at the underground train station in London found that 50 to 75% continued to worry about the safety of themselves and their family for a year or more following the attack (Rubin et al., 2005; Torabi & Seo, 2004; Weissman et al., 2005).

**Psychological Response to Catastrophe** Psychological responses to extreme natural and human-caused disasters have been theorized to occur in stages, as victims experience shock, feel intense emotion, and struggle to reorganize their lives (Beigel & Berren, 1985; Horowitz, 1997). Cohen and Ahearn (1980) identified five stages that we pass through:

1. Immediately after the event, victims experience *psychic numbness*, including shock and confusion, and for moments to days cannot comprehend what has happened.
2. During a phase of *automatic action*, victims have little awareness of their own experiences and later show poor recall for what occurred. This phase is worsened by a lack of preparedness, delaying rescue and costing lives.
3. In the third stage of *communal effort*, people pool resources and collaborate, proud of their accomplishments but also weary and aware they are using up precious energy reserves. Without better planning, many survivors lose hope and initiative for rebuilding their lives.
4. In the fourth phase, survivors may experience a *letdown* as, depleted of energy, they comprehend and feel the tragedy’s impact. Public interest and media attention fade, and survivors feel abandoned although the state of emergency continues.
5. An extended final period of *recovery* follows as survivors adapt to the changes created by the disaster. The fabric of the community will change as the natural and business environment are altered. After both 9/11 and Hurricane Katrina, survivors demanded to know how the catastrophes could have happened in the first place—reflecting a basic need to know “why?” and to find meaning in loss.

**Terrorism** A type of disaster caused by human malevolence with the goal of disrupting society by creating fear and danger.

**Narrative** A personal account of a stressful event that describes our interpretation of what happened and why.

#### CONNECTION • CHAPTER 6

*Stage theories* emphasize distinctive changes that occur as one develops or progresses through a life stage or event.

Keep in mind, however, that stage theories don’t necessarily apply to the entire population, but attempt to summarize commonalities among experiences. In this instance, stage theories of stress response are useful because they help us to anticipate what survivors may go through and what kinds of assistance they may need.

Research also indicates the importance of **narratives** in working through catastrophic experiences. To learn from and make sense of catastrophic loss, we formulate accounts that describe what happened and why. These stories help us to explain ourselves to each other; and, in fact, sharing them may reflect a basic human need to be understood by those close to us (Harvey, 1996; Harvey et al., 1990). We are especially likely to develop narratives when an event is surpris-

ing or unpleasant (Holtzworth-Munroe & Jacobson, 1985). By confiding our stories to others, we begin to work through the pain of loss (Harvey, 2000; Weber & Harvey, 1994b). And, as we'll see later in this chapter, narratives help us find meaning in loss, which facilitates healing.

Catastrophic events merit extended news coverage, and in this Internet Age the sounds and images of others' pain are broadcast and viewed repeatedly. Viewers are not immune to such programs, however, and may experience a sort of "secondhand" traumatization.

**Trauma in the Media** Media news coverage expands the experience of catastrophe, so all viewers can experience it. How many times did you watch the towers collapsing on 9/11? Recall that, in our opening story, surviving members of the Manhattan firefighters' crew repeatedly viewed a videotape showing their now-dead comrades rushing into the World Trade Center just before the building collapsed. At last they knew for certain the fate of their friends. But was repeated viewing really therapeutic for them? Conventional wisdom suggests that identifying the figures on the tape as their friends might give them some closure, and their friends' heroism could help them find meaning in tragedy.

But there is a dark side to the "instant replay" of catastrophe. While New York firefighters were responding to the terrorist attacks, a research team in Washington state was conducting a longitudinal (long-term) study of firefighters in their region. Though safely distant from the dangers in the East, firefighters in the study could still experience the events of the eastern United States via the media, especially the extended television coverage of the Twin Towers' collapse. Counselors and therapists had already found that secondhand experiences of catastrophe could create severe stress for emergency rescue and medical workers who merely heard or watched others' trauma (McCann & Pearlman, 1990; Pearlman & Mac Ian, 1995). The Washington researchers found that, one week after 9/11, firefighters in their study were significantly stressed by constant news of the terrorist attacks. What were the signs of stress? They perceived greater personal risk and threat from their jobs than they had before. They questioned their own competence in handling mass casualties, and they felt dissatisfied with the level of social support available on the job (Murphy et al., 2004). Thus, just being exposed to media coverage of such intense, relevant news had brought the catastrophe home to these firefighters 3000 miles away from Ground Zero.

This research dovetails with findings about the impact of media coverage on Americans all over the country. Even those who had no direct connection to the attack felt the effects, even though they didn't live in or near New York, they didn't have friends or loved ones in that area, and their jobs and lives weren't affected by the situation. In a nationwide survey conducted one week after the catastrophe, a whopping 90% reported experiencing at least one symptom of stress (Schuster et al., 2001). Moreover, a team of prominent dream researchers found that people who watched more television coverage were more likely to have dreams containing images of the tragedy. Significantly, participants in that same dream study who spent time talking with others about the tragedy—presumably working through it, similar to the process of narratives—did not experience increased dreams about the attack (Propper et al., 2007). It is possible that repeated media viewing of catastrophe increases arousal, while talking about it with others may provide an opportunity to share feelings and thus ameliorate the effects to some degree.

**Vicarious Traumatization** Clearly, then, revisiting and reliving catastrophe causes its own stress. **Vicarious traumatization** is severe stress caused when one is exposed to others' accounts of trauma and the observer becomes captivated by it (McCann & Pearlman, 1990). Whether it be plane crashes, riots in a far-off country, or natural disasters, what matters is the amount of exposure: Schuster and colleagues (2001) found that the more hours viewers had spent watching television coverage of the

#### CONNECTION • CHAPTER 8

One prominent theory of dreams asserts that dreams reflect current concerns.

**Vicarious traumatization** Severe stress caused by exposure to traumatic images or stories that cause the observer to become engaged with the stressful material.



9/11 attacks, the more likely they were to report stress symptoms later. By reliving the disaster, heavy viewers of media coverage, including those who lived safely distant from the actual disaster site, nonetheless became engaged with the victims' suffering and experienced measurable stress as a result.

Repeated exposure to bad news can do more harm than good. One way to reduce vicarious stress in your own life is to go on a "news diet": Stop reading and watching news for a while. Bestselling author-physician Andrew Weil recommends that, after only a few days without (mostly bad) news, you will feel healthier, happier, and more in control of your life (Weil, 1998). A useful lesson is to be choosy about news and about where you get it: Some "news" channels present more emotion than information.

Statistically, if you live in the United States, your chances of experiencing catastrophic trauma remain low. However, other traumatic stressors are not so uncommon. For example, at some point in our lives, we are all likely to experience the loss of someone close to us. Loss is one of the great levelers of human experience, similarly affecting individuals in every part of the world, of every circumstance. Let us now turn to an examination of the effects of such loss on our stress and health.

**Personal Loss** Like many other species, humans are social creatures: We depend on each other for survival. The loss of a loved one is severely stressful, even if it is anticipated (such as after a long illness). A sudden, unexpected loss is traumatic: In a rated listing of life changes at the end of this section, you will see "death of spouse" listed as the most stressful of all life changes (Holmes & Rahe, 1967; Scully et al., 2000). **Grief** is the emotional response to loss, a painful complex of feelings including sadness, anger, helplessness, guilt, and despair (Raphael, 1984). Whether you are grieving the death of a loved one, the breakup of a romantic relationship, or the betrayal of a trusted friend, you experience the pain of separation and loneliness and have a number of difficult questions to ponder. We seek to come to terms with the loss, make sense of it and understand what it means (Davis & Nolen-Hoeksema, 2001; Neimeyer et al., 2002). Some of our core assumptions about life may be challenged, and we may be forced to adapt to a different reality (Parkes, 2001). As a result, our identities and future plans may be permanently altered (Davis et al., 1998; Janoff-Bulman, 1992).

Psychologists view grieving as a normal, healthy process of adapting to a major life change, with no "right" method or time period (Gilbert, 1996; Neimeyer, 1995, 1999). Some experts recommend achieving closure, a Gestalt term for perceiving an incomplete stimulus as complete. But grief psychologists oppose the goal of closing off the pain and memories of loss and instead recommend **integration**. To understand this, think for a moment about someone you have lost: Perhaps you have "gotten over" it and don't think about it much any more—yet it is still there in your memory, with some images, emotions, and thoughts still vivid and accessible and still part of who you are (Harvey, 1996; Harvey et al., 1990). Thus, the final phase of grieving is more accurately thought of as an ongoing process of integration, in which each life loss becomes a part of the self (Murray, 2002).

Everyone will experience loss at some time, but we never get used to it: Personal loss is a serious stressor, creating change and triggering the stress response. The mourning process also requires you to interact socially at a time when you feel especially vulnerable and socially withdrawn. Ironically, friends' offers of help or sympathy can sometimes add to the stress of the loss. Hollander (2004) writes of losing first her husband and then, a few months later, her mother. "Am I all right? Everyone seems to be asking me that. . . . Often I find I don't know how to respond to the question" (pp. 201–202). Her friends feel uncomfortable when she weeps openly, and they encourage her to cheer up, to be herself again. Hollander concludes that her pain cannot and must not be rushed: "Closure is not my goal. . . . I am all right exactly because I weep" (p. 204).

#### CONNECTION • CHAPTER 1

*Gestalt psychologists study how we construct perceptual wholes.*

**Grief** The emotional response to loss, which includes sadness, anger, helplessness, guilt, and despair.

**Integration** A final phase of grieving, in which the loss becomes incorporated into the self.

**Humiliation as Loss** Which would be more stressful: losing your romantic partner when he or she dies, or having that person leave you? Both tragedies involve losing your partner, but in addition, being rejected and left by someone involves not only grief but humiliation. One study interviewed thousands of adults, categorizing their experiences of loss and other life event stressors and diagnosing symptoms of major depression or anxiety. Results indicated that rejected respondents were more likely to suffer from depression than those whose partners had died (Kendler et al., 2003). In discussing their findings, researchers observed that the death of one's partner is a "pure loss event," which does not represent a failure or deficiency on the part of the grieving person. In contrast, being left by your spouse "raises issues . . . [such] as humiliation, which is usually seen as the loss of status, the loss of a sense of self-esteem and the loss of a sense of your own worth" (National Public Radio, 2003a). Such humiliation, rather than the loss itself, they conclude, is a key cause of depression.

Why do we feel so bad about humiliation? Animal studies reveal that in primate colonies, individuals who lose status withdraw, lose their appetite, and become more submissive. In evolutionary terms, the loss of social status threatens survival and has serious consequences. By taking action to prevent such losses, humans and other primates who suffer because of humiliation can increase their chances of adaptation and survival. Perhaps rejection makes us feel bad because we *need* to feel bad; in other words, perhaps the depression or loss of self-esteem that comes with rejection keeps us from entering into unwise or insecure partnerships, thus protecting us from further rejection or humiliation.

**Disenfranchised Grief** Grief is also especially stressful when others minimize your loss and fail to sympathize. Experiences such as death, divorce, and trauma are recognized with formal condolences, such as funerals or hospital visits, and professional attention from undertakers, attorneys, and physicians (Lensing, 2001). But other painful losses, with no official "status"—such as a nonmarital breakup or the death of a beloved pet—may be ignored or dismissed by the community. These marginalized losses can leave you feeling alone and bereft of social support (Harist, 2003). For example, adults who grieve after a miscarriage, young adults who have lost friends, and children saddened by the death of a favorite TV or movie star may find themselves alone in their sorrow, getting little sympathy or understanding from others. Their **disenfranchised grief** cannot be mourned through public rituals like memorials or funerals. Fearing others' reactions and unsure whom they might talk to, disenfranchised grievers may try to hide their sorrow—but continue to suffer (Doka, 1989, 1995; Rickgarn, 1996).

Experiencing such pain while feeling unable to confide in others can create additional feelings of mistrust, betrayal, and withdrawal. Confiding in others has been found to help enormously in coping with loss and trauma (Harvey, 1996; Pennebaker, 1990). During these times, it is important to keep in mind the role of professional counselors or psychotherapists, who might be counted on to take your pain seriously. Also, it is also therapeutically worthwhile to "confide" in other ways, such as by keeping a written journal of your feelings (see the "Psychology Matters," later in this chapter).

**Posttraumatic Stress** Individuals who have undergone severe ordeals—rape, combat, beatings, or torture, for example—may experience a belated pattern of stress symptoms that can appear months, or even years, after their trauma. In **posttraumatic stress disorder (PTSD)**, the individual reexperiences mental and physical responses that accompanied the trauma. Nearly one adult in 12 in the United States will experience PTSD at some time in his or her life, with symptoms lasting more than ten years in over one-third of cases. Traumas described by PTSD victims most frequently include having witnessed another person being killed or badly injured, having lived through a natural disaster, and having survived a life-threatening accident. Men cite more experiences of physical attack, military combat,

**Disenfranchised grief** The emotion surrounding a loss that others do not support, share, or understand.

**Posttraumatic stress disorder (PTSD)** A delayed stress reaction in which an individual involuntarily reexperiences emotional, cognitive, and behavioral aspects of past trauma.

disaster or fire, or being held captive or hostage, whereas women cite more experiences of rape, sexual molestation, physical abuse, and neglect during childhood (Bower, 1995a). Women are more likely than men to develop symptoms of PTSD after experiencing a traumatic event (Tolin & Foa, 2006), and Hispanic Americans are more at risk than non-Hispanic Caucasian or black Americans (Pole et al., 2005).

**What Are the Symptoms of PTSD?** Victims of posttraumatic stress disorder typically become distracted, disorganized, and experience memory difficulties (Arnsten, 1998). They become emotionally numb and are less likely to feel pleasure from positive events. They may also feel alienated from other people. The emotional pain of this reaction can result in various symptoms, such as problems with sleeping, guilt about surviving, difficulty concentrating, and an exaggerated “startle response” (wide-eyed, gasping, surprised behavior displayed when one perceives a sudden threat). Rape survivors, for example, may experience a barrage of psychological aftereffects, including feelings of betrayal by people close to them, anger about having been victimized, and fear of being alone (Baron & Straus, 1985; Cann et al., 1981).

Posttraumatic stress disorder can also have lasting biological consequences (Crowell, 2002; Sapolsky, 1998). The brain may undergo physical changes when the stress is extreme in intensity or duration. Specifically, the brain’s hormone-regulating system may develop hair-trigger responsiveness, making the victim of posttraumatic stress overreact to mild stressors or even harmless but surprising stimulation.

**PTSD in Combat Personnel** While the term *posttraumatic stress disorder* was coined fairly recently, historical accounts have noted similar symptoms referred to as “combat fatigue,” “shell-shock,” or “soldier’s heart” in soldiers for centuries. In the wake of the Vietnam War, where early estimates noted symptoms of PTSD in 30% of combat veterans, public attention on the disorder grew. Military psychologists now provide at least some minimal treatment for combat-related stress at deployment sites in Iraq, for instance, and a variety of educational programs aim to help soldiers and their families prepare more effectively for deployment and to cope better with the aftermath of war once the soldiers have returned home. And even though the military cultural norm has historically taught soldiers not to talk about combat experiences, which contributed to the stigma most veterans felt about asking for help with psychological symptoms, these new programs are helping participants slowly overcome that barrier to effective coping. A program entitled Battlemind, for example, was developed to help soldiers develop realistic expectations of deployment prior to combat and also to help them readjust to life at home when they return from deployment. Initial research indicates that soldiers who participate in Battlemind report fewer symptoms of PTSD than their comrades who receive more traditional training (Munsey, 2007).

The increased scrutiny on PTSD in combat personnel has also unearthed a fascinating new finding about the brain’s role in certain PTSD symptoms. Prompted by the groundbreaking research of neurologist Ibolja Cernak, U.S. military doctors now recognize that soldiers who were exposed to an explosion often develop cognitive symptoms such as memory loss, reduced ability to concentrate, slowed reaction time, and difficulty performing simple math tasks—even if the soldier wasn’t hit by the blast. While researchers are still unsure exactly how the brain is affected by the blast, there is general agreement that the force of the explosion causes damage to brain functioning. Up to 20% of soldiers returning from Iraq and Afghanistan are estimated to suffer from some type of traumatic brain injury such as this, and researchers now think that neurological effects of blast exposure may account for the cognitive deficits seen in some veterans diagnosed with PTSD (Bhattacharjee, 2008).

## Chronic Stressors

The traumatic stressors reviewed in the previous section—catastrophe, personal loss, and posttraumatic stress—involve an event that, like the 9/11 attack, occurs abruptly, intensely, and is typically short-lived in nature. In contrast, **chronic stressors** are stressful conditions that may have a gradual onset and lower intensity but are long-lasting. They may involve a major life change such as a divorce, long-term living conditions like poverty or a demanding job, or minor recurrent problems that accumulate over a long period—like the proverbial straws on the camel’s back. Here we examine five chronic stressors: societal stressors, burnout, compassion fatigue, major life changes, and daily hassles.

**Societal Stressors** For most of us, stress comes not from sudden catastrophic events but from **societal stressors**, which are pressures in our social, cultural, and economic environment. These societal stressors often involve difficulties at home, work, or school that are chronic (recurring or continuing over time). Societal stressors also include unemployment, poverty, racism, and other conditions and conflicts that handicap or oppress individuals because of their social group or status.

For example, a study of unemployed men revealed more depression, anxiety, and worries about health than men who had jobs. Almost miraculously, these symptoms usually disappeared when the unemployed individuals found work (Liem & Rayman, 1982). Prejudice and discrimination, too, can be significant sources of stress (Contrada et al., 2000). For example, high blood pressure among African Americans—long thought to be primarily genetic—is correlated with the chronic stress caused by menial jobs, limited education, and low socioeconomic status (Klag et al., 1991). And people living in poverty have less access to good health care; they are also more likely to live in areas containing greater health hazards such as environmental pollutants and even noise—which affects cognitive development in children as well as a variety of physical and emotional factors in adults (Evans et al., 1998; Staples, 1996).

**Burnout** Having a job, however—even a high-paying one—does not inoculate one against stress. On the contrary, it can create stress of its own both emotionally and physically. In fact, for many people, the greatest source of chronic stress involves the pressures of work. Continually stressful work can lead to **burnout**, a syndrome of emotional exhaustion, physical fatigue, and cognitive weariness (Shirom, 2003). Christina Maslach (1998, 2003; Maslach et al., 2001), a leading researcher on this widespread problem, notes that burnout was first recognized in professions demanding high-intensity interpersonal contact, such as physicians with patients, teachers with students, and social workers with clients. And we now know that burnout can occur anywhere—even among college students, stay-at-home parents, or volunteer workers. People experiencing burnout report feelings of detachment, failure, and cynicism about coworkers and clients. They seek escape and avoid their work, leading to decreased personal accomplishment. Burnout has been found to correlate with absenteeism, job turnover, impaired performance, poor coworker relations, family problems, and decreased personal health (Maslach & Leiter, 1997; Schaufeli et al., 1993).

Is burnout inevitable in human service professions? It appears to arise from conditions ranging from long hours and heavy workloads to abusive coworkers, manager, and clients. Nearly three-quarters of all employees identify the worst aspect of their job as their immediate supervisor (Hogan et al., 1994).

Burnout is often misunderstood as a personal problem—almost a weakness in character—when in reality it more likely signifies a weakness in the organization rather than the individual employee (Leiter & Maslach, 2000; Maslach et al., 2001). Faced with stiff competition and corporate downsizing, employers may use “Band-Aid” measures, such as stress-management workshops for employees, rather than addressing real sources of burnout, such as poor working conditions. But effective burnout prevention requires both managers and



*Societal stressors include unemployment, homelessness, and discrimination. Such conditions can exact a toll on both mental and physical health.*

**Chronic stressor** Long-lasting stressful condition.

**Societal stressor** A chronic stressor resulting from pressure in one’s social, cultural, or economic environment.

**Burnout** A syndrome of emotional exhaustion, physical fatigue, and cognitive weariness, often related to work.

workers to take responsibility for developing conditions that improve engagement with the job and create a better “fit” between employee and job, and by making decisions that focus on the long-term health of the employees and the organization (Berglas, 2001; Maslach & Goldberg, 1998).

