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HEALTH PSYCHOLOGY

CATHERINE A. SANDERSON

Health Psychology

Third Edition

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Health Psychology

Understanding the Mind–Body Connection

Third Edition

Catherine A. Sanderson
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PREFACE

When I agreed to write the first edition of this textbook in 2001, I was in my fourth year as an assistant professor, had a two-and-a-half-year-old son, and was in my eighth month of pregnancy with my second son. As I now complete the third edition of this book, I am struck by the changes that have occurred in the field of health psychology during this time, such as growing awareness of how genes impact virtually all aspects of health-related behavior, how chronic pain and pain medication contribute to the opioid epidemic, and how behavioral choices—from texting and driving to intentional self-harm—cause many injuries and fatalities each year. I am also vividly aware of how changes in my own life influence my perspective on health-related issues. My two sons are now teenagers, and thus I write about alcohol-related injuries and car accidents with considerable understanding of the prevalence of such behaviors in teenage boys. My daughter just turned 13, and thus I'm mindful of the pressures related to body image and disordered eating facing many teenage girls. Since writing the first edition of this book, I've also experienced the death of my mother, from cancer, and my mother-in-law, from a stroke, and thus I now view the leading causes of mortality and the challenges families face in confronting terminal illness and bereavement from a very personal perspective. On a national level, as I'm finishing this third edition, Congress is debating various revisions to the Affordable Care Act, which could have a lasting impact on Americans' access to health care. I therefore approach the material described in this book from both a professional and personal perspective.

THE GOALS OF THIS TEXT

I have several goals for this third edition. First, I want students to understand the methods that researchers use to test particular questions within this field and the importance of critically thinking about how a specific research method could influence the conclusions we draw. In turn, the second chapter includes a comprehensive review of research methods used in this field to help students understand the strengths and weaknesses of different approaches to conducting research (e.g., sometimes people overreport their exercise behavior and underreport their smoking, which is a concern with using self-report surveys). In addition, each chapter will include a Research in Action box that describes the methods and findings of a recent study in health psychology to help students understand how research questions are tested using the scientific methods. The research reviewed in each box was specifically chosen to be of interest to students, such as how an alcohol tax reduces rates of STDs, why later school start times reduce car crashes, and why women forget the pain of childbirth. Each chapter will also include two data figures that illustrate specific research findings to help students understand how scientific findings are presented.

Second, the third edition of this book includes a larger, and more inclusive, focus on the role of diversity in influencing health-related behavior. Each chapter will include a specific box that describes how ethnicity/race and/or culture influence that particular topic in some way. Once again, the material presented in these boxes will be chosen specifically to be engaging to students, such as differences between cultures in their preference for the thinness norm in women, the impact of patients' race on doctors' nonverbal communication, and the role of acculturation in predicting rates of smoking in Latinos. In addition, each chapter will describe how race/ethnicity, gender, culture, and/or sexual orientation are associated with that particular health-related topic.

The third edition of this book also adds a new feature called Focus on Neuroscience, in which cutting-edge information on the role of genes, hormones, and the brain on health will be described in a clear and accessible way. This distinct feature is not present in any of the current health psychology books, although a growing amount of research points to the substantial impact of biological factors—including genes, hormone levels, and patterns of brain activity—on health as well as responsiveness to health-related messages and interventions. These boxes will include a number of highly engaging topics, including how mindfulness meditation changes the brain, why the presence of moms improves teenagers' driving (by activating a particular part of the brain), and how genetic screening can save people's lives.

