

Sarafino • Smith • King • DeLongis

HEALTH PSYCHOLOGY

Biopsychosocial Interactions

Canadian Edition

2305513 2015/10/16 118.248.191.242



WILEY

HEALTH PSYCHOLOGY

Biopsychosocial Interactions

Canadian Edition

Edward P. Sarafino

The College of New Jersey

Timothy W. Smith

University of Utah

David B. King

University of British Columbia

Anita DeLongis

University of British Columbia

WILEY

Copyright © 2015 John Wiley & Sons Canada, Ltd.

All rights reserved. No part of this work covered by the copyrights herein may be reproduced or used in any form or by any means—graphic, electronic, or mechanical—without the prior written permission of the publisher.

Any request for photocopying, recording, taping, or inclusion in information storage and retrieval systems of any part of this book shall be directed in writing to The Canadian Copyright Licensing Agency (Access Copyright). For an Access Copyright Licence, visit www.accesscopyright.ca or toll-free, 1-800-893-5777.

Library and Archives Canada Cataloguing in Publication

Sarafino, Edward P., 1940-, author

Health psychology: biopsychosocial interactions/Edward

P. Sarafino, Timothy W. Smith, David King, Anita DeLongis.—Canadian edition.

Includes bibliographical references and index.

ISBN 978-1-118-99198-5 (paperback).—ISBN 978-1-119-04543-4 (loose-leaf)

I. Clinical health psychology. I. Smith, Timothy W., author II. King, David, 1981-, author III. DeLongis, Anita, 1957-, author IV. Title.

R726.7.S27 2015

616.89

2305513 2015/10/16 118.248.191.242

C2015-901694-0

Production Credits

VP and Director of Market Solutions: Veronica Visentin

Senior Marketing Manager: Patty Maher

Editorial Manager: Karen Staudinger

Developmental Editor: Daleara Jamasji Hirjikaka

Media Editor: Luisa Begani

Editorial Assistant: Maureen Lau

Production and Media Specialist: Meaghan MacDonald

Cover and Interior Design: Joanna Vieira

Typesetting: SPi Global

Printing & Binding: Courier Printing

Front cover photo: tjasam/Getty Images

Printed and bound in the United States of America

1 2 3 4 5 CC 19 18 17 16 15

WILEY

John Wiley & Sons Canada, Ltd.

5353 Dundas Street West, Suite 400

Toronto, ON, M9B 6H8 Canada

Visit our website at: www.wiley.ca

In memory of my mother and father. They gave me life, loved and nurtured me, and helped me be healthy.

—Edward P. Sarafino

For Paula, Wyatt, and Elliott.

—Timothy W. Smith

For my mom and grandma.

—David B. King

For Rachel.

—Anita DeLongis

ABOUT THE AUTHORS

Edward P. Sarafino received his Ph.D. from the University of Colorado and began his affiliation with the Department of Psychology at The College of New Jersey more than three decades ago. He is now Professor Emeritus there. His scholarship has combined areas of health, developmental, and behavioural psychology, particularly with regard to the study of asthma. In addition to having published dozens of research articles and chapters, he is the author of eight books. He is a Fellow of Division 38 (Health Psychology) of the American Psychological Association, served as an officer (Secretary) of that division, and has been a member of several committees of Division 38 and of the Society of Behavioral Medicine. When he is not working, he enjoys being with family and friends, travelling, hiking and other outdoor activities, and going to cultural events, especially music and visual arts.