**Compassion Fatigue** After 9/11, New York Ladder Company 5’s Lieutenant O’Neill joined others in day after day of fruitless rescue searches. One day, instead of going home, O’Neill checked into a hospital and asked for help with the stress-related symptoms he was experiencing. He met with a doctor to whom he poured out the story of the horrors he had seen. Contrary to O’Neill’s assumption that, as a doctor, “He . . . could handle this,” the doctor himself went to the hospital psychologist after treating O’Neill. “[H]e kind of lost it,” O’Neill learned. “He had become freaked out from the story I told him, because he lost a friend from the tragedy. . . . He didn’t show up for work for a couple of days” (Smith, 2003b, p. 259). Even medical professionals and therapists, though trained to be objective, are still very much at risk for the stress of vicarious traumatization (Sabin-Farrell & Turpin, 2003).

You, as a student of psychology, might well imagine the work of psychotherapists and counselors working with victims of trauma and abuse. If merely watching bad news on television can cause vicarious trauma, what are the effects of jobs that require a person to deal with bad news every day? When medical professionals, caregivers, and therapists are overexposed to trauma and its victims, they are at risk for **compassion fatigue**, a state of exhaustion that leaves caregivers feeling stressed, numb, or indifferent to those in need (Figley, 2002).

Compassion fatigue is also called *secondary traumatic stress* because it afflicts the helpers, who “catch” the stress suffered by the victims. The consequences are similar to those of burnout in that it leaves people unhappy with their work and resistant to contact with the people they are supposed to help. Fatigued helpers develop symptoms of stress and illness, and withdraw emotionally from their clients. Dreading further stories of trauma, they overuse the “silencing response,” distracting, minimizing, or redirecting what their clients are saying to reduce their own discomfort and pain (Baranowsky, 2002). When therapists feel they are unable to listen to their clients, they can no longer function as therapists. Compassion fatigue and burnout harm not only the providers and receivers of care and attention but entire professions as well. Fortunately, healers can learn the warning signs in time to take action—and researchers have been able to suggest what kinds of action to take:

- First, caregivers must focus on supporting their sense of **compassion satisfaction**, an appreciation of the work they do as helpers that drew them to their professions in the first place. Compassion satisfaction can be increased by creating and maintaining a sense of team spirit with coworkers. Also, whenever possible, caregivers and rescue workers should be able to see clients recover so they realize their work is effective (Collins & Long, 2003).
- While it is important to care for those one is helping, helpers must monitor and avoid becoming overinvolved, or their lack of control over most of their clients’ experiences will facilitate a sense of defeat (Keidel, 2002).
- When new at their work, trauma counselors may simply distance themselves from stressful exchanges; more experienced workers are better able to cope directly with their own stress (Pinto, 2003).
- Caregivers should resist overvolunteering. Volunteers who worked with more than one agency or effort after 9/11 were at greater risk for compassion fatigue than those who volunteered with only one organization, such as the American Red Cross (Roberts et al., 2003).
- Finally, professional helpers and emergency workers should use humor—but use it carefully! While tasteless jokes and black humor with fellow workers

**Compassion fatigue** A state of exhaustion experienced by medical and psychological professionals, as well as caregivers, which leaves the individual feeling stressed, numb, or indifferent.

**Compassion satisfaction** A sense of appreciation felt by a caregiver, medical or psychological professional, of the work he or she does.

can relieve some anxiety and establish a sense of sharing and teamwork among coworkers, workers must be cautious in their use of these types of humor. Because it is not publicly acceptable to laugh in the face of tragedy, humor should be expressed selectively, with sensitivity to the environment, so as not to offend or further hurt those already suffering (Moran, 2002).

**Major Life Events** The beginning or end of a relationship is always a time of adjustment, accompanied by emotional ups and downs, tension, and turmoil. Earlier in this section, for example, we discussed the impact of sudden loss on stress. Other changes can cause stress, too: a new job, starting or finishing college, or—ironically—even taking a vacation! Even events that we welcome, such as the birth of a child, often require major changes in our routines and adaptations to new demands and lifestyles. Especially when the events are considered positive events (such as an exciting new job or getting married), we may not recognize their potential impact on our stress level.

What if there were a simple questionnaire you could complete that would assess your current stress level? Several decades ago, psychologists Thomas Holmes and Richard Rahe (pronounced “Ray”) developed just such a tool. They first identified a variety of common stressful events and had a large number of respondents rate the events in terms of how stressful each one was in their own lives. After analyzing all the results, they created the **Social Readjustment Rating Scale (SRRS)**, which lists 43 life events—ranging from death of a spouse at the high end, to pregnancy or a new job in the middle, to getting a traffic ticket at the low end. Each life event is assigned a particular number of life-change units (LCUs), so you can calculate your current stress level by adding up the LCUs for each life change you have recently experienced.

Research has indeed found relationships between life changes and stress. The birth of a child, for example, is often associated with lower marital satisfaction (Cowan & Cowan, 1988). Since it was developed, the SRRS has been used in thousands of studies worldwide and has been found to apply cross-culturally. We must be cautious in interpreting our scores, though, in light of what we know about the role of cognitive appraisal in stress. We will examine the SRRS more closely at the end of this chapter, but for now you can assess yourself in the “Do It Yourself!” box on the next page. You may want to compare your scores with those of your classmates and consider how your individual interpretations of your recent life changes may be mediating the link between the changes and your own stress level.

**Daily Hassles** After a difficult workday, you get stuck in a traffic jam on your way to the grocery store. Finally arriving, you find they don’t have the very item or brand you wanted. After selecting a substitute, you proceed to the checkout, only to be snapped at by an impatient clerk when you don’t have exact change. Taken individually, such minor irritations and frustrations, known as **hassles**, don’t seem like much in comparison to a natural disaster. But psychologists confirm that hassles can accumulate, especially when they are frequent and involve interpersonal conflicts (Bolger et al., 1989).

Any annoying incident can be a hassle, but some of the most common hassles involve frustrations—the blocking of some desired goal—at home, work, or school. In a diary study, a group of men and women kept track of their daily hassles over a one-year period, also recording major life changes and physical symptoms. A clear relationship emerged between hassles and health problems: The more frequent and intense the hassles people reported, the poorer their health, both physical and mental (Lazarus, 1981; 1984; 1999). The opposite was also true: As daily hassles diminish, people’s sense of well-being increases (Chamberlain & Zika, 1990). Thus, a life filled with hassles can exact as great a price as that of a single, more intense, stressor (Weinberger et al., 1987).

**Social Readjustment Rating Scale (SRRS)** Psychological rating scale designed to measure stress levels by attaching numerical values to common life changes.

**Hassle** Situation that causes minor irritation or frustration.

**DO IT YOURSELF!****The Social Readjustment Rating Scale (SRRS)**

For each of the following events, multiply the life-change units rating times the number of times that event occurred in your life in the past year. Add your scores for all items completed to compute your total.

Event	Life-change units	Your score
Death of spouse	100	_____
Divorce	73	_____
Marital separation	65	_____
Jail term	63	_____
Death of close family member	63	_____
Personal injury or illness	53	_____
Marriage	50	_____
Being fired	47	_____
Marital reconciliation	45	_____
Retirement	45	_____
Change in health of family member	44	_____
Pregnancy	40	_____
Sex difficulties	39	_____
Gain of new family member	39	_____
Business readjustment	39	_____
Change in financial state	38	_____
Death of close friend	37	_____
Change to different line of work	36	_____
Change in number of arguments with spouse	35	_____
*Home mortgage over \$100,000	31	_____
Foreclosure of mortgage or loan	30	_____
Change in responsibilities at work	29	_____
Son or daughter leaving home	29	_____
Trouble with in-laws	29	_____
Outstanding personal achievement	28	_____
*Spouse beginning/stopping work	26	_____

Event	Life-change units	Your score
Beginning or ending school	26	_____
Change in living conditions	25	_____
Revision of personal habits	24	_____
Trouble with one's boss	23	_____
Change in work hours/conditions	20	_____
Change in residence	20	_____
Change in schools	20	_____
Change in recreation	19	_____
Change in church activities	19	_____
Change in social activities	18	_____
*Mortgage/loan less than \$100,000	17	_____
Change in sleeping habits	16	_____
Change in number of family get-togethers	15	_____
Change in eating habits	15	_____
Vacation	13	_____
Celebrated Christmas	13	_____
Minor violations of the law	11	_____
YOUR TOTAL		_____

**INTERPRET YOUR TOTAL CAUTIOUSLY!**

A total of less than 150 is good, suggesting a low level of stress and a low probability of developing a stress-related disorder. For people scoring from 150 to 200, Holmes and Masuda (1974) found a 50% chance of problems: Half their respondents in this range developed a significant mental or physical disorder in the next few months. Those scoring 200 to 299 have a moderate risk of stress illness. About 70% of those scoring over 300 became ill, so such scores may indicate high risk. Before drawing any conclusions about your score, though, be sure to read the "Critical Thinking Applied" feature at the end of this chapter for more information!

(Source: Adapted from Holmes & Rahe (1967). \*Starred items have been updated.)

Cognitive appraisal plays a role in the impact of hassles as well. If you interpret a frustrating situation as "too much" to deal with, or as a major threat to well-being, it will affect you more than if you dismiss it as less important (Lazarus, 1984). Some people may be especially prone to see the world as hassle filled. One study showed that college students with a more pessimistic outlook experienced both more hassles and poorer health (Dykema et al., 1995). This finding serves as a good reminder that correlation does not imply causation: In other words, we know a correlation exists between hassles and health but do not know what causes the link. On one hand, experiencing many hassles may have a negative impact on health—but on the other hand, having more health problems to begin with might increase a person's perception of minor annoyances as hassles. It is also possible that a third variable—something other than hassles or health—might be driving the correlation: For example, pessimists (as noted above) might be more likely to perceive minor annoyances as hassles and also more likely to have health problems.

One way to destress your life is to reconsider your own daily hassles. Look back on recent frustrations with a sense of humor, put problems in perspective,

and consider just how unimportant such difficulties and delays really turned out to be. By reappraising everyday difficulties as minor, you enable yourself to remain good natured and productive and even to have a good laugh. Shake your head, put on the brakes, let the vending machine keep your dollar—and move along. Daily hassles are idiosyncratic: They are interpreted uniquely by each person experiencing them. What is a hassle or an annoyance to you may be unnoticed or even amusing to someone else. One person's agonizing traffic jam is another person's opportunity to listen to the radio or engage in people watching. If your life seems hassle filled, some reappraisal of regularly irritating situations can save you psychological wear and tear. Later we will see how cognitive reappraisal can play a central role in one's general strategies for coping with stress.

## ● PSYCHOLOGYMATTERS

### ● Student Stress

It's timely for you to be studying stress and well-being right now, because merely being a college student qualifies as a stressor. College freshmen in particular have been found to undergo major challenges in making the transition to college life. One study found that freshman stress unfolds in three phases. First, new students experience the shock and excitement of new roles, environments, and social relationships. Next comes a protracted period of disillusionment and struggle as students face both the serious work and mundane chores of academic life. Finally, as roles gel and mastery is developed in at least some efforts, a sense of improved well-being and possibilities emerges (Rambo-Chroniak, 1999). But stress isn't limited to first-year students. Whatever their year in college, students experience a specific pattern of stress during the school year, with stress peaks at the beginning, middle, and end of each term (Bolger, 1997). Two points in time are particularly difficult, the "midwinter crash" and the final exam period, when studying competes with regular sleep and healthy eating and when flu and cold viruses afflict those with low resistance.

Some causes of student stress are obvious, with academic pressure topping the list (Bolger, 1997). Also, new social interactions increase the possibility of problems in interpersonal relationships, such as having friends lose their temper, being taken advantage of, or having one's privacy invaded (Edwards et al., 2001). Romantic love, often considered a source of joy, can also be a source of stress and illness, especially among college women (Riessman et al., 1991). Students complain, too, of stress caused by their families, particularly interactions involving difficult emotions, control, and manipulation (Anderson, 1987). Perhaps the essential source of stress for traditional-aged college students is freedom—specifically, the lack of structure or monitoring student experience in a college environment as contrasted with the structure of home and high school curriculum (*USA Today*, 1996). For students returning to college after years in the workforce or raising children, stress often involves the challenge of "retraining the brain" to process and retain massive amounts of new information.

Solutions for student stress, fortunately, may be within arm's reach—the distance needed to reach for the phone and call a friend for support or the college health center, counseling office, or tutoring center for professional advice. Most students express a reluctance to seek help (Rambo-Chroniak, 1999), so simply overcoming this ambivalence—especially as an enlightened student of the many uses of psychology—can be a step toward feeling better. Young-adult freshmen in particular do better if they have positive attitudes about becoming independent individuals on a course of normal separation from their parents (Smith, 1995).

In terms of self-help, students report better results when taking specific action to resolve the problem, rather than simply dwelling on their emotional response (Smith, 1995). Cultivating more hopeful attitudes and better self-esteem—for example, by setting and meeting realistic goals—also leads to lower stress and



*Traffic can be a hassle, and consequently contribute to your stress—if you choose to interpret it that way.*



- better adjustment. Students appear to be more adaptive if they report better social support and a greater sense of control in their lives (Rambo-Chroniak, 1999). Involvement in student organizations can offer both structure and social contact, but beware of the stress of excessive commitment (Bolger, 1997). Two qualities in particular characterize students who are most effective in preventing and coping with stress: resilience, based in part in self-acceptance, effective communication, and coping skills; and cognitive hardiness, an ability to interpret potential stressors as challenging rather than threatening (Nowack, 1983; Yeaman, 1995). We will examine these two characteristics in greater detail a little later in this chapter.

## Check Your Understanding

1. **RECALL:** External events or situations which cause stress are called \_\_\_\_\_, whereas the term \_\_\_\_\_ denotes the physical and mental changes that occur as a result.
2. **APPLICATION:** An example of a chronic societal stressor is \_\_\_\_\_.
  - a. an earthquake
  - b. vicarious trauma
  - c. being stuck in traffic
  - d. widespread unemployment
3. **ANALYSIS:** Which of the following statements about daily hassles is true?
  - a. Some of the most common hassles involve threats to survival.
  - b. As daily hassles diminish, people's sense of well-being increases.
  - c. More frequent and intense hassles are associated with better health.
  - d. The effects of hassles do not accumulate: Many hassles are no worse than a few.
4. **SYNTHESIS:** Your friend Rob has recently lost his wife to cancer. Devon, another friend, recently found out his partner was cheating on him, and she left him for someone else. What difference would you predict between Rob and Devon in terms of the impact of these two different types of losses on their well-being?
5. **UNDERSTANDING THE CORE CONCEPT:** Name four categories of common stressors, along with an example of each.

**Answers** 1. stressors; stress 2. d 3. b 4. Both Rob and Devon have suffered a personal loss, which involves grief, stress, and mourning. Devon, however, is more at risk for depression due to the accompanying humiliation of being rejected, whereas Rob's loss is a "pure loss event." 5. traumatic events, such as catastrophe and personal loss; chronic stressors, such as societal stressors, burnout, and compassion fatigue; major life events, such as a new job or the birth of a child; and daily hassles, such as traffic jams or computer crashes

## 14.2 KEY QUESTION HOW DOES STRESS AFFECT US PHYSICALLY?

Since our earliest days on Earth, humans have survived by responding quickly and decisively to potentially lethal attacks by predators or hostile tribes. Our ancestors adapted to an enormous variety of environmental conditions worldwide, confronting climate extremes, scarce resources, and hostile neighbors. Faced with these challenges, quick action was necessary to obtain shelter and protection, to find food, and to defend themselves. The faster an individual was to feel fear or anger, appraise the situation accurately, and take appropriate action, the better his or her chances of success and survival. Those who responded most quickly and effectively to danger survived and passed those responsive genes to their offspring, whereas slower or less clever individuals were less likely to survive and bear children in the course of human evolution.

Some of the serious stressors confronting our ancestors, such as catastrophe or combat, continue to face us today. Modern life, of course, adds some new dangers: demanding jobs, financial worries, and computer crashes. More often chronic in nature, these new threats aren't necessarily solved effectively with the same responses that suited our ancestors and their more immediate challenges. Yet our stress response system remains the result of our ancestors' evolutionary legacy, because human physiology cannot evolve and change nearly as fast as our societies have. This ancient biological script is retained in our body's auto-

matic responses to frightening or enraging conditions. If someone insults you, your face feels hot and your fists seem to clench by themselves, readying you for a physical contest. Or imagine a very different sort of “threat”: Your instructor calls on you in a class discussion for which you are unprepared. Your heart races, your knees feel wobbly, and you feel the urge to run away.

These examples illustrate the two poles of the **fight-or-flight response**, a sequence of internal and behavioral processes triggered when a threat is perceived, preparing the organism for either struggle or escape. This response worked very well for our predecessors, but doesn’t always suit us as well today. After all, is running out of the classroom really an effective response to being called on in class? Our Core Concept summarizes this point:

**The physical stress response begins with arousal, which stimulates a series of physiological responses that in the short term are adaptive, but that can turn harmful after prolonged stress.**

## core concept

Amazingly, we deal with stress effectively most of the time, managing to be not only healthy but even happy. But, as you will see in this section, there can be serious consequences when we don’t deal effectively with stress—no matter what its source. On the positive side, we should emphasize that the emotional arousal we call stress usually works to our advantage. It brings threatening events into focus and readies us to respond. On the negative side, extreme or prolonged emotional arousal threatens our health. The results can include physical conditions such as heart disease, stroke, high blood pressure, and ulcers. Our mental health can also suffer. Some of us are prone to “worrying ourselves sick” by anticipating what might go wrong, from minor irritants to major traumas (Sapolsky, 1994). Depression, as well as PTSD and other anxiety disorders, has direct linkages to stress. We see these consequences not only in emergency response workers and air traffic controllers, but in public- and private-sector employees at all status levels and in people of all ages and all walks of life. Let’s take a closer look at the physiology of our stress response, which will lay the foundation for a clear understanding of exactly how this adaptive response triggers negative health consequences when chronic stress strains the limits of our resources.

## Physiological Responses to Stress

Firefighters usually report that they love their work, and for some the job is a family tradition. But these individuals’ camaraderie and commitment cannot lessen the threat, the risk of injury and death—the stress they experience—when they must answer the alarm and race into harm’s way. How does the body of an experienced firefighter respond to the perception of that stressor? And what about your own physical responses to stress?

**The Fight-or-Flight Response** When a stressful situation begins suddenly—as when a professional firefighter first hears the alarm—the stress response begins with abrupt and intense physiological arousal, produced by the autonomic nervous system (ANS). Signs of this arousal include accelerated heart rate, quickened breathing, increased blood pressure, and profuse perspiration. This scenario illustrates a case of **acute stress**, a temporary pattern of stressor-activated arousal with a distinct onset and limited duration first described by physiologist Walter Cannon almost a century ago (Cannon, 1914).

Almost instantaneously, reactions in our nervous system, endocrine system, and muscles equip us to make an efficient and effective response—supplying, for example, extra strength if needed. Figure 14.2 provides a detailed illustration of the many ways that the body prepares for an emergency response.

The fight-or-flight response can be a lifesaver when you need to escape from a fire, confront a hostile rival, or protect your children from a hurricane. When



*In cases of acute stress, such as this woman faces as a fire races through her house, the stressor arises suddenly, and the stress response begins with abrupt and intense physiological arousal.*

### CONNECTION • CHAPTER 2

The Autonomic Nervous System regulates our most basic vital functions.

**Fight-or-flight response** Sequence of internal responses preparing an organism for struggle or escape.

**Acute stress** A temporary state of arousal, caused by a stressor, with a distinct onset and limited duration.

**FIGURE 14.2**  
**Bodily Reactions to Stress**

An amazing array of physiological reactions prepare us to fight or flee in acute stressful situations.



faced with a chronic stressor, though, it has a cost: Staying physiologically “on guard” against a threat eventually wears down the body’s natural defenses. In this way, suffering from frequent stress—or frequently interpreting experiences as stressful—can create a serious health risk: An essentially healthy stress response can become a health hazard. In the next section, we will explore exactly how and why this occurs.

