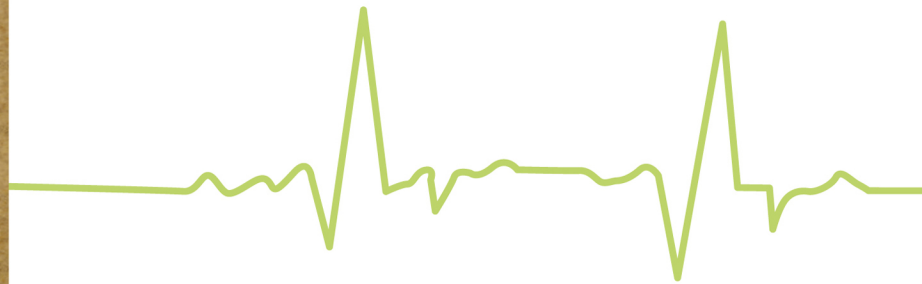


EIGHTH EDITION



Health PSYCHOLOGY

AN INTRODUCTION TO BEHAVIOR AND HEALTH

Linda Brannon | Jess Feist | John A. Updegraff

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Preface

Health is a far different phenomenon today than it was just a century ago. Most serious diseases and disorders now result from people's behavior. People smoke, eat unhealthily, do not exercise, or cope ineffectively with the stresses of modern life. As you will learn in this book, psychology—the science of behavior—is increasingly relevant to understanding physical health. *Health psychology* is the scientific study of behaviors that relate to health enhancement, disease prevention, safety, and rehabilitation.

The first edition of this book, published in the 1980s, was one of the first undergraduate texts to cover the then-emerging field of health psychology. Now in this eighth edition, *Health Psychology: An Introduction to Behavior and Health* remains a preeminent undergraduate textbook in health psychology.

The Eighth Edition

This eighth edition retains the core aspects that have kept this book a leader throughout the decades: (1) a balance between the science and applications of the field of health psychology and (2) a clear and engaging review of classic and cutting-edge research on behavior and health.

The eighth edition of *Health Psychology: An Introduction to Behavior and Health* has five parts. Part 1, which includes the first four chapters, lays a solid foundation in research and theory for understanding subsequent chapters and approaches the field by considering the overarching issues involved in seeking medical care and adhering to health care regimens. Part 2 deals with stress, pain, and the management of these conditions through conventional and alternative medicine. Part 3 discusses heart disease, cancer, and other chronic diseases. Part 4 includes chapters on tobacco use, drinking alcohol, eating and weight, and physical activity. Part 5 looks toward future challenges in health psychology and addresses how to apply health knowledge to one's life to become healthier.

What's New?

In this edition, we bring a fresh new voice to the writing team: John A. Updegraff. John earned his PhD from one of the top health psychology programs in the United States. He is an influential researcher in health psychology, an acclaimed psychology instructor, and an expert in the areas of health behavior and stress. John brings his passion, knowledge, and (occasional) humor to this revision, so the textbook remains current, accurate, and a delightful read for instructors and students.

The present edition also reorganizes several chapters to better emphasize the theoretical underpinnings of health behavior. For example, Chapter 4 focuses on adherence to healthy behavior and presents both classic and contemporary theories of health behavior, including recent research on the “intention–behavior gap.” Readers of the eighth edition will benefit from the most up-to-date review of health behavior theories—and their applications—on the market.

The eighth edition also features new boxes on important and timely topics such as

- How to evaluate the quality of research reported on the Internet
- How the redesign of nutrition labels may improve your health literacy
- How text messaging can help increase your physical activity
- Why your doctor might *ethically* prescribe ineffective medical treatments to you
- Why taking vacations can have unexpected effects on your stress levels
- Why social rejection can feel physically painful
- Why pets may be the best social support providers
- Why you should floss your teeth more (hint: it has nothing to do with cavities or bad breath)
- Why pictures of guns stimulate your immune system

Other new or reorganized topics within the chapters include

- Several new Real-World Profiles, including Steve Jobs, Barack Obama, Tara Costa, Charlie Sheen, Kirstie Alley, and Lance Armstrong

- Expanded discussion of training and employment opportunities for health psychologists in Chapter 1
- Discussion of publication bias and CONSORT guidelines for reporting of clinical trials in Chapter 2, to help students better evaluate health psychology research
- New section on seeking medical information from nonmedical sources such as the Internet in Chapter 3
- Technological advances in assessing adherence in Chapter 4
- Contemporary models of health behavior, such as the health action process approach and the “intention–behavior gap,” are now presented in Chapter 4
- A streamlined presentation of life events scales, focusing only on the most widely used measures in Chapter 5
- New discussion of the role of stress in weakening people’s responses to vaccination in Chapter 6
- New discussion of acceptance and commitment therapy as a psychological intervention for pain management in Chapter 7
- Reorganization of Chapter 8 to highlight the types of complementary and alternative medicine (CAM) that people use most often, and the latest evidence on the effectiveness of CAM
- Up-to-date findings from the 52-nation INTER-HEART study on heart attack risk factors in Chapter 9
- New information on the role of human papillomavirus (HPV) in cancer in Chapter 10
- A streamlined presentation of the history of the HIV epidemic in Chapter 11
- A streamlined presentation of the physiology of the respiratory system in Chapter 12
- Greater emphasis on the similarities between alcohol and other drugs of abuse in Chapter 13, including the common brain pathways that all drugs may activate and the similarities among treatment approaches
- Updated information in Chapter 14 on binge eating, which will appear as a disorder in DSM-V
- New section on the links between physical activity and cognitive functioning in Chapter 15
- New organization of the section about physical activity interventions, to better distinguish the different approaches to intervention and their effectiveness
- Chapter 16 includes a new discussion of how technological and medical advances create opportunity for health psychologists

What Has Been Retained?