Timothy W. Smith received his Ph.D. from the University of Kansas. After both a pre-doctoral internship in clinical psychology and a post-doctoral fellowship in behavioural medicine at the Brown University Medical School, he joined the faculty of the Department of Psychology at the University of Utah, where he has remained for 30 years. He has published over 200 articles and chapters, and three books, most in personality and social psychology, clinical psychology, and health psychology and behavioural medicine, particularly in the area of psychosocial issues in cardiovascular disease. He is a Fellow of Division 38 (Health Psychology) of the American Psychological Association and in the Society of Behavioral Medicine. He has served as President of Division 38, and of the Academy of Behavioral Medicine Research. He has also served as a member of the Behavioral Medicine Study Section of the U.S. National Institutes of Health (NIH), and as an associate editor or on the editorial boards of a variety of journals, including the *Journal of Consulting and Clinical Psychology*, *Health Psychology*, *Annals of Behavioral Medicine*, and the *American Psychologist*. His research has been supported by the National Institute on Aging and the National Heart, Lung, and Blood Institute of NIH, and has been recognized in awards from Division 38, the American Psychosomatic Society, and the Society of Behavioral Medicine. He has supervised the graduate studies of over 25 Ph.D. students in clinical and health psychology, including two past recipients of the American Psychological Association's award for early career contributions to health psychology. He enjoys skiing, backpacking, mountain biking, exercise, and spending time with family and friends.

David B. King received his Ph.D. from the University of British Columbia. His doctoral research was in the area of health psychology, and focused primarily on social factors in the daily stress experienced by Canadian paramedics and emergency medical workers. He is currently a post-doctoral research fellow at Simon Fraser University in British Columbia while lecturing on health psychology at UBC. His current research addresses how stress unfolds within social contexts of varying degree and complexity. Within dyadic and small-group contexts, he is interested in understanding how individuals cope with stress together and transmit stress across roles and settings. On the socio-cultural level, he describes how individuals cope with stress arising from disease outbreaks, pandemics, and other collective threats to health and well-being. Other interests include the long-term effects of trauma among health professionals and the application of relational-transactional models of stress and coping to clinical, professional, and "invisible" populations. One of David's primary goals is to develop a program of research that informs public health policy, both local and international. In his spare time, he enjoys writing, working out, and spending time in nature.

Anita DeLongis received her doctorate in psychology from the University of California at Berkeley. She completed a clinical internship in Behavioral Medicine through the University of California at San Francisco's Department of Family and Community Medicine, and a National Institute of Mental Health Postdoctoral Fellowship in the Institute for Social Research at the University of Michigan. She has been a professor at the University of British Columbia for more than 25 years, where she leads the program in health psychology. She is also a faculty associate in the UBC Faculty of Medicine's International Consortium on Repair Discoveries. She has served on numerous editorial boards, including *Health Psychology*, *Journal of Social and Personality Psychology*, *Journal of Personality*, *Personality and Social Psychology Review*, *American Journal of Community Psychology*, *Journal of Family Psychology*, *Canadian Psychology*, *Applied Psychology: Health and Well-Being*, and *Journal of Social and Personal Relationships*. She is a member elect of the Academy of Behavioral Medicine Research, a council member for the Western Psychological Association, and serves on the Canadian Institutes of Health Research peer review panel. She has over 100 publications, and is a recipient of the UBC Killam Faculty Research Prize. Her research has been funded by

vi About the Authors

the Social Science and Humanities Research Council of Canada, Canadian Institutes of Health Research, Canadian Foundation for AIDS Research, British Columbia Paraplegic Society, Rick Hansen Man in Motion Research Fund, BC Environment and Occupational Health Research Network, Peter Wall Institute for Advanced Studies, and the UBC Hampton Fund. She has supervised the graduate studies of over 25 students in clinical and health psychology, including a past recipient of the American Psychosomatic Society's Young Scholar Award and a Canada Research Chair in Health. Her work examines the interplay of stress

and social relationships. In her spare time, she enjoys time spent with her husband and daughter, travelling, and nature.

TO CONTACT THE AUTHORS

We would be pleased to receive comments and suggestions about this book from students and instructors so that we may consider those ideas for future editions. You may contact us at adelongis@psych.ubc.ca.