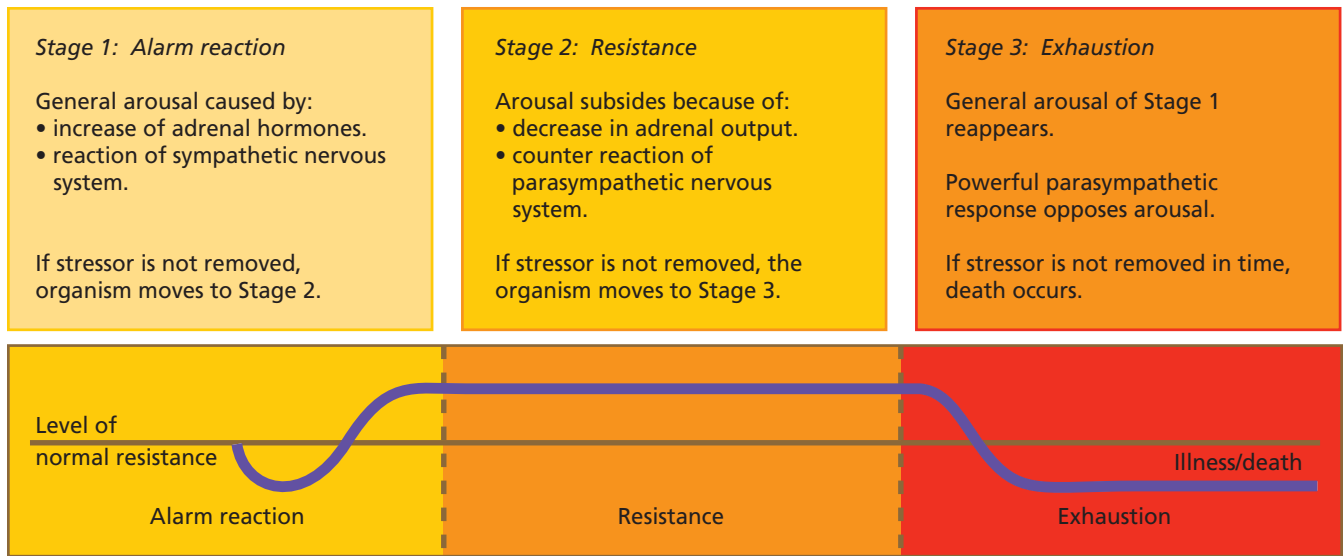
**The General Adaptation Syndrome** How do victims of stress and persistent negative emotions become candidates for disease? Our understanding of how stress causes illness began in the mid-20th century with the work of Canadian endocrinologist Hans Selye (pronounced *SELL-yeh*). In brief, Selye discovered that different stressors trigger essentially the same systemic reaction, or general physical response, which mobilizes the body’s resources to deal with the threat. Moreover, he found, all stressors provoke some attempt at adaptation, or adjustment of the body to the stressor. Because the bodily response was a general rather than a specific adaptation effort, Selye dubbed it the **general adaptation syndrome (GAS)**. (See Figure 14.3.)

Normally, these responses are helpful, but under chronically stressful conditions, they can lead to heart disease, asthma, headache, gastric ulcers, arthritis, and a variety of other disorders (Carlson, 2007; Salovey et al., 2000).

Selye’s model of the GAS describes a three-phase response to any threat, consisting of an *alarm phase*, a *resistance phase*, and an *exhaustion phase* (Johnson, 1991; Selye, 1956, 1991).

**General adaptation syndrome (GAS)** A three-phase pattern of physical responses to a chronic stressor.

**The Alarm Phase** In the first stage of stress, the body’s warning system activates and begins to mobilize its resources against the stressor. Selye called this first stage the

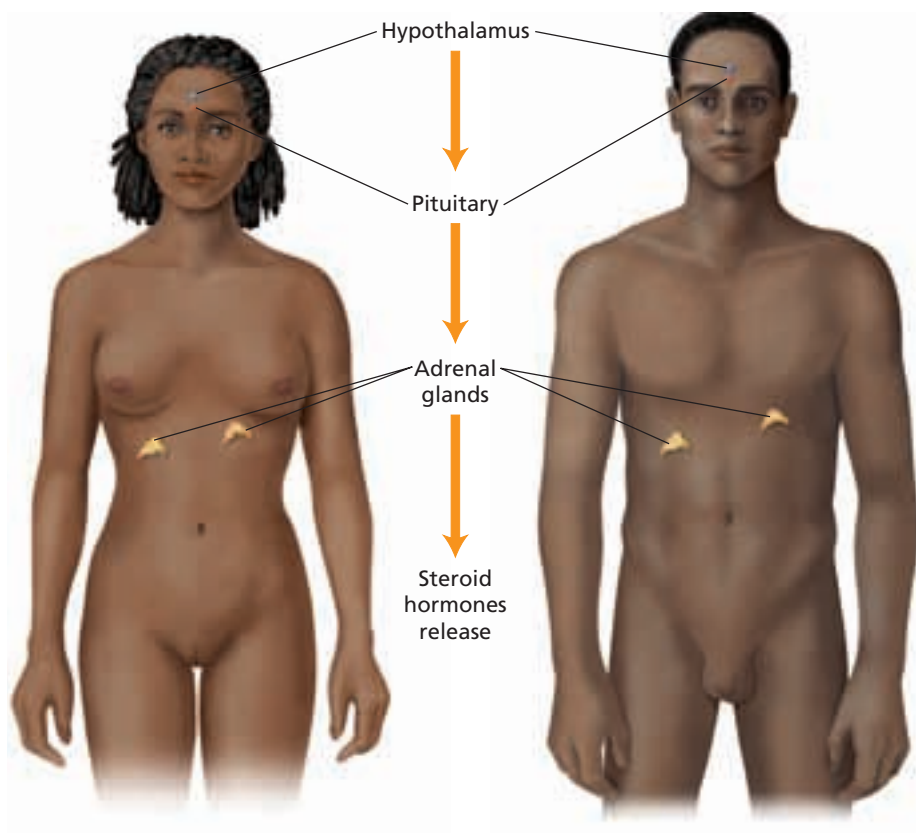


**FIGURE 14.3**  
The General Adaptation Syndrome

In Stage 1, the body produces an emergency arousal response to a stressor. Then, in Stage 2, the body adapts to the continuous presence of the stressor. In Stage 3, if the stressor is not reduced, an arousal response begins again, although the body's defenses are depleted—with dangerous results.

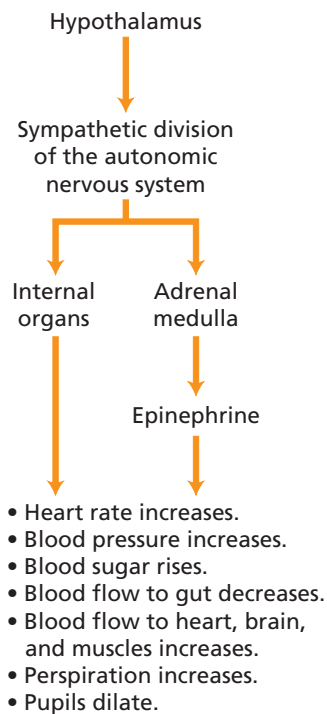
**alarm phase**—but it is similar to the pattern of reactions Cannon called the fight-or-flight response. The hypothalamus sets off two parallel emergency messages. One message signals the hormone system, especially the adrenal glands, through the pathway shown in Figure 14.4. The result is a flood of steroid hormones into the bloodstream—chemicals that support strength and endurance (the reason why some

**Alarm phase** First phase of the GAS, during which body resources are mobilized to cope with the stressor.



**FIGURE 14.4**  
Hormonal Response in the Alarm Phase

In the alarm phase of the GAS, the hormone system response shown here is one of the two parallel response pathways set off by the hypothalamus.



**FIGURE 14.5**  
Sympathetic Nervous System Response in the Alarm Phase

This diagram shows the path of the sympathetic nervous system's response to acute stress, which occurs simultaneously with the parallel response of the hormone system.

athletes might risk dangerous side effects by abusing steroids). Endorphins are also released, which reduce the body's awareness of pain signals. A concurrent message is relayed through the sympathetic division of the autonomic nervous system to internal organs and glands, arousing the body for action.

It's the cascade of messages through these two pathways—the sympathetic nervous system and the endocrine system—that readies us for action. Blood flow to the heart, brain, and muscles increases, enabling us to think and react better and faster. Blood flow to the digestive system, conversely, decreases—presumably so our bodies are not expending precious energy on nonessential functions during an emergency. Pupils dilate, enhancing peripheral vision, and perspiration helps keep the body from overheating. Available blood sugar increases as well, to provide an additional energy boost. All in all, our body is amazingly responsive to immediate danger! Figure 14.5 details this autonomic series of responses.

The function of the alarm phase is to enable the organism to fight or to flee, which usually didn't take very long for our ancestors. Given the chronic nature of modern stresses, though, we often progress into the second stage—resistance.

**The Resistance Phase** If the stressor persists—but is not so strong that it overwhelms us during the first stage—we enter the **resistance phase**, during which all the physiological changes of the alarm phase remain in effect. During this stage, the body is attempting to fight off the effects of the stressor. The immune system is in high gear as well, and white blood cell count increases to help the body fight off infection.

Surprisingly, the resistance displayed during this stage applies only to the original stressor. In his research, Selye found that if an experimental animal had adapted to one stressor (e.g., electric shock), but a second stressor was introduced (e.g., extreme cold), the animal soon died. The animal's resources were apparently so depleted that it could not mobilize a defense against the new stressor. A tragic human example is found in a soldier who collapses and dies in response to the new stress of a prison camp after surviving months of stressful combat.

Thus, we see that our alarm and resistance defenses use physical energy. They reduce the levels of resources available in case of additional stressors. Imagine yourself as the star of an action movie, pursued by an evil archenemy. You race your old car a long distance to escape your pursuer. But the engine oil was low to begin with, and now it's worse. Just when it seems you have a good lead and can safely pull over to add some oil, another evildoer's vehicle appears in your rear view mirror! You must go on—but how long can you run like this before you burn out your engine?

Now imagine your body responding to a stressful scenario: You've just completed final exams; you got minimal sleep, studying day and night, surviving on junk food and caffeine for a week. Now it's over. You can relax and rest at last. But the phone rings: It's the welcome voice of the love of your life, with an unwelcome note of some negative emotion. Before you can announce the good news that you survived your exams, the voice says, "I don't know how to say this, but—look, we have to talk. . . ." This is probably not good news, but may signal serious trouble, even a breakup—definitely a stressor. Already exhausted by the stresses of finals week, how will you handle this important conversation? You feel stricken, frightened, and even angry: Why this threat? Why now? Because your system is depleted, you may overreact and find yourself without the cognitive and emotional resources to handle the situation effectively.

**Resistance phase** Second phase of the GAS, during which the body adapts to and maintains resources to cope with the stressor.

**Exhaustion phase** Third phase of the GAS, during which the body's resources become depleted.

**The Exhaustion Phase** The resistance phase is the body's last-ditch effort to combat the stressor, and if the stressful situation is not ameliorated during that phase, the body can no longer keep up the intense physiological battle. In this third stage, the **exhaustion phase**, body functions drop back into normal range—and then fall below normal. At this point, the body requires rest and rejuvenation to bring our physio-

logical functioning back up to acceptable levels. If it does not get that much-needed respite, as is often the case in today's world of chronic stressors, the very responses that were so adaptive in the first two phases put the body at risk for illness in the third phase.

Several processes may contribute to the physical and mental deterioration seen in the exhaustion phase. For example, increased blood pressure can cause headaches in the short term, and over an extended period of time it contributes to stroke and coronary heart disease (CHD), which are two leading causes of death today. Meanwhile, the compromised digestive system contributes to formation of certain types of ulcers and, over the long term, obesity. Chronic stress is also linked to increased fatty deposits in the bloodstream, which increases risk of stroke. Still other dangers lurk in the depleted immune system, making the stressed person a prime candidate for infections or other diseases. In addition, studies suggest that prolonged or repeated stress may produce long-term changes in the brain that provoke depression (Sapolsky, 1998; Schulkin, 1994). Stress hormones also act on the brain, interfering with its ability to regenerate neurons, especially in the hippocampus (Gould et al., 1998; Sapolsky, 1998). This helps explain why prolonged use of steroids—which are really stress hormones—is dangerous (except under certain medical conditions): They effectively put the body into a state of exhaustion, producing perilous deterioration.

So, we see that Selye's GAS model offers a useful explanation of how stress can lead not only to the initial fight-or-flight reaction but to chronic and debilitating conditions. In particular, it has enlightened medical and psychological researchers about the connections between stressful experiences and physical ailments. And while new research is beginning to reveal that not all stresses produce exactly the same response from the endocrine system (Kemeny, 2003), the model remains widely viewed as the key to understanding the link between stress and illness. Before we look more closely at the details of the chronic stress response, let's first consider an intriguing alternative to fight-or-flight: nurturance.

**Tend and Befriend** Psychologist Shelley Taylor noticed that the fight-or-flight model was developed by male theorists doing research with male subjects—male rats, mice, and humans. The fear and aggression so prominent in fight-or-flight may, noted Taylor, characterize the responses of males more than females (Taylor, 2003; Taylor et al., 2000b). A **tend-and-befriend** model may better explain the behavior of females in response to threats to themselves and their offspring. Taylor's theory argues that, because females are the primary caretakers of offspring, priority must be given to protecting the survival of the young. Aggression ("fight") can cause injury to oneself or one's children; escape ("flight") leaves children defenseless. Neither response promotes adaptation and survival from the female caretaker's point of view (Volpe, 2004).

This tend-and-befriend model proposes that females are biologically predisposed—through brain and hormonal activity—to respond to threat by nurturing and protecting their offspring. Seeking social support creates networks that increase an individual's ability to protect and nurture (Eisler & Levine, 2002; Taylor et al., 2000b). One study in support of the tend-and-befriend model examined men's and women's hormonal changes and self-reports prior to an important examination. While reported anxiety levels did not differ, men had significantly higher levels of **cortisol** production—an important steroid in the fight-or-flight response—than did women (Ennis et al., 2001). Additional research reveals that **oxytocin**, another stress hormone released on exposure to a stressor, may combine with estrogen in females to prompt affiliation-seeking behavior (Taylor, 2006). Higher oxytocin levels are also associated with greater calmness and decreased anxiety, which are important components of effective nurturing.

It might surprise you to know that both men and women show some signs of social support seeking as a stress response, although evidence at this point



*After responding to one stressor, such as finishing a difficult test, you may find your bodily resources somewhat depleted, leaving you less able to deal with another, unexpected stressor.*

**Tend-and-befriend** Stress response model proposing that females are biologically predisposed to respond to threat by nurturing and protecting offspring and seeking social support.

**Cortisol** A steroid produced by the fight-or-flight response.

**Oxytocin** A hormone produced (by both women and men) in response to a stressor.

indicates that women respond this way much more frequently and consistently than men (Tamres et al., 2002). Research also reveals that providers of social support benefit, too, as seen in a lower mortality rate for older adults who give help and emotional support to friends, relatives, and neighbors (Brown et al., 2003).

The picture emerging from these complementary responses to stressful situations—fight-or-flight and tend-and-befriend—is of a more complex stress response than previously thought. We now see a response system that works both to defend and to nurture, promoting the survival not only of the individual but also of offspring, family, and community. Thus, we can see that the hormonal systems and brain processes have evolved to enable both self-protection and reaching out to others in times of danger (Pitman, 2003). Tending-and-befriending powerfully complements the fight-or-flight pattern, together accounting for the survival of not only individuals but of relationships and communities.

## Stress and the Immune System

Earlier in this section, we noted that the immune system becomes compromised in the face of chronic stress—specifically, when we enter the exhaustion phase of the GAS. Research has shown, for example, that individuals coping with the death of a spouse or the end of an important long-term relationship are frequently subject to both depression and **immunosuppression** (impairment in the function of the immune system), leaving them more vulnerable to disease (Cohen & Syme, 1985; Kiecolt-Glaser & Glaser, 1987, 2001).

**Psychoneuroimmunology** In recent years, with the help of tremendous leaps forward in biotechnology, an exciting new field of study has emerged to examine precisely what mechanisms are involved in this stress–illness relationship. **Psychoneuroimmunology** pulls together psychologists with expertise in psychological factors of stress, such as cognition and emotion; neurologists, who are experts in brain functioning; and immunologists, who offer special knowledge of the immune system. And while the field has an impressive multisyllabic title, this interest in the mind–body connection is nothing new: What we are seeing now is simply a 21st-century approach to the same question pondered by ancient civilizations such as the Greeks and Chinese over two thousand years ago.

**How Do Mental Processes Affect the Immune System?** While the field of psychoneuroimmunology is in its relative infancy, we know that the central nervous system and immune systems maintain a communication “loop” in response to stress, injury, or infection (Maier & Watkins, 1999). When a stressor is perceived, the brain sends messages to the autonomic nervous system and endocrine system, which have links to organs that produce the immune response. (Components of the immune system include the blood, lymphatic system, bone marrow, the liver, and the thymus gland.) The brain then receives feedback from the immune system via neural and endocrine pathways (Maier & Watkins, 2000). Among the chemical messengers shuttling between the brain and the immune system are proteins known as **cytokines**, released by immune cells to fight infection. Cytokines cause symptoms like fever, inflammation, and listlessness—responses that usually help fight disease but can sometimes get out of control (DeAngelis, 2002a). In addition to tiredness, cytokines may produce feelings of depression, involving a spiral of negative emotion and thought. Such a response can prolong stress and illness (National Public Radio, 2004).

One factor that determines whether an immune reaction will harm rather than support health is the nature of the stressor (Pert, 1997), particularly whether it is acute or chronic. Many physical stressors, such as strenuous exercise or an attack by an aggressive animal, begin and end abruptly. These acute stressors trigger natural immunity responses, which help reduce the risk of injury. Production of **natural killer cells**, a type of immune cell that attacks foreign cells

**Immunosuppression** Impairment in the function of the immune system.

**Psychoneuroimmunology** Multidisciplinary field that studies the influence of mental states on the immune system.

**Cytokine** Hormonelike chemical that fights infection and facilitates communication between the brain and immune system.

**Natural killer cell** Cell produced by the immune system that attacks foreign cells.

such as tumors and infectious agents, increases during acute stress (Segerstrom and Miller, 2004). Production of these cells is accomplished by cell division, and each time a cell divides, the lifespan of the cell is reduced. In contrast, chronic psychological stressors—a difficult marriage, unemployment, or caring for a spouse with Alzheimer’s disease—emerge gradually, last a long time, and are not readily solved with fight or flight or with an immune response. Thus, prolonged increased production of the natural killer cells deteriorates the immune system and indeed, research has found compromised immune systems in both men and women coping with these three chronic conditions, regardless of age (Segerstrom & Miller, 2004).

One important study compared the immune systems of women with healthy children to those of mothers whose children had serious chronic diseases. The results were sobering: Mothers of the sick children had immune systems that appeared fully *ten years older* than the women’s actual chronological age (Epel et al., 2004). In these situations, there is no physical enemy to battle, no safe haven to seek—no quick fix. Bodily responses become maladaptive, the body becomes more vulnerable to infection and injury, and eventually immune disorders can develop. This immunosuppression, a diminished effectiveness of immune response, entails serious health risks.

Another major factor that plays a role in the stress–illness relationship is the role of perception. At the beginning of this chapter we introduced the concept of cognitive appraisal, and research in psychoneuroimmunology indeed finds that individuals who commonly perceive events in a negative light suffer greater immunosuppression than those who habitually see the brighter side. This may explain the differences we see among individuals who are faced with similar stressors: Studies indicate that some suffer little or no immune suppression, while the immune systems of others become seriously compromised.

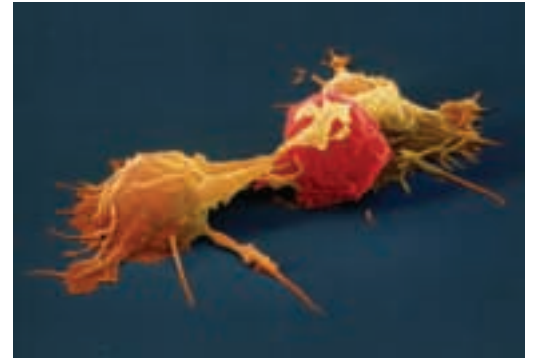
Stressful conditions, then, can cause physical disease just as surely as can viruses, bacteria, and physical trauma. We have seen what some of our most common stressors are, as well as how our bodies respond to these stressors. Thus, we have a basic understanding of the relationship between stressors, stress, and illness. We know, however, that not everyone becomes stressed when faced with a stressor and also that not everyone who feels stress eventually becomes ill. Why not? We devote the second half of this chapter to answering that very question.

