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Foundations of Health Psychology

LEARNING OBJECTIVES

After studying this chapter, you will be able to …

1. **Describe** the development of the field of health psychology.
2. **Describe** the biopsychosocial model of health.
3. **Describe** the relationships between health and human diversity.
4. **List** and **describe** the major research methods in health psychology.
5. **Describe** the major features of critical thinking about health-related information.

Did you know that ...

- People were more likely to use a hand sanitizer in a hospital setting when a citrus scent was diffused in the air?
- Depression is a causal factor in heart disease, asthma, and gastrointestinal disorders?
- Having more social connections and higher-quality social ties is linked to a lower risk of cardiovascular disease and cancer?
- More than a million deaths each year are preventable?
- Smoking cigarettes takes 10 years off the average person's life?
- Happier words are tweeted more often during the early morning hours?
- Health psychologists created an app designed to reduce fatigue in airline pilots?
- No experiments have been done with humans to show that smoking causes cancer?
- Researchers have found that placebos (pills with no medicine) work to reduce pain even when the people taking them know that they are phony?

Until the COVID-19 pandemic in 2020, most people paid little if any attention to hand-gel sanitizers. Placed in many public areas, including office buildings, schools, and hospitals, they went largely unused by passersby, even in hospital settings where their use could help curb the risk of infections. Although a hand sanitizer is not as effective as a thorough handwashing, it can reduce the risk of getting sick or spreading disease to others (CDC, 2019j).

Young people tend to be less compliant in using hand sanitizers, so health psychologists performed a field experiment in which they posted signs in university residence halls next to sanitizer dispensers with messages encouraging students to use them (Capps et al., 2022). The investigators found that sanitizer use was 36% greater for sanitizers with posted signs than for those without signs. Yet just simply posting reminder signs may not be enough to increase sanitizer use in sensitive settings, such as hospital units, so hospital staff members in an intensive care unit (ICU) in a teaching hospital in Miami went a step further (King et al., 2016). Let's have a closer look at what they did.

Years before the COVID-19 pandemic, staff members in the Miami hospital recognized they had a problem with hand hygiene of visitors to the unit. They wanted to encourage visitors to use a hand-gel dispenser placed outside the entrance to the unit but realized that simply posting a sign to remind people to use the sanitizer didn't work well enough, as many visitors simply just ignored it. Having a staff member stationed at the door to monitor whether people complied with proper hand hygiene would be too cumbersome and expensive. So they decided to try a behavioral experiment, enlisting the help of health psychologists.

priming Exposure to a stimulus, called a prime, that increases the likelihood of another response.

The health psychologists drew upon the psychological principle of **priming**, which is the use of a stimulus (called a *prime*) that increases the likelihood of a response to another stimulus, which in this case was a hand-gel dispenser posted just outside the entrance to the ICU. They tested the effects of two types of primes: one, a clean-smelling citrus scent infused in the hospital corridor by an aroma dispenser, and the second, a pair of observing female or male eyes placed strategically near the dispenser. Observers were discreetly placed so that they could monitor whether visitors used the hand-gel dispenser without making themselves obvious. Some days were designated as control days with no primes present, while on other days the clean-smelling citrus scent was infused in the air or the pair of observing eyes (male eyes on some occasions, female eyes on others) was posted just outside the unit.

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Will You Use Me? It's there, it's free, and it helps prevent disease, but will passersby in hospital corridors and elsewhere stop to use it?

What results would you predict? Would a slight nudge—infusing the air with a clean-smelling scent or posting a set of observing eyes—make a difference in inducing people to use the sanitizer?

The results showed that 47% of people exposed to the citrus scent before entering the unit used the hand-gel sanitizer as compared to only 15% of controls—that is, visitors not exposed to priming. The experimenters argued that exposure to clean smells might bring associations with cleanliness to mind, inducing people to be more conscientious about sanitizing their hands. Moreover, significantly more participants (33%) exposed to the male watchful eyes used the gel as compared to visitors (controls) not exposed to any primes. Interestingly, only 10% of those exposed to the female eyes prime used the sanitizer, a result that was not significantly different than the (no-prime) control. Exposure to harsher male eyes turned out to be a more effective nudge than softer female eyes.

This hospital study introduces the field of **health psychology**, the branch of psychology that focuses on relationships between behavior and physical health. Health psychologists examine how psychological factors can affect a person's health and well-being. This work by a team of health psychologists may encourage other public institutions, such as schools, municipal buildings, and clinics, to use similar visual or olfactory primes to encourage people to practice hand hygiene in public places. It shows the role that psychological factors—in this case, primes—can play in promoting healthy behaviors.

health psychology The scientific study of relationships between psychology and physical health and illness.

Health psychologists also study relationships between psychological factors and physical illness. For example, they examine the role of psychological factors in disease, such as stress, lifestyles, behaviors, and attitudes. Examining these relationships enables psychologists to better explain the nature and mechanisms of disease and leads to the development of health-promotion and disease-prevention programs. Health psychologists also work directly with medical patients to improve their quality of life and help them cope with the challenges of living with health problems such as heart disease, cancer, chronic pain, and HIV/AIDS.

Research in health psychology informs our understanding of the psychological factors relating not only to health but to longevity. Consider, for example, a recent study that probed these links based on a large national survey, the Health and Retirement Study, which polled more than 21,000 older adults over the age of 50 several times over a 14-year period, a length of time long enough to track mortality (death) rates (Boylan, Tompkins, & Krueger, 2022). The survey measured various aspects of that psychological health or well-being, including positive affect (emotions), life satisfaction, purpose in life, social support, and optimism. Suffice it to say these factors predicted lower mortality rates, meaning that people with higher levels of psychological well-being tended to live longer. Our emotional and mental well-being bears a primary role in determining how long we are likely to live and how healthy we are likely to be.

We will see that health psychologists perform various roles. Some, like the psychologists in the Miami hospital study, conduct research in hospital settings in which they apply psychological theories, principles, and techniques to promote healthy behaviors. Others design or implement health-promotion programs in worksites, universities, or clinics or work directly with individuals to help them develop healthy behaviors and lifestyles. The work of health psychologists touches virtually every aspect of our lives, from our diets, exercise, and sleep habits, to how we cope with stress and manage illness.

A History of Health Psychology

The ancient Greeks and Romans believed that we should cultivate both our mental (or spiritual) well-being and our physical bodies. The need to take care of both mind and body was perhaps best summed up by Juvenal, a Roman poet of the late 1st and early 2nd century CE, who offered a simple prescription, *Pray for a sound mind in a sound body.*

But how do the body and the mind relate to one other? The ancient Greek physician Hippocrates (ca. 460–377 BCE) lived at a time when many people subscribed to spiritual explanations of physical illness, believing that the gods afflicted humans with ill health. Hippocrates was among the first to offer naturalistic explanations of disease. He also believed there is a two-way street between mind and body, that bodily processes affect the mind and the mind affects the body. For example, he argued that our emotional well-being was dependent on a balance of four vital bodily fluids he called *humors*: phlegm, black bile, blood, and yellow bile. Depression, he believed, was caused by a buildup in the body of a substance he called black bile, whereas lethargy or sluggishness was due to an excess amount of phlegm, from which we derive the

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Just What Is Going On Here? The first answer that might pop into "mind" would be "pushups." Dualists might say we have an immaterial spirit animating a physical body. The scientific answer, of course, is that billions of neurons along with muscle fibers are involved in the decision to go outdoors and exercise, to show awareness of the environment, including the photographer's camera, to command the muscles to adopt a prone position and lift the body with the arms, and to experience the result through sensory awareness.

word "phlegmatic." Those with an excess of blood had a cheerful or sanguine disposition and were confident and optimistic. But an excess of another substance, yellow bile, or so Hippocrates claimed, would make you choleric or quick-tempered. Although we no longer subscribe to this theory of humors, we continue to honor the contributions of Hippocrates in the development of naturalistic explanations of disease by having medical school graduates take an oath named in his honor: the Hippocratic oath.

dualism A philosophical belief that mind and body are fundamentally separate entities.

Centuries later, the 17th-century French philosopher René Descartes (1596–1650) proposed the principle of **dualism**—the belief that mind and body are fundamentally different entities. Descartes recognized that the mind does indeed affect the body, as, after all, we intend to raise our arm and our arm complies by rising. However, he argued that mind and body operate according to different organizing principles. Like other animals, Descartes argued, humans possess a body of several parts that is controlled by mechanical forces, such as digestion and muscle contractions. But unlike other animals, humans alone possess an immaterial mind, a spiritual entity that houses the soul and that is not divisible into separate parts like the body. Today scientists recognize that the mind is a function of the brain, involving communication among billions of cells called **neurons**.

neurons Cells in the nervous system that receive and transmit messages involved in sensory awareness, consciousness, thinking, voluntary movements, and automatic function, such as the heart rate, blood pressure, and digestion.

Since the time of Descartes, philosophers have argued about the so-called *mind–body problem*, that is, the nature of the relationship between the mind and body—whether they are fundamentally different substances as Descartes believed or the same underlying substance. Scientists today have largely moved beyond the mind–body problem. The field of health psychology takes as its starting point this interaction of mind and body by focusing on how our mental or psychological functioning—our thoughts, beliefs, behaviors, lifestyles, attitudes—affect our physical health.

The Development of Psychosomatic Medicine

psychosomatic medicine A branch of medical science that focuses on understanding mind–body interactions in disease.

More formal scientific approaches to understanding mind–body interactions began in the 19th century with the development of a field of medicine called **psychosomatic medicine**. The term "psychosomatic" derives from Greek roots for *psyche* (mind or soul) and *soma* (body). The first use of the term "psychosomatic" is attributed to a German physician, Johann Christian Heinroth, in 1818. Interest in how psychological or mental processes can lead to diseases of the body arose at time of rapid scientific advances in the 19th century. Psychosomatic medicine emerged in the interface between behavioral and medical science, becoming a bridge that connected *psyche* to *soma* (Martin, 1978).

By the early 20th century, physicians were drawn to the teachings of psychological theorists such as Sigmund Freud, whose theory of the mind focused of how underlying psychological conflicts can lead to physical symptoms (Deter et al., 2018). Freud's early case studies featured individuals who complained of various neurological problems, such as numbness in parts of the body or paralysis of a limb, that could not be explained based on known medical causes. The cases generally carried a diagnosis of **hysteria** or *hysterical neurosis*. Freud's first book, coauthored in 1895 with colleague Josef Breuer and called *Studies in Hysteria*, featured case studies of these patients. Freud believed that problems of hysteria could be traced to psychological conflicts in early childhood involving socially unacceptable sexual and aggressive impulses. He argued that the mind converted these conflicts into physical symptoms to protect the self from having to come to terms with threatening or upsetting impulses, desires, and wishes. The impulses themselves remained hidden in an area of the mind he called the **unconscious**. In effect, hysterical symptoms shielded the conscious self from awareness of unacceptable unconscious impulses. The individual would only be aware of the physical defects or symptoms, not the underlying psychological issues that gave rise to them. Although Freud's theories have been mired in controversy, he was instrumental in paving the way for a broader recognition of psychological factors in physical health.

hysteria A psychological disorder characterized by physical symptoms that cannot be explained medically.

unconscious In Freud's view, the part of the mind that operates outside the range of ordinary consciousness.

Throughout the early and mid-20th century, physicians in the psychosomatic tradition became increasingly interested in the effects of many psychological factors, especially emotions, in the development and course of physical disease (Lipsitt, 2006). Early theorists largely followed in the Freudian tradition, especially the Hungarian American physician Franz Alexander (1891–1964), who studied the psychological bases of medical conditions. Alexander believed that certain diseases—*psychosomatic diseases* such as ulcers and hypertension—are

strongly influenced by psychological factors. By 1939 the first journal devoted to this area of medicine appeared under the title *Psychosomatic Medicine*. By 1942 the American Psychosomatic Society was established to represent physicians, psychologists, and other health professionals who were interested in connections between the mind and diseases of the body.

The American physician Helen Flanders Dunbar (1902–1959) founded the American Psychosomatic Society. To Dunbar, there wasn't any special class of psychosomatic diseases. Rather, many physical disorders are influenced by psychological and social factors to some degree (Lipsitt, 2006). Even in cases with clear biological causes, as in certain genetic diseases, Dunbar believed that an individual's thoughts, feelings, and behaviors influence the person's coping with illness and its symptoms. Understanding how psychological factors influence somatic diseases is the core concept underlying the field of psychosomatic medicine and, later, the development of health psychology.

Although the early threads of the psychosomatic movement in medicine featured the theories of Freud and his followers, by the 1950s a broader view began to take hold that emphasized a multifactorial framework that takes into account biological, psychological, and sociocultural factors in physical disease, especially the role of stress.

Psychosomatic medicine today is an interdisciplinary field that brings together the work of physicians, psychologists, sociologists, and other scientists in exploring the relationships between psychological, behavioral, and social factors in health and illness (Jacob et al., 2015). The field of psychosomatic medicine embraces a holistic view of health and well-being by considering the whole person in physical health, not just the roles of microbes, genetics, and diseased organs. This holistic approach explores the roles of emotions, coping resources, and life stress in physical health.

Helen Flanders Dunbar An early pioneer in the scientific study of the mind–body connection, Dunbar was an American physician who established the American Psychosomatic Society in 1942.

Within contemporary medical practice, psychosomatic medicine is recognized as a subspecialty in the field of psychiatry called *consultation-liaison (C-L) psychiatry*. C-L psychiatry connects psychiatry to other medical specialists. **Psychiatrists** are medical doctors who specialize in the diagnosis and treatment of mental disorders. Psychiatrists who further specialize in C-L psychiatry are involved in developing new knowledge and providing consultation to other healthcare providers on relationships between mental and physical illness.

psychiatrists Physicians who specialize in the diagnosis and treatment of mental disorders.