In this revision, we retained the most popular features that made this text a leader over the past two decades. These features include (1) “Real-World Profiles” for each chapter, (2) chapter-opening questions, (3) a “Check Your Health Risks” box in most chapters, (4) one or more “Would You Believe ...?” boxes in each chapter, and (5) a “Becoming Healthier” feature in many chapters. These features stimulate critical thinking, engage readers in the topic, and provide valuable tips to enhance personal well-being.

Real-World Profiles Millions of people—including celebrities—deal with the issues we describe in this book. To highlight the human side of health psychology, we open each chapter with a profile of a person in the real world. Many of these profiles are of famous people, whose health issues may not always be well-known. Their cases provide intriguing examples, such as Barack Obama’s attempt to quit smoking, Lance Armstrong’s delays in seeking treatment for cancer, Steve Jobs’ fight with cancer, Halle Berry’s diabetes, Charlie Sheen’s substance abuse, Kirstie Alley’s battles with her weight, and “Biggest Loser” Tara Costa’s efforts to increase physical activity. In the eighth edition, we also introduce a profile of a celebrity in the world of health psychology, Dr. Angela Bryan, to give readers a better sense of the personal motivation and activities of health psychologists.

Questions and Answers In this text, we adopt a *preview, read, and review* method to facilitate student’s learning and recall. Each chapter begins with a series of *Questions* that organize the chapter, preview the material, and enhance active learning. As each chapter unfolds, we reveal the answers through a discussion of relevant research findings. At the end of each major topic, an *In Summary* statement recaps the topic. Then, at the end of the chapter, *Answers* to the chapter-opening questions appear. In this manner, students benefit from many opportunities to engage with the material throughout each chapter.

Check Your Health Risks At the beginning of most chapters, a “Check Your Health Risks” box personalizes material in that chapter. Each box consists of several health-related behaviors or attitudes that readers should check before looking at the rest of the chapter. After checking the items that apply to them and then becoming familiar with the chapter’s material, readers

will develop a more research-based understanding of their health risks. A special “Check Your Health Risks” appears inside the front cover of the book. Students should complete this exercise before they read the book and look for answers as they proceed through the chapters (or check the website for the answers).

Would You Believe ...? Boxes We keep the popular “Would You Believe ...?” boxes, adding nine new ones and updating those we retained. Each box highlights a particularly intriguing finding in health research. These boxes explode preconceived notions, present unusual findings, and challenge students to take an objective look at issues that they may have not have evaluated carefully.

Becoming Healthier Embedded in most chapters is a “Becoming Healthier” box with advice on how to use the information in the chapter to enact a healthier lifestyle. Although some people may not agree with all of these recommendations, each is based on the most current research findings. We believe that if you follow these guidelines, you will increase your chances of a long and healthy life.

Other Changes and Additions

We have made a number of subtle changes in this edition that we believe make it an even stronger book than its predecessors. More specifically, we

- Deleted several hundred old references and exchanged them for more than 600 recent ones
- Reorganized many sections of chapters to improve the flow of information
- Added several new tables and figures to aid students’ understanding of difficult concepts
- Highlighted the biopsychosocial approach to health psychology, examining issues and data from a biological, psychological, and social viewpoint
- Drew from the growing body of research from around the world on health to give the book a more international perspective
- Recognized and emphasized gender issues whenever appropriate
- Retained our emphasis on theories and models that strive to explain and predict health-related behaviors

Writing Style

With each edition, we work to improve our connection with readers. Although this book explores complex issues and difficult topics, we use clear, concise, and comprehensible language and an informal, lively writing style. We write this book for an upper-division undergraduate audience, and it should be easily understood by students with a minimal background in psychology and biology. Health psychology courses typically draw students from a variety of college majors, so some elementary material in our book may be repetitive for some students. For other students, this material will fill in the background they need to comprehend the information within the field of health psychology.

Technical terms appear in **boldface type**, and a definition usually appears at that point in the text. These terms also appear in an end-of-book glossary.

Instructional Aids

Besides the glossary at the end of the book, we supply several other features to help both students and instructors. These include stories of people whose behavior typifies the topic, frequent summaries within each chapter, and annotated suggested readings.

Within-Chapter Summaries

Rather than wait until the end of each chapter to present a lengthy chapter summary, we place shorter summaries at key points within each chapter. In general, these summaries correspond to each major topic in a chapter. We believe these shorter, frequent summaries keep readers on track and promote a better understanding of the chapter’s content.