## PSYCHOLOGYMATTERS

### Using Drugs for Stress Relief: A Costly Defense

For millennia, people have used substances to cope with—or escape from—the stresses of their lives. Illicit drugs, such as methamphetamine, cocaine, heroin, and ecstasy, can serve the same purpose. And it’s no wonder: Many of these substances tickle the pleasure centers in our brains. The problem, as we saw in Chapter 8, is that the use of alcohol and other drugs can create new and even more stressful problems through their potential for addiction and distortion of thought processes, not to mention their interpersonal and economic impact. Relying on certain substances to “escape” the stress of life’s problems is more of a defense than a coping strategy. Such habits are more likely to delay effective coping or allow the stress to worsen.

Drugs and alcohol, while pleasurable, risk becoming defensive “escape routes” from stress or worry. Smoking, too, is a favored habit among those who feel anxious and stressed. Nicotine, the major drug in tobacco products, is a special problem because of the large number of people who smoke cigarettes to alleviate feelings of stress, mild anxiety, or boredom in the short term. In the long run, however, smoking is one of the drugs most frequently blamed for serious health problems. In the United States, 400,000 people die annually from their



*This natural killer cell helps fight off infectious cells, but overproduction of these cells during prolonged stress actually deteriorates the immune system.*

#### CONNECTION • CHAPTER 2

The *limbic system* contains several pleasure centers that create good feelings when aroused by electrical stimulation, drugs, chocolate, or exciting activities.





*Smoking is often used as a temporary stress reliever, but it has dangerous long-term consequences.*

own smoking; 38,000 people die from others' (secondhand) smoke. On average, the life expectancy for smokers is 14 years less than for nonsmokers (U.S. Department of Health and Human Services, 2006). Smoking kills, harms, and costs billions in health care, insurance expenses, and lost work productivity.

So why do people smoke? And why don't they quit? The tenacity of the smoking habit is maintained by multiple factors. Nicotine is a legal drug, and even though recent legislation has put restraints on advertising, smoking is still considered by many to be relatively "safe." Second, tobacco use is associated through advertising with promises of popularity, sex, friendship, status, and pleasure—so nicotine ingestion becomes a classically conditioned response. Third, nicotine is a highly addictive drug, so smokers periodically need a dose of nicotine to reduce their cravings (Schachter, 1977). When nicotine levels drop, smokers feel nervous, light-headed, and dizzy. They may develop cramps, tremors, heart palpitations, and cold sweats. The nicotine in a cigarette reverses these symptoms and makes them temporarily feel better. (We should note that this process is similar to what occurs in coffee drinkers and is what keeps us reliant on the "wake-up juice.") Stress, however, increases the rate at which the body uses and excretes nicotine. Therefore, stressed individuals who are addicted to nicotine must smoke more to maintain their accustomed level of this drug.

Nicotine has a psychological side, too. As a habit, smoking can also become associated, through classical conditioning, with many aspects of a smoker's life that have nothing to do with stress. So, when a smoker attempts to quit, the world seems to come alive with stimulus cues that suggest smoking. Smoking becomes associated with finishing a meal, driving to work, taking a coffee break, going to a bar, watching television—with almost everything but showering and sleeping. Quitting, then, becomes both a matter of building new nonsmoking associations to all the situations in which the person once smoked and at the same time going through the biological discomfort of withdrawal.

Despite the difficulties, an estimated 35 million smokers have kicked the habit, and about 1.3 million smokers quit every year (U.S. Department of Health and Human Services, 2000). Most quit on their own, without formal stop-smoking programs. In recent years, the use of nicotine gum or a nicotine patch as part of a plan for quitting has made it much easier for smokers to endure the withdrawal process. Antianxiety medications can also be effective. But most quitters find that withdrawal from the stimulant dependency is not enough: The smoker must also make lasting changes in his or her behavior, from the tiniest rituals, gestures, and habits to larger issues of how to reduce risk but still maintain relationships with others who continue to smoke.

## Check Your Understanding

- RECALL:** The first stage in Selye's GAS is \_\_\_\_\_.
  - attention
  - alertness
  - alarm
  - activity
- SYNTHESIS:** According to researcher Shelley Taylor, how might the responses of a man and a woman differ in the face of the same stressor?
- APPLICATION:** Which of the following stressors would be the most likely to cause the immune system to malfunction and even cause harm?
  - accidentally slipping and falling on an icy surface
  - caring for a dying family member for a prolonged period
  - being rejected by someone you are romantically interested in
  - receiving a bad grade on an important test
- UNDERSTANDING THE CORE CONCEPT:** Describe how our stress response system is well suited to acute stress, but less effective in the face of chronic stress.

**Answers** 1. c 2. Taylor's tend-and-befriend model would predict that the woman would be more likely to seek social support, while the man would be more likely to respond with the aggression characteristic of the fight-or-flight response. 3. b 4. The short-lived alarm phase of the GAS sets off a host of physiological changes that help us combat stressors. We can maintain these high levels of "combat-readiness" during the resistance phase, but if the stressor is chronic, the exhaustion phase kicks in and our immune system suffers the effects of depleted resources.

## 14.3 KEY QUESTION WHO IS MOST VULNERABLE TO STRESS?

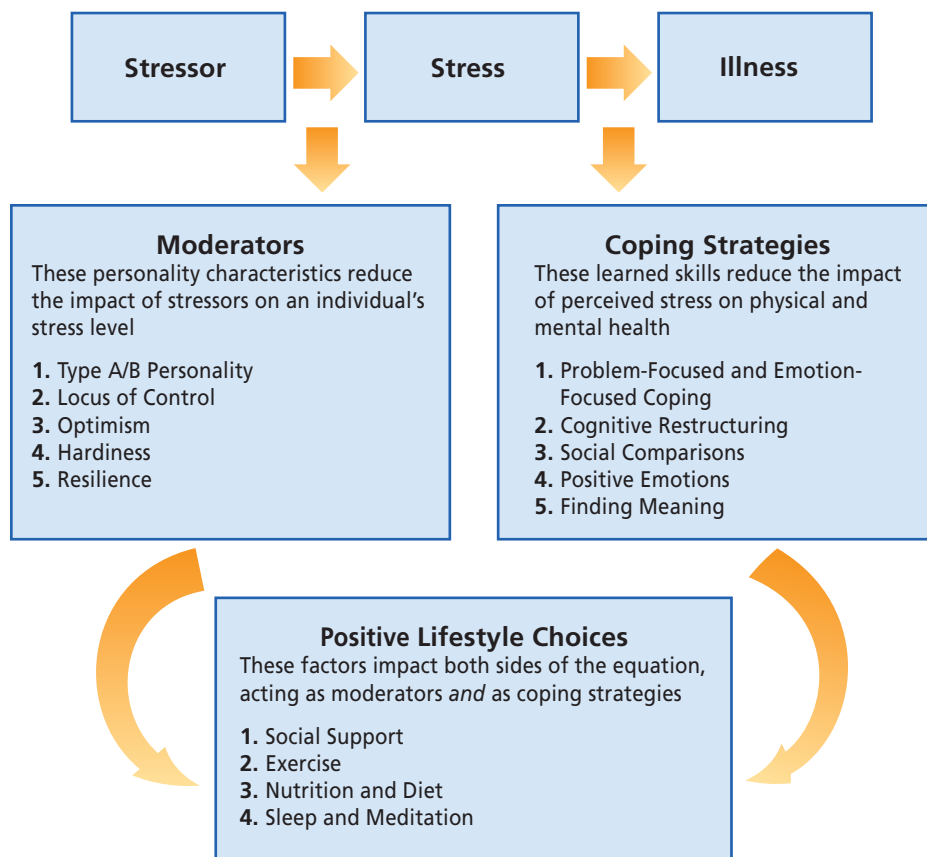
Why do some people seem to bounce back after severely traumatic experiences such as 9/11 or the death of a loved one, while others are derailed by seemingly minor hassles? We can see a snapshot of the individual differences in response to stress in the way people handle being caught in a traffic jam. Some drivers calmly daydream or listen to their radios, while others frantically hit their horns or “rubberneck,” straining to see what the obstruction is. To a large extent, the stressful effects of an unpleasant event are a personal matter. How much stress we experience is determined not only by the quality and intensity of the stressful situation but by how we interpret the stressor. In this section we will focus our attention on the personality characteristics that influence our responses to stressors. A summary of what we will learn is captured in our Core Concept:

**Personality characteristics affect our individual responses to stressful situations and, consequently, the degree to which we feel stress when exposed to potential stressors.**

core  
concept

Before we delve into this fascinating field of study, we want to introduce to you a model of the stress–illness relationship that will serve as our guide for the remainder of this chapter.

Figure 14.6 gives you a visual picture of this model, showing how stressors can lead to stress, which in turn can cause physical and mental illness. Note that there are two opportunities for intervention: One lies between stressors and stress, and the other occurs between stress and illness. To put it another way, one set of factors can prevent stressors from causing us to feel stress; similarly,



**FIGURE 14.6**  
How Individual Factors Influence Our Stress Response

Oftentimes, stressors cause stress, which in turn can cause illness. However, three categories of psychological responses can intervene in the stress–illness relationship. *Moderators* can help keep stressors from causing stress, *coping strategies* can help prevent stress from leading to illness, and *positive lifestyle choices* can intervene in both places.

a second set of factors can prevent stress from escalating into physical or mental illness. The first set of factors—those that can intervene in the relationship between stressors and stress—we call **moderators** because they moderate or regulate the impact of stressors on our perceived level of stress. Most of them are variations on the concept of cognitive appraisal: In other words, these moderators influence the judgments and interpretations we make of the stressor. It is this set of possible interventions that we explore in this section, beginning with a couple of examples.

First, let's illustrate how moderators work by looking at the contrasting cases of Anya and Ben. Anya is a conscientious student who never takes a lunch break, preferring to grab a bite while keeping ahead on assigned reading. She says she is "dead set on getting a 4.0." She carries her course texts in her backpack though they aren't required in class and is never without her cell phone. Hurrying to and from classes to be sure she is never late, she feels anxious about delays and angry when traffic slows. She eats while checking her e-mail, reads assignments in bed, and often needs medication to help her relax and get some sleep. In contrast, Ben's approach to school is very different. He usually stops for conversations or lunch with friends. He doesn't lug books to campus unless he needs them, doesn't drive in a hurry, and arrives at class on time most of the time. Though not a perfectionist like Anya, Ben somehow earns grades as good or better than hers in most courses. They both have similarly demanding schedules, but they respond to them very differently.

Or consider this scenario: Demetria and Cory are newlyweds who are trying to plan their life together. They want to buy a home as soon as possible and hope to start a family. They have recently begun to argue about these issues, however, as their outlooks toward their goals differ markedly. Demetria is optimistic that they'll be able to afford the downpayment on a home within a year and strongly believes they can achieve this goal as long as they carefully manage their money. Cory is less positive. In his mind, it seems as though every time he gets close to reaching a goal, something gets in the way, and he's sure this will be no different. To him, "what's gonna happen will just happen," and he is afraid they risk disappointment if they get their hopes up about getting the house in a year.

Do you see yourself or someone you know in either of these examples? If the different styles of approaching and perceiving events are long standing, consistent across situations, and similar to those of others, they could be called personality characteristics. Let's examine their impact on the stressor-stress relationship.

#### CONNECTION • CHAPTER 12

*Personality* is the pattern of characteristics unique to an individual that persists over time and across situations.

### Type A Personality and Hostility

When cardiologists Meyer Friedman and Ray Rosenman (1974) hired an upholsterer to repair the furnishings in their waiting room, the upholsterer noticed something that the doctors had not: Most of the chairs showed an unusually high degree of wear on the front edges of the seats. When they became aware of this, the two doctors wondered whether their patients' heart problems might be related to a certain style of coping with stress—it was as if they were always "on the edge of their seats." The doctors began a series of studies to investigate their hypothesis, and interviews with the patients revealed a striking pattern of common behaviors. Impatience, competitiveness, aggressiveness, and hostility—all stress-related responses—were noted again and again. Many also admitted they were notorious workaholics. Friedman and Rosenman ultimately found this collection of attitudes and behaviors not just correlated with heart disease but actually predictive of it. They dubbed it the Type A pattern: Type A men and women were found to have twice as much risk of heart disease as the Type B individual who takes a relaxed approach to life (Matthews, 1982).

**Moderator** Factor that helps prevent stressors from causing stress.

Since the initial identification of the **Type A** personality, careful research has revealed that it is specifically the anger and hostility common in Type A people that increases risk of heart disease. Time urgency, perfectionism, and competitiveness, without the anger and hostility, are not risk factors. Hostile individuals are less trusting, quicker to anger, and more antagonistic than their nonhostile counterparts. If you're noticing a connection to cognitive appraisal, you are right: Hostile people would be more likely than most to perceive threat in a situation. This interpersonal style makes it more difficult to maintain relationships, which in turn reduces availability of social support. Hostility is also associated with a variety of risky health behaviors—such as smoking, drinking alcohol, and overeating—that themselves increase risk of heart disease (Taylor, 2006).

From a physiological perspective, those high in hostility become aroused more quickly in the face of a potential stressor, exhibit greater levels of arousal, and take more time for their arousal level to return to normal once the stressor has passed (Guyl & Contrada, 1998; Fredrickson et al., 2000). Hostility is also associated with higher levels of cytokines, which can prolong the stress response (Niaura et al., 2002). Researchers aren't yet sure, though, whether these biological differences are entirely genetic in nature or partially a result of early childhood environment: Boys who grow up in families rife with conflict, and low in acceptance and support, are at greater risk to develop hostility (Matthews et al., 1996). At this time, both nature and nurture are thought to play roles in development of hostility and later heart disease. Clearly, though, there are multiple channels through which hostility promotes heart disease.

At this point, you may be starting to suspect that someone you know (or perhaps even yourself) fits the description of hostile, with all its associated health risks. Let us reassure you that, while many people may sometimes feel angry, there are important differences between normal anger and a truly hostile personality style. We all feel angry at times in response to a negative situation—in these instances, anger can be healthy and even adaptive: It signals us that something is wrong and provides the energy to take measures to correct the situation. That type of normal anger stands in marked contrast to the hostile personality style, which reflects a long-term pattern of hostile behavior that manifests frequently across a variety of situations. The level of arousal is a distinguishing factor as well: It is reasonable to feel irritated when a slow-moving vehicle blocks you in traffic, but feeling enraged is irrational and dangerous, especially if this becomes a common pattern in your life.

Besides cardiovascular diseases, other illnesses have been linked with Type A habits: allergies, head colds, headaches, stomach disorders, and mononucleosis (Suls & Marco, 1990; Suls & Sanders, 1988). Likewise, the perfectionism characteristic of Type A has been linked to anxiety (about reaching impossible goals) and to depression (from failing to reach them) (Joiner & Schmidt, 1995).

Understanding the link between Type A behavior and heart disease, as well as other health risks, can help in developing more effective disease prevention. Regular aerobic exercise, relaxation training, and even a program aimed at teaching hostile individuals to speak more slowly and quietly have proven effective at reducing risk of heart disease (Taylor, 2006). Comprehensive stress management training may offer some of the most promising benefits, however. One study in particular showed heart attack survivors given stress-management training had half as many heart attacks in the next three years as a control group who received no such training (Friedman & Ulmer, 1984). The researchers concluded: “No drug, food, or exercise program ever devised, not even a coronary bypass surgical program, could match the protection against recurrent heart attacks” afforded by learning to manage stress (p. 141). Thus, even though Type A behavior seems to show up early in life and persist into adulthood, well-designed interventions can be effective in helping Type As who are committed to change.



*This basketball coach displays some Type A behaviors.*

**Type A** Behavior pattern characterized by intense, angry, competitive, or hostile responses to challenging situations.

## Locus of Control

How confident are you that you can make your life turn out pretty much the way you want it to? In our example at the beginning of this section, newlyweds Cory and Demetria were struggling with their differences on this dimension of personality known as **locus of control** (from the Greek *loci*, meaning place). You probably remember our discussion of this concept in Chapter 9 on motivation and Chapter 10 on personality, so you already understand it is a relatively stable pattern of behavior that characterizes individuals' expectations about our ability to influence the outcomes in our life. **Internals** (those with an internal locus of control) generally believe that if they take certain action, they are likely to gain the outcome they desire—diligent studying, for example, will result in good grades. **Externals**, on the other hand, see an unpredictable relationship between their efforts and their outcomes. They are more likely to believe that factors outside their control, such as the fairness of the test or how much the professor likes them, will have a decisive effect on their grades—regardless of how much they study. In the face of a stressful event, internals are more likely to perceive the stressor as manageable than are externals, which leads to lower stress, and ultimately to a variety of health benefits. And perception of control can, at least to some extent, be learned: Firefighters and other 9/11 personnel who were trained for such disasters suffered lower rates of PTSD in the years following the attacks (Perrin et al., 2007)

**Locus of Control, Health, and Longevity** A landmark study illuminating the importance of perceived control on health took place in a Connecticut nursing home 30 years ago. Elderly residents on one floor were offered a variety of choices about their daily lives. For example, they were allowed to choose whether and when to watch available movies, how they wanted the furniture and personal items in their rooms arranged, and whether or not to have a plant in their room—which they were responsible for watering. In communications with this group, nursing home staff emphasized the residents' personal responsibility for their own satisfaction; the nursing home staff was happy to help in any way (for example, moving the furniture) on request of a resident. Residents on a different floor, matched on important characteristics such as health and age, acted as the control group. Here the staff took full charge of the residents' care, watering all the plants, assigning movie times, and arranging furniture as per administrative decisions.

The results? After 18 months, the “more responsible” residents were more active, more alert, and happier than the controls. What's more—in an entirely unexpected outcome—locus of control actually affected the residents' lifespans. By the end of the study, the mortality rate of the control group was 67% higher than that of the group with increased personal responsibility (Rodin, 1986).

Consistency in control is important to health as well. A second nursing-home study arranged for college students to make regular visits to the residents. Some residents were allowed to choose when a student would visit and how long he or she would stay, while others received visits on a prearranged schedule. As expected, residents who chose the time and duration of the visits had better health outcomes than those who did not. What surprised researchers was that, once the study was completed and college students no longer visited the residents, the “choice” group suffered more negative health effects than the “non-choice” group (Schulz, 1976). Predictability, it seems, is an important element of control.

Locus of control has been found to impact a wide range of health-related outcomes. In addition to being more likely to wear seat belts, exercise regularly, and pay attention to their diets—all of which have obvious health benefits—internals have better immune systems than do externals (Chen et al., 2003). They get sick less often and recover more quickly from illnesses and surgeries alike (Skinner, 1996). What's more, a strong sense of internal control actually dissolves the well-documented relationship between social class and health: Low-income

**Locus of control** A relatively stable pattern of behavior that characterizes individual expectations about the ability to influence the outcomes in life.

**Internals** People with an internal locus of control who believe they can do much to influence their life outcomes.

**Externals** People with an external locus of control who believe they can do little to influence their life outcomes.

individuals who have an internal locus of control are just as healthy as those with higher incomes (Lachman & Weaver, 1998).

**Culture Affects Locus of Control** Cultural studies have identified an interesting distinction between perceptions of control in Western and Eastern cultures. **Primary control**, prevalent in the West, is the type of control discussed above: taking action aimed at controlling external events. Eastern cultures are more likely to engage in **secondary control**, which emphasizes controlling one's reactions to events (Rothbaum et al., 1982). A culture's general value system, such as the individualist and collectivist perspectives discussed in Chapter 10, influences the type of control most highly prized and promoted in that culture. In Japan, for example, which has traditionally been a collectivist culture, child-rearing practices encourage development of secondary control. Children are taught to adjust their reactions to a situation, to help maintain social harmony. This stands in direct contrast to the individualistic approach to child rearing, which fosters efforts to control the situation itself. Research indicates that both strategies work well in the context of their respective cultures (Weisz et al., 1984). Furthermore, when efforts at primary control fail or are not possible for an individualist, engaging in secondary control improves health—a topic we will explore a little later in this chapter.