The Emergence of Health Psychology

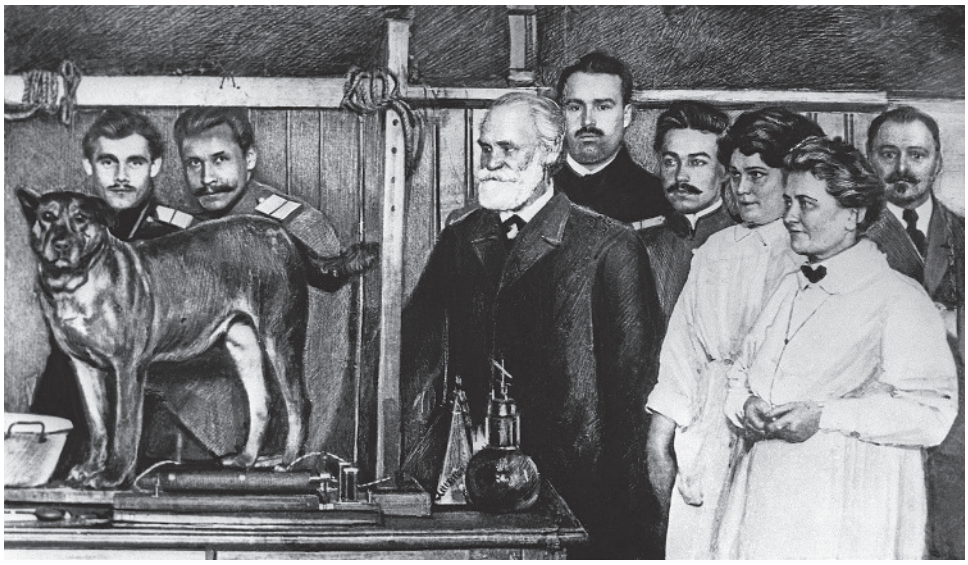
Early contributors to the developing science of psychology in the late 19th century and early 20th centuries were also concerned about understanding relationships between mind and body. Several of the early figures in psychology were trained as medical doctors, including Wilhelm Wundt (1832–1920), recognized as the founder of scientific psychology; William James (1842–1910), widely credited as the father of American psychology; and Walter Cannon (1871–1945), a Harvard physician and physiologist who conducted research on emotions.

Wundt established the first experimental psychology laboratory in Leipzig, Germany, in 1879. There he conducted studies of mental processes and mind–body interactions. Another early luminary figure in psychology was the Russian physiologist Ivan Pavlov (1849–1936), who focused on a form of learning called **classical conditioning**, or learning by association. Pavlov showed in his laboratory studies that dogs learned to salivate to the sound of a tone or bell by pairing the tone or bell with another stimulus, namely food, that naturally elicits salivation. From these not-so-humble beginnings, other psychologists, such as B. F. Skinner, went on to develop **operant conditioning**, which is central to the psychology of self-control and behavior therapy, one of the pillars of cognitive behavioral therapy. Psychologists also showed that it is possible to condition rats to increase or decrease their heart rates—learning to modify behaviors that are normally beyond conscious control (Fehr & Stern, 1965). Research with the rats led to the development of biofeedback training, in which individuals can control their heart rates, the generation of brain waves, and so on to obtain desired results, such as relaxation or sleep.

classical conditioning A form of learning by association in which a response is elicited by a previously neutral stimulus that has been paired or associated with a stimulus that originally elicited the response.

operant conditioning A form of learning in which an organism modifies its behavior because of the consequence of that behavior.

Both James and Cannon were interested in how the mind and body interact in the case of emotional responses, especially fear, and whether the experience of fear occurs at the same time



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Ivan Pavlov and his colleagues at the Military Medical Academy in Petrograd, Russia, in 1914.

as the bodily response. Consider a thought experiment proposed by James. Imagine that you are walking in the woods and suddenly encounter a bear. Do you first see the bear, then feel fear, and then run for your life? Or does your body first react, either by freezing or hightailing it out of there, and only then do you experience fear? James believed the bodily reaction occurs first. In other words, you see the bear, you run, and then you feel fear. He believed the felt experience of fear is based on sensing our bodily reactions—our heart beating faster and our muscles propelling our legs to run away as fast as we can, allowing us to live to tell the tale another day.

Cannon and his student Philip Bard (1898–1977) proposed that the emotion of fear and the body's emotional reactions to a threatening stimulus occur simultaneously, not sequentially. In other words, you see the bear, then experience fear and flee at the same time. In the 1960s, Stanley Schachter and Jerome Singer proposed a two-factor theory of emotion: We respond physiologically to a stimulus and then engage in cognitive appraisal of the situation, leading us to label the emotion and act accordingly. Psychologists still endorse the importance of cognitive appraisal in response to stressful situations, as we will see in Chapter 5. But these earlier theories highlighted the intersection of mind and body, which became a foundational principle in the development of health psychology.

The field of health psychology emerged during the 1960s and 1970s to meet the needs for research, education, and practice focused on the role of psychological factors in physical health. Before that time, psychologists were primarily concerned with problems of mental health, not physical health (Wallston, 1997). But psychologists began applying knowledge of behavioral science and behavior change techniques to help people develop healthier habits and cope with the many challenges of adjusting to serious or chronic illness. In the late 1960s and early 1970s, papers emerged in psychological journals focused on the role of psychologists in the healthcare system. It was at that time that groups of psychologists began to organize around their common interest in the interface of psychology and health. In 1978 the American Psychological Association established a new division, the Society for Health Psychology (Division 38), to advance the contributions of psychology to health and illness through research, education, and service (Wallston, 1997).

Today, health psychologists are involved in research, teaching, and practice on the connections between psychology and physical health, including issues such as these:

- How does stress impact the immune system? Does stress increase the risk of cancer?
- How can we help people adopt healthier behaviors and lifestyles?
- How are behavioral patterns, such as unhealthy diets and physical inactivity, related to negative health outcomes?
- How can we best assist people cope with chronic diseases?
- How does psychological theory inform efforts to help people adhere to medical advice, take their medications more reliably, and follow up with medical visits?

The Profession of Health Psychology

VIDEO CONTENT
Understanding Health Psychology

Health psychology is a specialty area or subfield in the broader field of psychology. Pursuing a professional career in health psychology generally requires completion of a doctoral program in health psychology or a related field. There are four general areas of practice in health psychology: clinical health psychology, occupational health psychology, community-based health psychology, and public services health psychology:

- **Clinical health psychology** focuses on helping individuals lead healthier lives and cope with chronic illness. Clinical health psychologists work with individuals to help them develop healthier behaviors and adopt healthier lifestyles. Other clinical psychologists treat mental health issues such as anxiety and depression, whereas clinical health psychologists focus on issues of physical health and well-being, using techniques like stress management and biofeedback training.
- **Community health psychology** focuses on improving the health of members of communities. Community health psychologists investigate factors accounting for differences between communities in the prevalence of certain diseases. They may focus their research on problems such as overcrowding, discrimination, pollution, and limited access to health services.
- **Occupational health psychology** focuses on improving the health and well-being of employees. Occupational health psychologists might be involved in developing worksite health and wellness programs, providing counseling services to employees, and consulting with companies to change workplace policies to improve the health and well-being of employees.
- **Public health psychology** seeks to improve the health and well-being of the general population by focusing on policies and programs of governmental agencies and public health services. Public health psychologists might gather evidence to assist lawmakers in drafting healthcare policies or assisting government officials in developing public health awareness campaigns.

clinical health psychology
A branch of health psychology focusing on helping individuals live healthier lives and cope with chronic illness.

community health psychology
A branch of health psychology focusing on improving the health of members of communities.

occupational health psychology
A branch of health psychology focusing on improving health and well-being of employees.

public health psychology
A branch of health psychology focusing on improving health and well-being of the general population.

Training in health psychology typically involves completion of a doctoral degree (either a Ph.D. or Doctor of Philosophy degree, or a PsyD or Doctor of Psychology degree). The American Psychological Association (APA) oversees the accreditation process for doctoral training programs in health psychology and other applied areas of psychology, such as clinical, counseling, and school psychology.

The typical Ph.D. program in health psychology involves 3 to 4 years of coursework and related training in health psychology settings, along with completion of a doctoral dissertation, a formal research project in which the student works closely with a faculty mentor to complete an original research project designed to make a contribution to the literature in the field. Students seeking to learn more about careers in psychology may access career-related materials made available by the APA. You can visit their website, www.apa.org, to access these materials.

The Biopsychosocial Model

Many health psychologists are guided by a conceptual framework called the **biopsychosocial model**, which recognizes that health and illness are best understood by examining the roles of biological, psychological, and social factors, and the interactions among these factors in the development, treatment, and prevention of physical illness (see **Figure 1.1**).

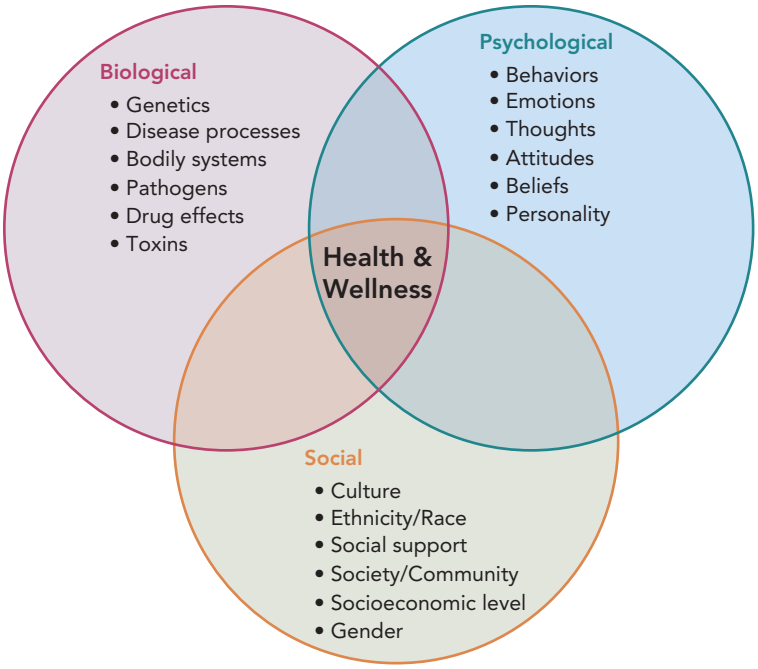
The biopsychosocial model has largely replaced the earlier **biomedical model** that understood disease in terms of defects in biological processes, exposure to pathogenic organisms such as bacteria and viruses, and genetic factors. The biopsychosocial model expands upon the biomedical model by also considering psychological factors (behaviors, attitudes, and emotions) and social factors (social relationships, ethnicity and gender, employment and marital status, immigrant status, **socioeconomic status (SES)**, and discrimination). The biopsychosocial model recognizes the importance of healthy behaviors in determining health outcomes and longevity.

Biological factors such as genetics and exposure to disease-causing pathogens such as harmful bacteria and viruses play an important role in determining our risk of serious illness.

biopsychosocial model A conceptual framework in health psychology that incorporates biological, psychological, and social factors in understanding and treating physical disease and promoting health and well-being.

biomedical model A traditional conception of disease as explained by disease processes.

socioeconomic status (SES)
The social standing or class of an individual or group, often measured in terms of education, income, and occupation.



monkeybusinessimages/Getty Images

FIGURE 1.1 The Biopsychosocial Model of Health The biopsychosocial model posits that health and wellness are determined by biological, psychological, and social factors and their interactions. Which of these factors can we control? Which are beyond our ability to control?

But biology is not destiny. The likelihood of living a long and healthy life also depends on behavioral factors we can control, such as diet and exercise and avoidance of harmful substances such as tobacco.

immune system The body's system of defense against disease.

We have also learned that psychological states such as anxiety and depression can impair the functioning of the **immune system**, the body's system of defense against disease-causing organisms, leaving us more vulnerable to physical disorders. Recent research points to causal links between depression and diseases including coronary heart disease, asthma, and gastrointestinal disorders (Mulugeta et al., 2019). Identifying and treating emotional problems might not only improve one's mental health but also reduce the risks and chronicity of physical illness later in life.

Social factors can be associated with either positive or negative health outcomes. On the positive side, social support can help people cope with health problems and stress. Showing warmth and caring can be a soothing and consoling form of "medication" (Knoll et al., 2019). Having a shoulder to lean on can help people cope with health crises. Evidence shows that having more social connections and higher-quality social ties is a significant predictor of a wide range of positive health outcomes, including lower rates of cardiovascular disease and cancer and lower mortality (death) rates overall (Farrell & Sarah, 2019; Holt-Lunstad, 2018). On the other hand, negative social interactions, such as a troubled marriage, can be a stressful burden, making it more difficult to cope with health problems.

Social factors early in life can have telling implications for health outcomes later on. A study in the United Kingdom showed that socially isolated children were at greater than average risk during midlife of developing Type 2 diabetes and having blood markers of inflammation associated with coronary heart disease (Lacey et al., 2014).

The biopsychosocial model holds that body affects mind and mind affects body, that there are reciprocal relationships between psychological, biological, and sociocultural factors that bear upon our health and well-being, In Chapter 7, we will learn how regular exercise is good for both the body and the mind. Many psychotherapists today prescribe exercise programs for their patients to help them deal with their emotional problems (e.g., Tomasi, Gates, & Reyns, 2019). In Chapter 11, we examine the roles of biological factors, such as genes and neurotransmitter functioning in the brain, as contributing factors in the development of psychological disorders, such as depression and schizophrenia.

Sociocultural factors—SES, ethnicity, and discrimination—are also connected with health outcomes. One of the most robust findings in the health literature is that people from higher socioeconomic levels tend to live longer and healthier lives than people at lower income levels (Chetty et al., 2016; Glanz et al., 2015). The gap between the richest and poorest U.S. residents is nearly 15 years for men and about 10 years for women (Chetty et al., 2016). Wealthier people typically have greater access to high-quality health care. They tend to have greater awareness and knowledge about the health risks associated with unhealthy behavior patterns and to make healthier choices about their diets, perhaps because they can better afford them. Smoking, the major cause of preventable diseases, is concentrated among less well educated and affluent people in our society.

Consider some of the questions posed by health psychologists:

- Why are some people more prone to serious illness than others?
- What determines a person's risk of cancer? Or heart disease?
- How can I preserve my mental functioning as I age?
- Why do some people come down with whatever "bug" is going around while others remain resistant?
- Why are some people better able to maintain their health in their later years than others?

There are no simple answers to these questions. The biopsychosocial model leads us to take a broader view of these issues. We need to consider the role of biological influences, such as genetics, exposure to infectious organisms, and the workings of the immune system. Genetic (inherited) influences are fundamental in the transmission of physical traits, such as height, hair texture, and eye color. Genetics also appears to play a role in personality traits such as impulsivity, sociability, shyness, anxiety, empathy, and even interest in arts and crafts (Gustavson et al., 2019; Keum & Shin, 2019; Savage et al., 2018; Wasielewska & Bethke, 2019). Genetic factors are also involved in many health conditions, such as cardiovascular disorders, cancer, and substance use and abuse (Dunn et al., 2020; Forsyth & Asarnow, 2020; Walsh et al., 2020; Zhang et al., 2019). We will return to the role of genetics in understanding both psychological and physical health throughout this text. Biological factors such as genetics and exposure to disease-causing pathogens such as harmful bacteria and viruses play important roles in determining our risk of serious illness. However, biology is not destiny. From a psychological perspective we need to consider behavioral factors such as the adoption of a healthy lifestyle and use of coping responses to handle daily stress, as well as cognitive factors (attitudes, expectancies, and beliefs) and personality traits (conscientiousness, extraversion, hostility). The likelihood of contracting an illness—be it the flu or cancer—can reflect the interaction of many factors, including genetics and lifestyle factors.