PREFACE

“The first wealth is health,” wrote the poet/philosopher Ralph Waldo Emerson in the nineteenth century. Although people have probably always valued good health, they are becoming increasingly health conscious. This heightened consciousness generally reflects two beliefs: that we can do things to protect our health and that being sick is unpleasant. As Emerson put it, “Sickness is poor-spirited, and cannot serve anyone.” Serious health problems can be quite distressing to a patient and his or her family and friends. These beliefs underlie psychologists’ interests in helping people behave in ways that promote wellness, adjust to health problems that develop, and participate effectively in treatment and rehabilitation programs.

The goal for this text has been to create a teaching instrument that draws from the research and theory of many disciplines to describe how psychology and health are interconnected. The resulting book is a comprehensive text that is appropriate for several courses, especially those entitled either Health Psychology or Behavioural Medicine. Two objectives were central regarding the likely audience in these courses. First, although we aimed to make the content appropriate for upper-division students, we wrote in a straightforward style to make the material accessible to most second-year students. The content assumes that the student has already completed an introductory psychology course. Second, we tried to make the material relevant and interesting to students from diverse disciplines—particularly psychology, of course, but also fields such as sociology, medicine, allied health, and health and physical education. Training in health psychology has developed rapidly and can play an important role in helping Canadian students from many disciplines understand the interplay of biological, psychological, and social factors in people’s health.

The field of health psychology is enormously exciting, partly because of its relevance to the lives of those who study it and individuals the students know or will work with in the future. The field is also exciting because it is so new, and researchers from many different disciplines are finding fascinating and important relationships between psychology and health every day. Keeping up to date in each area of such a complex field presents quite a challenge, which begins with culling from thousands of new abstracts, articles, and books to prepare for the current edition. Most of the more than 2,900 references this

edition cites were published within the last 10 years, and hundreds are new, published since the last edition of this book went to press.

NEW TO THE CANADIAN EDITION

This is the first Canadian edition of this book. This new edition retains the overall organization and the pedagogy that students and instructors have praised in the last American edition. It also retains the modular structure of Chapter 2, The Body’s Physical Systems, which allows instructors to choose to cover all of the systems at once (by assigning the whole chapter) or to distribute them to other chapters. For students using the distributed approach, appropriate subsequent chapters have salient notes that tell students when to read a specific module that is relevant to the current material. For example, a note to read Module 4 (The Respiratory System) appears early in Chapter 7 at the start of the discussion of smoking tobacco, and a note with the Key Terms list for that chapter reminds students to study Module 4. In addition, we have retained the interactive animations of physiological systems in the Student Companion Website and notes in the book that prompt students to use them. Each animation takes 5 to 10 minutes to review and is accessed at <http://www.wiley.com/go/sarafinocanada>.

Two features of the book were enhanced across chapters in the new edition. The most obvious enhancements are to:

- Cross-cultural data. To give students a broader picture of health psychology, we have found the latest available data on health and lifestyles and presented them concisely, typically in tables, primarily for 14 countries: Australia, Brazil, Canada, China, Germany, India, Italy, the Netherlands, Singapore, South Africa, Sweden, Turkey, the United Kingdom, and the United States. We wanted to include countries with large and small populations that represent a variety of geographical areas and diverse cultures.
- Canadian content. In order to make this edition more appropriate for Canadian readers, Canadian content was added and expanded upon throughout the book. This involved a great deal of attention to the unique characteristics of the Canadian health care system, special issues arising from Canadian culture, and key

Canadian research in the field. Although highlight boxes cover a range of topics, many have been added that focus on research findings and clinical work originating in Canada, offering students an invaluable perspective on the field of health psychology as it exists locally. However, it was not our goal to arbitrarily include Canadian content, but instead to cite important Canadian material alongside international research without which a complete understanding of the field would be difficult. This reflects our impression that the research community is increasingly international in its operation and collaboration, especially as on-line technologies continue to develop. Where appropriate, references to Canadian universities have been made in order to better frame the content for students.