Finally, because ultimately this book is designed to be read by students, I have included a number of features to help students understand how the theories and findings described apply directly to their own lives. These features include the Test Yourself measure (so that students can examine their own scores on the same measures used by researchers) and an Information YOU Can Use feature at the end of each chapter (that provides a specific and relatively easy way for students to use the information presented in their own lives). This book also includes updated real-world examples and photos, such as the prevalence of drug overdose deaths in celebrities such as Prince, Brittney Maynard's decision to end her life following diagnosis with cancer (and the right-to-die movement), the lasting consequences of concussions among NFL players, and the serious impact of PTSD among survivors of mass school shootings. My hope is that students will enjoy reading this textbook, in part because they will see its relevance for helping them live long and healthy lives. The third edition of this book will also maintain traditional features to help students master the material in each chapter. These include key terms in bold, an outline with two levels of heading at the start of each chapter, and, at the end of the chapter, a bulleted chapter summary.

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Best wishes for the semester,

Catherine A. Sanderson
Amherst College

ABOUT THE AUTHOR

Catherine A. Sanderson is the Manwell Family Professor of Life Sciences (Psychology) at Amherst College. She received a bachelor's degree in psychology, with a specialization in Health and Development, from Stanford University, and received both master's and doctoral degrees in psychology from Princeton University. Professor Sanderson's research examines how personality and social variables influence health-related behaviors such as safer sex and disordered eating, the development of persuasive messages and interventions to prevent unhealthy behavior, and the predictors of relationship satisfaction. This research has received grant funding from the National Science Foundation and the National Institute of Health. Professor Sanderson has published over 25 journal articles and book chapters in addition to four college textbooks, middle and high school health textbooks, and a popular press book on parenting. In 2012, she was named one of the country's top 300 professors by the *Princeton Review*. Professor Sanderson speaks regularly for public and corporate audiences on topics such as the science of happiness, the power of emotional intelligence, the mind–body connection, and the psychology of good and evil. You can watch the talks (for free!) on her website: SandersonSpeaking.com.

1 INTRODUCTION

Learning Objectives

1.1 Describe how psychological factors influence health, pain, disease, and health care utilization

1.2 Summarize the history of the field of health psychology

1.3 Explain factors leading to the development of health psychology

1.4 Describe the influence of health psychology on other fields

1.5 Compare different training pathways and careers in health psychology

What You'll Learn

1.1 How getting daily hugs helps prevent colds

1.2 Why having support shortens pain during childbirth

1.3 Why happy teenagers become healthy adults

1.4 How doctors' rudeness hurts medical care

1.5 Why slamming doors may be good for health (at least in Japan)

Preview

Have you ever snacked on junk food when feeling stressed about a romantic relationship, checked your phone for a text while driving, or tried to distract yourself while receiving a shot at the doctor's office? These are all examples of how psychological factors influence physical well-being, for better or for worse. In this first chapter, you'll learn about the field of health psychology, how it has changed over time, and its link to other disciplines. You'll also learn about training pathways and career options in this exciting field.

Outline

Understanding Health Psychology
- Impact on Behavior and Physiology
- Test Yourself: Are You an Optimist?
- Impact on Pain and Disease
- Impact on Health Care Utilization

The History of Health Psychology
- Early Views on the Mind–Body Connection
- The Failure of the Biomedical Model
- The Creation of the Biopsychosocial Model
- Research in Action: How Good Friendships May Extend Your Life

The Development of Health Psychology
- A Change in the Meaning of Health
- An Increase in Chronic Conditions
- Focus on Development: How Immunizations Save Lives
- The Rising Cost of Health Care
- Advances in Technology

The Broad Influence of Health Psychology
- Medicine
- Focus on Neuroscience: Why Some People Respond to Food Cues, Even When Not Hungry
- Focus on Diversity: The Impact of Patients' Race on Doctors' Nonverbal Communication
- Sociology
- Anthropology

Working in Health Psychology
- Training Pathways
- Career Options

Summary

UNDERSTANDING HEALTH PSYCHOLOGY

LO 1.1

Describe how psychological factors influence health, pain, disease, and health care utilization

The field of **health psychology** examines how biological, social, and psychological factors influence health and illness. This field developed in part due to a growing recognition of the substantial role psychological factors play in influencing health. As described in Table 1.1, every 10 years the surgeon general of the United States sets specific goals for improving health (Friedrich, 2000). Health professionals then work toward achieving these goals and researchers measure progress. As you can see, many of these goals involve people's behavioral choices, such as whether they engage in physical activity, use tobacco, or drive safely.