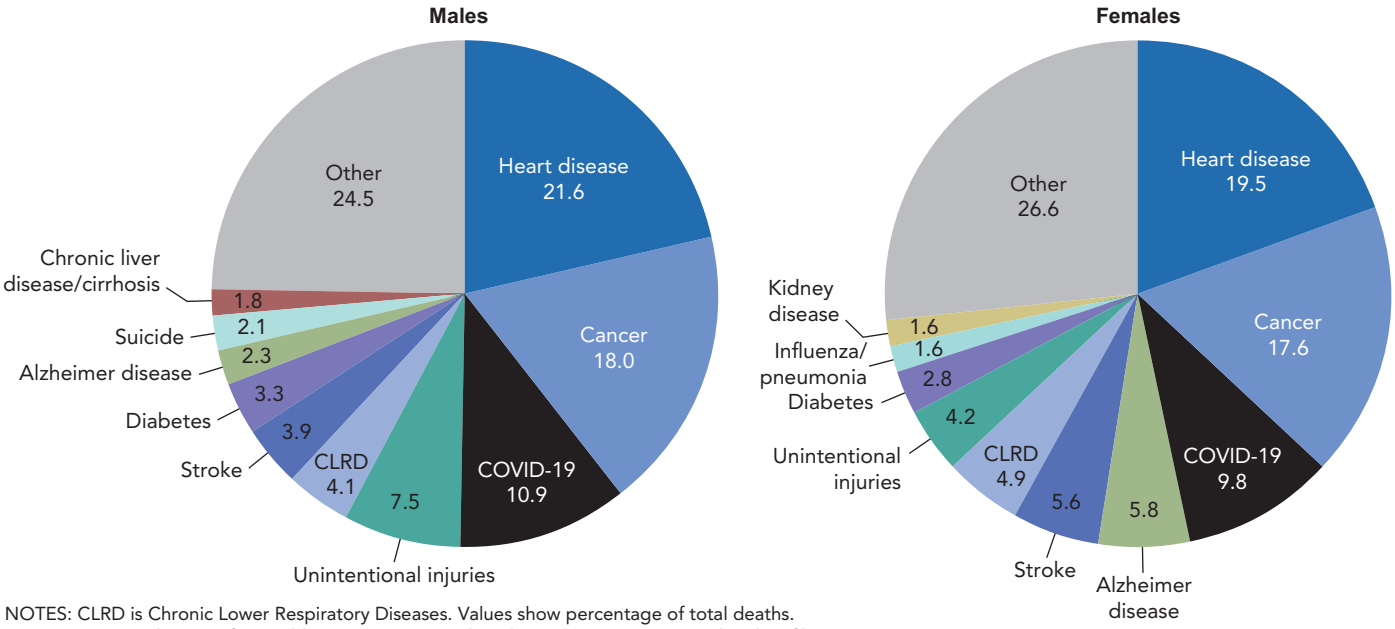
Health psychologists examine relationships between unhealthy behavior patterns and many forms of physical illness. How long we are likely to live and how healthy we are likely to be is often determined by behavioral factors that lie within our control, such as whether we adopt healthy dietary and exercise habits, avoid harmful substances such as tobacco, have regular medical care visits, adhere to medical advice, control our alcohol intake, and take steps to prevent accidents, such as by wearing seat belts. The good news is that healthy behaviors save lives.

Health psychologists also place health and illness within a broader sociocultural context. We will examine throughout our exploration of health psychology the importance of sociocultural factors such as gender, ethnicity, socioeconomic status, and exposure to social ills, such as poverty, discrimination, and racism.

The nearby Self-Assessment on locus of control provides insight as to whether you believe that you are in charge of your own life or you are subject to the whims of external forces.

Healthy Behaviors Save Lives

The COVID-19 pandemic focused public attention on the importance of adopting healthy behaviors, such as handwashing, wearing a facial mask or facial cloth covering, and keeping a safe distance from other people. COVID-19 represented the most significant health threat to the nation and the world at large since the influenza pandemic of 1918, which claimed an



NOTES: CLRD is Chronic Lower Respiratory Diseases. Values show percentage of total deaths.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

FIGURE 1.2 Leading Causes of Death, United States Unhealthy behaviors contribute to the most common causes of death in the United States, including the number 1 killer, heart disease. Does your behavior increase or decrease your risk of death from heart disease or another leading cause of death?

Source: Curtin et al. 2023 / U.S. Department of Health & Human Services/ Public Domain

estimated 50 million lives worldwide and about 675,000 in the United States (CDC, 2023r). COVID-19 joined the nation's leading causes of death in 2020.

Despite the enormity of the health threats posed by COVID-19 and other infectious diseases, the perennial leading causes of death in the United States have not involved pathological agents such as bacteria and viruses. They are noncommunicable (noninfectious) chronic diseases, including the nation's leading cause of death, heart disease, and the second leading killer, cancer (see **Figure 1.2**). All together, these 10 causes of death account for about three quarters of all deaths in the United States (Heron, 2019; Xu et al., 2020a).

Preventable Causes of Death

Approximately one death in three is preventable, a result of unhealthy behaviors (Holman, 2016; Taksler et al., 2018). Smoking is the leading preventable cause of death in the United States, accounting for nearly one in every five deaths, especially including deaths from heart disease, cancer, and respiratory problems (CDC, 2023g). Unhealthy dietary patterns including overeating, eating saturated fats, and ingesting large amounts of sodium (in salt) play roles in preventable causes of death. Excessive drinking of alcohol contributes to many health problems, including liver disease, and is associated with risky behaviors, such as driving under the influence and risky sexual behavior. Failure to use seat belts and obey traffic laws also increases the risk of fatal accidents. **Figure 1.3** shows the estimated number of deaths attributable to individual risk factors. Eliminating these risk factors could save more than a million lives each year in the United States.

These risk factors are all controllable by practicing healthier lifestyles and going for regular medical and dental checkups. We can avoid tobacco use and adopt healthier diets and exercise regularly to manage our weight. Regular medical care can help us to control diabetes, hypertension, and high levels of blood cholesterol, which are risk factors for heart disease. Medical care, healthy diets, and exercise can prevent hundreds of thousands of deaths due to heart disease and diabetes each year (Hagger et al., 2020; Naar, Czajkowski, & Spring, 2018). Control of underage and excess drinking of alcohol can prevent tens of thousands of deaths from motor vehicle accidents, falls, drowning, and risky sex. Ensuring that we and our children are immunized against infectious agents saves thousands of lives. We can avoid more needless deaths by improving worker training and safety. We can go for screening for various kinds of cancer.

Self-Assessment

INTERACTIVE SELF-ASSESSMENTS

Locus of Control Scale

It is, or can be, within our control to fend off preventable illnesses and to enhance our well-being. Do you believe that your health and well-being lie within your control? Or do you believe that what happens to you in life depends on the whims and fancies of others or just blind luck? To find out, answer the following questions by selecting "Yes" or "No." Then check the answer key at the end of the chapter.

Antonio_Diaz/Getty Images

		YES	NO
1.	Do you believe that most problems will solve themselves if you just do not fool with them?	___	___
2.	Do you believe that you can stop yourself from catching a cold?	___	___
3.	Are some people just born lucky?	___	___
4.	Most of the time, do you feel that getting good grades means a great deal to you?	___	___
5.	Are you often blamed for things that just aren't your fault?	___	___
6.	Do you believe that if somebody studies hard enough, he or she can pass any subject?	___	___
7.	Do you feel that most of the time, it doesn't pay to try hard because things never turn out right anyway?	___	___
8.	Do you feel that if things start out well in the morning, it's going to be a good day, no matter what you do?	___	___
9.	Do you feel that most of the time parents listen to what their children have to say?	___	___
10.	Do you believe that wishing can make good things happen?	___	___
11.	When you get punished, does it usually seem to be for no good reason at all?	___	___
12.	Most of the time, do you find it hard to change a friend's opinion?	___	___
13.	Do you think cheering more than luck helps a team win?	___	___
14.	Do you feel that it is nearly impossible to change your parents' minds about anything?	___	___
15.	Do you believe that parents should allow children to make most of their own decisions?	___	___
16.	Do you feel that when you do something wrong, there's very little you can do to make it right?	___	___
17.	Do you believe that most people are just born good at sports?	___	___
18.	Are most other people your age stronger than you are?	___	___
19.	Do you feel that one of the best ways to handle most problems is just not to think about them?	___	___
20.	Do you feel that you have a lot of choice in deciding who your friends are?	___	___
21.	If you find a four-leaf clover, do you believe that it might bring you good luck?	___	___
22.	Do you often feel that whether or not you do your homework has much to do with what kind of grades you get?	___	___
23.	Do you feel that when a person your age is angry with you, there's little you can do to stop him or her?	___	___
24.	Have you ever had a good-luck charm?	___	___
25.	Do you believe that whether or not people like you depends on how you act?	___	___
26.	Do your parents usually help you if you ask them to?	___	___
27.	Do you ever feel that when people are angry with you, it is usually for no reason at all?	___	___
28.	Most of the time, do you feel that you can change what might happen tomorrow by what you do today?	___	___
29.	Do you believe that when bad things are going to happen, they are just going to happen, no matter what you try to do to stop them?	___	___
30.	Do you think that people can get their own way if they just keep trying?	___	___
31.	Most of the time, do you find it useless to try to get your own way at home?	___	___

		YES	NO
32.	Do you feel that when good things happen, they happen because of hard work?	___	___
33.	Do you feel that when somebody your age wants to be your enemy, there's little you can do to change matters?	___	___
34.	Do you feel that it's easy to get friends to do what you want them to do?	___	___
35.	Do you usually feel that you have little to say about what you get to eat at home?	___	___
36.	Do you feel that when someone doesn't like you, there's little you can do about it?	___	___
37.	Did you usually feel it was almost useless to try in school, because most other children were just plain smarter than you were?	___	___
38.	Are you the kind of person who believes that planning ahead makes things turn out better?	___	___
39.	Most of the time, do you feel that you have little to say about what your family decides to do?	___	___
40.	Do you think it's better to be smart than to be lucky?	___	___

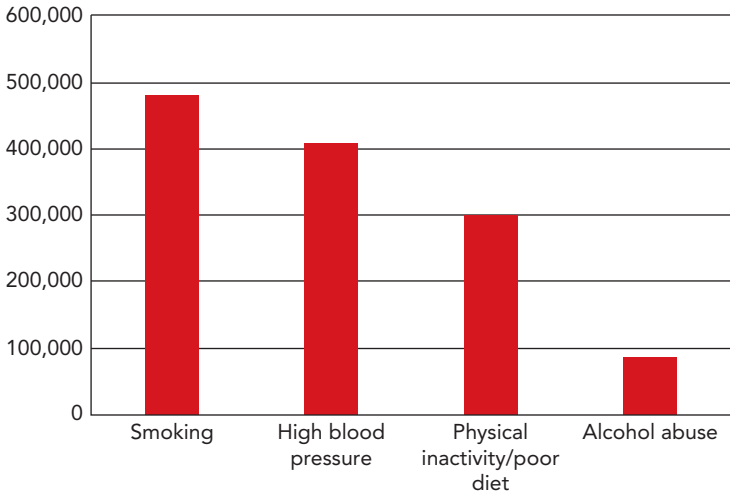


FIGURE 1.3 Estimated Annual Deaths Attributable to Individual Risk Factors Unhealthy behaviors and lack of appropriate medical care for chronic health conditions such as high blood pressure and high blood cholesterol are responsible for more than a million premature deaths in the United States each year.

Sources: CDC (2017d, 2019b), Danaei et al. (2011), NIAAA (2020), and Taksler et al. (2018).

The story of health psychology is largely about the efforts of behavioral scientists to identify unhealthy behavior patterns and apply psychological science to develop behavior change programs to help people live longer and healthier lives.

Historically, the leading cause of preventable deaths has been tobacco use. Despite progress in reducing the prevalence of cigarette smoking (see Chapter 9), we still lose some 480,000 people in the United States annually due to smoking-related causes. Cigarette smoking reduces a person's life span by about 10 years on average (United Health Foundation, 2019). Obesity is also a major contributor to preventable deaths, along with high blood pressure and high levels of cholesterol (Elmaleh-Sachs et al., 2023; Mangione et al., 2022). The math shows that every kilogram (2.2 pounds) of excess body weight takes more than 2 months off the average person's life span, although there are obviously individual differences (Joshi et al., 2017).

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What's the payoff in health and longevity of adopting a healthier lifestyle? Harvard University researchers conducted a long-term study that followed more than 100,000 people at age 50 through the next several decades of their lives (Li et al., 2020). They measured lifestyle factors repeatedly and tracked the development of serious diseases and deaths. A healthy lifestyle was defined as not

smoking, maintaining a healthy body weight, regularly engaging in moderately vigorous physical activity, and following a healthy diet. The question was: How many additional years of living free of cancer, cardiovascular disease, and diabetes could people expect if they met all of these health objectives—a few months? A few years? The answer is an average of 7.6 years for men and 10.7 years for women.

Other preventable causes of death lie in the realm of medical errors (Rodziewicz & Hipskind, 2020). There are two types of errors:

- Errors of omission, resulting from actions not taken, such as failing to strap a person into a wheelchair, failing to use proper diagnostic techniques, or failing to provide a needed medicine or surgical procedure.
- Errors of commission, resulting from erroneous actions that are taken, such as administering a medicine to a person with a documented allergy to the medicine, incorrectly naming the person who has provided a laboratory specimen, or surgical mistakes. (It is reassuring that most surgeons routinely check that they will be operating on the correct leg by marking it.)

We do not have precise figures on the deaths that result from medical errors. However, we can note that some investigators consider them to be a leading cause of death. Fear of punishment obviously makes many healthcare professionals reluctant to report errors. When errors do come to light, they tarnish the reputations of hospitals and professionals. In later chapters we outline factors to consider when selecting healthcare professionals. Health psychologists note that it is crucial that we become knowledgeable consumers of health care. Physicians and other healthcare professionals are authority figures in our society, and sometimes it is necessary to question authority.

Health and Wellness

Health can be defined in different ways. The classic view of health, as understood within the biomedical model of disease, is that health is simply the absence of disease. If you are fortunate to be free of disease or injury, you are, by this definition, healthy. Health researchers who conceive of health in terms of the biopsychosocial model take a broader view of health, defining it not simply as the absence of disease but also as a state of physical, psychological, and social well-being.

health The state of physical, psychological, and social well-being.

The concept of health differs in a subtle but important way from that of **wellness**, which is a state of *optimal* physical, psychological, and social well-being. Wellness involves adoption of a healthy lifestyle. You may be healthy and free of disease, but you may still lack wellness if you are not attempting to optimize your well-being, as by making physical activity a routine part of your lifestyle.

wellness An optimal state of physical, psychological, and social well-being.