Annotated Suggested Readings

At the end of each chapter are three or four annotated suggested readings that students may wish to examine. We chose these readings for their capacity to shed additional light on major topics in a chapter. Most of these suggested readings are quite recent, but we also selected several that have lasting interest. We include only readings that are intelligible to the average college student and that are accessible in most college and university libraries.

Instructor's Manual With Test Bank

This edition of *Health Psychology: An Introduction to Behavior and Health* is accompanied by a comprehensive instructor's manual. Each chapter begins with a *lecture outline*, designed to assist instructors in preparing lecture material from the text. Many instructors are able to lecture strictly from these notes; others can use the lecture outline as a framework for organizing their own lecture notes.

A test bank of nearly 1,200 *multiple-choice test items* makes up a large section of each chapter of the instructor's manual. The authors, in conjunction with Amber Emanuel of Kent State University, wrote these test items. Some items are factual, some are conceptual, and others ask students to apply what they have learned. These test items will reduce instructors' work in preparing tests. Each item, of course, is marked with the correct answer. The test items are also available electronically on ExamView.

We also include *True–false questions* and *essay questions* for each chapter. The true–false questions include answers, and each essay question has an outline answer of the critical points.

Each chapter also includes *suggested activities*. These activities vary widely—from video recommendations to student research to classroom debates. We have tried to include more activities than any instructor could feasibly assign during a semester to give instructors a choice of activities.

With so many electronic resources available to students these days, we wanted to include a *Exploring Health on the Web* activity. In this section, we suggest online activities, including websites that are relevant to each chapter. This activity expands the electronic resources students may use to explore health-related topics.

Instructor's Resource CD-ROM

Transparencies include art from the text, as well as several physiology video clips and animations in Microsoft® PowerPoint®.

Text Companion Website

This website contains practice quizzes, web links, the text's glossary, flashcards, and more for each chapter of the text.

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About the Authors

Linda Brannon is a professor in the Department of Psychology at McNeese State University in Lake Charles, Louisiana. Linda joined the faculty at McNeese after receiving her doctorate in human experimental psychology from the University of Texas at Austin.



Jess Feist is Professor Emeritus at McNeese State University. He joined the faculty after receiving his doctorate in counseling from the University of Kansas and stayed at McNeese until he retired in 2005. Jess and Linda have each been selected to receive the annual Distinguished Faculty Award from McNeese State University.



In the early 1980s, Linda and Jess became interested in the developing field of health psychology, which led to their coauthoring the first edition of this book. They watched the field of health psychology emerge and grow, and the subsequent editions of the book reflect that growth and development.

Their interests converge in the area of health psychology but diverge in other areas of psychology. Jess

carried his interest in personality theory to his authorship of *Theories of Personality*, coauthored with his son Greg Feist. Linda's interest in gender and gender issues led her to publish *Gender: Psychological Perspectives*, which is in its sixth edition.

John A. Updegraff is a professor of social and health psychology in the Department of Psychology at Kent State University in Kent, Ohio. John received his PhD in Social Psychology at University of California, Los Angeles, under the mentorship of pioneering health psychologist Shelley Taylor. John then completed a postdoctoral fellowship at University of California, Irvine, prior to joining the faculty at Kent State.



John is an expert in the areas of health behavior, health communication, stress, and coping, and is the recipient of multiple research grants from the National Institutes of Health. His research appears in the field's top journals.

John stays healthy by running the roads and trails near his home, and by running after his two small children. John is also known for subjecting students and colleagues to his singing and guitar playing (go ahead, look him up on YouTube).

CHAPTER 1

Introducing Health Psychology

CHAPTER OUTLINE

- Real-World Profile of Angela Bryan
- *The Changing Field of Health*
- *Psychology's Relevance for Health*
- *The Profession of Health Psychology*

QUESTIONS

This chapter focuses on three basic questions:

- 1.** How have views of health changed?
- 2.** How did psychology become involved in health care?
- 3.** What type of training do health psychologists receive, and what kinds of work do they do?

Real-World Profile of **ANGELA BRYAN**

Health psychology is a relatively new and fascinating field of psychology. Health psychologists examine how people's lifestyles influence their physical health. In this book, you will learn about the diverse topics, findings, and people who make up this field.

First, let's introduce you to Angela Bryan, a health psychologist from the University of Colorado Boulder. Angela develops interventions that promote healthy behavior such as safe sex and physical activity. Angela has won several awards for her work, including a recognition that one of her interventions is among the few that work in reducing risky sexual behavior among adolescents ("Safe on the Outs"; CDC, 2011c).

As an adolescent, Angela thought of herself as a "rebel" (Aiken, 2006), perhaps an unlikely start for someone who now encourages people to maintain a healthy lifestyle. It was not until college that Angela discovered her passion for health psychology. She took a course in social psychology, which explored how people make judgments about others. Angela quickly saw the relevance for understanding safe sex behavior. At this time, the HIV/AIDS epidemic was peaking in the United States, and condom use was one action people could take to prevent the spread of the HIV virus. Yet, people often resisted proposing condoms to a partner, due to concerns such as "What will a partner think of me if I say that a condom is needed?" Angela sought out a professor to supervise a research project on perceptions of condom use in an initial sexual encounter.