**Is Locus of Control Innate, or Learned?** While locus of control does tend to appear early and run in families—factors that often indicate a genetic component—our experiences also impact our expectations. Individuals who repeatedly experience failure when they attempt to escape threatening conditions may simply stop trying, a concept called **learned helplessness**. Evidence of learned helplessness originally came from animal studies performed by Martin Seligman and his colleagues. Dogs receiving inescapable electric shocks soon gave up their attempts to avoid the punishment and passively resigned themselves to their fate (Seligman, 1975, 1991; Seligman & Maier, 1967). Later, when given the opportunity to escape the shocks, the dogs typically did nothing but whimper and accept them. In contrast, a control group of dogs that had not been subjected to previous punishment was quick to escape. Seligman concluded that the experimental group of animals had already learned that nothing they did mattered or altered the consequences, so they passively accepted their fate (Seligman & Maier, 1967).

An experiment by Donald Hiroto (1974) employed human participants in a variation of Seligman's dog research. One at a time, students were placed in a very noisy room; some found a way to turn off the noise, but for others the noise controls did not work. When the students were sent to a new room and exposed to a different irritating noise, those who had successfully turned off the noise in the previous room quickly found the simple solution in the second room. In contrast, those who had failed in their efforts to shut off the noise earlier just sat in the new room, making no effort to stop the latest stressor. They had already learned to be helpless. Seligman and other scholars see symptoms of the same learned helplessness syndrome in a variety of human populations, including abused and discouraged children, battered wives, and prisoners of war (Overmier, 2002; Yee et al., 2003). Conversely, workers at all skill levels in a variety of professions report greater well-being when given some measure of control over their environment and working conditions (Faulkner, 2001; Zarit & Pearlin, 2003).

Thus, although we may be born with an individual predisposition to an internal or external locus of control, our experiences play a role as well. Research with 9/11 rescue personnel and regarding learned helplessness are just two areas in which this important fact has been illustrated.

## Hardiness

One of the most effective stress moderators is **hardiness**, an outlook based on distinctive attitudes toward stress and how to manage it. In contrast with risky Type A behavior, hardiness is a personality pattern that promotes healthy cop-

### CONNECTION • CHAPTER 10

*Individualistic cultures value the individual over the group, whereas collectivistic cultures prioritize group needs over individual needs.*



*In hospitals and nursing homes, patients may learn to feel helpless because they are not given opportunities to make decisions or exert control over their own lives.*

**Primary control** Efforts aimed at controlling external events.

**Secondary control** Efforts aimed at controlling one's reactions to external events.

**Learned helplessness** Pattern of failure to respond to threatening stimuli after an organism experiences a series of ineffective responses.

**Hardiness** Attitude of resistance to stress, based on a sense of challenge (welcoming change), commitment (engagement), and control (maintaining an internal guide for action).

ing. Hardiness first emerged in a large-scale study of managers working for Illinois Bell Telephone (IBT) in the 1970s and 1980s. Salvatore Maddi and a team of researchers from the University of Chicago gathered extensive data from the managers over a period of years, during which federal deregulation of public utilities resulted in massive layoffs and downsizing of IBT. Working conditions, positions, and expectations changed frequently, creating a highly stressful work environment. Two-thirds of the managers suffered negative health consequences, including heart attacks, strokes, depression, and anxiety disorders. The other third—who were exposed to the same conditions—not only suffered no ill effects but actually appeared to thrive (Kobasa et al., 1979). The distinguishing factor, it turned out, came to be known as hardiness, a concept comprised of three specific characteristics:

- *Challenge.* Hardy people perceive change as a challenge to be overcome and an opportunity to learn and grow, rather than a threat.
- *Commitment.* Hardy individuals became highly engaged in their lives, demonstrating a focused commitment to involvement in purposeful activity.
- *Control.* Hardy persons have an internal locus of control and are good at problem-solving—that is, they have not become victims of learned helplessness.

Let's apply these three factors—known as “the three Cs” of hardiness—to the life of a college student. Suppose that on the day you must prepare for a major test, a friend confides in you about a terrible problem and begs for your help. These two stressors—an important test and a needy friend—could be overwhelming, especially if you are already stretching some of your resources to the limit. But a hardy individual would employ the “three Cs” to reduce the stress of the situation: commitment (“I’m committed to my friend and to preparing for this test; I’m not going to let either one down”); challenge (“Now I have two important things I need to do—what are my options for meeting both needs?”); and control (“I’ll study all afternoon, talk to my friend over dinner—after all, I have to eat to keep my brain functioning—then review more before bed”).

Hardiness has been shown to reduce the effects of stressful situations across a wide variety of populations: in businesspeople, children, couples, Olympic athletes, military, and law enforcement (Maddi, 2002). And—like locus of control—although some indications of a hardy personality show up early in life, hardiness can also be learned. Researchers have successfully developed hardiness training programs that help individuals learn more adaptive ways of reacting to stressors in their life (Maddi, 1987; Beasley et al., 2003).

## Optimism

When you think about your future, do you generally expect good things to happen, or do you tend to worry about all the things that could go wrong? Optimists see a future of bright possibilities; for them, “the glass is half full,” whereas pessimists are far less positive, instead “seeing the glass as half-empty.” And pessimism isn’t simply a case of learned helplessness. “Life inflicts the same setbacks and tragedies on the optimist as on the pessimist,” says psychologist Martin Seligman (1991), “but the optimist weathers them better.” In general, optimistic people have fewer physical symptoms of illness, recover more quickly from certain disorders, are healthier, and live longer than pessimists do (Bennett & Elliott, 2002; Taylor et al., 2000a). What accounts for the differences? **Optimism** has a direct impact on health in that optimists feel more positive emotions, which in turn boosts their immune systems (Cohen et al., 2003). In addition, optimism aids in coping with stress via more active coping strategies, which we will discuss in the last section of this chapter.

**Optimism** An attitude that interprets stressors as external in origin, temporary, and specific in their effects.

A long-term research program by Seligman (2002) and associates indicates that an optimistic style of thinking makes three particular assumptions, or attributions, about negative events:

- They are the result of specific causes rather than global problems: *“I got a low grade on my last psychology test,”* instead of *“I’m doing badly in school.”*
- They are situational rather than personal problems: *“It probably happened because I missed class the day before the exam when the professor gave a review session,”* rather than *“I’m not smart enough to do well.”*
- They are temporary, rather than permanent: *“If I’m careful not to miss class anymore, I’ll do better on the next test,”* rather than *“I won’t be able to recover from this low score.”*

Seligman, one of the founders of the International Positive Psychology Association, believes that an optimistic thinking style can be learned. One way to do so, he advises, is by talking to yourself in a particular way when feeling depressed or helpless. Positive self-talk, says Seligman, should concentrate on the meaning and causes of personal setbacks. For example, if a dieter splurges on a piece of dessert, instead of thinking, “Because I’ve ruined my whole diet, I might as well eat the whole cake!” she or he should think, “Well, I enjoyed that, but I know I’m strong enough to stick to this diet most of the time.” In essence, Seligman argues that optimism is learned by adopting a constructive style of thinking, self-assessment, and behavioral planning.

In considering this, you might be reminded of the importance of cognitive appraisal in our stress response, and of our problem for this chapter concerning individual variations in the stress response. Learning to think more optimistically, or to respond with greater hardiness, changes our interpretation of a potential stressor and thus, lowers our perceived stress.

## Resilience

Born in 1971, Lance Armstrong was raised as an only child by a working mother and was an enthusiastic athlete from a young age. A competitive swimmer, runner, and cyclist, Armstrong focused in high school on bicycling, his favorite event. He was invited to spend his senior year training for the U.S. Olympic team and later took private classes to earn his high school diploma. The following year he became the U.S. national amateur champion bicyclist and won two major races; the year after that he won the Tour DuPont, over 1000 miles in 11 days. Armstrong had ups and downs but always rebounded. Then, in 1993 he won three major races in cycling’s “Triple Crown.” His popularity grew as he persisted through adversity: pouring rain, bicycle crashes, and bronchitis that prevented completion of a race. In 1995 he won his first Tour de France, the world’s premier cycling race at over 2200 miles. Autumn of 1996, however, brought what would surely be the final setback: a diagnosis of testicular cancer. He characteristically tackled this challenge too, however, with surgery, chemotherapy, and a change in diet. His chances for recovery seemed good—then plummeted when tumors were found on his brain. His sponsor canceled his professional contract. What did he do?

In brief, he bounced back (Armstrong, 2001). He found a new sponsor, and by 2005 he had placed or won in several events, before going on to win the Tour de France—seven times! Along the way he survived unsupported rumors of drug use and a car collision while biking. He is founder of a cancer research foundation, author of a best-selling autobiography, and an inspiration to people worldwide. With his life of successes and setbacks, you couldn’t call him “lucky.” Instead, psychologists recognize in Lance Armstrong something more precious to well-being than talent or genius: **resilience**.

**Resilience** The capacity to adapt, achieve well-being, and cope with stress, in spite of serious threats to development.



Resilience is the capacity to adapt and achieve well-being in spite of serious threats to development (Masten, 2001). In fact, the word *resilience* comes from a Latin root meaning “buoyant”—literally bouncing amid waves. For over two decades, most resilience research has focused on this quality in children and adolescents who have dealt with stressful life conditions, including parental neglect or abuse, parental mental illness, and other serious risk factors. How could some at-risk children survive and even thrive, when others became ill and failed *because* of the same types of risks?

Even at young ages, resilient children are distinguished by an assortment of qualities. They tend to have higher cognitive abilities, greater conscientiousness, better social skills, greater competence, and access to better caretaking or parenting resources (Masten, 2001; Riolli, 2002). Identifying resilient qualities so early in life supports the inference that one is either born resilient or not. More recently, however, attention has been focused on the quality of resilience among adult populations, and also on whether resilience can be learned. One study of resilience among adults examined survivors of the 1999 conflict in Kosovo in the former Yugoslavia. Resilience was related to a combination of personality traits, including extraversion, conscientiousness, and optimism (Riolli, 2002). Of these, optimism in particular holds promise for helping people to become more resilient and less vulnerable or brittle. Also, you may have noticed that resilience seems to overlap somewhat with hardiness, and indeed the two concepts are related. While hardiness is focused on three specific characteristics, though, resilience encompasses a broader range of qualities. And, because hardiness can be developed with the help of specific training programs, perhaps the future will bring similar findings to resilience.

Lance Armstrong’s story may be extraordinary, but his resilience need not be rare. In fact, many everyday heroes and “unknown celebrities” overcome terrible difficulties without our awareness. Their ability to deal with pain and challenge is actually the result not of extraordinary forces but of “ordinary magic,” resilience researcher Ann Masten’s (2001) term for normal adaptation processes which she argues are capable of greater outcomes than we might expect. By expecting more, perhaps we take a step toward greater optimism and resilience in our own lives.

## ● PSYCHOLOGYMATTERS

### ● Using Psychology to Learn Psychology

● Imagine that you have just suffered a loss: a friend picked a fight and insulted you, violating your sense of trust; the one you love doesn’t return your feelings and has rejected you; or your family pet has died, leaving you grief stricken though friends insist you should “get over it.” Whatever the stress, you aren’t sure where to go or to whom you can talk—yet you feel a strong need to express your thoughts and feelings. What can you do? Here’s a place to start: Write it out. In the process, you’ll learn more about your own psychology.

● Why write? Why not just rant and rave and get it out of your system? For one thing, aggressively venting emotions is not enough to relieve stress or support your health; on the contrary, it can even have aggravating or harmful effects (Gross & Psaki, 2004; Smythe, 1998). Conversely, writing about your fears and losses has therapeutic emotional effects (Pennebaker, 1990, 1997; Zimmerman, 2002), and writing about feelings and worries has been found to support the health of patients with immune disorders (Pennebaker, 1997). When you write out your thoughts and feelings, you talk only to and for yourself. With no audience to perform for and no patient listener to please, you can use frank language, tell all, and rest assured you don’t have to “explain” anything. All you need is a place, a time, the materials you need, and commitment to maintain the habit. There are several ways to make the practice easier and more effective:

- Write in any medium that is efficient or comforting to you—it’s OK to type at your keyboard, but you may not always have convenient access to your computer. Handwriting is more personally expressive, and you don’t have to make it legible—it’s for your eyes only. By using a pen and paper, you can not only write but draw or doodle, expressing yourself nonverbally. And a small notebook is inexpensive and easy to keep handy.
- Choose a topic or theme to get you started. If a loss or fear has prompted your writing exercise, start with that. If not, choose an “assignment” that prompts emotions and ideas about important challenges in your life. One professor asks students in a class on psychology of loss to develop a journal of loss, referring either to personal losses or to memorable events such as a terrorist attack or the death of a celebrity and what that has meant to the writer (Harvey & Hofmann, 2001).
- Write out your thoughts as well as your feelings. Focus on finding the meaning in difficult experiences. You may not know the answers (“Why didn’t our relationship last?”), but you can reason and fantasize (“Maybe this is a good time for me to be on my own anyway”). An important purpose in therapeutic writing or talking is to achieve insight, growth, and change. It may also help to write out memories as if telling a story: with a beginning, middle, and end; descriptions of characters and events; and your own conclusions about the “moral of the story” and lessons you have learned (Harvey et al., 1990; Murray, 2002).
- Write in spare moments, setting a goal such as a few pages every week. Write as if you were a reporter, including whatever details seem important (DeSalvo, 2000). Experiment with various forms, such as writing love or hate letters. Identify blessings-in-disguise or categorize various things you do (e.g., things you do for others versus things you do for yourself) (Zimmerman, 2002).
- Stick with it. Make writing a habit, not just a release for the bad times. One researcher found that writing only about trauma intensified the pain and left subjects less able to open up or work it through. So even at times when you don’t “need” to write, write a few lines anyway—*because* you feel fine—so you can later remember that you have felt good and remind yourself how you got that way!

Your goal in using writing is not to become a great writer (though it’s possible!) but to work through your stress, learn about your responses and coping patterns, and heal. You set the goals, you make the rules. In doing so, you might consider how to incorporate some of what you have learned in this section about perceptions and hardiness. Perhaps, through writing, we can focus on improving our abilities to perceive stressors in an adaptive manner. In addition, remember our discussion in the first Core Concept of this chapter about the importance of narratives. But don’t let it stress you out! You issue these writing “assignments” to yourself, so you can relax knowing there is no deadline pressure and no grade to worry about.

## Check Your Understanding

1. **RECALL:** In terms of health, the riskiest component of Type A behavior is \_\_\_\_\_.
  - a. hostility
  - b. perfectionism
  - c. competitiveness
  - d. time urgency
2. **ANALYSIS:** People who believe they can take action to affect their life outcomes have an \_\_\_\_\_ locus of control and are more likely to \_\_\_\_\_.
  - a. internal; suffer more frequent frustrations
  - b. external; suffer more frequent frustrations
  - c. internal; live longer
  - d. external; live longer
3. **APPLICATION:** Roz recently got a new assignment at work that she didn’t really want. In responding to this change, she decided to see it as an opportunity for growth and to fully commit to doing whatever was necessary to do a good job with it. Which personality

characteristic discussed in this section best describes Roz's response?

**4. APPLICATION:** Think of a recent negative event or situation in your own life. According to Martin Seligman, what three attributions should you make in perceiving

the event/situation?

**5. UNDERSTANDING THE CORE CONCEPT:** Describe how personality characteristics fit into the stress–illness relationship.

**Answers** 1. a 2. c 3. hardness, as evidenced by Roz's high degree of commitment and challenge 4. specific (rather than global), situational (rather than personal), and temporary (rather than permanent) 5. Personality characteristics moderate the relationship between stressors and stress by influencing the way we perceive and interpret stressors. People with more moderators feel less stressed when exposed to stressors and thus have greater resistance to stress.

## 14.4 KEY QUESTION

### HOW CAN WE REDUCE THE IMPACT OF STRESS ON OUR HEALTH?

Is it possible to choose to live a long and healthy life? Or will your health be determined by factors out of your hands, such as your genetic background or simply your access to health care? After exposure to a traumatic stressor such as 9/11, or a chronic stressor such as the ones we have discussed in this chapter, is there something we can do to reduce its impact on our health?

By now, you've probably gathered that taking a hardy approach to these questions, with an internal locus of control and an optimistic attitude, will increase your odds of success! And there is more good news: Illness and mortality can also be affected by the coping strategies we employ and the lifestyle choices we make (Elliott & Eisdorfer, 1982; Taylor, 2006). As you can see by “reading between the lines” in Table 14.1, many early deaths result from behaviors over which we have control. Stress, of course, is part of the lifestyle equation, too. In this section of the chapter, we will explore effective ways of coping with stress, as well as lifestyle choices that can help us ward off the devastating effects of stress through better health. As our Core Concept puts it:

#### core concept

**Healthy coping strategies reduce the impact of stress on our health, and positive lifestyle choices reduce both our perceived stress and its impact on our health.**

**Coping strategy** Action that reduces or eliminates the impact of stress.

Revisiting the model we introduced in the previous section (Figure 14.6), **coping strategies** work by reducing the impact of stress—once we're feeling it—on our

**Table 14.1** Leading Causes of Death in the United States

Rank	Females, all races	Contributors	Percentage	Rank	Males, all races	Contributors	Percentage
1.	Heart disease	DS	29.3	1.	Heart disease	DS	28.7
2.	Cancer	DS	21.6	2.	Cancer	DS	24.3
3.	Stroke	DS	8.1	3.	Stroke	A	5.6
4.	Chronic lower respiratory disease	S	5.1	4.	Chronic lower respiratory disease	DS	5.3
5.	Diabetes	D	3.1	5.	Diabetes	S	5.0
6.	Alzheimer's disease		3.1	6.	Alzheimer's disease	D	2.8
7.	Unintentional injuries	A	2.9	7.	Unintentional injuries	A	2.3
8.	Influenza and pneumonia		2.8	8.	Influenza and pneumonia	A	2.1
9.	Kidney disease		1.7	9.	Kidney disease		1.6
10.	Septicemia		1.5	10.	Septicemia	A	1.5

Contributors to causes of death: D = Diet, A = Alcohol, S = Smoking.

(Source: Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, 2004. Retrieved on November 19, 2004, from [www.cdc.gov/od/spotlight/nwhw/lcod.htm](http://www.cdc.gov/od/spotlight/nwhw/lcod.htm))

health. In other words, they decrease the effects of stress on our bodies. **Positive lifestyle choices** have the same power to help us cope effectively with stress and have an added benefit: They also act as stress moderators, diminishing the stress we perceive when exposed to stressors. That is, positive lifestyle choices increase our resistance to stress, as well as our resistance to illness. We begin this section of the chapter by examining coping strategies that are most useful in combating stress. Then, we examine the lifestyle choices associated with stress reduction and disease prevention. Finally, we will look at the characteristics of people who say they have found happiness and a sense of well-being.

## Psychological Coping Strategies

Earlier in the chapter we saw how the Type A personality, pessimism, and learned helplessness can aggravate the stress response, just as hardiness, optimism, an internal locus of control, and resilience can moderate it. Certainly, we advise that for serious stressors and difficulties, you seek out professional advice and help. (If you don't know a psychotherapist or licensed counselor, ask a trusted instructor or health care provider for a referral.) What can you do on your own, however, to cope effectively with stress? And what exactly is meant by coping?

**Defending versus Coping** There are two broad categories of stress management behaviors: defending and coping. **Defending** involves reducing the *symptoms* of stress or reducing one's awareness of them. For example, if you feel stress over an important psychology exam for which you feel unprepared, you might simply defend against that anxious feeling by distracting yourself with some activity that is fun—going to a party or visiting friends. Your defense won't make the problem go away—there will still be an exam, and now you'll be even less prepared for it! But for a brief period, you might feel less stress. Defending has the advantage of alleviating some symptoms like worry, discomfort, or pain; but it has the serious drawback of failing to deal with the stressor. Inevitably stress returns, only now it may be more difficult to alleviate.

In contrast with merely defending against stress, **cop**ing involves taking action that reduces or eliminates the causes of stress, not merely its symptoms. To cope, you must confront the stress, identify the stressor, and develop a way of solving the problem or reducing the harm it causes you. This means not just feeling better but improving the entire stressful situation. To cope with stress over a looming psychology exam, you must (a) realize that you feel unprepared for the exam, (b) identify effective strategies to study for the test, (c) implement the strategies in a timely manner, and (d) take the test. This way you will not only feel prepared, you will be prepared and feel less anxious. Of course, you may have to postpone having fun until after the exam, but you'll enjoy yourself more without the test anxiety. (Remember the Premack principle?)