The field of health psychology uses theory and research in psychological science to promote health, prevent illness, and improve health care systems. Specifically, and as described in this first section, health psychology examines how psychological factors influence

Table 1.1 Examples of Healthy People 2020 Goals

Physical Activity
• Increase the proportion of adults who engage in aerobic physical activity of at least moderate intensity for at least 150 minutes/week.
• Increase the proportion of the nation's public and private schools that require daily physical education for all students.
Overweight and Obesity
• Reduce the proportion of adults who are obese.
• Reduce the proportion of children and adolescents who are considered obese.
Tobacco Use
• Reduce the initiation of tobacco use among children, adolescents, and young adults.
• Increase smoking cessation attempts by adult smokers.
Substance Abuse
• Decrease the proportion of adults reporting any use of illicit drugs during the past 30 days.
• Reduce the proportion of adolescents engaging in binge drinking during the past month.
Responsible Sexual Behavior
• Increase the proportion of sexually active persons aged 15 to 19 years who use condoms and hormonal or intrauterine contraception to both effectively prevent pregnancy and provide barrier protection against disease.
• Increase the proportion of adolescents aged 17 years and younger who have never had sexual intercourse.
Injury and Violence
• Reduce motor vehicle crash–related deaths.
• Reduce homicides.

Immunization

- Increase the proportion of children aged 19 to 35 months who receive the recommended doses of DTaP, polio, MMR, Hib, hepatitis B, varicella, and PCV vaccines.
- Increase the proportion of children and adults who are vaccinated annually against seasonal influenza.

Access to Health Care

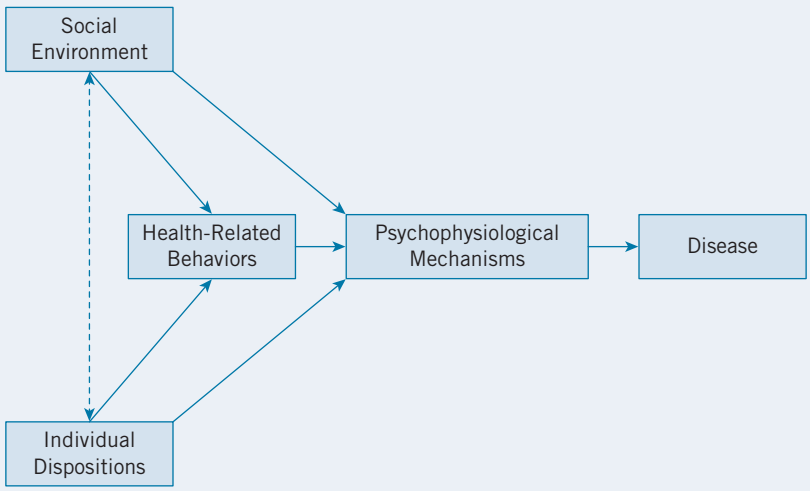
- Increase the proportion of persons with health insurance.
- Increase the proportion of pregnant women who receive early and adequate prenatal care.

health-related behaviors and physiological reactions, the management of pain and disease, and health care utilization (Matarazzo, 1980).

Impact on Behavior and Physiology

Psychological factors have a substantial impact on health behaviors and on health outcomes. As shown in Figure 1.1, these psychological factors include environmental stressors, personality factors, and social influences, which in turn influence illness and disease through their impact on physiological responses in the body as well as health-related behaviors (Adler & Matthews, 1994).

Figure 1.1 The Impact of Psychological Factors on Health



Psychological factors, including stress, personality, and social influences, impact people's physiological responses as well as their health behaviors, which in turn impact incidence of illness and disease. However, the relationship between psychological factors and physical health is bidirectional: physiological responses, health behaviors, and disease can also influence psychological factors.