Angela continued this work as a Ph.D. student at Arizona State University, where she developed a program to promote condom use among college women. In this program, Angela taught women skills for proposing and using condoms. This work was not always easy. She recalls, "I would walk through the residence halls on my way to deliver my intervention, with a basket of condoms in one arm and a basket of zucchinis in the other. I can't imagine what others thought I was doing!"

Later, she expanded her work to populations at greater risk for HIV, including incarcerated adolescents, intravenous drug users, HIV+ individuals, and truck drivers in India. She also developed an interest in promoting physical activity.

In all her work, Angela uses the biopsychosocial model, which you will learn about in this chapter. Specifically, she identifies the biological, psychological, and social factors that influence health behaviors such as condom use. Angela's interventions address each of these factors.

Angela's work is both challenging and rewarding. She works on a daily basis with community agencies, clinical psychologists, neuroscientists, and exercise physiologists. She uses rigorous research methods to evaluate the success of her interventions. More recently, she has started to examine the genetic factors that determine whether a person will respond to a physical activity intervention.

What is the most rewarding part of her work? "When the interventions work!" she says. "If we can get one kid to use a condom or one person with a chronic illness to exercise, that is meaningful."

In this book, you will learn about the theories, methods, and discoveries of health psychologists such as Angela Bryan. As you read, keep in mind this piece of advice from Angela: "Think broadly and optimistically about health. A health psychologist's work is difficult, but it can make a difference."



Courtesy Angela Bryan

The Changing Field of Health

“We are now living well enough and long enough to slowly fall apart” (Sapolsky, 1998, p. 2).

The field of health psychology developed relatively recently—the 1970s, to be exact—to address the challenges presented by the changing field of health and health care. A century ago, the average **life expectancy** in the United States was approximately 50 years of age, far shorter than it is now. When people in the United States died, they died largely from infectious diseases such as pneumonia, tuberculosis, diarrhea, and enteritis (see Figure 1.1). These conditions resulted from contact with impure drinking water, contaminated foods, or sick people. People might seek medical care only after they became ill, but medicine had few cures to offer. The duration of most diseases—such as typhoid fever, pneumonia, and diphtheria—was short; a person either died or got well in a matter of weeks. People felt very limited responsibility for contracting a contagious disease because such disease was not controllable.

Life—and death—are now dramatically different than they were a century ago. Life expectancy in the United States is nearly 80 years of age; some countries boast even longer life expectancy. For most citizens of industrialized nations, public sanitation is vastly better than it was a century ago. Vaccines and treatments exist for many infectious diseases. However, improvements in the prevention and treatment of infectious diseases allowed for a different class of disease to emerge as the new century’s killers: **chronic diseases**. Heart disease, cancer, and stroke—all chronic diseases—are now the leading causes of mortality in the United States and account for a greater proportion of deaths than infectious diseases ever did. Chronic diseases develop and then persist or recur, affecting people over long periods of time. Every year, over 2 million people in the United States die from chronic diseases, but over 130 million people—almost one out of every two adults—live with at least one chronic disease.

Furthermore, most deaths today are attributable to diseases associated with individual behavior and lifestyle. Heart disease, cancer, stroke, chronic lower respiratory diseases (including emphysema and chronic bronchitis), unintentional injuries, and diabetes are all due in part to cigarette smoking, alcohol abuse, unwise eating, stress, and a sedentary lifestyle. Because the

major killers today arise in part due to lifestyle and behavior, people have a great deal more control over their health than they did in the past. However, many people do not exercise this control, so unhealthy behavior is an increasingly important public health problem. Indeed, unhealthy behavior contributes to the escalating costs of health care.

In this chapter, we describe the changing patterns of disease and disability and the increasing costs of health care. We also discuss how these trends change the very definition of what health is and require a broad view of health. This broad view of health is the biopsychosocial model, a view adopted by health psychologists such as Angela Bryan.

Patterns of Disease and Death

The 20th century brought about major changes in the patterns of disease and death in the United States, including a shift in the leading causes of death. Infectious diseases were leading causes of death in 1900, but over the next several decades, chronic diseases such as heart disease, cancer, and stroke became the leading killers.

During the last few years of the 20th century, deaths from some chronic diseases—those related to unhealthy lifestyles and behaviors—began to *decrease*. These diseases include heart disease, cancer, and stroke, which all were responsible for a smaller proportion of deaths in 2005 than in 1990. Why have deaths from these diseases decreased in the last few decades? We will discuss this in greater detail in Chapter 9, but one major reason is that fewer people in the United States now smoke cigarettes than in the past. This change in behavior contributed to some of the decline in deaths due to heart disease; improvements in health care also contributed to this decline.

Death rates due to unintentional injuries, suicide, and homicide have increased in recent years (Kung, Hoyert, Xu, & Murphy, 2008). Significant increases also occurred in Alzheimer’s disease, influenza and pneumonia, kidney disease, septicemia (blood infection), and Parkinson’s disease. For these causes of death that have recently increased, behavior is a less important component than for those causes that have decreased. However, the rising death rates due to Alzheimer’s and Parkinson’s disease reflect another important trend in health and health care: an increasingly older population.