Every chapter has been updated, and we substantially revised or expanded the coverage of the following topics to reflect a Canadian context and recent developments in the field:

- The Canadian health care system, its unique characteristics, and current challenges
- Comparisons between the Canadian health care system and other health care systems
- Health issues affecting marginalized groups in Canada, including Aboriginal and transgender youth
- Both historical and current social issues underlying the health disparities experienced by Canada's Aboriginal people (First Nations, Inuit, and Métis)
- Canadian stress intervention programs and their validation
- Psychosocial factors in the prevention and treatment of tobacco and alcohol use in Canada
- Current research on weight control, eating disorders, and exercise
- Pain conditions and treatment, with a focus on Canadian psychosocial models of pain
- Diabetes and arthritis conditions and psychosocial interventions
- Cardiovascular, cancer, and AIDS conditions and treatments
- Models of health promotion and health behaviour change in the context of infectious disease control
- Physician-assisted suicide and “death with dignity laws” in Canada
- Technological approaches for health promotion, including those using on-line and social media platforms

THEMES

A commonly stated goal in psychology is to understand the “whole person.” To approach this goal, this book adopts the biopsychosocial model as the basic explanatory theme.

We have tried to convey a sense that the components of this model interrelate in a dynamic and continuous fashion, consistent with the concept of systems. The psychological research cited reflects an eclectic orientation and supports a variety of behavioural, physiological, cognitive, and social–personality viewpoints. In addition, gender and socio-cultural differences in health and related behaviours are addressed at many points in the book. In these ways, this book presents a balanced view of health psychology that is squarely in the mainstream of current thinking in the field.

One additional theme makes this book unique. We have integrated a focus on lifespan development in health and illness throughout the book, and each chapter contains information dealing with development. For example, the book discusses how health and health-related behaviour change with age and describes health care issues and examples that pertain to pediatric and elderly patients. Sometimes this information is organized as a separate unit, as with the sections “Development and Health-Related Behaviour,” “When the Hospitalized Patient Is a Child,” “Assessing Pain in Children,” and “Alzheimer’s Disease.”

ORGANIZATION

This text examines the major topics and problem areas in health psychology by using an overall organization that progresses in main focus across chapters from primary, to secondary, to tertiary prevention and care. As the table of contents shows, the book is divided into 15 chapters in the following seven parts:

- Part I. Chapter 1 presents the history and focus of health psychology and introduces the major concepts and research methods used in the field. Chapter 2 describes the physical systems of the body in an engaging manner a reviewer called “a pleasant surprise.” This chapter is divided into six modules that instructors can assign in two ways—all together or distributed to later chapters—depending on how they organize the course. Instructors who cover the modules all together want to present the body systems as an integrated and basic topic that underlies all later topics. They also want students to have a single place to refer to if needed, such as when reading about the neural transmission of pain signals in Chapter 11. Instructors who distribute the modules want to introduce important physiological principles as they become relevant. Either approach works well.
- Part II. Chapters 3, 4, and 5 discuss stress, its relation to illness, and methods for coping with and reducing it. Some modules on body systems in Chapter 2 connect directly to discussions in Chapters 3 and 4, such as the sections entitled “Biological Aspects of Stress,” “Physiological Arousal,” “Stress, Physiology,

and Illness,” and “Psychoneuroimmunology.” This connection is one reason why stress is covered early in the book. A reviewer recognized a second reason and wrote: “The issue of stress permeates all of the other topics, and it would be useful to have the students read about this first.” Chapter 5 includes information on psychosocial methods in helping people cope better.