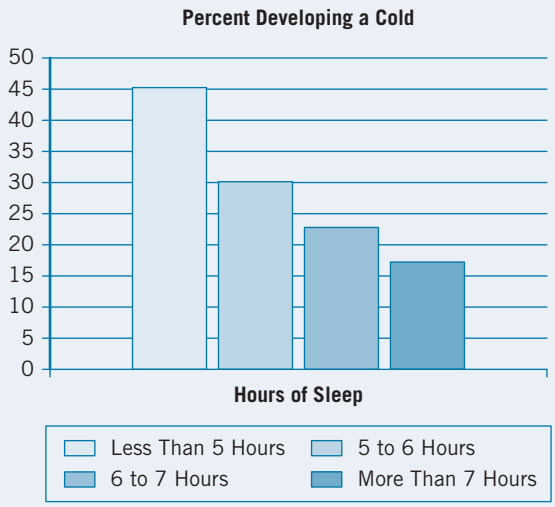
Source: Taken from p. 231 of Adler, N., & Matthews, K. (1994). Health psychology: Why do some people get sick and some stay well? *Annual Review of Psychology*, 45, 229–259.

First, people who experience higher levels of stress are at greater risk of experiencing both minor and major illnesses, in part because stress weakens the immune system (Cohen & Herbert, 1996). For example, after exposure to a cold virus, people who experience higher levels of stress are more likely to develop a cold than those who are experiencing less stress (Cohen, Tyrrell, & Smith, 1991). Long-term stress can therefore lead to more severe health-related problems. In line with this view, people who reported feeling high work stress—meaning feeling overwhelmed by job demands; or low work stress—meaning feeling bored and unchallenged—were more likely to develop diabetes, even when researchers took into account other risk factors, such as age, family history, and BMI (Toker, Shirom, Melamed, & Armon, 2012). However, people who are able to see stress as a challenge—and have resources to manage stress—experience fewer health problems than those who find such experiences overwhelming.

People who are under stress also tend to engage in behaviors that weaken the body's ability to fight off infections. Just think about the typical behaviors of a college student during exam period. Many students stop exercising, eat more junk food, drink more caffeine, and get less sleep. In other words, the stress of exams leads people to engage in unhealthy behavior, which in turn decreases the body's resistance to illness. For example, and as shown in Figure 1.2, people who get less sleep are more likely to develop a cold (Prather, Janicki-Deverts, Hall, & Cohen, 2015).

Personality traits, such as optimism, hostility, and conscientiousness, are also associated with people's physiological responses to various situations as well as their health-related behaviors (Winett, 1995). For example, people who are high in hostility exhibit higher blood pressure and heart rate when they are in virtually any type of "competitive situation" (which could include even a game of Ping-Pong with a friend) (Miller, Smith, Turner, Guijarro, & Hallet, 1996). Over time, experiencing constant high levels of physiological arousal leads

Figure 1.2 Data From Prather et al., 2015



Researchers measured people's sleep habits, and then exposed them—through nasal drops—to a cold virus. People who slept on average less than six hours a night were more than four times as likely to develop a cold as those who got more than seven hours of sleep a night, even when researchers took into account factors that could predict susceptibility to a cold, such as stress, education, and income.

Source: Data from Prather, Janicki-Deverts, Hall, & Cohen (2015).

to cardiovascular damage, which may explain why people who are hostile are more likely to experience heart disease. On the other hand, people who are high in positive emotions, such as happiness, joy, enthusiasm, and optimism, experience better health, including lower rates of getting the common cold, experiencing a stroke, and having an accident, than those with lower levels of such emotions (Boehm & Kubzansky, 2012; Lyubomirsky, King, & Diener, 2005; Scheier & Carver, 1987). You can test your own level of optimism using **Table 1.2: Test Yourself**. Personality variables also influence the types of health-related behaviors people engage in on a regular basis. People who are high in hostility, for example, may ignore doctor recommendations for treatment and thereby fail to recover—or at least recover more slowly—from illnesses, whereas those who are conscientious tend to engage in health-promoting behaviors, such as eating a healthy diet, engaging in regular physical activity, and avoiding substance use.