Health psychologists are concerned with helping people adjust to the challenges posed by serious or chronic illness. But that's only part of the story. They are also involved in developing health promotion programs that focus on wellness. The pursuit of wellness involves keeping physically fit, obtaining regular medical checkups, adhering to medical advice, developing healthier relationships, avoiding use of harmful substances, and seeking personal meaning to create a sense of purpose and self-fulfillment. It basically comes down to taking an active role in making the personal choices that lead to a healthier and more fulfilling life.

Many health psychologists work with businesses to help them develop wellness programs in the workplace. About four of five large companies in the United States provide wellness programs to their workers (Kaiser Family Foundation, 2018). Typically, these programs offer a range of services and resources, including comprehensive health assessments and education and coaching to help workers make healthy

stevecoleimages/Getty Images

Health and Wellness Health and wellness are not defined by the absence of disease but by one's overall state of physical, psychological, and social well-being. How we live our lives plays a major role in our health and wellness.

behavioral changes, such as help quitting smoking, becoming more physically active, reducing stress, and managing weight (Abraham, 2019).

But do wellness programs have a positive health impact? Some psychologists have found that physical activity in workplace wellness programs not only improves physical health but also decreases absenteeism (Losina et al., 2017). Other researchers report mixed findings, some positive, some negative (Abraham, 2019; Raymond et al., 2019). Workplace wellness programs may boost some health-related behaviors, as by increasing regular exercise and promoting weight management, but they may not reduce healthcare costs (Song & Baicker, 2019).

One nagging problem in studying wellness programs is the variability in employee participation. If these programs are to boost healthy outcomes, they need to ensure a high level of participation (Raymond et al., 2019). Health psychologists are involved in designing programs that workers will use more consistently.

Psychological Science Applied to Health and Wellness

Health psychologists apply psychological science to many of the health problems we face in life. In the pages of this text, you will encounter the work of a great many health psychologists and other health researchers who apply psychological principles and theory in scientific studies across a wide range of health-related issues. They use scientific methods to better understand health-related behavior and evaluate health promotion and disease-prevention efforts. Among the many health-related issues they address, and that are discussed in this text, are the following:

- How do health behavior theories help us better understand the factors involved in the decision to get vaccinated for the flu, tuberculosis, or COVID-19, or to use condoms to protect oneself and one's partners from sexually transmitted diseases?
- How might we apply principles of reinforcement to reduce sugar consumption, help people lose excess weight and keep it off, and increase tooth-brushing behavior in children?
- What are the stages of change that determine whether a person is ready to make healthier behavior changes?
- How does our mental health affect our physical health and well-being?
- How do the workings of the body affect our health and well-being?
- What is the role of regular exercise in determining health outcomes and why is prolonged sitting a potential health risk?
- How do psychological principles like priming lead to ways of increasing the use of hand sanitizers in healthcare settings?

Review 1.1

Sentence Completion

1. The subfield of psychology that explores relationships between behavior and physical health is called _____.

2. Dualism is the belief that mind and _____ are fundamentally different entities.

3. The scientific study of mind–body interactions began in the 19th century with the emergence of the field of _____ medicine.

4. The American physician who founded the American Psychosomatic Society was Helen Flanders _____.

5. _____ health psychologists focus on helping individuals lead healthier lives.

6. _____ health psychologists focus on improving the health of members of communities.

7. The biomedical model of disease defines health as the _____ of disease or injury.

8. A broader conception of health defines it not simply by the absence of disease but also as a state of physical, psychological, and social _____.

9. The leading conceptual model in health psychology is a multidimensional framework called the _____ model.

10. Anxiety and depression can impair the _____ system, making us more vulnerable to physical disorders.

Think About It

If you worked for a company that offered a wellness program, would you use it? What features of the wellness program would you be most likely to use? Which would you be least likely to use, and why?

Health Psychology in the Global Context

Promoting health and combating disease are global challenges, ever more so today because the world is so closely interconnected. As the COVID-19 pandemic illustrated, a person with an infectious disease can board an international flight and within hours arrive anywhere in the world, infecting people in these locales who in turn infect still others in a spreading web of disease that does not respect national borders. On a positive note, advances in medical research can also have far-reaching consequences, improving the health and well-being of people in distant countries and remote villages.

Global health is the field of study, research, and practice that focuses on improvement of health of people worldwide. Health psychology is also a global endeavor, as health psychologists seek to understand behavioral factors contributing to global health challenges, the spread of infectious diseases such as COVID-19 and HIV/AIDS, and the devastating effects of smoking and the use of other harmful substances. They develop initiatives designed to promote healthier behaviors. For example, health psychologists implemented a health promotion program with university students in South Africa, finding that students who received the intervention were more likely to meet physical activity guidelines and show lower levels of self-reported consumption of fried foods (Heeren et al., 2018).

Health psychologists recognize the need to take cross-cultural differences in health into account. Consider, for example, that mortality (death) rates from cancer are higher in the Netherlands, Denmark, England, Canada, and—yes—the United States. Although many factors—including genetic and environmental factors—may contribute to an increased risk of cancer, a common denominator in these countries is a relatively high intake of fat, especially the saturated fat found in meat and dairy products. Death rates from cancer are much lower in Thailand, the Philippines, and Japan, where the daily fat intake is lower. Do not assume that the difference is racial because Thailand, the Philippines, and Japan are Asian nations. The diets of Japanese Americans are similar in fat content to those of other Americans—and their death rates from cancer are also higher.

Health psychologists also study how folk beliefs may affect the provision of health care. For example, African researchers conducted interviews with people living with diabetes in a poor urban area of Ghana (de-Graft Aikins, Awuah, & Pera, 2015). They found that attributing symptoms of diabetes to supernatural causes, such as sorcery or witchcraft, was associated with a lack of disclosure of their illness to others for fear that revealing symptoms would put them at risk of the listener's using sorcery against them.

One of the challenges of global health is the wide disparity in access to health resources worldwide. People in poorer countries have limited access to medicinal drugs and medical care that people in more affluent countries may take for granted. Diseases that have been effectively eliminated in affluent countries, such as malaria, continue to spread misery and death in less developed nations. Yet there has been substantial progress in improving health and longevity worldwide. For example, infant mortality has declined by more than 50% worldwide since 1990, and maternal mortality (death of women during pregnancy) has fallen 43% (Filippi et al., 2016; World Bank, 2023; World Health Organization, 2018). But we will see that health disparities are a national as well as an international concern.

In some respects, global health concerns mirror those seen in the United States. Noncommunicable diseases (NCDs) such as heart disease, stroke, chronic lung diseases, and cancer are the leading causes of disease worldwide, as they are in the United States. Worldwide, NCDs account for about seven of 10 deaths overall and more than one in three premature deaths (Alcántara et al., 2020). Health psychologists are involved in developing health initiatives by assisting people here and abroad to make changes that can lower their risk of developing these chronic diseases.

Among the leading chronic health conditions globally is high blood pressure (hypertension), which is a major risk factor for cardiovascular diseases such as heart disease and stroke (see Chapter 12). Achieving control over blood pressure is especially problematic in developing countries that lack health resources that are available to people in more technologically developed countries.

Recently, health researchers adapted methods used in more developed countries to improve health outcomes of people with hypertension from rural communities in several South Asian countries (Bangladesh, Pakistan, and Sri Lanka) (Jafar et al., 2020; Poulter, 2020).

People with hypertension in the study received either a low-cost (<$11 per person annually) multicomponent intervention or usual care. Those receiving the multicomponent intervention had regular home visits in which trained government health workers measured their blood pressure and provided health education and counseling focused on adopting healthier diets and lifestyles. Health care was also coordinated with local physicians who followed a structured treatment protocol for prescribing medications. At a 2-year follow-up, people receiving multicomponent treatment showed greater reductions in blood pressure than the control group receiving usual care. This type of program offers an affordable strategy for improving blood pressure control in many areas of the world in which healthcare resources are scarce.

We should also note that infectious or communicable diseases pose a much greater threat to health and survival in other parts of the world than they do in the United States. Communicable diseases such as diarrheal diseases are among the 10 leading causes of death worldwide, though they are largely controlled in the United States and other developed countries. Other communicable or infectious diseases, such as malaria, are grim threats faced by many of the world's poorest, which have less developed public health care and sanitation systems. The threats posed by communicable diseases globally require greater resources directed toward infection control procedures (WHO, 2018).

Health and Diversity in the United States: Nations Within the Nation

Gelpi/Shutterstock.com

Which of These Babies Is Likely to Live Longer? Non-Hispanic White baby boys, on average, can expect to live about 5 years longer than African American baby boys. For girls, the difference in longevity is nearly 3 years in favor of non-Hispanic Whites. To what extent does access to health care play a role in these discrepancies?

From the perspective of health and health care, we are many nations, not just one. Various factors, including ethnicity and gender, have a bearing on how long we are likely to live and how healthy we are likely to be.

Life Expectancy in Relation to Race, Ethnicity, and Socioeconomic Status

Life expectancy in the United States had been rising steadily for many decades but began to decline in 2014, first as a result of a spike in drug overdoses in the wake of the nation's opioid epidemic (see Chapter 9) as well as increased rates of suicide, and then in the early 2020s as the result of the COVID-19 pandemic (Xu et al., 2020a). The good news is that life expectancy at birth, based on the latest available statistics, turned upward again in 2022, rising to 77.5 years overall, 74.8 years for males, and 80.2 years for females (Arias et al., 2023).

Average life expectancy can be a misleading statistic because it does not take gender or ethnicity into account (see **Figure 1.4**) (Arias & Xu, 2019; Carnethon, Kershaw, & Kandula, 2020). Notice that, on average, the life span of non-Hispanic Black Americans is nearly 5 years less than that of non-Hispanic White Americans. The life expectancy of (non-Hispanic) Asian Americans is the longest.

How might we account for these racial and ethnic differences? An important factor is SES. Non-Hispanic Blacks are disproportionately represented among the lower income levels in our society, and people on the lower rungs of the socioeconomic ladder—especially Black men—have lower life expectancies (Johnson et al., 2022; Khan et al., 2022). Social or economic disadvantage in the form of poverty and unemployment is associated with a significant increase in the risk of death (Alcántara et al., 2020). Not only are wealthier people likely to live longer, but they also more likely to remain healthy and free of age-related disabilities for about 9 years longer than the least affluent people (Picheta, 2020).

We also need to consider other factors, including greater proneness among Black Americans to risk factors for cardiovascular disease, such as hypertension, obesity, and diabetes. But other factors may also contribute, including differences in diet, physical activity, and access to health care. A different story emerges when we look at life expectancies of Latino/Hispanic Americans, who live about 3 years longer, on average, than non-Hispanic White Americans.

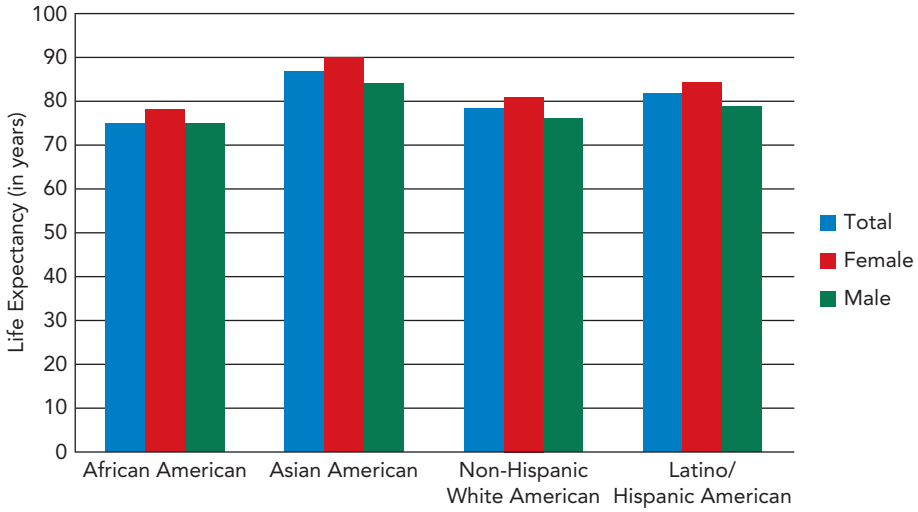


FIGURE 1.4 **Life Expectancy by Sex and Race/Ethnicity, United States**

Source: Arias & Xu, 2019 / Centers for Disease Control and Prevention / Public Domain.

Latino/Hispanic Americans have a lower death rate from several killer diseases as compared with Whites, including heart disease and cancer (Arias et al., 2015).

Longevity is but one marker of living a full and healthy life. We need to look at other health indices as well. For example, Spanish-speaking Latino/Hispanic Americans are less likely to be screened than non-Hispanic White Americans or English-speaking Latinos/Hispanics for colorectal cancer, a leading cancer killer (NCI, 2019). Latino/Hispanic Americans are also at greater risk than non-Hispanic White Americans of developing HIV/AIDS and adult-onset diabetes.

Genetic factors also play a role in racial/ethnic group differences in health. For example, the incidence of sickle-cell anemia is highest among Black Americans and Latino/Hispanic Americans. The incidence of Tay-Sachs disease is greatest among Jews of Eastern European origin.

Other risk factors differentially affecting (non-Hispanic) Blacks are overweight and hypertension (high blood pressure), which are two of the major risk factors for heart disease and stroke (Lee, 2019). Cardiovascular illness and deaths are higher among Blacks than Whites (Bauer & Thompson, 2018; Cunningham et al., 2017). Black people also tend to have more risk factors linked to complications and death from COVID-19, such as heart disease and diabetes (Egede & Walker, 2020; Yancy, 2020).

Although there may be a genetic component in these risk factors, lifestyle factors such as diet and physical activity play significant roles. Interestingly, Black Americans are more likely to suffer from hypertension than are Black Africans, suggesting that environmental factors affecting many Black Americans—such as stress, diet, and smoking, may contribute to their increased risk of hypertension. Black Americans may also face life stressors that can have a negative impact on health and longevity, such as insecure housing, poverty, crime, and exposure to discrimination.

Another factor contributing to racial/ethnic differences in health outcomes is quality of treatment. Non-Hispanic Black Americans tend to receive different levels of treatment by medical practitioners. They are less likely than (non-Hispanic) White Americans to receive hip and knee replacements, kidney transplants, mammograms, and flu shots (Ghomrawi et al., 2018; Quinn, 2018; Yeary et al., 2018). Black women are 42% more likely to die from breast cancer than White women in the United States, even though they are less likely than White women to develop breast cancer. This discrepancy is partly explained by the fact that Black women tend to develop breast cancer at an earlier age but to be diagnosed at a later age than White women. The later diagnosis may be a result of less access to healthcare services, especially cancer care. However, genetic factors are also apparently involved, making breast cancer generally more aggressive in Black women (Centers for Disease Control and Prevention, 2017b).

The United States and Canada have the resources to provide the most advanced health care in the world. But not all of us have access to these advantages. People of color tend to have less access to quality health care than do White people (Dickman et al., 2022; Hamed et al., 2022; Shuman & Malani, 2018). Why do these discrepancies exist? Various explanations

have been offered, including cultural differences, cost and lack of access to specialized medical services at the neighborhood level, cultural mistrust of the healthcare system among people of color, lack of awareness or knowledge about health risks, and racism.