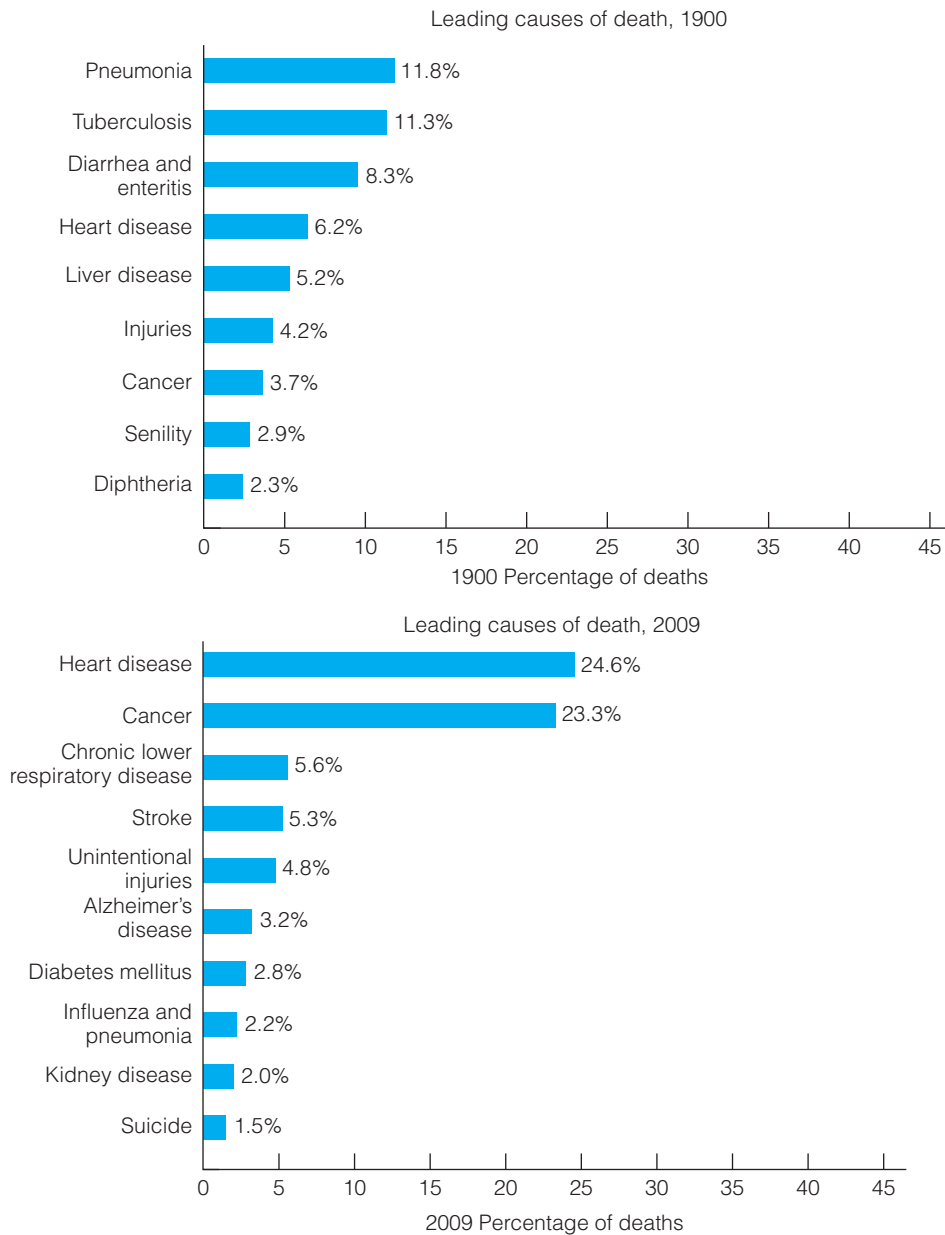


FIGURE 1.1 Leading causes of death, United States, 1900 and 2009.

Source: *Healthy people, 2010, 2000*, by U.S. Department of Health and Human Services, Washington, DC: U.S. Government Printing Office; “Deaths: Final Data for 2009,” 2011, by Kochanek, K.D., Xu, J., Murphy, S.L., Miniño, A.M., & Kung, H-C., *National Vital Statistics Reports, 60(3)*, Table B.

Age Indeed, age is an important factor in mortality. Obviously, older people are more likely to die than younger ones, but the causes of death vary among age groups. Thus, the ranking of causes of death for the entire population may not reflect any specific age

group and may lead people to misperceive the risk for some ages. For example, cardiovascular disease (which includes heart disease and stroke) and cancer account for about 60% of all deaths in the United States, but they are not the leading cause of death for young

people. For individuals between 1 and 44 years of age, unintentional injuries are the leading cause of death, and violent deaths from suicide and homicide rank high on the list (National Center for Health Statistics [NCHS], 2011). Unintentional injuries account for 28% of the deaths in this age group, suicide for almost 10%, and homicide for about 8%. As Figure 1.2 reveals, other causes of death account for much smaller percentages of deaths among adolescents and young adults than unintentional injuries, homicide, and suicide.

For adults 45 to 64 years old, the picture is quite different. Cardiovascular disease and cancer become leading causes of death, and unintentional injuries fall to third place. As people age, they become more likely to die, so the causes of death for older people dominate the overall figures for causes of death. However, younger people show very different patterns of mortality.