Similarly, social factors are associated with individuals' physiological reactions and health-related behaviors. Individuals with high levels of social support have lower blood pressure and a more active immune system compared to those with less support (Cohen & Herbert, 1996; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). In turn, people who have more social support may be better able to fight off minor illnesses and avoid major ones. In line with this view, researchers in one study first asked people how many hugs they received each day over a two-week period, and then—with the people's permission—exposed them to a cold virus (S. Cohen, Janicki-Deverts, Turner, & Doyle, 2015). As predicted, people who reported receiving more frequent hugs were less likely to show signs of infection and illness. Why? Researchers believe that a hug by a trusted person may be a strategy for conveying support, which in turn helps reduce feelings of stress. People who have high levels of social support may also engage in more health-promoting behavior (e.g., eating nutritiously, exercising regularly), in part because their loved ones encourage such activities. Moreover, because people learn about health behaviors from watching others' behavior, the attitudes and behaviors of family members and friends also influence health-related behavior. Children who have a parent, sibling, or friend who smokes, for example, are much more likely to start smoking themselves later on.

What You'll Learn 1.1

Table 1.2 Test Yourself: Are You an Optimist?

The following statements express how you may generally feel. Respond to these statements using a scale of 1 (strongly disagree) to 5 (strongly agree).

1. In uncertain times, I usually expect the best.
2. If something can go wrong for me, it will.
3. I'm always optimistic about my future.
4. I hardly ever expect things to go my way.
5. Overall, I expect more good things to happen to me than bad.
6. I rarely count on good things happening to me.

First, reverse your answers on items 2, 4, and 6 (meaning you give yourself a 5 if you put a 1, 4 if you put a 2, 3 if you put a 3, 2 if you put a 4, and 1 if you put a 5). Then sum up your answers using the new score for items 2, 4, and 6 and the original score for items 1, 3, and 5. Higher numbers indicate greater optimism.

Source: Scheier, Carver, & Bridges (1994).

Mazur/WireImage/Getty Images

Even people we don't know, such as movie stars or professional athletes, can serve as models that influence our health-related behavior. After the announcement that singer Beyoncé would receive $50 million to promote Pepsi products, public health researchers expressed concern that her endorsement would increase soda consumption, a leading contributor to today's obesity epidemic.

What You'll Learn 1.2

Impact on Pain and Disease

Psychological factors, including environmental stress, personality, and social support, influence the development and treatment of pain (Winett, 1995). Have you ever developed a severe headache or felt nauseous before taking an important exam? This is a simple example of how stress can create physical pain. Pain is also influenced by other psychological factors, such as the rewards received for experiencing pain (e.g., a child who complains about a stomachache gets to miss school), people's thoughts about the results of the pain (e.g., a tattoo or body piercing may feel less painful than immunizations), and modeling (e.g., cultural norms about expressing pain vary substantially).

Psychological factors can also help reduce the experienced of pain. For example, considerable research points to the benefits of having support during labor in reducing pain and medical complications. For example, women who receive support during labor experience fewer complications, are less likely to undergo a cesarean section, require fewer drugs, and have a shorter labor (Kennell, Klaus, McGrath, Robertson, & Hinckley, 1991; Sosa, Kennell, Klaus, Robertson, & Urrutia, 1980). On the other hand, women who are more afraid of childbirth experience a longer labor, regardless of whether or not they choose epidural pain relief (Adams, Eberhard-Gran, & Eskild, 2012).