Early diagnosis and treatment might help reduce racial gaps in life expectancy. However, evidence bears out that people of color may not receive the same quality of medical services as their (non-Hispanic) White American counterparts. For example, Black adults in the United States with heart disease patients are less likely than their White counterparts to receive aggressive treatments, such as bypass surgery, even when it appears that they would benefit equally from the procedure (Stolberg, 2001). Black Americans and other ethnic minorities tend to have less access to cardiovascular and other healthcare services than White Americans—services that might potentially identify health conditions before they reach more serious stages (NCHS, 2023).

Underutilization of health services is a pressing problem among Latinos/Hispanics, as they tend to engage in fewer medical visits than Black Americans and White Americans. A number of factors are involved in accounting for lower use of medical services among Latinos/Hispanics, such as lack of health insurance; financial difficulties to manage medical fees, even copays; linguistic difficulties communicating with English-speaking healthcare providers; fewer neighborhood healthcare providers; and concerns about immigration status and fear of deportation for undocumented people. Latino/Hispanic preschoolers are also less likely than their Black or White counterparts to be immunized against childhood diseases.

One major factor contributing to racial or ethnic disparities in utilization of medical services is the fact that greater percentages of Black Americans and Latino/Hispanic Americans and other ethnic minorities, such as American Indian and Alaska Native peoples, are uninsured as compared to Whites (Cohen et al., 2019)—a topic we explore further in Chapter 3.

Socioeconomic Disparities in Health Outcomes

Racial or ethnic differences in markers of health and longevity may mask differences in SES, which encompasses income and educational level. African Americans are disproportionately represented among the lower income levels in our society, and people on the lower rungs of the socioeconomic ladder have lower life expectancies and more risk factors for life-threatening diseases, such as heart attack and stroke (Mariotto et al., 2018; Murphy et al., 2017; Rehm & Probst, 2018).

We need to consider social determinants of health inequalities. Evidence shows that social factors such as housing instability and food insecurity disproportionally affect minoritized groups and represent sources of life stress that adversely affect the physical and mental health of these groups (Alegria & Cheng, 2023).

We also need to consider that people on the lower rungs of the socioeconomic ladder tend to be medically underserved, often because of a lack of affordable health insurance. They also tend to have more risk factors for heart disease and cancer, such as smoking, inactivity, and obesity (He et al., 2021; NCHS, 2023). Unhealthy lifestyles can take a toll on health outcomes and longevity.

Black Americans have higher death rates from many (though not all) forms of cancer (NCI, 2019) (see Chapter 13). Again, lower SES may help explain these differences, as people in the lower rungs of SES tend to smoke more frequently, exercise less regularly, and consume a diet richer in unhealthy fats, all of which are factors implicated in various forms of cancer.

Wealthier, better-educated people tend to take better care of themselves, in large part because they have greater financial resources that allow them to join a gym or participate in exercise programs and obtain more regular health care. They are less likely to smoke and have the resources to shop for healthier (and often more expensive) foods. By contrast, people living in poorer neighborhoods face a type of environmental racism, with a proliferation of nearby fast food restaurants and grocery stores that offer limited healthier food choices. The stressful burden imposed by financial strains may also lead people in poorer neighborhoods to rely on junk food or overeating as a way of coping with stress.

Health promotion efforts designed to help people change unhealthy habits have been less successful in reaching people of lower socioeconomic standing. The problem is compounded

by the fact that people of low SES are also less likely to receive health education messages about the importance of regular health checkups and early medical intervention when symptoms arise. They also tend to have poorer access to healthcare services (AHRQ, 2019). As we noted, factors such as costs of health care and lack of health insurance or underinsurance are major contributors to healthcare disparities.

Stress places people at greater risk of physical illness, ranging from gastrointestinal disorders to heart attacks. People at lower SES levels are more likely to suffer the effects of stress for two reasons. First, people from economically-distressed neighborhoods are more likely to encounter more significant life stressors, such as financial hardship, insecure housing, and crime. Second, poorer people are less likely to have the resources to cope with stress, such as access to healthcare professionals.

All in all, health psychologists and other health researchers are aware of the complex matrix of factors that underlie racial and ethnic disparities in health outcomes and longevity and of the need to find ways of providing prevention and treatment services to all members of the population.

Life Expectancy and Gender

Being male shaves about 5 years off the average person's life expectancy. On average, women live about 5 years longer than men (life expectancies are about 75 years for men and about 80 years for women) (Arias et al., 2023; Mueller, 2023; Yan et al., 2023).

A major factor explaining this gender discrepancy is that men typically engage in riskier behaviors. They are more likely to smoke, to consume larger amounts of alcohol (contributing to cirrhosis of the liver and other serious medical problems), and to die from acts of violence, accidents, and suicide (de Visser, 2019). They also tend to pay less attention to their health and to follow their doctors' recommendations.

Surveys of physicians and of the general population find that women are generally more willing than men to seek health care (Mursa, Patterson, & Halcomb, 2022; Ramos-Vera et al., 2022). Women are also more likely to perform regular self-exams, such as checking their breasts for lumps, than men are to examine themselves for possible early signs of cancer, such as checking for lumps in their testicles or elsewhere. Perhaps because of the lingering gender stereotype that men are expected to be self-sufficient and shouldn't rely on help from others, men may just let symptoms go until a problem that might have been prevented or readily treatable becomes serious or life-threatening.

Many men seem to have a *bulletproof mentality*, believing they are too strong to need a doctor, or too busy. Health psychologists study attitudes and beliefs people hold about seeking healthcare services and following through with treatment, recognizing that negative beliefs are a major impediment not only to obtaining help but also to adhering to medical treatment.

Review 1.2

INTERACTIVE SELF-SCORING QUIZZES

Sentence Completion

1. Mortality or death rates from cancer are (higher or lower) than in Asia in the Netherlands, Denmark, England, Canada, and the United States.

2. Diseases that have been effectively eliminated in more affluent countries, such as _____, continue to spread misery worldwide.

3. Life expectancy in the United States is (higher or lower) overall for men as compared to women in recent years.

4. Non-Hispanic Black American males live nearly 5 years (less or more), on average, than non-Hispanic White American males.

5. Black people with heart disease are (less likely or more likely) than their White counterparts to receive aggressive treatment.

6. Survey research indicates that women are (more willing or less willing) to seek health care than men.

7. Many men seem to have a _____ mentality when it comes to seeking health care.

Think About It

What factors contribute to socioeconomic differences in health outcomes? What do you think can be done to reduce these disparities?

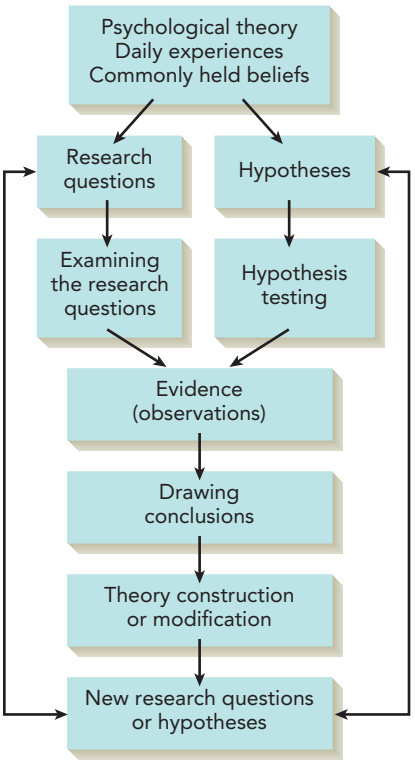


FIGURE 1.5 The Scientific Method
The scientific method provides a systematic way of organizing and expanding scientific knowledge.

VIDEO CONTENT
The Scientific Method

VIDEO CONTENT
Psychological Research

case study method
A method of research based on a carefully drawn biography obtained through interviews, questionnaires, or psychological tests.

social desirability bias
The tendency of people to respond in socially desirable ways.

qualitative research
A non-numerical method of research based on collecting and analyzing information drawn from interviews, observations, personal narratives, and written materials.

correlational method
A method of research examining relationships among variables.

correlation A statistical association or relationship between two variables, expressed in the form of a correlation coefficient.

Research Methods in Health Psychology

Is there a link between diet and risk of cancer? Is light to moderate use of alcohol a health risk or a health benefit? Do health apps work? These are some of the research questions we will pose in later chapters. But here, let us focus on the scientific method and the research methods health psychologists use to address these and other questions about our health and well-being.

The Scientific Method

The scientific method is an organized way that scientists use to test ideas and expand and refine their knowledge based on careful observation and experimentation (see **Figure 1.5**). It is not a recipe that psychologists and other scientists follow but rather a set of general principles that guides their research. Psychologists usually begin by formulating a research question. Research questions can have many sources. Our daily experiences, psychological theory, even folklore and intuition all help generate questions for research. A research question may be studied as a question or reworded as a hypothesis—a specific prediction about behavior or mental processes that is tested through research. Let us consider the various research methods used by health psychologists.

The Case Study Method

The **case study method** is an intensive and detailed study of an individual or a few individuals with particular health conditions. Sigmund Freud relied on the case study method, studying his clients in depth in an attempt to understand factors that lead to abnormal behavior patterns, such as troubling psychological problems.

That said, researchers recognize the limitations of the case study method. There are bound to be gaps in memory when people are questioned. People may also distort their pasts because of a **social desirability bias**. Interviewers may also have certain expectations and may subtly encourage subjects to fill in gaps in ways that are consistent with their theoretical perspectives. All in all, case studies may provide useful or revealing information, but they lack the rigorous controls found in experimental methods.

The case study method represents a type of **qualitative research**, a method of research that relies on gathering nonnumerical or nonquantitative data from interviews, observations in natural setting, personal narratives, and textual analysis of written records, in order to learn about people's behaviors, beliefs, and attitudes (Pathak, Jena, & Kalra, 2013). We will see examples of qualitative research in this text, including a study in Chapter 14 that cataloged responses of terminally ill people to questions about wisdom and the meaning of life. Evidence from qualitative studies can be combined with quantitative measures to provide a richer understanding of health-related issues.

The Correlational Method

Health psychologists use the **correlational method** to study links between behavioral risk factors and health outcomes. These links are expressed in the form of a statistical association, or **correlation**, between variables under study. Through this method, we learn about relationships between diet and cancer (discussed in Chapter 13) and exercise and heart disease (discussed in Chapter 8), among many others.

A correlation is an association between two variables, which is expressed in the form of a correlation coefficient that can vary in size from −1.00 to +1.00. A positive sign means there is a positive relationship between the two variables, so that as one of the variables increases, the other tends to increase as well. A negative sign points to an inverse relationship such that as one variable increases, the other tends to decrease. For example, and hardly surprisingly, ice cream sales tend to be positively correlated with ambient temperature, as people tend to buy more ice cream as temperatures rise during the summer. As for an inverse or negative relationship, we shouldn't be surprised to find that as hours of sleep decrease, the number of errors on test performance tends to increase.

Notice the use of the words "tend" and "tends." Unless there is a perfect +1.00 or −1.00 correlation coefficient, changes in one variable do not perfectly correspond to changes in the other. It's like trying to predict the path of a hurricane based on a set of meteorological factors. Our predictions may be better than chance, but lacking a perfect correlation between the variables of interest, we cannot make predictions with absolute certainty. The size or magnitude of the correlation coefficient indicates the strength of the relationship between the two variables. The larger the magnitude, the more reliably we can use changes in one variable to predict changes in the other.

Consider relationships between stress and the likelihood of a common cold. Let's assume there is a positive correlation such that increases in stress tend to be associated with increased vulnerability to the common cold. Based on this evidence, we could make a better-than-chance prediction that people under high levels of stress are more likely to develop a cold (upper respiratory infection). That being said, while correlational relationships may *suggest* a cause-and-effect relationship, they are not *sufficient* to establish a causal relationship between two variables.

It may be the case that stress is a causal factor determining vulnerability to the common cold. One possibility is that stress negatively affects the body's immune system, the body's line of defense against disease-causing organisms, such as bacteria and viruses (see Chapter 4). However, it is also possible that people under stress take poorer care of their health (not exercising as regularly, getting less sleep, etc.) and that these factors, not stress per se, account for poorer immune system functioning. The possibility that other factors account for the variables in a study represents the so-called *third variable problem*, namely that some alternative factor, say insufficient sleep, may account for a relationship between two other factors (stress and the common cold). Another possibility is that the causal links are actually reversed, such that people in poorer health may encounter higher levels of stress.

Observational studies use the correlational method to observe relationships between variables that are not directly controlled or manipulated by the experimenter. Consider evidence of linkages between negative thinking and depression. As we'll see in Chapter 11, depressed people tend to show more negative thinking than nondepressed people, such as exaggerating disappointments or failures, focusing only on the negatives, and heaping blame on themselves for negative outcomes. While thinking negatively in the face of disappointing life events may lead to depression, we need to consider alternative possibilities, such as depression leading to negative thinking.

Chinese investigators used the observational method to examine the relationships between tea consumption and cardiovascular disease (Wang et al., 2020). The researchers didn't control whether people drank tea or how much tea they drank. They merely analyzed the frequency of cardiovascular incidents (heart attacks, strokes, and other problems) between people at higher and lower levels of tea consumption. Tea, especially green tea, is rich in certain plant chemicals called *flavonoids* that may have healthy effects on the heart and circulatory system (Bakalar, 2020). The investigators analyzed health records from more than 100,000 Chinese adults and compared these data to self-reports of tea consumption. Correlational analysis showed a relationship between tea consumption and cardiovascular incidents over a period of 7 years, which when broken down further revealed that individuals who drank more than three cups of tea weekly had a 20% lower risk of cardiovascular incidents and also lower risks for cardiovascular death and premature death from any cause.

Can we say from this data that drinking tea is actually good for the heart and circulatory system? Perhaps it is, but finding a correlation between two variables, in this case between tea consumption and cardiovascular incidents, doesn't suffice to establish a causal link. We need to await experimental data in which tea consumption over a period of years is directly controlled by experimenters to see if tea actually has beneficial effects on cardiovascular health.

The bottom line is that while correlational research may suggest possible causal relationships, we need experimental methods to pinpoint cause-and-effect relationships. Although correlation is not causation, there are at least three ways in which correlational studies provide importance sources of evidence in health psychology and other fields:

1. *They help us predict future outcomes or behaviors.* When we find that two variables are correlated, we can use one to predict the other. For example, evidence shows that teenagers who hold more positive expectancies about the use of alcohol, such as expecting that

drinking alcohol will make them more confident or sociable, are more likely to develop problems with alcohol use and abuse than those with less favorable expectancies. Consequently, knowing factors that predict future problems with some degree of confidence can help us direct preventive efforts toward high-risk groups, such as adolescents with positive alcohol expectancies. We might even be able to change their attitudes about alcohol before problems develop.