**Problem-Focused and Emotion-Focused Coping** In general, there are two basic approaches to healthy coping: emotion-focused coping and problem-focused coping. **Problem-focused coping** involves clarifying the stressor and taking action to resolve it. This may involve some advance planning, such as when you are nervous about starting a new school. Problem-focused coping in that situation could involve a visit to the school to figure out where your classes are and to talk with an academic advisor to get some tips for success, thus reducing your anxiety about knowing your way around and about being able to do well. **Emotion-focused coping**, on the other hand, involves efforts to regulate your emotional response to the stressor by identifying your feelings, focusing on them, and working through them. Effective emotion-focused coping must be distinguished from **rumin**ation, which is dwelling on negative thoughts (rather than emotions); not surprisingly, rumination has been found to compromise our immune systems (Thomsen et al., 2004)—and it doesn't help us feel better, either!

**Positive lifestyle choices** Deliberate decisions about long-term behavior patterns that increase resistance to both stress and illness.

**Defending** Efforts taken to reduce the symptoms of stress or one's awareness of them.

**Coping** Taking action that reduces or eliminates the causes of stress, not merely its symptoms

**Problem-focused coping** Action taken to clarify and resolve a stressor.

**Emotion-focused coping** Regulating one's emotional response to a stressor.

**Rumination** Dwelling on negative thoughts in response to stress, a behavior which compromises the immune system.

### CONNECTION • CHAPTER 3

The *Premack principle* notes the strategy of using a preferred activity as a reward for completing a less-preferred activity.

Both types of coping can be useful. In general, problem-focused coping is best when there is some concrete action that can be taken to reduce the stressor. In contrast, emotion-focused coping can help at times when you must simply accept a situation or when you need to work through your emotions before you can think clearly enough to act rationally (Folkman & Lazarus, 1980; Zakowski et al., 2001).

Sometimes the two coping styles work best together. For example, if you get fired from your job, you might try to start looking for another job (problem-focused) but find that you can't focus on the task because you are too angry and confused about being fired. In that type of situation, it can be helpful to do some emotion-focused coping to help yourself calm down and be able to think more clearly. You might go for a run or to the gym, talk to a trusted friend, write in your journal, or engage in some other task that helps you work through your feelings. Alternatively, you might take a hot bath, get some rest, or eat something nourishing. Such emotion-focused coping is not merely a defense (as in distracting yourself completely from the problem). Rather, it focuses on processing your emotional responses before they careen out of control and become hazardous to your health. Then, when you feel calm and prepared, you can concentrate on what it takes to address the stressor and solve the problem.

**Cognitive Restructuring** Throughout this chapter, we have recognized the role of cognitive appraisal in the stress-illness relationship. And while the personality factors that make us less vulnerable to stress—such as hardiness and locus of control—are deeply ingrained in our general outlook, with a little conscious effort we can apply their basic principles to our coping efforts (Kohn & Smith, 2003). **Cognitive restructuring** involves just that: cognitively reappraising stressors with the goal of seeing them from a less-stressful perspective (Meichenbaum & Cameron, 1974; Swets & Bjork, 1990). The approach involves recognizing the thoughts you have about the stressor that are causing anxiety, then challenging yourself to see the situation in a more positive light. Getting fired, for example, offers the opportunity to find a new job that is more enjoyable, offers better pay, or has more potential for advancement. Cognitive restructuring is especially suitable for people suffering from chronic stress. Indeed, it is one of the cornerstones of cognitive-behavioral therapy, which we discussed in the previous chapter.

Making **social comparisons** is a type of cognitive restructuring that specifically compares your own situation to others in similar situations. Health psychologist Shelley Taylor (1983) first noted the use of social comparison in a study of breast cancer patients. Some of them engaged in **downward social comparison**, in which they compared their own situations to those of women worse off than they were, which in turn helped them see their illness in a more positive light. (Please note that, in making these downward comparisons, no one is taking any pleasure in others' pain; the strategy is simply noticing and acknowledging the existence of grimmer possibilities.) Others engaged in **upward social comparison** and used breast cancer patients who were doing better than they were as models and inspiration for improvement. Corroborating research has demonstrated that both types are effective coping strategies. In a sense, downward social comparisons represent a type of emotion-focused coping—in that the comparison ultimately makes you feel less worried—whereas upward comparisons are a type of problem-focused coping because the models serve as a guide for specific action (Wills, 1991).

**Positive Emotions** If negative thinking and negative emotions such as hostility are stress inducing, then is the opposite true as well: Are positive emotions health inducing? Several areas of study indicate that they may be.

One study investigated this question in a group of Catholic nuns who ranged in age from 75 to 95 years old. The researchers gained access to autobiographies the nuns had written just prior to entering the convent (when most were in their

**Cognitive restructuring** Reappraising a stressor with the goal of seeing it from a more positive perspective.

**Social comparison** A type of cognitive restructuring involving comparisons between oneself and others in similar situations.

**Downward social comparison** Comparison between one's own stressful situation and others in a similar situation who are worse off, with the goal of gaining a more positive perspective on one's own situation.

**Upward social comparison** Comparison between one's own stressful situation and others in a similar situation who are coping more effectively, with the goal of learning from others' examples.

early twenties) and measured the emotional content of the writings. Each one-page autobiography was rated for the number of positive, negative, and neutral emotional words used. Clear differences emerged: Nuns who used the most positive-emotion words lived an average of 9.4 years longer than those who expressed the fewest positive emotions! Moreover, expressing a wider variety of positive emotions in their autobiographies increased lifespan by an additional year (Danner et al., 2001).

Cultivating and expressing a sense of humor has also been found to buffer the effects of stress. The ability to find something to laugh about during exposure to a stressor not only improves mood, but decreases the physiological impact of the stressor as well (Dillard, 2007). Having a good sense of humor, as a personality characteristic, has also been found to reduce an individual's cognitive appraisal of a stressor (Lefcourt, 2000; Kulper et al., 1993). These findings dovetail with work by Harvard psychologist George Vaillant, whose lifespan study of men noted joy in living as one of the key predictors of health and long life (Vaillant, 1990).

If you don't possess a naturally good sense of humor or don't characteristically experience a lot of positive emotions, you can still benefit from these tools in your coping efforts. Making a conscious effort to note positive moments in your life and to seek out situations in which you find humor and joy can and will improve your life, says positive psychology proponent Martin Seligman in his book *Authentic Happiness* (2002). A poignant expression of this was noted by an AIDS patient, who said this:

Everyone dies sooner or later. I have been appreciating how beautiful the Earth is, flowers, and the things I like. I used to go around ignoring all those things. Now I stop to try and smell the roses more often, and just do pleasurable things. (G. M. Reed, cited in Taylor, 2006)

**Finding Meaning** Viktor Frankl was a well-respected neurologist in Austria when Nazi forces deported him and his family to a concentration camp. They, along with thousands of other Jews, were subjected to various forms of deprivation, torture, and unspeakable atrocities, and many—including Frankl's wife and parents—died in the camps. Frankl, however, survived, and after the war ended he made a significant contribution to the field of psychology with his work on the importance of finding meaning in seemingly inexplicable events such as what he had experienced in the camps. In his seminal work *Man's Search for Meaning* (1959), he says, "When we are no longer able to change a situation—just think of an incurable disease such as inoperable cancer—we are challenged to change ourselves."

Frankl's hypothesis has spawned research investigating the benefit of finding meaning in loss, which has identified two specific types of meaning, **sense-making** and **benefit-finding**. Following a significant negative life event, people try to make sense of the event in some way so that it fits with our perception of the world as predictable, controllable, and nonrandom (Tait & Silver, 1989; Tedeschi & Calhoun, 1996). For example, a death might be explained as inevitable if the person had been battling a long illness or if he or she had a history of heavy smoking. In the wake of Hurricane Katrina, discussions of the long-standing problems with New Orleans' levees reflected a similar attempt for sense-making. Individuals with strong religious beliefs may make sense of loss by attributing it to God's will. A second path to finding meaning lies in recognizing some benefit that ultimately came from the loss, such as a renewed sense of appreciation for life or other loved ones, or discovery of a new path in life.

Successful coping appears to involve both sense-making and benefit-finding, although at different times. Sense-making is the first task people struggle with, but ultimately working through the loss and regaining momentum in life seems to hinge on resolving this first question and moving on to the second (Janoff-Bulman & Frantz, 1997). This may explain why people who have lost a child,



*Feeling and expressing positive emotions can lengthen your lifespan.*

**Sense-making** One aspect of finding meaning in a stressful situation, which involves perceiving the stressor in a manner consistent with our expectations of the world as predictable, controllable, and nonrandom.

**Benefit-finding** The second phase of finding meaning in a stressful situation, which involves seeing some ultimate benefit from the stressor.

individuals coping with an accidental or violent death of a loved one, and others dealing with a loss that defies our perception of the natural order of life often have a harder time recovering from the loss (Davis et al., 1998).

Finding meaning in tragedy, then, is not an easy task. Is there anything that can help? Not surprisingly, perhaps, optimists have an easier time of it than do pessimists, especially with regards to benefit-finding (Park et al., 1996). Strong religious beliefs appear to facilitate sense-making, particularly with the loss of a child, as evidenced in a study of parents who had lost a child to sudden infant death syndrome (SIDS) (McIntosh et al., 1993). And the benefits of social support—which we will explore shortly—are not limited to a particular personality type or to the religious but can play an important role in finding meaning of both types.

**Psychological Debriefing: Help or Hindrance?** On April 20, 1999, two heavily armed students at Columbine High School in Littleton, Colorado, carried out a preplanned massacre, fatally gunning down 12 students and a teacher before turning their guns on themselves. Those who survived needed assistance in coping, but so did their horrified loved ones and the larger community. Although the vast majority of trauma survivors recover from early trauma without professional help, community leaders and mental health professionals may initiate counseling sessions—seeking out individuals or gathering groups in meeting spaces—in hopes of reducing posttraumatic stress. After the Columbine massacre, counselors visited all classes regardless of whether individual students had reported problems. Similarly, after the World Trade Center attacks, a program was funded to offer free counseling for New Yorkers—but only a fraction of the predicted number sought help, leaving \$90 million in therapy funds unspent (Gittrich, 2003). Don't survivors want help—or isn't such help very effective?

This form of crisis intervention, called **psychological debriefing**, is a brief, immediate type of treatment focusing on venting emotions and discussing reactions to the trauma (McNally et al., 2003). This practice is based on the assumption that it is psychologically healthier to express negative feelings than to keep them inside. This belief, in turn, is based on the ancient concept of **catharsis**, which involves relieving emotional “pressure” by expressing feelings either directly (as by hitting a punching bag) or indirectly (as by watching a violent play or movie). Unfortunately, the theory of catharsis doesn't hold up to empirical scrutiny—rather than reducing arousal and feelings of distress, studies show it often prolongs them.

**Critical Incident Stress Debriefing (CISD)** Recently, a specific type of psychological debriefing known as **critical incident stress debriefing (CISD)** has emerged and taken center stage in the field of psychological debriefing. CISD programs typically offer group sessions to trauma survivors within 72 hours of the traumatic event; these sessions are two to three hours long and are often mandated by organizations (such as by Columbine High School in the aftermath of the shooting). CISD programs follow a strict agenda that requires participants to first describe the facts of the traumatic event, then recount the immediate cognitive reactions they had to it, followed by their feelings, and disclose any symptoms of psychological distress they have begun to notice as a result. Next, program leaders offer information about frequently occurring symptoms and provide referrals for follow-up treatment.

**Is CISD Effective?** As we have learned, extraordinary claims require extraordinary evidence. Also, remember that we are biased when it comes to emotionally charged topics—our strong desire to find a “cure” can interfere with our ability to think critically about the evidence. In cases like this, it is all too easy to jump on the bandwagon of an exciting new treatment before it has been soundly tested. And while proponents of CISD argue for its effectiveness, very few studies have followed sound methodological procedures to accurately measure the outcomes

**Psychological debriefing** Brief, immediate strategy focusing on venting emotions and discussing reactions to a trauma.

**Catharsis** A theory suggesting that emotional pressure can be relieved by expressing feelings directly or indirectly.

**Critical incident stress debriefing (CISD)** A specific type of psychological debriefing that follows a strict, step-by-step agenda.

(Devilly et al., 2006). On the contrary, caution some trauma experts, the procedures of CISD can actually strengthen the memory of a traumatic experience—the opposite of helpful intervention. Moreover, the procedures involved in CISD run contrary to some long-established findings regarding the ineffectiveness of catharsis, which casts further doubt on the true efficacy of the program. At this point in time, research suggests that we should be skeptical of the value of CISD in helping trauma survivors.

In the short term, talking to others may help—if the individual wants and seeks out this opportunity. Organizations that require survivors of a traumatic event to participate in CISD whether they want to or not, however—with the assumption that “it couldn’t hurt”—may be doing more harm than good. Sadly, many emergency-response workers are unaware of research questioning the value of debriefing, and, as a result, debriefing is still used widely and indiscriminately (Holden, 2003d; McNally et al., 2003). Cognitive and behavioral therapies that focus on cognitive reappraisal and use well-established procedures to reduce emotional arousal associated with the event may be more effective than CISD, especially when therapy is delivered not immediately but many weeks after the traumatic event (McNally et al., 2003).

These, then, are the coping strategies found to be effective in keeping stress from taking a toll on our health—problem-focused and emotion-focused coping, cognitive restructuring, upward and downward social comparisons, positive emotions, and finding meaning. Each of these factors offers an additional piece of the puzzle to help us understand individual differences in how stress affects us. As you consider your own use of these tools, please remember two things. First, people facing chronic stressors often rely on a combination of strategies. Second, there are also a number of lifestyle choices we can make that can be added to our “coping strategies toolbox” and have the added benefit of moderating stress as well. We turn our attention next to a review of those factors.

#### CONNECTION • CHAPTER 13

Cognitive-behavioral therapies treat maladaptive behavior by helping to change both unwanted cognitions and unwanted behaviors.

## Positive Lifestyle Choices: A “Two-for-One” Benefit to Your Health

If you are like most people, you like a bargain! We want the most for our money, the most for our time, and the most for our efforts. The positive lifestyle choices we will discuss in this section are bargains for your health, in that each investment you make in this category gives you not one, but two benefits: They act both as moderators and as coping strategies. (See Figure 14.6.) The more of these you integrate into your life, the better health you will enjoy. Let’s start with a little help from our friends.

**Social Support** One of the best antidotes for stress is **social support**: the psychological and physical resources that others provide to help an individual cope with adversity. Research shows that people who encounter major life stresses, such as the loss of a spouse or job, suffer fewer physical and psychological ailments if they have an effective network of friends or family for social support (Billings & Moos, 1985). They are less likely to contract colds and have less risk of depression or anxiety. Similarly, social support has demonstrable health benefits for those suffering from physical disease (Davison et al., 2000; Kelley et al., 1997): Individuals diagnosed with conditions including heart disease, cancer, arthritis, and diabetes all recover more quickly with a good social support network (Taylor, 2006). By contrast, people with few close relationships die younger, on the average, than people with good social support networks (Berkman & Syme, 1979; Pilisuk & Parks, 1986)—even when other factors known to affect lifespan, such as health and socioeconomic status, are controlled for. Remarkably, the lack of a reliable support network increases the risk of dying from disease, suicide, or accidents by about the same percentage as does smoking (House et al., 1988).

**Social support** Resources others provide to help an individual cope with stress.





*These women are doing two things for their health: spending time with friends, and laughing.*

**Benefits of Social Support** What is it about social support that gives it such power to enhance our health? Research has revealed three specific benefits. *Emotional support* may be what immediately comes to mind when you think of social support, and this indeed is one of its benefits. Having trusted friends and loved ones we can count on to be there with us through difficult times lends immeasurable relief. *Tangible assistance* comes in the form of specific, task-oriented help, such as rides to the doctor's office or hospital, help with housecleaning, or cooking meals. Finally, *informational support* aims to help an individual better understand the nature of the stressor as well as available resources to cope with it. In the aftermath of a serious auto accident, for example, someone with spinal cord injuries might benefit from information regarding typical timeline and strategies for recovery but not be mobile enough to get to a computer to research it. A friend can help. And even though social support networks often consist of family and close friends, support groups or other community resources can provide these benefits as well.

Physiologically, social support reduces the intensity and the duration of the arousal associated with the fight-or-flight response. This finding has emerged from experimental studies that first expose participants to a stressor, then measure such responses as their heart rate, blood pressure, and levels of stress hormones either in the presence of social support or alone (Christenfeld et al., 1997). Social support in the form of a friend or loved one provides optimal benefits, but arousal is also reduced when the support comes from a stranger, a video (Thorsteinsson et al., 1998), or even a pet—although dogs somewhat outperform cats in this regard (Allen et al., 2002). And when social support is not present, simply thinking about loved ones even provides some benefit (Broadwell & Light, 1999).

Physical affection, such as hugs, hand holding, and touch, helps combat stress as well. Several studies note lower arousal in women exposed to a stressor when their partners held their hand or gave them a hug—and, recently, this effect was found in men as well (Coan et al., 2006; Light et al., 2005). For both sexes, as in animals, physical contact with a trusted partner raises oxytocin levels, which decreases anxiety and stress. These findings fit nicely with the tend-and-befriend model we introduced earlier in this chapter.

**Supporters Reap What They Sow** What impact does social support have on the supporter? People in need of social support sometimes worry that they might raise their loved ones' stress levels by asking for help. And while this does sometimes occur—caregivers of Alzheimer's patients, for example, show greater risk of depression and disease—overall, support-givers benefit from helping. In fact, one study of married couples measured amounts of support giving and receiving over a five-year period and found that those who provided more support lived longer (Brown et al., 2003). It is important to note, however, that supporters need support as well.

**Exercise** For better or worse, our bodies are still better adapted to the strenuous, Stone-Age demands of hunting and gathering than to sedentary life in a digital, urban world. Spending our days in relative inactivity behind a desk or computer terminal is not a formula for physical or mental health. Unfortunately, while many of us may know this, few are taking it seriously—two-thirds of Americans aren't getting enough exercise, according to the Center for the Advancement of Health (2004).

Just 30 minutes of aerobic exercise per day lowers risk of heart disease, stroke, and breast cancer, among others (Taylor, 2006). It can increase muscle tone and eliminate fat—changes that produce a variety of health benefits. Most importantly, perhaps, it can prolong your life. A long-term study of 17,000 middle-aged men showed that those who were on an exercise regimen (the equivalent of walking five hours a week) had mortality rates that were almost one-third lower than their couch-potato counterparts (Paffenbarger et al., 1986). Even smokers who exercised reduced their death rate by about 30%.

Regular exercise has not only physical but psychological benefits, including stress reduction (McDonald, 1998) and mental health. For example, a regular aerobic exercise program improved the emotional health of female college students who were mildly depressed (McCann & Holmes, 1984). Another study found that a 20-week physical fitness course could produce measurably lower levels of anxiety in sedentary women (Popejoy, 1967). Exercise programs have also been shown to have a positive effect on self-concept (Folkins & Sime, 1981). And a recent study of depressed patients found that, compared to a group receiving antidepressant medication, those assigned to an exercise-only regimen had a similar decline in symptoms. Even better, the exercisers maintained their improvement longer and were less likely to become diagnosed again as depressed than were nonexercisers (Babyak et al., 2000).

An exercise-for-health program has several big pluses. Exercise usually requires a change of environment, removing people from their daily hassles and other sources of stress. It also has a physical training effect by putting short-term physical stress on the body, which causes the body to rebound and become physically stronger. Third, when we exercise we get a boost of endorphins and other pleasure chemicals such as serotonin, which improves our mood and makes us better able to respond effectively to potentially stressful situations. In this way, it moderates stress. The benefit of exercise as a coping strategy lies in its use as a healthy outlet for anger, as well as a facilitator of the cognitive functioning required for good problem solving. These benefits apply to all ages, from preschoolers to the elderly (Alpert et al., 1990).