Psychological factors contribute to the development of many types of chronic and life-threatening diseases, such as coronary heart disease, cancer, and AIDS. Many of these diseases are influenced at least in part by behavioral choices that people make, such as whether to smoke, exercise, maintain a healthy weight, engage in unsafe sex, or drink alcohol. Other psychological factors, including personality and coping style, also impact whether people develop particular chronic and life-threatening illnesses as well as the progression of such diseases. For example, people who are depressed have an increased risk of developing diabetes and experiencing a heart attack or stroke, and among those with diabetes or coronary heart disease, higher levels of depression are associated with an increased risk of mortality (Herbert & Cohen, 1993; Pan, Sun, Okereke, Rexrode, & Hu, 2011).

Finally, the link between psychological factors and both pain and illness is clearly bidirectional. A person who is constantly in physical pain, for example, may feel depressed and anxious, avoid many social settings, and even withdraw from close family members and friends. People who experience chronic diseases, such as diabetes, cancer, and coronary heart disease, may experience similar negative emotions. Finally, and not surprisingly, many people who are diagnosed with a terminal illness experience depression and anxiety, and survivors often experience lower levels of psychological and physical well-being.

Impact on Health Care Utilization

Health psychology also examines how psychological factors influence whether people take steps to identify and treat illnesses early, whether they adhere to medical recommendations, and how they respond to health-promotion messages (Winett, 1995). Behavior that involves detecting illness at an early stage as a way of reducing the illness's potential effects is called **secondary prevention** and can include checking cholesterol, having a mammogram, and following an insulin-taking regimen in the case of diabetes. Secondary prevention is very important because in many cases people have more treatment options and a better likelihood of curing their problem if it is caught early. For example, detecting a small cancerous lump in the breast during a routine mammogram may allow a woman the option of having this lump

removed in a simple operation before cancer spreads to other parts of her body, whereas a woman who is found to have a lump in her breast only after the cancer has spread has unknowingly delayed treatment, has decreased her treatment options, and will undergo much more difficult treatment, such as invasive surgery (possible removal of both breasts), chemotherapy, and/or radiation. However, psychological factors such as fear and anxiety influence whether someone engages in prevention and health-promotion behavior. For some people, getting tested for HIV is simply too frightening to contemplate.

In addition, psychological factors influence the effectiveness of various treatments to manage pain as well as chronic and terminal disease. Treatments that can help minimize or slow the damage caused by a disease are known as **tertiary prevention** actions and can include taking medicine, engaging in regular physical therapy, and following a recommended diet (Winett, 1995). Patients with chronic conditions, such as cancer, AIDS, and heart disease, need to regularly manage their illnesses, cope with pain, and comply with medical regimens. However, some studies suggest that as many as 93% of patients fail to adhere to recommended treatments (Taylor, 1990). Why do some people follow doctor recommendations and others ignore these messages? Psychological factors, including people's thoughts about their symptoms and illnesses as well as interactions with health care providers and the medical system in general, influence how people react to treatment plans, and thus whether they recover from illness. Psychosocial factors even influence how quickly people are diagnosed with cancer, how they manage this diagnosis, and even how long they live following the diagnosis (Antoni & Lutgendorf, 2007). For example, and as you'll learn more about in ***Chapter 11: Leading Causes of Mortality***, early-stage breast cancer patients who write about their feelings regarding their diagnosis later report fewer physical symptoms and have fewer medical appointments than those who write simply about the facts of their illness (Stanton et al., 2002). This research suggests that writing about positive feelings may lead to better health outcomes even in patients who have been diagnosed with cancer, revealing a powerful mind–body connection.