2. *They offer clues to causal influences.* We may not be able to determine causal relationships based on correlational data alone, but correlational relationships can point us toward identifying possible underlying causes. For example, knowing there is a correlation between exposure to lead paint in the home and academic performance of schoolchildren can lead to studies that determine the causal role of lead exposure on cognitive abilities.
3. *They help us better understand relationships among variables.* We can use correlational methods to better understand relationships between health behaviors and health outcomes. Correlational studies allow us to address questions we pose in later chapters, such as: Does regular physical exercise predict longevity? Do personality factors relate to health and longevity? Is the risk of cancer linked to stress?

Health Psychology in the Digital Age

Health Research in the Smartphone Era

Health researchers and healthcare providers are turning to smartphone apps to help them collect data from patients and research participants. Using these apps, physicians can monitor patients' symptoms and adherence to medication. Researchers can directly cull data from daily experiences of participants in their studies. Researchers are also equipping people with wearable devices, such as smart watches and activity trackers, to help people keep track of their levels of physical activity, levels of pain, and other physical symptoms in real time (Chau et al., 2019; Eccleston et al., 2018; Ranby, 2019). People with chronic pain have been outfitted with wearable devices they can use to report their levels of pain during the day, providing data that health professionals can use to see how pain fluctuates in relation to time of day, activities (sitting, walking, etc.), and states of mind (bored, feeling down, anxious, etc.). In another example, people with epilepsy wore sensor-infused bands that transmitted alerts to their healthcare providers when a seizure was about to happen (Poh et al., 2012).

Researchers are also using Web-based survey tools to conduct online surveys rather than using traditional questionnaires administered in person or by (snail) mail. Investigators realize that samples drawn from the internet may be biased in certain ways, as people who respond to online surveys may not be representative of the target audience. However, online surveys offer opportunities to expand research samples to a worldwide laboratory of potential participants who are but a few keystrokes away.

Hilalabdullah Hilal/EyeEm/Getty Images

Researchers are also mining social media sites to detect relationships between online behavior and health outcomes (Gosling & Mason, 2015; Kosinski et al., 2016). Cornell University researchers turned their attention to the content of Twitter messages at various times of day. By analyzing more than a half billion messages, the researchers noticed some interesting patterns. It turned out that happier words associated with more positive mood states were tweeted more often during the early morning hours (Weaver, 2012). But as the day dragged on, tweets became more negative in tone. As one of these researchers, Michael Macy, pointed out, "We found people are happiest around breakfast time in the morning and then it's all downhill from there." Consider you own daily fluctuations in mood. Do you feel chipper early in the day and grumpier as the day grinds on? Do the demands of daily life affect your mood in predictable ways?

Occupational health psychologists created an app designed to reduce fatigue in airline pilots (van Drongelen et al., 2016). The app provided information on optimal light exposure, sleep, nutrition, and physical activity and was tailored to the pilot's personal characteristics and work assignments (short haul vs. longer flights). More than 80% of pilots who received the app said they had used the advice and a majority (65%) said that the app met its purpose of helping them prevent fatigue and improving health outcomes (van Drongelen et al., 2016).

Many people today are using mobile health apps. But are they using them consistently? In one recent study, researchers found that people who had intentions to lose weight and exercise more often were more likely to own a mobile health app (Tuman & Moyer, 2019). But owning an app is one thing and using it consistently is quite another. Questions remain about how consistently smartphone apps are used and whether they lead to measurable changes in health-related behaviors, or whether they sit docked on the user's phone. Where things now stand, researchers say, is that while smartphone apps and other digital health tools are widely available, only a few of them have been scientifically evaluated in clinical trials (Kwasnicka et al., 2022).

A cross-cultural study examined relationships between family factors and health status of a sample of 53 Native American, 132 Black American, and 155 Latino/Hispanic families with an adolescent living at home (Bradley, 2019). Investigators made home visits to these families, administering measures of family connectedness and evaluating the health status of the adolescent family member. Correlational analysis showed that adolescents in families with higher levels of family connectedness tended to have fewer health problems. Might it be that spending more productive time with family members helps protects adolescents from health problems? *Possibly*, but we simply can't say based on correlational analysis alone. But the fact that these factors are related suggests it may be worthwhile to test whether programs aimed at promoting better engagement between parents and their adolescent children may be helpful. After all, building these family connections at a time when teens tend to pull away from their families and are prone toward engaging in risky behaviors, such as drug use, may help keep them safe and healthy.

The Case-Control Method

In the **case-control method**, investigators identify individuals with known health conditions and compare them to healthier people. The individuals with known health conditions are called index cases or **probands**, while the healthy participants are classified as control cases. Investigators match probands and controls on as many characteristics as possible, such as gender, age, ethnicity or race, educational levels, and so on, and then look for distinguishing factors that might explain differences between the groups. This type of research uses correlational methods, but it can point to possible causes, such as in early studies comparing smokers and nonsmokers in the attempt to determine whether smoking causes cancer.

case-control method A method of comparing cases of individuals with a particular disease with control cases who are free of the disease in order to find differences that might explain the development of the disease.

probands Index cases of individuals identified as having a particular disease or physical condition.

You're probably aware that the federal government requires all cigarette packs to carry a warning label that smoking causes cancer (and other diseases). A classic example of a case-control study first raised awareness that smoking may cause cancer. This 1939 study in Germany identified 86 cases of people with lung cancer and a similar number of control cases of people without cancer. The investigators found much higher rates of smoking among the people with lung cancer, suggesting a possible causal link (cited in Proctor, 2012). Later case-control studies in the United Kingdom and the United States confirmed a much greater frequency of smoking in people with lung cancer as compared to control cases. But as we'll see later in this chapter, nailing down the causal connections between smoking and cancer required follow-up studies using the experimental method.

The Epidemiological Method

In using the **epidemiological method**, investigators examine community- or population-wide variations in the rates of various disorders and socioeconomic differences in health and longevity. They then try to identify factors that account for these variations, in effect acting as public health detectives in trying to account for why some population groups are more vulnerable than others.

epidemiological method A method of research in which researchers conduct surveys, examine databases, and perform field studies to identify communities and subgroups of individuals at higher risk of developing particular disorders.

In an epidemiological study mentioned earlier in this chapter that mined one of the largest databases to date, researchers culled income data from 1.4 billion tax records for the U.S. population between 1999 and 2014 (Chetty et al., 2016). The names of individual taxpayers were shielded. The investigators examined mortality data in relation to life expectancy while statistically adjusting for race and ethnicity. The most prominent finding was that higher income was associated with greater longevity. The gap in longevity between the richest 1% of the population and the poorest 1% was nearly 15 years for men and about 10 years for women. One of the running themes in our study of health psychology is that more advantaged groups are typically healthier and live longer than less advantaged groups. We'll see that factors such as access to quality healthcare services and adoption of healthier behaviors (e.g., smoking less, exercising more regularly) play an important role in accounting for differences between groups of different income levels.

To determine rates of specific disorders, we need to distinguish between **incidence**, which is the number of new cases occurring during a specific period of time, and **prevalence**, which is the overall number of cases of a given disorder within a population for a particular

incidence The number of new cases of a disorder occurring within a specific period of time.

prevalence The number of existing cases of a disorder within a given population.

period of time. Prevalence rates are necessarily higher than incidence rates, as they include both new cases and existing cases.

Researchers can use epidemiological methods to determine whether particular diseases or disorders cluster in certain groups or locations. They then seek to determine what characteristics put these clusters at higher risk. One limitation of the epidemiological method, like that of the case-control method, is that it cannot determine causal influences. In other words, epidemiological research may identify characteristics that may account for the increased risk of particular diseases in certain groups, but it cannot determine causal factors. For determining causal relationships, we need to turn to experimental studies, as we'll soon see.

survey A method of information gathering by which large numbers of individuals are interviewed or asked to complete questionnaires in order to learn about their attitudes or behaviors.

population A complete group of organisms or events.

sample A portion of a population selected for research.

random selection A process of randomly selecting research participants from a population of interest.

random sample A sample drawn such that every member of a population has an equal chance of being selected.

random assignment A procedure for assigning subjects to experimental or control groups by chance so that experimenters can have confidence that differences between groups are due to the independent (treatment) variable and not the types of participants making up the groups.

selection bias A type of bias in which differences between experimental and control groups are due to the differences in the types of participants in the groups rather than the variable(s) of interest.

The Survey Method

A **survey** is a method of correlational research involving the use of questionnaires and structured interviews to measure opinions, behaviors, values, and other attributes of members of particular groups. Epidemiological researchers often rely on surveys to measure health-related behaviors and health conditions of residents in particular communities or members of particular groups. The survey method allows investigators to determine whether various groups are more likely to be affected by different types of health conditions, such as heart disease, diabetes, and cancer. They can also collect data to determine relationships between rates of particular disorders and factors such as race, ethnicity, gender, and social class.

In the best of all possible worlds, researchers would survey every member of a **population** of interest. Health researchers who are interested in examining links between binge drinking and academic grades on a particular college campus might survey the drinking habits of every matriculated student. However, surveying every member of the student body is unrealistic, or at least unlikely. Therefore, imagine the problems in trying to survey every college student in the country in order to generalize the findings across campuses. Consequently, most surveys are conducted on samples of participants.

A **sample** is a subset of a population. Instead of surveying drinking habits of every student on campus (the population of interest), an investigator might obtain a sample of perhaps 10% of students on campus. In order to generalize results based on a sample to the population of interest, the researcher needs to ensure that the sample represents the target population.

The best way of ensuring a representative sample is by using **random selection**, which is a procedure in which way each member of the population has an equal probability of participating in the sample. When properly constituted, a **random sample** may represent but sliver of the population, but it is robust enough that its results can be generalized to the larger population. A proper random sample of but a few hundred voters, for example, may be sufficient to represent the voting preferences of the entire population.

enis izgi/E+/Getty Images

Random selection should not be confused with random assignment. Random selection means choosing members of a population at random to participate in a research study or complete a survey instrument. Use of random selection enables a researcher to generalize results based on a sample of individuals to the population from which it was drawn. **Random assignment** refers to randomizing the placement of research participants into experimental or control groups in order to balance the individual characteristics of the participants across the groups. In this way, experimenters can control for a potential **selection bias**, in which the types of people who make up the experimental and control groups, rather than the experimental variables, explain the different research outcomes.

The Experimental Method

Does smoking cause cancer? You say, "Of course it does," but how do you know that it does? Early case-control studies pointed the way, but later experimental studies were needed to confirm the causal role of smoking in cancer.

But there was a problem in applying the **experimental method** to determining whether smoking causes cancer. Conducting experimental research with humans was neither feasible nor ethically responsible, as it would require participants to be assigned randomly to smoke or not to smoke over a lengthy period of time and then to assess whether differences emerged in rates of cancer between the comparison groups. Researchers could only observe the effects of **natural experiments** by following the health of people who chose to smoke and people who did not. The lack of random assignment in natural experiments is often associated with selection bias; that is, the same factors that lead people to smoke may be responsible for their health problems, rather than the smoking itself. Packs of cigarettes in the United States carry warning messages such as "Cigarettes cause cancer." What kinds of psychological and behavioral factors might we find among people who see such messages yet choose to smoke? Could some of these factors contribute to the health problems of people who choose to smoke?

LWH/Alamy Stock Photo

Can we be certain that smoking is a cause of cancer in humans when no experiments have been conducted with humans to confirm the matter? What are our sources of evidence?

Because of the limitations of correlational studies and natural experiments, researchers turned to animal studies to examine whether tobacco was a **carcinogen**. In classic laboratory research, laboratory mice were held in cages in which tobacco smoke was infused into the air they breathed (IARC Working Group, 2004). When compared to control groups of mice who were not exposed to tobacco smoke in their cages, those held in smoking cages showed significantly greater incidence of cancerous tumors in the lungs. Of course, mice differ from humans in many ways, but their lung tissue is similar, so this evidence can be construed as confirming that smoking causes lung cancer.

Researchers use experimental methods with humans and other species to explore cause-and-effect relationships. In the experimental method, researchers test hypotheses through experiments in which they directly control the variable or variables of interest, called the **independent variable** or variables, and measure their effects on an outcome measure or measures, called the **dependent variable** or variables, while holding constant other variables that might affect the results (see **Figure 1.6**). Using the experimental method, experimenters test the effects of new medications or psychological interventions, surgical procedures, even the effects of texting while driving (as shown in Figure 1.6). They manipulate or control the independent variable or variables by determining which participants receive the experimental treatment.

Participants who receive the experimental treatment, say medication treatment or psychotherapy, constitute the **experimental group**, and those who do not receive the treatment constitute the **control group**. The control group may be placed in a *waiting-list condition* during the active treatment of the experimental group. Differences in outcomes between the experimental and control groups are then analyzed to determine whether there was a causal effect of the independent variable(s) on the dependent variable(s) of interest. Researchers perform statistical tests on these differences to determine whether they reach **statistical significance**, which is a level at which it is highly unlikely (generally set at a level of less than a 5% probability) that the differences between the groups are a result of chance fluctuation. Controlled research trials using the experimental method provide the best evidence of the effectiveness of medical and psychological methods of helping. Through experimental research, health researchers address many of the research questions we pose in this text, such as whether physical activity helps lower high blood pressure (see Chapter 8) or whether cognitive behavioral therapy helps lift people out of depression (see Chapter 11).

experimental method A method of research that seeks to confirm or discover cause-and-effect relationships by introducing independent variables and observing their effects on dependent variables.

natural experiments A study in which the participants are not randomly assigned to experimental or control groups but have determined on their own the group to which they belong.

carcinogen A cancer-causing chemical or substance.

independent variable A condition or factor in a scientific study that is manipulated so that its effects can be measured.

dependent variable Measures of the effects of an independent variable.

experimental group A group of research participants who receive a treatment in an experiment.

control group A group of research participants in an experiment whose members do not obtain the treatment, while other conditions are held constant.

statistical significance A level at which differences between groups are deemed large enough to make it very unlikely that the differences are a result of chance fluctuation.

Step 1 The experimenter begins by identifying the hypothesis.

Step 2 Next, the experimenter solicits volunteers for the experiment. In order to avoid sample bias, the experimenter first attempts to select a random sample of the entire population of interest. Then the experimenter randomly assigns these participants to two different groups—either the experimental group, which receives the treatment, or the control group, which does not receive the treatment. Having two groups allows a direct comparison of responses between the two groups.

Step 3 Both the experimental and the control groups are assigned to a driving simulator. The experimental group then texts while driving, whereas the control group does not text. Texting or not texting are the two levels of the independent variable (IV).

Step 4 The experimenter counts the number of simulated traffic accidents for each group and then analyzes the data. The number of simulated traffic accidents is the dependent variable (DV). (Note that the DV is called "dependent" because the behavior [or outcome] exhibited by the participants is assumed to *depend* on manipulations of the IV.)