Ethnicity, Income, and Disease Question 2 from the quiz inside the front cover asks if the United States is among the top 10 nations in the world in terms of life expectancy. It is not even close; its rank is 24th among industrialized nations (NCHS, 2011) but 50th among all nations (Central Intelligence Agency [CIA], 2012). Within the United States, ethnicity is also a factor in life expectancy, and the leading causes of death also vary among ethnic groups. Table 1.1 shows the ranking of the 10 leading causes of death for four ethnic groups in the United States. No two groups have identical profiles of causes of death, and some causes do not appear on the list for each group, highlighting the influence of ethnicity on mortality.

If African Americans and European Americans in the United States were considered to be different nations, European America would rank higher in life expectancy than African America—47th place and

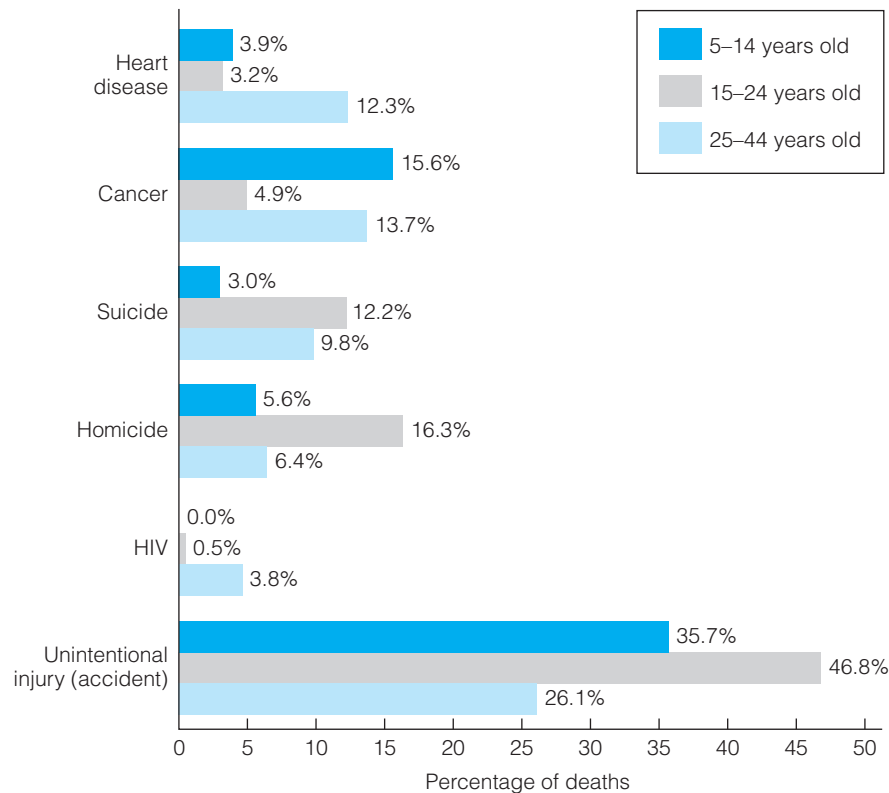


FIGURE 1.2 Leading causes of death among individuals ages 5–14, 15–24, and 25–44, United States, 2007.

Source: *Health, United States, 2010, 2010*, by National Center for Health Statistics, Hyattsville, MD. Table 27.

TABLE 1.1 Ten Leading Causes of Death for Four Ethnic Groups in the United States, 2007

	European Americans	Hispanic Americans	African Americans	Asian Americans
Heart disease	1	1	1	2
Cancer	2	2	2	1
Chronic lower respiratory disease	3	7	8	7
Stroke	4	4	3	3
Unintentional injuries	5	3	4	4
Alzheimer's disease	6	*	*	10
Diabetes	7	5	5	5
Pneumonia & influenza	8	10	*	6
Kidney disease	9	*	7	9
Suicide	10	*	*	8
Septicemia	*	*	10	*
Chronic liver disease	*	6	*	*
Homicide	*	8	6	*
HIV	*	*	9	*
Conditions originating in perinatal period	*	9	*	*

*Not among the 10 leading causes of death for this ethnic group.

Source: "Deaths: Leading causes for 2007," 2011, by M. Heron, *National Vital Statistics Reports*, 59(8), Tables E and F.

113th place, respectively (CIA, 2012; U.S. Census Bureau [USCB], 2011). Thus, European Americans have a longer life expectancy than African Americans, but neither should expect to live as long as people in Japan, Canada, Iceland, Australia, the United Kingdom, Italy, France, Hong Kong, Israel, and many other countries.

Hispanics have socioeconomic disadvantages similar to those of African Americans (USCB, 2011), including poverty and low educational level. About 10% of European Americans live below the poverty level, whereas 32% of African Americans and 26% of Hispanic Americans do (USCB, 2011). European Americans also have educational advantages: 86% receive high school diplomas, compared with only 81% of African Americans and 59% of Hispanic Americans. These socioeconomic disadvantages translate into health disadvantages (Crimmins, Ki Kim, Alley, Karlamangla, & Seeman, 2007; Smith & Bradshaw, 2006). That is, poverty and low educational level both relate to health problems and lower life expectancy. Thus, some of the ethnic differences in health are due to socioeconomic differences.