- Part III. The third part of the book examines issues involved in enhancing health and preventing illness. Chapters 6, 7, and 8 discuss how health-related behaviours develop and are maintained, can affect health, and can be changed via psychosocial and public health efforts. Chapter 7 gives special attention to the topics of tobacco, alcohol, and drug use, and Chapter 8 discusses nutrition, weight control, exercise, and safety. The role of stress in health behaviours and decision-making is considered in these chapters. The book up to this point focuses mainly on primary prevention.
- Part IV. In Chapter 9, the main focus shifts to secondary prevention by describing the kinds of health services that are available and considering why people use, do not use, and delay using these services. This chapter also examines patients’ relationships to practitioners and problems in adhering to medical regimens. Chapter 10 discusses the hospital setting and personnel, how people react to being hospitalized and cope with stressful medical procedures, and the role psychologists play in helping patients cope with their illnesses and medical treatments.
- Part V. Chapters 11 and 12 explore the physical and psychological nature of pain, ways to assess patients’ discomfort, the psychosocial impact of pain, and methods for managing and controlling pain.
- Part VI. The two chapters in this part of the book emphasize tertiary prevention. They examine different chronic health problems, their impact on patients and their families, and medical and psychosocial treatment approaches. The chapters separate illnesses based on mortality rates. Chapter 13 focuses on health conditions, such as diabetes and arthritis, that have either very low or moderate rates of mortality and may lead to other health problems or disability. In contrast, Chapter 14 examines four high mortality illnesses—heart disease, stroke, cancer, and AIDS—and people’s reactions to losing a loved one.
- Part VII. Chapter 15 discusses goals and issues for the future of health psychology.

OPTIONAL ORGANIZATION

Because some instructors might like some flexibility in the organization of chapters, Chapters 10 through 14 were written with this possibility in mind. Chapter 10, Part V, and Part VI are written as three independent units that

may be covered in any order. Two examples of alternate sequences that would work nicely after Chapter 9 are: (1) Part V, Part VI, and then Chapter 10; and (2) Part VI, Chapter 10, and then Part V.


LANGUAGE AND STYLE


The field of health psychology involves complex issues and technical information that require extra efforts to make the material readable and clear without sacrificing content. To accomplish this, we have limited the use of jargon in this book and have sought to write in a concrete and engaging fashion. The gradual progression of concepts, choice of words, and structure of each sentence were all designed to help students master and retain the material. When introducing new terms, we define them immediately. Many examples and case studies are included to clarify concepts and to bring them to life.


LEARNING AIDS

This book contains many pedagogical features. Each chapter begins with a contents list, giving students an overview of the progression of major topics and concepts. Then a prologue introduces the chapter with (1) a lively and engaging vignette that is relevant to the chapter material and (2) an overview of the basic ideas to be covered. The body of each chapter includes many figures, tables, and photographs to clarify concepts or research findings. For example, special figures were created to show how the immune system functions and how gate-control theory explains pain perception. Important terms are boldfaced, and italics are used liberally for other terms and for emphasis.

Throughout the book, three types of boxed material are presented to fit with the surrounding content. They are identified in the text with the corresponding icons:

 **Highlight.** This type of box focuses on high-interest and in-depth topics. Some of these topics are: careers relating to health and psychology, trans-generational trauma in First Nations people, health behaviours to protect against breast cancer, the effects of second-hand smoke, Canada’s supervised drug injection site, and the complex medical regimens for diabetes.

 **Assess Yourself.** This boxed feature has students actively examine their own health-related characteristics, such as their lifestyles, typical daily hassles, ways of coping with stress, knowledge about the transmission of HIV, and beliefs about alcohol use.

 **Clinical Methods and Issues.** The third type of boxed material focuses on methods and issues in application efforts in clinical health psychology, medicine, public health, and rehabilitation. We examine, for instance, cognitive and behavioural methods that

can help people reduce stress, stop smoking, and eat healthfully; biofeedback and relaxation techniques for treating asthma and some forms of paralysis; and procedures to prepare children for being hospitalized.

Each chapter ends with a substantial summary and a list of key terms. All these terms are redefined in the glossary at the back of the book.

ONLINE SUPPLEMENTS

Instructors who are using this text can access a companion website at wiley.com/go/sarafinocanada after registering and obtaining a password. It contains:

- An instructor's manual with information to help instructors organize and present the subject matter effectively and enrich the classroom experience through activities and discussion.
- A test bank, updated by the authors.
- PowerPoint slides, updated by the authors, with figures and tables from the text.
- Access to Custom Select, a custom-publishing program that provides a database of materials from which you can create your own custom course-pack of readings, journal articles, and research articles.