Step 5 The experimenter interprets the results and writes them up for publication. The experimenter discusses the utility of the study, its limitations, and possible future directions for further research.

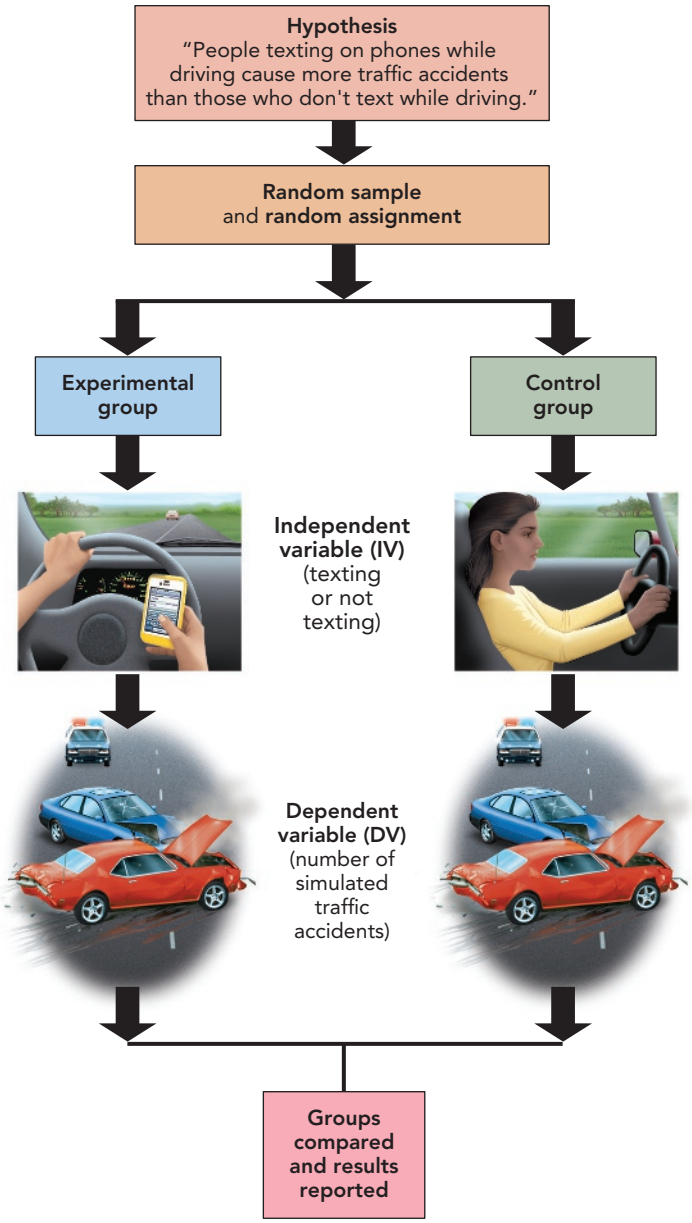


FIGURE 1.6 **Experimental and Control Groups in Experimental Design**

expectancy effects A set of expectations that research participants may have that may affect the outcomes of an experiment.

placebo A bogus treatment that has the appearance of being genuine.

placebo effects Beneficial effects of positive expectancies on the outcome of an experiment or treatment.

single-blind placebo control design An experimental method in which research participants are kept unaware of whether they are placed in an experimental (active medication) or placebo (inert medication) group.

The *randomized clinical trial* (RCT) is considered the standard for determining the efficacy of treatments or interventions in psychology and medical research. An RCT is a controlled experiment in which participants in a clinical trial are assigned randomly to experimental and control conditions (Finkelstein, 2020). Random assignment balances groups on individual characteristics of participants, so that experimenters can be confident that differences between groups are due to the independent (experimental) variable and not a selection factor or bias. However, one limitation of the experimental method is that random assignment is not always feasible or ethically responsible. For example, ethical experimenters would not randomly assign children to be exposed to abuse or neglect to assess the effects of these experiences on their development. They may rely on correlational methods to examine these relationships, even though correlation alone does not determine cause and effect. Health investigators use randomized controlled trials to evaluate the outcomes of health behavior interventions, such as programs designed to help people improve their nutritional quality, increase physical activity, or avoid harmful substances like tobacco (Freedland, 2022).

Placebo and Nocebo Effects

An early study on the effects of alcohol on aggression reported that men at parties where beer and liquor were served acted more aggressively than men at parties where only soft drinks were served (Boyatzis, 1974). But subjects in the experimental group knew they had drunk alcohol, and those in the control group knew they had not. Aggression that appeared to result from alcohol might not have reflected the influence of alcohol per se. Instead, it may have reflected the subjects' expectations about the effects of alcohol.

People tend to act in stereotypical ways when they believe they have been drinking alcohol. For instance, men tend to become less anxious in social situations, more aggressive, and more sexually aroused. You may have experienced this *power of suggestion* yourself. Perhaps you've had the experience of taking antibiotics and beginning to feel better shortly after downing the first pill, even though you later learn that the medication doesn't actually take effect for perhaps 12 to 24 hours.

MixMedia/E+/Getty Images

Placebo Effects at the Movies The power of suggestion may lead you to experience fear while watching a scary movie, which we can liken to a type of placebo effect since there is no actual physical threat.

Experimental studies may control for **expectancy effects**. Experimenters control for expectancies by keeping participants "blind," or unaware their assigned experimental condition—whether they receive an active medication or a **placebo**. A placebo is a chemically inactive substance that is made to look like a real drug. They are used as a basis of comparison with an active drug to evaluate whether treatment effects might be explained by a patient's hopeful expectancies about the effects of the drug rather than the chemical properties of the drug itself (Liu, 2021; Liu et al., 2022). The effects of positive expectancies on the outcomes of an experiment or a treatment are called **placebo effects**. You may have experienced a type of placebo effect while watching a scary movie and experiencing physiological sensations of fear, such as a rapid heartbeat. The fear might feel very real, even though you knew the action on the screen was fake and you were never in any real danger (Benedetti, 2021).

double-blind placebo control design An experimental method in which neither the research participants nor the researchers themselves know which participants receive the experimental (active medication) treatment and which receive a placebo.

Blinds

Experimental blinds are intended to prevent the biasing of results by the expectations of the participants and the researchers (see **Figure 1.7**).

A **single-blind placebo control design** keeps participants unaware of their group assignments in order to control for expectancies that participants may have that might affect the results. A **double-blind placebo control design** keeps both investigators and participants in the dark about assignments to the medication or placebo to control for the expectancies of both participants and investigators. In both types of placebo control designs, experimenters randomize assignments to the medication or placebo conditions and then evaluate differences in outcomes between these conditions. If active medication participants show significantly better results than placebo or untreated participants, experimenters can be reasonably confident that the medication effects are due to the medication itself and are not a placebo or suggestion effect.

Placebo control designs may also be used in evaluating psychological treatments. In these cases, the placebo group is an alternate psychological treatment that has the look and feel of the experimental treatment but without the specific techniques of the active treatment. The U.S. health watchdog agency, the Food and Drug Administration (FDA), requires double-blind studies before it allows the marketing of new medications. After the final measurements have been made, a neutral panel (a group of people who have no personal stake in the

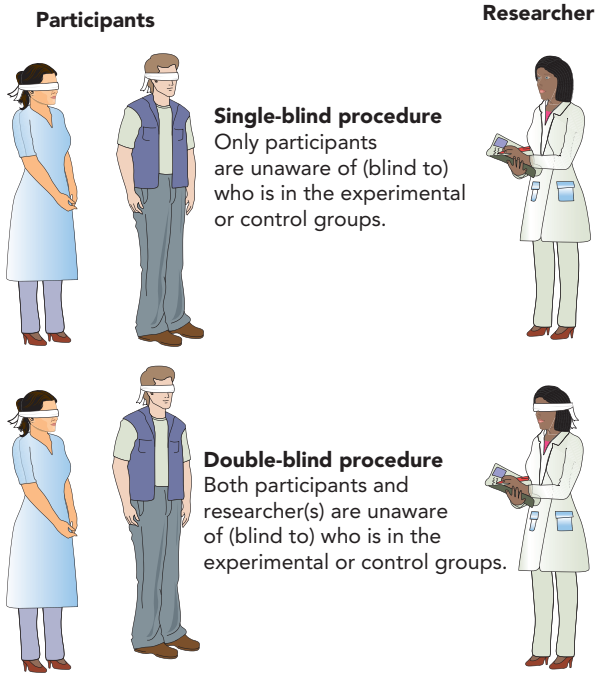
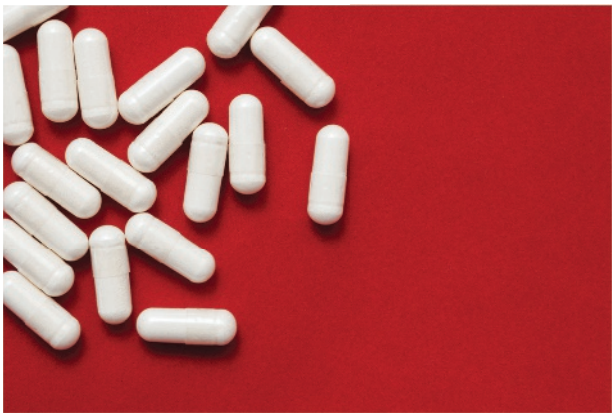


FIGURE 1.7 Single- and Double-Blind Experimental Designs To validly evaluate the effectiveness of something such as a new medication, the researchers administering the medication and the participants taking it need to be unaware of (or "blind to") who is receiving the medication and who is receiving a placebo (a fake pill). Blinds are necessary because participants' beliefs and expectations can affect their responses; this is the so-called placebo effect. Similarly, researchers' beliefs about the effectiveness of the drug could alter the experimental outcome.



Yana Kho/Shutterstock.com

The Power of Placebos Are they the real thing or are they placebos? Placebos can have powerful effects on health outcomes, including effects on the brain's processing of pain signals. Placebos may even produce beneficial effects when people know the "drug" they receive is in fact a placebo. But nocebo effects are harmful or dangerous.

outcome of the study) judges whether the effects of the medication differed from those of the placebo.

Double-blind controlled studies are not perfect, however. Prescribing physicians as well as many of their patients can often tell whether a medication is a placebo or the real thing based on telltale side effects (Schulz et al., 2010). Thus, double-blind designs may sometimes resemble Venetian blinds with the slats slightly open. Despite their limitations, they remain the most important means of determining effectiveness of new medications—essentially the gold standard in testing new medications (Perlis et al., 2010).

Placebos can actually have powerful effects on health outcomes. Placebos can work on reducing pain even when participants know they are receiving a placebo and not an active medication (Kam-Hansen et al., 2014; Schafer et al., 2015). Research shows that placebos have measurable effects on parts of the brain involved in processing pain signals (Koban et al., 2017; Zunhammer et al., 2021).

Placebos may also block pain signals from reaching the brain, perhaps by triggering the release of the brain's own pain-killing chemicals, called *endorphins* (Colloca & Barsky, 2020; Merchant, 2016). However, we should point out that placebos tend to have stronger effects on subjective measures, such as self-reports of pain, than they do on objectively measured outcomes, such as blood pressure (Meyer et al., 2015).

nocebo effects Negative effects of an experiment or treatment that may result from negative expectancies.

Investigators also focus on the opposite side of the placebo coin. Placebo effects involve positive or hopeful expectancies that can lead to beneficial outcomes. But people sometimes have negative expectancies that can lead to negative outcomes. These effects, called **nocebo effects**, can lead to harmful or even dangerous outcomes (Colloca & Barsky, 2020). For example, people with negative expectancies about the outcomes or adverse side effects of medications may stop using them, which can have adverse effects on their health. Negative expectancies may arise from misinformation about medication effects, which is sometimes spread on social media, as well as from general pessimistic attitudes, negative experiences with prior treatment, and other factors. Like placebo effects, nocebo effects can directly affect brain functioning. For instance, brain imaging studies link nocebo effects to increased transmission of pain signaling from the spinal cord to the brain (Geuter & Büchel, 2013; Tinnermann et al., 2017).

Placebo and nocebo effects offer us a perspective on the importance of psychological factors in health care. Expectancies—whether positive or negative—are psychological factors that can affect how people respond to medication or other treatments (Colloca & Barsky, 2020). Investigators use placebo control designs to control for both placebo and nocebo effects in experimental research. But what about clinical practice? People bring their expectancies with them to medical visits with healthcare providers. Physicians can take a proactive approach to counter nocebo effects by directly asking patients about any negative expectancies, as in posing questions such as: "Have you had negative experiences in the past with this type of medication? What concerns do you have about side effects? Are you worried about how you might respond to these medications?" Positive expectancies, or placebo effects, can have beneficial effects on outcomes. But responsible treatment providers need to set patients straight on how quickly the medication is likely to work, the side effects that might occur, and how effective the medication is likely to be.

ANIMATION CONTENT

Important Components of an Experiment

Becoming a Critical Thinker About Health-Related Information

critical thinking An approach to thinking characterized by skepticism and thoughtful analysis of statements and arguments—for example, probing the premises of arguments and the definitions of terms.

Critical thinking is a form of thinking in which you adopt a questioning attitude and carefully weigh the evidence when judging claims or arguments of others (Rozenkrantz et al., 2022). Critical thinkers do not accept claims at face value. They question what people say on the internet, on TV, or in passing conversations and hold the claims they make up to the light of evidence.

Health Psychology in Action

Placebos and the Power of Suggestion

In a remarkable demonstration of the power of suggestion, researchers conducted a randomized clinical trial to test the effects of an open-label placebo on severity of symptoms in patients with irritable bowel syndrome, a type of gastrointestinal disorder characterized by recurring abdominal pain and changes in bowel movements (Lembo et al., 2021).

As the term suggests, an *open-label placebo* is a pill that is clearly marked on its container that it is really a placebo, a chemically inactive substance made to resemble the active drug. In effect, patients in the IBS study knew they were taking a placebo, not a real drug. And yet the results showed that patients assigned to the open-placebo condition reported significantly greater symptom reduction than control patients who received no drug at all. Not only that, but patients receiving the openly labeled placebo pills showed similar benefits as those who had been assigned to a double-blind placebo condition who weren't told whether they were taking a placebo or an active drug. The reduction in symptom severity of patients in the open-placebo condition represented clinically meaningful symptom reduction. The patients felt better overall and reported less severe IBS symptoms after taking pills—now get this—that were clearly marked as placebos.

Other researchers report that pain patients given placebos report lower levels of pain, even when they knew they were given a placebo (e.g., Flowers et al., 2021; Guevarra et al., 2020; Liu, 2021). We have a growing body of evidence showing that placebos can produce some degree of relief even when patients know that the pills they are taking are fakes. These findings lead researchers to wonder whether offering open-label placebos may actually play a role in managing symptoms in patients with IBS or other medical conditions (Lembo et al., 2021).