THE HISTORY OF HEALTH PSYCHOLOGY

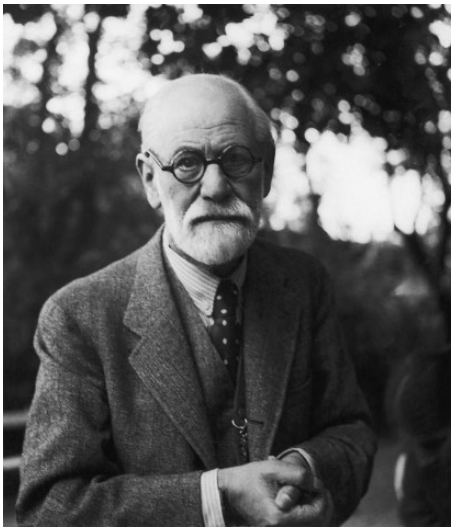
LO 1.2

Summarize the history of the field of health psychology

Health psychology is a relatively new field. In 1973, a task force was created by the American Psychological Association (APA) to study the potential for psychology's role in health research. Although the final report of this task force in 1976 found little evidence that psychologists were examining health-related issues, the task force noted that the potential for psychological factors to influence health was clear (American Psychological Association, 1976). In turn, this report led to the creation in 1978 of a Health Psychology division with the goal of providing "a scientific, educational, and professional organization for psychologists interested in (or working in) areas at one or another of the interfaces of medicine and psychology" (Matarazzo, 1984, p. 31). The development of this division was followed in 1982 by the creation of the journal *Health Psychology*, in which many research articles on issues in health psychology are published. This section examines various factors that led to the development of the exciting new field of health psychology.

Early Views on the Mind–Body Connection

Although health psychology is a relatively new discipline, the idea that the mind influences the body is a very old one—in fact, historically, most cultures have recognized some type of a connection between how we think, feel, and behave and our health (Ehrenwald, 1976). Many early cultures viewed illness and disease as caused by evil spirits—and there is some evidence



Hans Casparius/Hulton Archive/Getty Images

Freud's theory about the role of unconscious conflict in leading to physical symptoms, including paralysis, sudden loss of hearing and sight, and muscle tremors, is clearly based in the theory that physical problems may represent manifestations of unconscious symptoms as opposed to a true medical disorder.

that early medical procedures, at least in some cases, involved such methods as drilling holes in people's skulls to "let out the evil spirits." As early as 400 B.C., Hippocrates described health as the interaction between mind and body, stating, "Health depends on a state of equilibrium among the various internal factors which govern the operation of the body and the mind; the equilibrium in turn is reached only when man lives in harmony with his environment" (Dubus, 1959, p. 114). In line with this view, Hippocrates's humoral theory described disease as caused by an imbalance in the different fluids he believed were circulating in the body: phlegm, blood, black bile, and yellow bile. Despite the faulty theory of the four humors, the emphasis on the interrelation between mind and body is clear.

However, during the 17th century this holistic view of health changed, and, for the first time, health was seen as purely caused by bodily processes. What led to this change? First, René Descartes's development of the doctrine of mind–body dualism, namely, the view that the mind and body are two separate entities with little interaction, led to the view that the body was basically a machine. Disease was seen as resulting from the physical breakdown of the machine, and it was believed that the physician's job was to fix the machine. Second, advances in other scientific fields such as physics led to the view that science could be used to determine precise physical principles. For example, Isaac Newton's demonstration of an apple falling to the earth because of gravitational pull led other theorists to believe that all physical phenomena could be observed with such ease and explained by concrete laws. Third, various scientific advances, including Giovanni Battista Morgagni's work in autopsy, Rudolf Virchow's work in pathology, and Louis Pasteur's work in bacteriology, led to a focus on how microorganisms cause disease. All of these factors facilitated the focus on a biomedical model.

The Failure of the Biomedical Model

The **biomedical model**, which was formed in the 19th and 20th centuries, proposes that health problems are rooted in physical causes, such as viruses, bacteria, injuries, and biochemical imbalances (Engel, 1977; Schwartz, 1982; Wade & Halligan, 2004). This model therefore explains illness in terms of the pathology, biochemistry, and physiology of a disease—diabetes is caused by an imbalance in blood sugar, polio is caused by exposure to a virus, and cancer is caused by genetic mutations. In turn, the biomedical model proposes that medical treatment is needed to cure or manage the physical complaint and thereby return a person to good health. The biomedical model therefore focuses on physical treatments for disease, such as a vaccine to prevent measles, medication to manage high blood pressure, and chemotherapy to delay the spread of cancer.