Access to health insurance and medical care are not the only factors that make poverty a health risk. Indeed, the health risks associated with poverty begin before birth. Even with the expansion of prenatal care by Medicaid, poor mothers, especially teen mothers, are more likely to deliver low-birth-weight babies, who are more likely than normal-birth-weight infants to die (NCHS, 2011). Also, pregnant women living below the poverty line are more likely than other pregnant women to be physically abused and to deliver babies who suffer the consequences of prenatal child abuse (Zelenko, Lock, Kraemer, & Steiner, 2000).

The association between income level and health is so strong that it appears not only at the poverty level, but also at higher income levels as well. That is, very wealthy people have better health than people who are just, well, wealthy. Why should very wealthy people be healthier than other wealthy people? One possibility comes from the relation of income to educational level, which, in turn, relates to occupation, social class, and ethnicity. The higher the educational level, the less likely people are to engage in unhealthy behaviors such as smoking, eating a high-fat diet, and

maintaining a sedentary lifestyle (see Would You Believe ...? box). Another possibility is the perception of social status. People's perception of their social standing may differ from their status as indexed by educational, occupational, and income level, and this perception relates to health status more strongly than objective measures (Operario, Adler, & Williams, 2004). Thus, the relationships between health and ethnicity are intertwined with the relationships between health, income, education, and social class.

Changes in Life Expectancy During the 20th century, life expectancy rose dramatically in the United States and other industrialized nations. In 1900, life

expectancy was 47.3 years, whereas today it is more than 77 years (NCHS, 2011). In other words, infants born today can expect, on average, to live more than a generation longer than their great-great-grandparents born at the beginning of the 20th century.

What accounts for the 30-year increase in life expectancy during the 20th century? Question 3 from the quiz inside the front cover asks if advances in medical care were responsible for this increase. The answer is “False”; other factors have been more important than medical care of sick people. The single most important contributor to the increase in life expectancy is the lowering of infant mortality. When infants die before their first birthday, these deaths lower the population's

Would You BELIEVE ...?

College Is Good for Your Health

Would you believe that attending college is probably good for your health? You may find that difficult to believe, as college seems to add stress, offer opportunities for drug use, and limit the time available for eating a healthy diet, exercising, and sleeping. How could going to college possibly be healthy?

Students may not follow all recommendations for leading a healthy life while they are in college, but people who have been to college have lower death rates than those who have not. This advantage applies to both women and men and to infectious diseases, chronic diseases, and unintentional injuries (NCHS, 2011). Better educated people report fewer daily symptoms and less stress than less educated people (Grzywacz, Almeida, Neupert, & Ettner, 2004).

People who graduate from high school have lower death rates than those who do not, but going to college offers much more protection. For example, people with less than a high school education die at a rate of 575 per 100,000; those with a high

school degree die at a rate of 509 per 100,000; but people who attend college have a death rate of only 214 per 100,000 (Miniño, Murphy, Xu, & Kochanek, 2011). That is, people who attend college show a death rate *less than half* that of high school graduates. The benefits of education for health and longevity apply to people around the world. For example, a study of older people in Japan (Fujino et al., 2005) found that low educational level increased the risk of dying. A large-scale study of the Dutch population (Hoeymans, van Lindert, & Westert, 2005) also found that education was related to a wide range of health measures and health-related behaviors.

What factors contribute to this health advantage for people with more education? Part of that advantage may be intelligence, which predicts both health and longevity (Gottfredson & Deary, 2004). In addition, people who are well educated tend to live with and around people with similar education, providing an environment with good health-related knowledge and

attitudes (Øystein, 2008). Income and occupation may also contribute (Batty et al., 2008); people who attend college, especially those who graduate, have better jobs and higher average incomes than those who do not, and thus are more likely to have better access to health care. In addition, educated people are more likely to be informed consumers of health care, gathering information on their diseases and potential treatments. Education is also associated with a variety of habits that contribute to good health and long life. For example, people with a college education are less likely than others to smoke or use illicit drugs (Johnston, O'Malley, Bachman, & Schulenberg, 2007), and they are more likely to eat a low-fat diet and to exercise.

Thus, people who attend college acquire many resources that are reflected in their lower death rate— income potential, health knowledge, more health-conscious spouses and friends, attitudes about the importance of health, and positive health habits.