Relatedly, we have evidence of the power of belief in how people experience COVID symptoms. A recent study in France showed that reports of persistent symptoms of COVID-19 were more strongly related to a person's beliefs about having been infected with the virus than with actual laboratory evidence of a confirmed infection (Matta et al., 2022).

Critical thinkers challenge conventional wisdom and knowledge that many people tend to take for granted, such as claims that vitamin C helps ward off the common cold. Critical thinkers suspend judgment until scientific evidence is gathered, sifted through, and analyzed. Rather than relying on gut feelings or taking the word of others, even the word of respected authorities, critical thinkers assume a skeptical attitude toward what they hear, see, and read, even what they read in the pages of a college textbook. Critical thinkers accept nothing as true until they have had the chance to examine the evidence supporting the claim.

Features of Critical Thinking

Developing critical thinking skills can help you succeed in your college years and beyond. Here are some of the key features of critical thinking about health claims:

1. *Maintain a healthy skepticism.* Advertisers try to persuade you to purchase products they claim will keep you healthy or help you treat health problems.
2. *Examine definitions of terms.* Some statements are true when a term is defined in one way but not when it is defined in another way. Consider the label on a container of "low-fat" ice cream: "97% Fat-Free!" One day at the supermarket we were impressed with an ice cream package's claims that the product was 97% fat-free. Yet when we read the label closely, we found that a 4-ounce serving had 160 calories, 27 of which were contributed by fat. Fat, then, accounted for 27/160ths, or about 17%, of the ice cream's calorie content. But fat accounted for only 3% of the ice cream's weight—most of which was calorie-free water weight. The packagers of the ice cream knew that labeling the ice cream as "97% fat-free" would make it sound healthier than "Only 17% of calories from fat." Read carefully. Think critically.
3. *Examine the assumptions or premises of arguments.* If you hear a health claim that a weight loss product in combination with following a healthy low-calorie diet plan will help you lose excess weight, question the premises on which the claim is based. Is the advertiser assuming that the weight loss product will help users reduce excess weight without changing their diet? Or that the weight loss product will increase weight loss above that which would be achieved by following a low-calorie diet plan alone?
4. *Examine the sources of evidence.* Self-help books often rely on testimonials to tout their claims. They may point to the cases of a few individuals who achieved positive health

Clover No.7 Photography/Getty Images

It's 97% Fat-Free! Is that good enough? How can you determine whether or not it is?

outcomes, such as losing excess weight, stopping smoking, or reducing stress by following the methods described in the books. But how do you know if these testimonial endorsements mean that people in general, or you in particular, would achieve the same results?

A celebrity might report losing 20, 30, or more pounds following the latest diet plan in a TV commercial or described in a self-help book. Perhaps you say to yourself if this famous person could do it, then why not me? What you may not realize is the celebrity is paid handsomely for the endorsement and is thus motivated financially to lose excess weight, and that the weight loss product may have little if anything to do with the positive results. Or think of those people (actors really) who appear deeply depressed at the start of a commercial for an antidepressant but suddenly spring back to life by the end of the commercial, presumably because they started using the medication. Is the evidence presented persuasive, based on claims drawn from carefully conducted scientific trials, or are the images manipulated by an advertising company seeking to promote their products? Are the claims supported by studies reported in respected scientific journals or from questionable sources?

5. *Consider alternative interpretations of research evidence.* Ask yourself whether there are other ways of explaining a given set of facts or findings, especially evidence that seems to show cause-and-effect relationships. Consider this research question: "Does alcohol cause aggression?" That is, many people who commit violent crimes have been drinking alcohol. But is the connection causal? Could other factors, such as gender, age, willingness to take risks, or social expectations, account for links between drinking alcohol and the aggressive behavior?
6. *Do not oversimplify.* Consider the statement "Alcoholism is inherited." Genetic factors may create a predisposition to alcoholism, but the origins of alcoholism and many other health problems involve a complex interplay of biological and environmental factors. People may inherit a predisposition to heart disease but never develop it if they watch their diet, exercise regularly, and learn to manage stress. On the other hand, people may develop heart problems if they overeat, smoke, and fail to exercise, even when there is no family history of the disease.
7. *Do not overgeneralize.* We shouldn't assume that health-promotion efforts that work in some settings with some types of people would work as well in other settings or with other groups of people. We may find that the effectiveness of these programs varies across settings and populations.
8. *Do not confuse correlation with causation.* People may assume that because two variables are linked, for example, alcohol use and poor grades, that one (alcohol use) causes the other (poor grades). Alcohol use may indeed be a cause of slipping grades, but we can't assume this is the case based only a correlational link between the two. It's conceivable that the two variables are linked because both are associated with a third variable, such as problems with self-control. Or students who are depressed or anxious may obtain poorer grades and also become dependent on alcohol because they turn to alcohol as self-medication for emotional problems.

Thinking Critically About Health Claims

Every now and then, we hear claims touting some miracle drug, vitamin, hormone, or alternative therapy that promises to enhance health and vitality, cure or prevent disease, or even reverse the effects of aging. Some of these claims are outright hoaxes. Others take promising scientific leads and exaggerate or distort the evidence. Although the federal watchdog agency, the FDA, regulates health claims for drugs and medications, many of the substances found in your health food store or neighborhood supermarket purporting to have disease-preventive or anti-aging effects are classified as foods and are not regulated as drugs. It's basically a matter of "buyer beware" (see **Table 1.1**).

Critical thinkers do not take health claims at face value. They recognize that alternative therapies and healthcare products may not work as promised and could even be harmful. Another concern is that people advocating particular therapies may have a vested interest in getting consumers to try their services or use their products and may play fast and loose with the truth.

TABLE 1.1 Thinking Critically About Health Claims

What They Claim About Their Product	What They Might Actually Mean
Designed to enhance vitality and well-being	"We may have designed our product to enhance vitality and well-being, but we do not have scientific evidence that it actually does."
Promotes muscle growth	"Yes, we put amino acids the body uses to build muscle into our product, but many other foods you can buy also contain amino acids, such as meat and dairy products."
Recommended by leading physicians	"We found a few physicians who have respectable credentials who were willing to say they would recommend our product to their patients, and they were well paid for their endorsements."
Backed by advanced research	"What we mean by 'backed' is that we have some research that tested our product. We're not saying what the research showed, or how well it was carried out, or whether it was conducted by impartial investigators. What we mean by 'advanced' is that, well, the research methods went beyond just asking people if they liked our product."
It can supercharge your metabolism!	"We do not really know what this means, but it sure sounded good in the advertising copy."
Our ice cream is 97% fat-free!	"We know our ice cream is 3% fat and to be honest, that 3% is saturated. We also know you wouldn't buy milk labeled 3% saturated fat, so why should we advertise that our product is 3% saturated fat?"
Clinically tested formula!	"Yes, we tested it clinically. We asked a few patients what they thought of our product and they all liked it."
Laboratory tested	"We paid some guys who have this clinical lab and they tested it. We're not sure what they tested, but they said it went well."

Source: Adapted from Nevid (2022).

Use your critical thinking skills to read between the lines in evaluating health claims. What do you think the following claims for products found in your neighborhood health store might actually mean?

Applying Health Psychology

Thinking Critically When Surfing Online

The internet is the digital version of the old Wild West, a place where just about anything goes and where just about anything can get posted, whether true or not. Nothing much gets vetted on the internet for its validity or the trustworthiness of the source. People with significant health problems may find emotional and social support from peers on Facebook, but they need to be aware that information from users is highly variable in quality and often inaccurate, especially where health issues are concerned (Yardley et al., 2019). You'll find all kinds of claims about health-related products and services. Anyone with a mouse and keyboard can post just about anything, so the expression *Caveat emptor*—buyer beware—has special salience when you go online. So whom and what can you trust?

Critical thinkers bring a skeptical attitude to what they read and see on the internet. They check out the credentials of the source by asking themselves questions like "What is the source of the claim? Who's posting it? Do they have a vested interest in selling a health-related product? The person in the ad may claim to be a 'doctor,' but what kind of doctor? Where did the person get their degree? Might the person or people posting the information have an axe to grind with the medical or scientific establishment? Is the source a respected scientific or medical organization, respected university, or government agency or institute?" Postings are especially sketchy if the source is not clearly identified.

To be sure, there is some trustworthy online information, but you need to sift through the clutter. These trustworthy sources, which your authors rely on as well, are scientific journals, government agencies such as the National Institutes of Health (NIH) and the FDA, and major professional organizations like the American Psychological Association (APA) and the Association for Psychological Science. You can find health-related information that has been carefully scrutinized by scholars in the field in articles published in the APA journal, *Health Psychology*, the *Journal of the American Medical Association*, *The New England Journal of Medicine*, and from the various institutes of the NIH.

When viewing material posted online, bring to bear the same skeptical attitude that you would when watching a TV commercial. Take health claims with a proverbial grain of salt and keep a tight grip on your wallet, especially if vendors make claims that rely on testimonials. Read the fine (electronic) print. Understand that an offer of a "guaranty" doesn't mean the product will work as advertised, only that you'll get your money back if the product fails, but with such tight strings attached to make it very unlikely you'll ever see your money again. And you'll never recoup those shipping and handling costs.

Though we need to think critically about online information, we should also recognize that the internet can be an extremely valuable channel for distributing health-related information that may not be as readily accessible through other sources.

Review 1.3

INTERACTIVE SELF-SCORING QUIZZES

Sentence Completion

1. A correlation coefficient is a statistical measure of association between two variables that can vary from −1.00 to + _____.

2. The size or magnitude of the correlation coefficient indicates the _____ of the relationship between the two variables.

3. Correlational research is helpful in _____ future outcomes or behaviors.

4. Researchers find that _____ words are tweeted more often during the early morning hours.

5. The _____ of a disease is the number of new cases occurring during a specific period of time.

6. The _____ of a disease is the overall number of cases of a disorder within a given population.

7. A _____ is a subset of a population.

8. Random _____ is a procedure in which way each member of the population has an equal probability of participating in the sample.

9. Researchers randomize research participants to experimental or _____ groups to balance the individual characteristics of the participants in these groups.

10. A _____ is an inert pill that looks like the genuine medication.

11. A _____blind placebo control design keeps both the participants and the experimenters themselves in the dark about which participants are assigned to which experimental conditions.

Think About It

Cigarette smoking has been on decline in the United States. The main reasons for the decline might be widespread knowledge that smokers are more likely to develop serious health problems such as lung cancer than people who do not smoke. We noted that packs of cigarettes in the United States carry messages such as "Smoking causes cancer." What kinds of cognitive and behavioral factors might we find among people who are aware of such warnings yet choose to smoke? How might these factors be related to their other health behaviors? How might some of these factors contribute to their health problems?

Recite: An Active Summary

INTERACTIVE SELF-SCORING QUIZZES

Chapter 1 Practice Quiz

1. Describe the development of the field of health psychology.

Health psychology is the scientific study of the relationships between psychology and physical health. It has a long history, dating back to ancient times, when it was recognized that mind and body influence each other. With the emergence of medical science in the 19th century, the medical subfield of psychosomatic medicine was established to study connections between psyche (mind) and soma (body). Health psychology emerged as a subfield in psychology during the 1960s and 1970s to meet the needs for research, education, and practice focused on the role of psychological factors in physical health.

2. Describe the biopsychosocial model of health.

The biopsychosocial model represents a broadly based conceptualization of health that takes into account biological (genes, disease processes, etc.), psychological (personality, behaviors, attitudes), and social (socioeconomic level, social support, ethnic or racial background) in health and well-being. It has largely replaced the earlier biomedical model of disease that was limited to biologically based disease processes. Wellness is a state of optimum health with respect to the quality of our lives. It takes into account physical, psychological, and social functioning and addresses whether our lifestyles, habits, and behaviors are helping us achieve a healthy and fulfilling life.

3. Describe the relationships between health and human diversity.

Cross-cultural differences affect health, as in dietary differences and the prevalence of various forms of cancer. Health psychologists attempt to encourage people from different backgrounds to obtain available health care, even when scientific methods are in conflict with local traditions. In the United States, people from higher socioeconomic backgrounds lead longer, healthier lives, in part due to access to high-quality health care.

4. List and describe the major research methods in health psychology.

Research methods in health psychology include the case study method, the correlational method, the case-control method, the epidemiological method, the survey method, and the experimental method. Some of these methods—the case study, correlational, case control, and epidemiological methods—are descriptive or observational. They allow us to examine relationships among variables and suggest possible cause-and-effect relationships, but they cannot pinpoint causal factors. The experimental method, which allows investigators to directly manipulate possible causal factors and measure their effects, provides investigators with the means of determining causal factors in health outcomes.

5. Describe the major features of critical thinking about health-related information.

Thinking critically about health-related information involves maintaining a healthy skepticism about health claims, examining definitions of terms, examining assumptions and premises of health claims or arguments, examining the sources of evidence supporting health claims, taking into account alternative interpretations of research evidence, avoiding oversimplification and overgeneralization of findings, and distinguishing between correlation and causation.

Answers to Review Sections

1.1

1. health psychology
2. body
3. "psychosomatic" medicine
4. Dunbar
5. Clinical
6. Community
7. absence
8. well-being
9. biopsychosocial
10. immune

1.2

1. higher
2. malaria
3. lower
4. less
5. more willing
6. less likely
7. bulletproof

1.3

1. 1.00
2. strength
3. predicting
4. happier
5. incidence
6. prevalence
7. sample
8. selection
9. control
10. placebo
11. double-

Scoring Key for the Locus of Control Scale

(Place a checkmark for each response that matches the answer in the scoring key and then sum the checkmarks to compute your total score.)

1. Yes ___
2. No ___
3. Yes ___
4. No ___
5. Yes ___
6. No ___
7. Yes ___
8. Yes ___
9. No ___
10. Yes ___
11. Yes ___
12. Yes ___
13. No ___
14. Yes ___
15. No ___
16. Yes ___
17. Yes ___
18. Yes ___
19. Yes ___
20. No ___
21. Yes ___
22. No ___
23. Yes ___
24. Yes ___
25. No ___
26. No ___
27. Yes ___
28. No ___
29. Yes ___
30. No ___
31. Yes ___
32. No ___
33. Yes ___
34. No ___
35. Yes ___
36. Yes ___
37. Yes ___
38. No ___
39. Yes ___
40. No ___

Total Score _____

Interpreting Your Score

Low scorers (0–8): About one person in three earns a score of from 0 to 8. These people typically have an internal locus of control. They see themselves as responsible for their fate and for the success or failure they experience in life.

Average scorers (9–16): Most respondents earn from 9 to 16 points. Average scorers may see themselves as partially in control of their lives. Perhaps they see themselves as in control at work but not in their social lives—or vice versa.

High scorers (17–40): About 15% of respondents attain scores of 17 or above. High scorers largely tend to see life as a game of chance, and success as a matter of luck or the generosity of others.