Despite these advantages, most resolutions to increase exercise are short lived; people often find it difficult to maintain their motivation. Nevertheless, studies show that people can learn to make exercise a regular part of their lives (Myers & Roth, 1997). The keys are (a) finding an activity you like to do and (b) fitting exercise sessions into your schedule several times a week. Having an exercise partner often provides the extra social support people need to stick with their program.

**Nutrition and Diet** Good health and the ability to cope effectively with stress require a brain that has the nutrients it needs to function well. Fortunately, a balanced diet can provide all the nutrients necessary to accurately appraise potential stressors from a cognitive perspective. When we fuel ourselves with complex carbohydrates instead of simple sugars, for example, we metabolize the nutrients at a more stable pace, which may help keep us from overreacting. Many people, however, grab a fast-food meal or a candy bar instead of taking time for good nutrition. For example, a survey of students in 21 European countries revealed that only about half attempt to follow healthy eating practices. The same study found that women were more likely than men to be conscious of good nutrition (Wardle et al., 1997).

When chronic nutritional deficiencies occur in childhood—when the brain is growing fastest—development can be retarded (Stock & Smythe, 1963; Wurtman, 1982). Poor nutrition can have adverse affects on adults, too. A diet high in saturated fat increases risk of heart disease and some types of cancer. Excessive salt intake increases risk of high blood pressure. Potassium deficiency can cause listlessness and exhaustion. One should be cautious, however, about going to the other extreme by ingesting large quantities of vitamins and minerals. Overdoses of certain vitamins (especially vitamin A) and minerals (such as iron) are easy to achieve and can cause problems that are even more severe than deficiencies.

What can you do to nurture your health through nutrition? The categories in Table 14.2 are good places to start. We suggest, also, that you beware of nutritional fads, including dietary supplements that come with miraculous promises that seem almost too good to be true. Nutrition is a science in its infancy, and much remains to be discovered about its connections to physical and mental health.



*Exercise is a good way to reduce stress and improve your general health.*

**TABLE 14.2 Ten Steps to Personal Wellness**

1. Exercise regularly.
2. Eat nutritious, balanced meals (high in vegetables, fruits, and grains, low in fat and cholesterol).
3. Maintain a sensible weight.
4. Sleep 7 to 8 hours nightly; rest/relax daily.
5. Wear seat belts and bike helmets.
6. Do not smoke or use drugs.
7. Use alcohol in moderation, if at all.
8. Engage only in protected, safe sex.
9. Get regular medical/dental checkups; adhere to medical regimens.
10. Develop an optimistic perspective and supportive friendships.

**Sleep and Meditation** In Chapter 8, you learned about the benefits of good sleep. Sleep affects our health and stress in a variety of ways. First, given the link between REM sleep and cognitive functioning, we are reminded that to deal effectively with the cognitive demands of potential stressors, we must get enough sleep to enjoy the long REM periods that come only after about six hours of sleep. In addition to the increased risk of accidents we discussed in Chapter 8, chronic sleep deprivation has been linked to diabetes and heart disease, as well as decreased immune system functioning.

Meditation, which for many years was viewed with skepticism by Westerners, has earned increased consideration recently due to provocative findings from a spate of studies. The ancient Buddhist practice of “mindful meditation” originated 2500 years ago and, translated, means “to see with discernment” (Shapiro et al., 2005). Mindfulness-based stress reduction (MBSR), a modern variation on the Buddhist tradition, aims to increase awareness of one’s reactions to stress, become at ease with them, and develop healthier responses. These goals are achieved in part through meditation that teaches the participant first to focus on body sensations and cognitions involved in stress reactions, and then to let them go by fully accepting (rather than judging or resisting) them. Research on MBSR indicates that participation in an eight-week training program reduces stress; decreases risk of anxiety, depression, and burnout; and increases immune system functioning (Shapiro et al., 2005; Carlson et al., 2007). This fascinating work is just one example of how, in the 21st century, the pursuit of health is relying increasingly on East–West collaborations.

## Putting It All Together: Developing Happiness and Subjective Well-Being

Making changes to live a healthier life can lead to a feeling-good state that researchers call **subjective well-being (SWB)**, a psychologically more precise term for what you might call “happiness.” Do you usually have that feeling?

We cannot observe happiness directly. Instead, in SWB studies, researchers rely on respondents’ own ratings of their experiences, answers to questions about what they find satisfying, and assessments of their well-being, mood, or success (Diener, 1984, 2000). To avoid confusion about what words like *well-being* mean, researchers also use nonverbal scales like the one in the smiley-faces in Figure 14.7 (Andrews & Withey, 1976).

Happiness, or SWB, is an increasingly popular subject of study with psychologists, evident in the emerging field of positive psychology. Accumulating research (Myers, 2000; Myers & Diener, 1995) shows that, despite many individual differences, SWB is defined by three central components:

**Subjective well-being (SWB)** An individual’s evaluative response to life, commonly called happiness, which includes cognitive and emotional reactions.



**FIGURE 14.7**  
The Faces Scale

“Which face comes closest to expressing how you feel about your life as a whole?” Researchers often use this simple scale to obtain people’s ratings of their level of well-being. As the percentages indicate, most people select one of the happy faces.

(Source: “The Faces Scale,” pp. 207, 306, from *Social Indicators of Well-Being: Americans’ Perception of Life Quality* by F. M. Andrews and S. B. Withey. Copyright © 1976 by Plenum Publishers. Reprinted by permission of Springer Science and Business Media.)

1. *Satisfaction with present life.* People who are high in SWB like their work and are satisfied with their current personal relationships. They are sociable and outgoing, and they open up to others (Pavot et al., 1990). High SWB people enjoy good health and high self-esteem (Baumeister et al., 2003; Janoff-Bulman, 1989, 1992).
2. *Relative presence of positive emotions.* High SWBs more frequently feel pleasant emotions, mainly because they evaluate the world around them in a generally positive way. They are typically optimistic and expect success (Seligman, 1991). They have an internal locus of control, and are able to enjoy the “flow” of engaging work (Crohan et al., 1989; Csikszentmihalyi, 1990).
3. *Relative absence of negative emotions.* Individuals with a strong sense of subjective well-being experience fewer and less severe episodes of negative emotions such as anxiety, depression, and anger. Very happy people are not emotionally extreme. They are positive (but not ecstatic) most of the time, and they do report occasional negative moods (Diener & Seligman, 2002).

What underlies a healthy response on these dimensions? Twin studies show that feelings of well-being are influenced by genetics (Lykken & Tellegen, 1996), but biology is not destiny: Environmental effects are revealed in studies showing that people feel unhappy if they lack social support, are pressured to pursue goals set by others, and infrequently receive positive feedback on their achievements. Accordingly, experts in this field suggest that feelings of well-being require the satisfaction of (a) a need to feel competent, (b) a need for social connection or relatedness, and (c) a need for autonomy or a sense of self-control (Baumeister et al., 2003; Ryan & Deci, 2000).

So who are the happy people? What characteristics and experiences are linked with feelings of subjective well-being and happiness? Before reading further, take a moment to consider whether you think some groups of people are happier than others. If so, which ones? A review of the SWB evidence by Myers and Diener (1995) shows that:

- *Younger (or older, or middle-aged) people are not happier than other age groups.* SWB cannot be predicted from someone’s age. Although the causes of their happiness may change with age (Inglehart, 1990), an individual’s SWB tends to remain relatively stable over a lifetime.
- *Happiness has no “gender gap.”* While women are more likely than men to suffer from anxiety and depression, and men are more at risk for alcoholism and certain personality disorders, approximately equal numbers of men and women report being fairly satisfied with life (Fujita et al., 1991; Inglehart, 1990).
- *There are minimal racial differences in happiness.* African Americans and European Americans report nearly the same levels of happiness, with African

Americans being slightly less vulnerable to depression (Diener et al., 1993). Despite racism and discrimination, members of disadvantaged minority groups generally seem to think optimistically—by making realistic self-comparisons and by attributing problems more to unfair circumstances than to themselves (Crocker & Major, 1989).

- *Money does not buy happiness.* It is true that people in wealthier societies report greater well-being. However, except for extremely poor nations like Bangladesh, once the necessities of food, shelter, and safety are provided, happiness is only weakly correlated with income. Poverty may be miserable, but wealth itself cannot guarantee happiness (Diener & Diener, 1996; Diener et al., 1993). The happiest people are not those who get what they want, but rather those who want what they have (Myers & Diener, 1995).
- *Those who have a spiritual dimension in their lives most often report being happy* (Myers & Diener, 1995). This may result from many factors, including a healthier lifestyle, social support, and optimistic thinking. Whatever the reasons, spiritually involved people enjoy, on average, better mental and physical health (Seybold & Hill, 2001).

These findings tell us that life circumstances—one's age, sex, race, nationality, or income—do not predict happiness. The key factors in subjective well-being appear to be psychological traits and processes, many of which you have learned about in this chapter or elsewhere in this book. It is impressive to see how well people can adapt to major changes in their lives and still feel happy. For example, while the moods of victims of spinal cord injuries were extremely negative shortly after their accidents, several weeks later they reported feeling even happier than they had been before sustaining their injuries (Silver, 1983).

Overall, studies of happiness and well-being show that people are exceedingly resilient. Those who undergo severe stress usually manage to adapt. Typically they return to a mood and level of well-being similar to—or even better than—that prior to the traumatic event (Headey & Wearing, 1992). Using effective coping strategies and making smart lifestyle choices both increase the likelihood of positive outcomes. These, then, are the final components in our search to understand individual differences in the impact of stress on our health.

## ● PSYCHOLOGYMATTERS

### ● Behavioral Medicine and Health Psychology

● Amazingly, 93% of patients don't follow the treatment plans prescribed by their doctors (Taylor, 1990). Obviously, this can have terrible consequences. Accordingly, the need to understand why people fail to take their medicine, get little exercise, eat too much fat, and cope poorly with stress has stimulated the development of two new fields: *behavioral medicine* and *health psychology*. ● **Behavioral medicine** is the medical field that links lifestyle and disease. ● **Health psychology** is the comparable psychological specialty. Practitioners in both fields are devoted to understanding the psychosocial factors influencing health and illness (Taylor, 1990, 2006). Among their many concerns are health promotion and maintenance; prevention and treatment of illness; causes and correlates of health, illness, and dysfunction; and improvement of the health care system and health policy (Matarazzo, 1980).

● Both behavioral medicine and health psychology are actively involved in the prevention and treatment of trauma and disease that result from stressful or dangerous environments and from poor choices with regard to nutrition, exercise, and drug use. Both are emerging disciplines in countries all over the world (Holtzman, 1992). The two fields overlap, and the differences between them are ones of emphasis. Psychologists have brought increased awareness of emotions and cognitive factors into behavioral medicine, making it an interdisciplinary

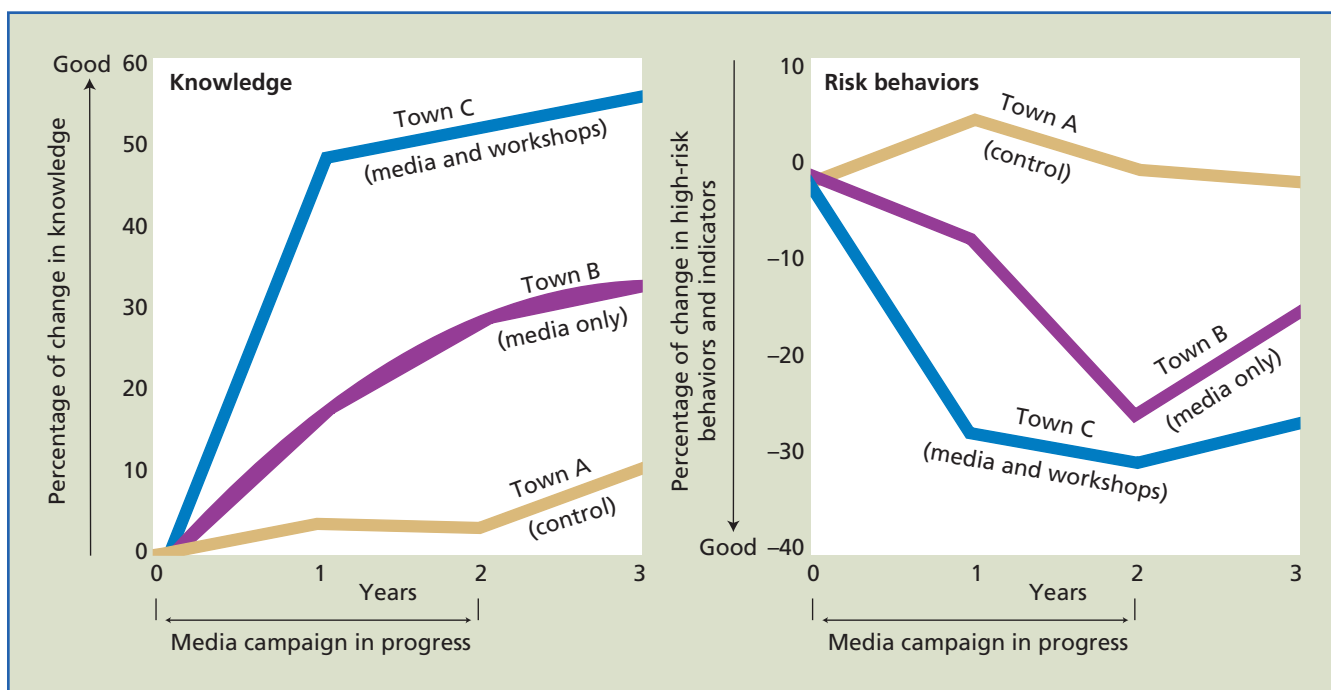
**Behavioral medicine** Medical field specializing in the link between lifestyle and disease.

**Health psychology** Psychological specialty devoted to understanding how people stay healthy, why they become ill, and how they respond when ill.

field rather than an exclusively medical specialty (Miller, 1983; Rodin & Salovey, 1989). Both fields also recognize the interaction of mind and body and place emphasis on preventing illness, as well as changing unhealthy life styles after illness strikes (Taylor, 1990, 2006).

But—as the saying goes—old habits die hard. To help patients change long-held habits that are harmful to their health, social psychologists have identified the specific persuasive strategies that are most effective (Zimbardo & Leippe, 1991). For example, research shows that people are more likely to comply with requests when they feel they have freedom of choice. Therefore, instead of demanding that a patient strictly adhere to one course of treatment, a physician could offer the patient several options and ask him or her to choose one. Studies also suggest that patients are most likely to adhere to physicians' requests when they get active social support from friends and family (Gottlieb, 1987; Patterson, 1985). And, one landmark study of heart disease prevention (see Figure 14.8) found that specific skills training, such as workshops designed to help participants implement positive changes to their health habits, was the key that resulted in greatest change (Maccoby et al., 1977).

Overall, the field of psychology has contributed numerous findings and strategies—based on solid scientific evidence—that can be applied to our efforts to improve our health, both physically and mentally. For example, behavioral principles discussed in Chapter 3 can be combined with what we know about good thinking strategies (from Chapter 5) and indeed often are combined in cognitive-behavioral therapy. Principles of emotion and motivation—the topics of Chapter 9—provide additional insight into factors affecting our emotional health and the behaviors that support our basic needs for food, social support, and other basic needs. You can apply many of these same principles on your own as you work towards maximizing your health and wellness—and we wish you well on your journey!



**FIGURE 14.8**  
**Response to Campaign for Healthy Change**

Town A, whose residents received no mass media campaign for heart-healthy behavior, showed the least knowledge gain over two years. Town B residents, exposed to a media campaign, showed significant improvement. Knowledge gain was greatest for residents of Town C, whose residents participated in intense workshops and instruction sessions for several months prior to the media blitz. As knowledge increased, risk behaviors

## Check Your Understanding

1. **ANALYSIS:** Mai was recently in a car accident. In coping with the situation, she has focused on getting estimates for her car repair, seeking medical treatment, and working with her insurance agent to obtain compensation for the expenses of the car repair and her medical needs. What type of coping strategy is Mai employing?
2. **RECALL:** In coping with a loss, efforts to make sense of what happened or to find some ultimate benefit from the loss are examples of \_\_\_\_\_, which is an \_\_\_\_\_ coping strategy.
  - a. finding meaning; effective
  - b. finding meaning; ineffective
  - c. emotion-focused coping; effective
  - d. emotion-focused coping; ineffective
3. **APPLICATION:** Think of a recent stressor in your own life.

Now identify at least two ways that you can use cognitive restructuring to reduce the impact of the stressor on your health.

4. **RECALL:** Name at least four lifestyle choices you can make that will reduce the impact of stress on your health.
5. **UNDERSTANDING THE CORE CONCEPT:** \_\_\_\_\_ reduce the effects of stress on our health, while \_\_\_\_\_ decrease our vulnerability to both stress and to stress-related illness.
  - a. Stress moderators; coping strategies
  - b. Positive lifestyle choices; stress moderators
  - c. Positive lifestyle choices; coping strategies
  - d. Coping strategies; positive lifestyle choices

**Answers** 1. Problem-focused coping 2. a 3. You can compare your situation to those who are worse off, which should make you see your situation in a different perspective. You can also observe people in similar situation who are coping better than you are, and learn from their examples. 4. You can seek social support, exercise regularly, eat a healthy diet, get adequate sleep, and meditate. 5. d

## Critical Thinking Applied: Is Change Really Hazardous to Your Health?

The more we hear about the links between stress and illness, the more we might wonder if our own stress levels put us at risk. In this chapter, we have discussed a variety of factors that have an impact on the stress-illness relationship. At least one issue, however, remains in question: To what extent do major life changes impact our vulnerability to illness?

Recall the Social Readjustment Rating Scale (SRRS) introduced in the first section of this chapter. Like many students, you probably calculated your own score in the “Do It Yourself!” box on page 628. But how should you interpret your score? If you scored high, does that mean you are at greater risk for illness?

In the first 15 years after it was published, the SRRS was used in more than 1000 studies worldwide (Holmes, 1979), and research consistently found correlations between scores on the SRRS and both physical and behavioral symptoms. People with higher scores on the scale were more at risk for heart attacks, bone fractures, diabetes, multiple sclerosis, tuberculosis, complications of pregnancy and birth, decline in academic performance, employee absenteeism, and many other difficulties (Holmes & Masuda, 1974). High SRRS scores among federal prisoners were even associated with the length of their prison sentences. And the test was effective across cultural boundaries, too: Both male

and female respondents were found to rate events with similar scores (Holmes & Masuda, 1974), and ratings were also validated with Japanese, Latin American, European, and Malaysian samples. Do these findings indicate that higher scores lead to greater stress?

### What Are the Issues?

Recall, first, that the SRRS lists 43 life events that purport to be stressful. Given what we’ve learned about the importance of cognitive appraisal in determining how stressful a situation is to an individual, we should probably take a close look at the list of events to see if each one really would qualify as a stressor in our own lives.

Second, proponents of the SRRS claim that higher scores predict later illness. To what extent is this true, and how have the associations been measured?

### What Critical Thinking Questions Should We Ask?

The SRRS can allegedly predict your risk of illness based on the events of the past year of your life. In other words, it presents a cause-effect hypothesis that the number of LCUs you have experienced in the last year will cause a particular risk of illness. Are the

research findings in support of the LCU–illness relationship really causal, or are they merely correlational?

Second, if the claim that a quick and simple self-administered test can determine your risk for illness strikes you as extraordinary, you might be right. As we have learned, answers to questions psychological are rarely simple—humans are complex, and so are the explanations for our thoughts, feelings, and behaviors. At the very least, we might wonder if the SRRS oversimplifies the relationship between life events and illness. And finally, we must ask what other perspectives might help explain the relationship between stress and illness?

## What Conclusions Can We Draw?

Research has shown that the number of LCUs accumulated during the previous year are a modest predictor of changes in a person's health (Johnson & Sarason, 1979; Rahe & Arthur, 1978). The implication that stressful events cause illness, however, is misleading (Dohrenwend & ShROUT, 1985; Rabkin & Struening, 1976). The correlational data merely show a relationship between certain life changes and health; the research does not show that life changes are the cause of illness. The reverse could also be true: Illness can sometimes be the cause of life changes—someone who frequently gets colds or the flu is more likely to have problems at school, work and in relationships, for example. And remember the possibility of a third variable driving the relationship: Several other factors we've studied, such as economic status or Type-A hostility, could also be affecting both the frequency of life changes and the risk of illness.