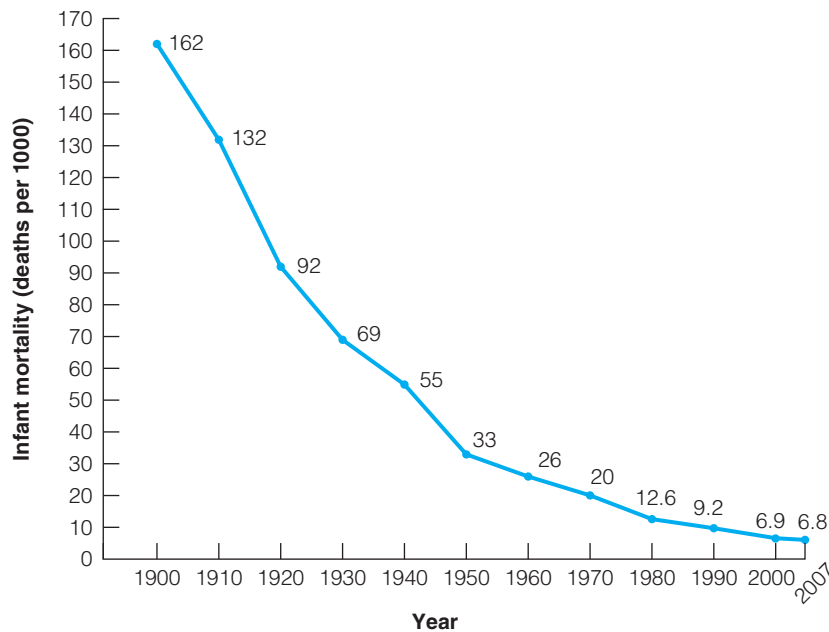


FIGURE 1.3 Decline in infant mortality in the United States, 1900–2007.

Source: Data from *Historical statistics of the United States: Colonial times to 1970, 1975* by U.S. Bureau of the Census, Washington, DC: U.S. Government Printing Office, p. 60; *Statistical abstract of the United States: 2012* (131st edition), 2011, by U.S. Census Bureau, Washington, DC: U.S. Government Printing Office, Table 116.

average life expectancy much more than do the deaths of middle-aged or older people. As Figure 1.3 shows, infant death rates declined dramatically between 1900 and 1990, but little decrease has occurred since that time.

Prevention of disease also contributes to the recent increase in life expectancy. Widespread vaccination and safer drinking water and milk supplies all reduce infectious disease, which increases life expectancy. A healthier lifestyle also contributes to increased life expectancy, as does more efficient disposal of sewage and better nutrition. In contrast, advances in medical care—such as antibiotics and new surgical technology, efficient paramedic teams, and more skilled intensive care personnel—have played a relatively minor role in increasing adults' life expectancy.

Escalating Cost of Medical Care

The second major change within the field of health is the escalating cost of medical care. In the United States, medical costs have increased at a much faster rate than inflation. Between 1960 and 2005, these costs

represented a larger and larger proportion of the gross domestic product (GDP). Since 1995, the increases have slowed, but medical care costs as a percentage of the GDP have crept up to 15% (Organisation for Economic Co-operation and Development [OECD], 2008). This percentage is greater than in any other country, although several European countries spend about 10% of their GDP on medical care (OECD, 2008). The total yearly cost of health care in the United States increased from \$1,067 per person in 1970 to \$7,290 in 2007 (NCHS, 2011), a jump of more than 600% and a much faster annual increase than that reported for the years 1960 to 1980.

These costs, of course, have some relationship to increased life expectancy: As people live to middle and old age, they tend to develop chronic diseases that require extended (and often expensive) medical treatment. About 45% of people in the United States have a chronic condition, and they account for 78% of the dollars spent on health care (Rice & Fineman, 2004). People with chronic conditions account for 88% of prescriptions written, 72% of physician visits, and 76% of hospital stays. Even though today's aging population is



Comstock Images/Jupiter Images

Technology in medicine is one reason for escalating medical costs.

experiencing better health than past generations, their increasing numbers will continue to increase medical costs.

One strategy for curbing mounting medical costs is to limit services, but another approach requires a greater emphasis on the early detection of disease and on changes to a healthier lifestyle and to behaviors that help prevent disease. For example, early detection of high blood pressure, high serum cholesterol, and other precursors of heart disease allow these conditions to be controlled, thereby decreasing the risk of serious disease or death. Screening people for risk is preferable to remedial treatment because chronic diseases are quite difficult to cure and living with chronic disease decreases quality of life. Avoiding disease by adopting a healthy lifestyle is even more preferable to treating diseases or screening for risks. Staying healthy is typically less costly than becoming sick and then getting well. Thus, prevention of disease through a healthy lifestyle, early detection of symptoms, and reduction of health risks are all part of a changing philosophy within the health care field.

What Is Health?

“Once again, the patient as a human being with worries, fears, hopes, and despairs, as an indivisible whole

and not merely the bearer of organs—of a diseased liver or stomach—is becoming the legitimate object of medical interest” (Alexander, 1950, p. 17).

What does it mean to be “healthy”? Question 1 from the quiz at the beginning of the book asks if health is merely the absence of disease. But is health more complex? Is health the presence of some positive condition rather than merely the absence of a negative one?

The **biomedical model** is the traditional view of Western medicine, which defines health as the absence of disease (Papas, Belar, & Rozensky, 2004). This view conceptualizes disease exclusively as a biological process that is an almost mechanistic result of exposure to a specific **pathogen**, a disease-causing organism. This view spurred the development of drugs and medical technology oriented toward removing the pathogens and curing disease. The focus is on disease, which is traceable to a specific agent. Removing the pathogen restores health.

The biomedical model of disease is compatible with infectious diseases that were the leading causes of death 100 years ago. Throughout the 20th century, adherence to the biomedical model allowed medicine to conquer or control many of the diseases that once ravaged humanity. However, when chronic illnesses began to replace infectious diseases as leading causes