The book's companion website also includes features specifically for students, such as practice quizzes and more than a dozen interactive animations that show how physiological systems work, describe the effects of homeostatic imbalances on them, and present case studies of people with health problems and their diagnostic signs and symptoms.

WILEY PSYCHOLOGY WEEKLY UPDATES SITE

This site (<http://wileypsychologyupdates.ca>) features articles and videos to help keep learners up to date on the field of psychology and illustrates the real-world significance of psychology in everyday life. Discussion questions are provided to help guide an understanding of the article or video and to encourage class participation.

ACKNOWLEDGEMENTS

Writing this book and revising it have been enormous tasks. We are indebted first of all to the thousands of researchers whose important and creative work we have cited. There would be no health psychology without their work. We also received a great deal of direct help and encouragement from a number of people whose contributions we gratefully acknowledge.

Many thanks go to Juliane Dmyterko, whose assistance and hard work on the first Canadian edition of this

book were invaluable. Her eye for detail will be an asset to all of its readers.

Our thanks also go to the team at John Wiley & Sons Canada, Ltd., including Veronica Visentin, Vice-President and Director of Market Solutions, Patty Maher, Senior Marketing Manager, Deanna Durnford, Supplements Coordinator, Maureen Lau, Editorial Assistant, and Daleara Hirjikaka, Developmental Editor, who oversaw and guided the revision process for this edition. Thank you also to the editorial and production team, including copyeditor Laurel Hyatt, who made valuable suggestions, and proof reader Julie van Tol. Many thanks also to the supplement contributors including Susan Holtzman of the University of British Columbia.

The textbook review process generated many helpful suggestions that have made this a better book. The Canadian edition has benefited greatly from the excellent perspectives of the following colleagues:

Judith Andersen	University of Toronto
-----------------	-----------------------

Jody Bain	University of Victoria
-----------	------------------------

Theresa Bianco	Concordia University
----------------	----------------------

Nancy Digdon	MacEwan University
--------------	--------------------

Peter Doherty	St. Mary's University, Calgary
---------------	-----------------------------------

Deborah Flynn	Nipissing University
---------------	----------------------

Michael Foy	John Abbott College
-------------	---------------------

Mary Gick	Carleton University
-----------	---------------------

Eleni Hapidou	McMaster University
---------------	---------------------

Susan Holtzman	University of British Columbia
----------------	-----------------------------------

Christine Ann Lavoie	Vanier College
----------------------	----------------

Jennifer Mills	York University
----------------	-----------------

Kieran O'Doherty	University of Guelph
------------------	----------------------

Guy Pelletier	University of Calgary
---------------	-----------------------

Vaneeta Sandhu	Adler University
----------------	------------------

John Stephens	Wilfrid Laurier University
---------------	----------------------------

Erin Strahan	Wilfrid Laurier University
--------------	----------------------------

Very personal thanks go to the closest people in our lives—family, friends, and colleagues—for encouraging and supporting our efforts to complete this book and for tolerating our preoccupation.

David B. King
Anita DeLongis
March 2015

TO THE STUDENT

“I wish I could help my father stop smoking,” a health psychology student said at the start of the semester. Maybe she did help—he quit by the end of the course. This example points out two things that will probably make health psychology interesting to you: (1) the material is personally relevant and (2) many of the things you learn can actually be applied in your everyday life. Studying health psychology will also help you answer important questions you may have considered about health and psychology in the past. Does the mind affect our health—and if so, how? What effect does stress have on health and recovery from illness? What can be done to help people lead more healthful lives than they do? Why don’t patients follow their doctors’ advice, and what can health care workers do to help? What special needs do children have as patients, and how can parents and health care workers address these needs? How can families, friends, and health care workers help patients adjust to disabling or life-threatening health problems?