The importance of multiple perspectives is critical to a thorough and accurate understanding of the stress–illness relationship. Let's review what we know about stress and health from the major perspectives we used to learn about psychology in this book:

- The *biological perspective* clearly plays a role in an individual's vulnerability to stress-related illness. We have seen that our hereditary makeup predisposes us to certain illnesses, such as heart disease, diabetes, obesity, and many forms of cancer. In addition, genetics probably gives some of us a better chance of being optimistic, hardy, or resilient—just as others of us are more at risk for hostility and other negative emotions.
- The *behavioral perspective* influences stress and illness in the health habits we learn as children growing up, in situations of learned helplessness, and in the coping strategies we see modeled by our parents and others in our immediate social environment. Likewise, the *sociocultural context*—the culture in which we live—creates social norms that influence these learned habits and strategies. Currently, for example, in Western culture we receive mixed messages about health. On one hand, we

hear a lot about the importance of a healthy diet and regular exercise. On the other hand, however, the fast-paced nature of our culture—combined with a barrage of ads for fast food—encourage us to grab a burger and fries, then sit on the couch and watch television instead of working out and preparing a healthy meal.

- The *cognitive perspective* helps us understand why, in a particular culture, individual health habits and perspectives vary. Someone with an internal locus of control, for example, would be more likely than an external to pay attention to diet and exercise in pursuit of a healthy life. Likewise, an optimistic thinker or someone high in hardiness would be more likely to perceive certain life events as possibilities rather than as threats. In general, people's chances of incurring an illness may be more related to their interpretations and responses to life changes than to the changes themselves (Lazarus et al., 1985).
- The *developmental perspective* illuminates certain aspects of stress and health as well. College students, for example—who are primarily in early adulthood—are at change points in their lives and tend to get high scores; it is not clear, however, if they are more at risk for illness. Youth may offer some protection. Similarly, as our bodies age and our cells become less effective at regeneration, we develop greater susceptibility to illness in late adulthood. It is possible, though, that older adults who have mastered the challenges of generativity and integrity may offset their physical vulnerability with a better system of stress moderators and coping strategies. Much research remains to be done at the intersection of developmental and health psychology.
- The *whole-person perspective* explains many of the personal qualities that have an impact on an individual's vulnerability to stress. Locus of control, optimism, hardiness, resilience, and Type A behavior all originated in the study of personality psychology, and we have seen how these factors moderate an individual's response to stressors. Likewise, traits such as openness to experience and conscientiousness probably affect the degree to which individuals are willing to try new coping strategies or lifestyle habits, as well as their likelihood of sticking to the changes once they've made them.

Clearly, then, there is much more to the relationship between stress and illness than the particular life events you experience. A high score does not mean that illness is certain, nor does a low score guarantee health. People differ in their abilities to deal with change because of genetic differences, general physical condition, personality and outlook, lifestyles, and coping skills. The SRRS takes none of these factors into



account, but it remains the most widely used measure of stress-related risk for illness.

Should you, then, pay attention to your SRRS score? We offer it as one source of information about your own possible vulnerability—and we trust that you will

interpret your score with caution. Overall, we hope you will keep in mind the many tools you have accumulated that, together, can help you respond more effectively to potential stressors—and ultimately live a longer and healthier life.

## Chapter Summary

### 14.1 What Causes Stress?

**Core Concept 14.1:** Traumatic events, chronic lifestyle conditions, major life changes, and even minor hassles can all cause stress.

**Stressors** are external events that cause stress, while the term *stress* refers to the physical and emotional changes that occur in response to the stressor. And while **cognitive appraisal** influences our individual responses to stressors, there are several major categories of events that typically cause stress.

**Traumatic stressors** include natural disasters, acts of terrorism, or sudden personal loss such as the death of a loved one or an unforeseen breakup. All of these situations occur with little or no warning, and almost always cause extreme stress in the immediate aftermath of the event. Research indicates that about 20% of survivors of natural disaster remain distressed after one year, while as many as 75% of those exposed to a terrorist attack report continued worry at the one-year mark. Repeated media coverage of the event often exacerbates and prolongs the effects, and can also cause stress in people who were not directly exposed to the event in a phenomenon known as **vicarious traumatization**. Grief is a normal, healthy process in response to a personal loss, and the humiliation of rejection can put an individual at greater risk for depression.

**Posttraumatic stress disorder (PTSD)** can occur in individuals who have been exposed to severe circumstances such as combat, rape, or other violent attack. Symptoms of PTSD can be cognitive, behavioral, and emotional, as evidenced (for example) by difficulty concentrating, an exaggerated “startle response,” and survivor’s guilt. About 8% of Americans will experience PTSD at some time in their life, with symptoms lasting more than ten years in over one-third of the cases. Combat personnel may be especially at risk for PTSD, and military psychologists are working increasingly to develop and provide more effective education and treatment for combat veterans and their families.

**Chronic stressors** have a more gradual onset and are longer-lasting than traumatic events. **Societal stressors** such as poverty and unemployment, as well as difficulties at home, school, or work, are one type of chronic stressor. Another is **burnout**, which is a syndrome of emotional exhaustion, physical fatigue, and cognitive weariness that results from demanding and unceasing pressures at work, at home, or in relationships. **Compassion fatigue** is found in medical and psychological professionals, as well as caregivers and other individuals who spend a great deal of time caring for others. Research in this area offers at least five steps caregivers and service providers can take to reduce their risk of compassion fatigue.

Major life changes—whether positive or negative—can be a source of stress as well, in that they involve changes in our daily routines and adaptation to new situations and environments. Finally, minor **hassles** such as computer crashes or an incessantly barking dog can accumulate and cause stress that adds up over time.

<b>Burnout</b> (p. 625)	<b>Posttraumatic stress disorder (PTSD)</b> (p. 623)
<b>Catastrophic event</b> (p. 619)	<b>Social Readjustment Rating Scale (SRRS)</b> (p. 627)
<b>Chronic stressor</b> (p. 625)	<b>Societal stressor</b> (p. 625)
<b>Cognitive appraisal</b> (p. 618)	<b>Stress</b> (p. 617)
<b>Compassion fatigue</b> (p. 626)	<b>Stressor</b> (p. 617)
<b>Compassion satisfaction</b> (p. 626)	<b>Terrorism</b> (p. 620)
<b>Disenfranchised grief</b> (p. 623)	<b>Traumatic stressor</b> (p. 619)
<b>Grief</b> (p. 622)	<b>Vicarious traumatization</b> (p. 621)
<b>Hassle</b> (p. 627)	
<b>Integration</b> (p. 622)	
<b>Narrative</b> (p. 620)	

#### MyPsychLab Resources 14.1:

**Watch:** 9/11 Post-Traumatic Stress Disorder

**Simulation:** How Stressed Are You?

## 14.2 How Does Stress Affect Us Physically?

**Core Concept 14.2:** The physical stress response begins with arousal, which stimulates a series of physiological responses that in the short term are adaptive, but that can turn harmful after prolonged stress.

When faced with **acute stressors**, our bodies are equipped with amazing abilities to meet the challenges effectively. The **fight-or-flight response** is produced by the autonomic nervous system, and includes such immediate changes as accelerated heart rate, increased respiration and blood pressure, perspiration, and pupil dilation. A more comprehensive explanation of our response to stress is offered by Hans Selye's **GAS**. A three-phase system, the GAS begins with the **alarm phase**, then progresses into the **resistance phase** and finally the **exhaustion phase** if the stressor is chronic in nature. Under such circumstances, the resources that so effectively helped us combat an acute stressor become depleted, resulting in a host of physical and emotional symptoms. Consequently, we become more vulnerable to illness. While the fight-or-flight response has been well documented in both animals and humans, psychologist Shelley Taylor notes an alternative pattern of response to stress. Her **tend-and-befriend** theory suggests that social support-seeking can be a more effective response to stress when protection or survival of offspring is involved. These models complement each other, rather than competing with each other, in helping us understand the complex human stress response.

The emerging field of **psychoneuroimmunology** studies the relationship between stress and illness. Research in this area has revealed that the central nervous system and the immune system remain in constant communication with each other in response to stress. **Cytokines** are proteins that fight infection, but under prolonged stress produce feelings of listlessness and depression. **Natural killer cells**, also released by the immune system to fight infection, also become depleted by chronic stress, resulting in compromised immune systems and greater health risk. These are two of the ways in which our bodies are well-equipped to fight acute stress but less well suited to deal with more modern chronic stressors.

<b>Acute stress</b> (p. 631)	<b>Immunosuppression</b> (p. 636)
<b>Alarm phase</b> (p. 633)	<b>Natural killer cell</b> (p. 636)
<b>Cortisol</b> (p. 635)	<b>Oxytocin</b> (p. 635)
<b>Cytokine</b> (p. 636)	<b>Psychoneuroimmunology</b> (p. 636)
<b>Exhaustion phase</b> (p. 634)	<b>Resistance phase</b> (p. 634)
<b>Fight-or-flight response</b> (p. 631)	<b>Tend-and-befriend</b> (p. 635)
<b>General adaptation syndrome (GAS)</b> (p. 632)	

### MyPsychLab Resources 14.2:

**Watch:** Stress and Wellness

**Watch:** Women, Health and Stress: Florence Denmark

## 14.3 Who Is Most Vulnerable to Stress?

**Core Concept 14.3:** Personality characteristics affect our individual responses to stressful situations and, consequently, the degree to which we feel stress when exposed to potential stressors.

Stress moderators reduce the impact of stressors on our perceived level of stress. Most of them function as variations of cognitive appraisal (although often on a non-conscious level). Hostile individuals are more likely to perceive stress in the face of a stressful situation and consequently have twice the risk of heart disease. Fortunately, stress-management programs have proven effective at reducing these individuals' response to stress and their resulting health vulnerability.

**Locus of control** is a second personality characteristic that has an impact on the stressor–stress relationship. People with an **internal** locus of control have greater resistance to stress than do **externals**, probably as a result of their perceived capability to take some

action to ameliorate it. Locus of control has been found to affect not only stress but also health and longevity. While locus of control may have some genetic underpinnings, our experiences also influence it, as evidenced by research on **learned helplessness**. From a cultural perspective, **secondary control** involves controlling one's reactions to events, rather than controlling the events themselves, and is more prevalent in Eastern cultures. Research has found both types of control to be effective in the cultures in which they operate.

**Hardiness** is an outlook based on three “Cs”—a perception of internal control, of change as a challenge rather than a threat, and of commitment to life activities rather than alienation or withdrawal. Individuals with a hardy attitude exhibit greater resistance to stress. Similarly, optimistic people feel less stressed in the face of stressful situations, as they are more likely to focus on the positives rather than the negatives of the situation. **Optimism** is also characterized by specific, situational, and temporary attributions about negative situ-

ations. Both hardiness and optimism, like locus of control, appear to have some biological underpinnings but can be improved with well-designed training programs. **Resilience** is the ability to rebound and adapt to challenging circumstances and is related to optimism and hardiness, as well as social skills, cognitive abilities, and resources such as caring parents or support providers.

**External** (p. 642)

**Hardiness** (p. 643)

**Internal** (p. 642)

**Learned helplessness** (p. 643)

**Locus of control** (p. 642)

**Moderator** (p. 640)

**Optimism** (p. 644)

**Primary control** (p. 643)

**Resilience** (p. 645)

**Secondary control** (p. 643)

**Type A** (p. 641)

### MyPsychLab Resources 14.3:

**Watch:** Optimism and Resilience

**Watch:** Applying Positive Psychology

## 14.4 How Can We Reduce the Impact Of Stress On Our Health?

**Core Concept 14.4:** Healthy coping strategies reduce the impact of stress on our health, and positive lifestyle choices reduce both our perceived stress and its impact on our health.

**Coping** involves taking action that reduces or eliminates the causes of stress, rather than just the symptoms of stress. **Problem-focused coping** is accomplished by specific actions aimed at resolving a problem or stressor, whereas **emotion-focused coping** relies on efforts to regulate our emotional response to stress. Both types of coping can be useful and sometimes best work together. **Cognitive restructuring** is another type of effective **coping strategy**, and involves modifying our perceptions of the stressor or our reactions to it. Cognitive restructuring can include **upward** and **downward social comparisons**.

Cultivating positive emotions, including humor, also helps reduce the effects of stress on our health, as can efforts to find meaning in the stressful situation. In finding meaning, making sense of the event appears to be the first step, but those who ultimately succeed in finding meaning in tragedy must also identify some benefit of the event or situation. **Psychological debriefing**, which in some cases takes the form of **critical incident stress debriefing (CISD)**, is probably not very effective in reducing the link between stress and illness.

A variety of **positive lifestyle choices** carry a two-for-one benefit to the stress–illness puzzle: They can increase our resistance to stress and also decrease our vulnerability to stress-related illness. **Social support** may be the most important of these lifestyle factors, as people with stronger social support live longer and healthier lives than those with little or no support. Social sup-

port is helpful in that it carries emotional, tangible, and informational benefits. Regular aerobic exercise has both physical and psychological benefits, and has been found to reduce the impact of stress on our health. Similarly, a healthy diet, adequate sleep, and even meditation have been found to decrease our vulnerability to stress and illness.

**Subjective well-being (SWB)** includes satisfaction with life, prevalence of positive emotions, and absence of negative emotions. Like many of the concepts we have studied, an individual's SWB is influenced both by heredity and by environment. Neither age nor wealth predict happiness—happy people can be found in the youngest and the oldest, the richest and the poorest, and even in victims of serious illness or life-changing injury.

**Behavioral medicine** (p. 658)

**Benefit-finding** (p. 651)

**Catharsis** (p. 652)

**Cognitive restructuring** (p. 650)

**Coping** (p. 649)

**Coping strategy** (p. 648)

**Critical incident stress debriefing (CISD)** (p. 652)

**Defending** (p. 649)

**Downward social comparison** (p. 650)

**Emotion-focused coping** (p. 649)

**Health psychology** (p. 658)

**Positive lifestyle choice** (p. 649)

**Problem-focused coping** (p. 649)

**Psychological debriefing** (p. 652)

**Rumination** (p. 649)

**Sense-making** (p. 651)

**Social comparison** (p. 650)

**Social support** (p. 653)

**Subjective well-being (SWB)** (p. 656)

**Upward social comparison** (p. 650)

### MyPsychLab Resources 14.4:

**Explore:** Coping Strategies and Their Effects

**Watch:** Flow

**Watch:** Gender Differences in Stress Vulnerability

# Discovering Psychology Viewing Guide



Watch the following video by logging into MyPsychLab ([www.mypsychlab.com](http://www.mypsychlab.com)). After you have watched the video, complete the activities that follow.



## PROGRAM 23: HEALTH, MIND, AND BEHAVIOR

### PROGRAM REVIEW

- How are the biopsychosocial model and the Navajo concept of *hozho* alike?
  - Both are dualistic.
  - Both assume individual responsibility for illness.
  - Both represent holistic approaches to health.
  - Both are several centuries old.
- Dr. Wizanski told Thad that his illness was psychogenic. This means that
  - Thad is not really sick.
  - Thad's illness was caused by his psychological state.
  - Thad has a psychological disorder, not a physical one.
  - Thad's lifestyle puts him at risk.
- Headaches, exhaustion, and weakness
  - are not considered to be in the realm of health psychology.
  - are considered to be psychological factors that lead to unhealthy behaviors.
  - are usually unrelated to psychological factors.
  - are considered to be symptoms of underlying tension and personal problems.
- When Judith Rodin talks about "wet" connections to the immune system, she is referring to connections with the
  - individual nerve cells.
  - endocrine system.
  - sensory receptors.
  - skin.
- What mind-body question is Judith Rodin investigating in her work with infertile couples?
  - How do psychological factors affect fertility?
  - Can infertility be cured by psychological counseling?
  - What effect does infertility have on marital relationships?
  - Can stress cause rejection of in vitro fertilization?
- When Professor Zimbardo lowers his heart rate, he is demonstrating the process of
  - mental relaxation.
  - stress reduction.
  - biofeedback.
  - the general adaptation syndrome.
- Psychologist Neal Miller uses the example of the blindfolded basketball player to explain
  - the need for information to improve performance.
  - how chance variations lead to evolutionary advantage.
  - the correlation between life-changing events and illness.
  - how successive approximations can shape behavior.
- In which area of health psychology has the most research been done?
  - the definition of health
  - stress
  - biofeedback
  - changes in lifestyle
- Imagine a family is moving to a new and larger home in a safer neighborhood with better schools. Will this situation be a source of stress for the family?
  - No, because the change is a positive one.
  - No, because moving is not really stressful.
  - Yes, because any change requires adjustment.
  - Yes, because it provokes guilt that the family does not really deserve this good fortune.
- Which response shows the stages of the general adaptation syndrome in the correct order?
  - alarm reaction, exhaustion, resistance
  - resistance, alarm reaction, exhaustion
  - exhaustion, resistance, alarm reaction
  - alarm reaction, resistance, exhaustion
- What important factor in stress did Hans Selye *not* consider?
  - the role of hormones in mobilizing the body's defenses
  - the subjective interpretation of a stressor
  - the length of exposure to a stressor
  - the body's vulnerability to new stressors during the resistance stage

12. Today, the major causes of death in the United States are
  - a. accidents.
  - b. infectious diseases.
  - c. sexually transmitted diseases.
  - d. diseases related to lifestyle.
13. When Thomas Coates and his colleagues, in their study of AIDS, conduct interview studies, they want to gain information that will help them
  - a. design interventions at a variety of levels.
  - b. determine how effective mass media advertisements are.
  - c. motivate AIDS victims to take good care of themselves.
  - d. stop people from using intravenous drugs.
14. The body's best external defense against illness is the skin, whereas its best internal defense is
  - a. the stomach.
  - b. the heart.
  - c. T-cells.
  - d. the spinal cord.
15. In which stage of the general adaptation syndrome are the pituitary and adrenals stimulated?
  - a. exhaustion
  - b. alarm
  - c. reaction
  - d. resistance
16. Which stage of the general adaptation syndrome is associated with the outcome of disease?
  - a. alarm
  - b. reaction
  - c. exhaustion
  - d. resistance
17. What claim is Richard Lazarus most closely associated with?
  - a. The individual's cognitive appraisal of a stressor is critical.
  - b. The biopsychosocial model is an oversimplified view.
  - c. Peptic ulcers can be healed through biofeedback.
  - d. The general adaptation syndrome can account for 80% of heart attacks in middle-aged men.
18. Thomas Coates and Neal Miller are similar in their desire to
  - a. eradicate AIDS.
  - b. outlaw intravenous drug use.
  - c. institute stress management courses as part of standard insurance coverage.
  - d. teach basic skills for protecting one's health.
19. How should an advertising campaign ideally be designed in order to get people to use condoms and avoid high-risk sexual activities?
  - a. It should be friendly, optimistic, and completely nonthreatening.
  - b. It should have enough threat to arouse emotion but not so much that viewers will go into denial.
  - c. It should contain a lot of humor.
  - d. It should feature an older, white, male doctor and a lot of scientific terminology.
20. Neal Miller is to biofeedback as Judith Rodin is to
  - a. analgesics.
  - b. meditation.
  - c. a sense of control.
  - d. social support.

## QUESTIONS TO CONSIDER

1. How can you help another person cope with stress?
2. How can self-deprecating thoughts and behavior increase stress?
3. How might perfectionism lead to stress?
4. What common lifestyle differences might make men or women more susceptible to different kinds of health problems?

## ACTIVITIES

1. Sort the following behaviors into two categories: Category A, Stress Warning Signals, and Category B, Signs of Successful Coping. (You may add others from your own experience.)

Indigestion	Ability to sleep
Fatigue	Tolerance for frustration
Loss of appetite	Constipation
Indecision	Overeating
Sense of belonging	Overuse of drugs or alcohol
Sense of humor	Adaptability to change
Irritability	Optimism
Reliability	Cold hands
Sexual problems	Ulcers
Frequent urination	Sleep problems
Migraine headaches	Difficulty concentrating
Boredom	Free-floating anxiety
Temper tantrums	Frequent colds

2. Consider three periods in history: Prehistoric cultures, 0 B.C., and twenty-first-century America. Compare these three moments in history for the impact on health of (a) the reigning understanding of illness and health and (b) the demands of everyday living. What trade-offs do you see?