Although the biomedical model has led to a number of benefits for our society, including advancements in immunology, public health policy, pathology, and surgery, increasingly evidence is showing that biological factors alone cannot account for health. First, and as described previously, psychological and behavioral factors are associated with the development of many of the leading causes of death, such as cancer and heart disease. People who are high in neuroticism are at increased risk of developing an ulcer, chronic fatigue syndrome, and coronary heart disease (Charles, Gatz, Kato, & Pedersen, 2008; Suls & Bunde, 2005). Similarly, people who are experiencing high levels of stress—at home and/or work—are at greater risk of experience a heart attack (Rosengren et al., 2004). The biomedical model also fails to take into account how psychological factors, such as personality, cognitive beliefs, social support, and the relationship between the patient and the health care practitioner, can

influence development of and recovery from illness and disease. Why do placebos, drugs, or treatments that influence health outcomes, purely because of people's expectations of them, lead to improvement of symptoms in a sizable proportion of patients? Why do surgery patients who get more visitors leave the hospital sooner? These are just some of the questions that the biomedical model really cannot answer.

The Creation of the Biopsychosocial Model

Given the considerable evidence that the biomedical model alone can't explain physical health, researchers have turned to a **biopsychosocial model** in which the mind and body are seen as inherently connected (Ray, 2004; Suls & Rothman, 2004). The biopsychosocial model was developed in the late 1970s and posits that health is affected by both biology and social factors (Engel, 1977, 1980). In this perspective, the physical body is seen as only one aspect of a person; other aspects, such as personality, family, and society, also influence the person and his or her health. In contrast, the biomedical model, which was formed in the 19th and 20th centuries, describes health as a function only of physical attributes and sees physical health as completely separate from psychological health.

The biopsychosocial model, which was developed by psychiatrist George Engel, views health and illness as the consequences of the complex interplay between biological factors (e.g., genetics, physiology), psychological factors (e.g., personality, cognition), and social factors (e.g., culture, community, family, media) (Engel, 1977, 1980; Schwartz, 1982). As described by Engel,

> To provide a basis for understanding the determinants of disease and arriving at rational treatments and patterns of health care, a medical model must also take into account the patient, the social context in which he lives and the complementary system devised by society to deal with the disruptive effects of illness, that is, the physician role and the health care system. This requires a biopsychosocial model. (p. 132)

The biopsychosocial model is holistic in that it considers the mind and body as inherently connected. In addition, it acknowledges that biological factors can and do influence health and illness, but that social, cultural, and psychological factors also exert an effect. The biopsychosocial model therefore contributes to the biomedical model by helping to explain the impact of psychological factors on the development and progression of chronic conditions as well as how people cope with pain, illness, and disease. **Research in Action** describes how people with high-quality social relationships live longer, which is a vivid example of the biopsychosocial model's ability to explain health outcomes.

Let's take, as an example, a patient, Melanie, who arrives at her doctor's office complaining of recurring heart pain. A physician utilizing the biomedical model would focus almost entirely on physical causes of such pain and would rely primarily on diagnostic tests, such as heart monitor results, temperature, pulse, and so forth, to determine the cause of this symptom. Although the physician might ask Melanie a few questions (when did you last eat? how long have you felt this pain?), the physician would base the diagnosis on the (more objective) test results. Once a physical diagnosis was established, the physician would prescribe a treatment regimen for the patient. In contrast, a physician using the biopsychosocial model might start by gathering personal data, such as symptoms, activities, recent behaviors, and social/family relationships. The physician might, for example, ask Melanie whether she was experiencing any particular stressors at home or work or whether she had experienced significant life changes in the past few months (e.g., loss of a job, death of a loved one). Although the physician would also use standard diagnostic tests, more emphasis would be placed on eliciting psychological factors that could contribute to the symptoms. During this information-gathering