As these questions indicate, knowledge of health psychology can be relevant both now and later when you enter your future career. This is so whether you are studying to be a psychologist, medical social worker, nurse or physician, physical or occupational therapist, public health worker, or health educator. You will learn in this course that the relationship between the person’s health and psychology is a “two-way street”—each affects the other. Psychological factors go hand in hand with medical approaches in preventing and treating illness and in helping patients adjust to the health problems they develop.

THE BOOK AND WEBSITE

This book was designed for you, the reader. First and foremost, it provides a thorough and up-to-date presentation of the major issues, theories, concepts, and research in health psychology. Throughout the book, the major point of view is “biopsychosocial”—that is, that health and illness influence and result from the interplay of biological, psychological, and social aspects of people’s lives. Because integrating these aspects involves complex concepts and technical material, we have made special efforts to write in a straightforward, clear, and engaging fashion.

FEATURES OF THE BOOK


To help you master the material and remember it longer, the book includes the following learning aids:

- Chapter contents and Prologue. Each chapter begins with a contents list that outlines the major topics in the order in which they are covered. The prologue then introduces the chapter with a vignette that is relevant to the material ahead and gives an overview of the basic ideas you will read about.
- Illustrations. The many figures, tables, and photographs in each chapter are designed to clarify concepts and research findings and help them stick in your mind.
- Boxed material. Three types of boxed material are included in the chapters. Each type of box has a special icon that is used in “Go to . . .” instructions, prompting you to read the appropriate box at the right point in the text.
- Summary and Key Terms. Each chapter closes with two features: (1) the summary, which presents the most important ideas covered, and (2) the key terms—a list of the most important terms in the chapter.
- Glossary. The glossary at the back of the book gives definitions of important terms and concepts. It will be useful when you are studying or reading and are not sure of the exact meaning of a term.

THE WEBSITE

To enhance your learning experience, you can access this book’s companion website at www.wiley.com/go/sarafino-canada. This website contains links to websites of illness-related organizations and:

- A study guide, which contains multiple-choice items, separated by chapter. For each item, the approximate page number of the textbook where the topic was discussed is given. For Chapter 2, the items are separated also by modules, enabling easy use for students who are covering the entire chapter at once or are distributing the modules to other chapters. The software provides feedback, telling you how well you performed for each chapter and module and which items you missed.

- Interactive animations that will (1) help you learn how each physiological system of the body operates and (2) describe case studies of people with serious health problems. Announcements of the animations are given in the text with the relevant material, telling you that they are available and how to access them. When you use the website, click on Health Psychology Animations and Interactions and then on the title of the animation you want to review. The animations provide instructions—voice and written (which has the icon )—and a bar at the bottom of the screen to control the progress and sound. Each animation takes 5 to 10 minutes to do.

STUDY HINTS

There are many ways you can use the features of this book to learn and study well, and you may want to experiment to find the best way for you. We will describe one method that works well for many students.

Survey the chapter first. Read the contents list and browse through the chapter, examining the figures, tables, and photographs. Some students also find it useful to read the summary first, even though it contains terms they may not yet understand. Then read the prologue. As you begin each new section of the chapter, look at its title and turn

it into a question. Thus, the heading early in Chapter 1, “An Illness/Wellness Continuum,” might become “What is an illness/wellness continuum?” Doing this helps you focus on your reading. After reading the section, reflect on what you have just read. Can you answer the question you asked when you reworded the title?

When you have finished the body of the chapter, review what you have read by reading the summary and trying to define the items in the list of key terms. If there is something you do not understand, look it up in the chapter or glossary. Last, reread the chapter at least once, concentrating on the important concepts or ideas. You may find it helpful to underline or highlight selected material now that you have a good idea of what is important. If your exam will consist of “objective” questions, such as multiple choice, using this approach intensively should be effective. If your exam will have essay items, you will probably find it helpful to develop a list of likely questions and write an outline or a complete answer for each one.

We hope that you enjoy this book, that you learn a great deal from it, and that you will share our enthusiasm and fascination for health psychology by the time you finish the course.

David B. King
Anita DeLongis
March 2015

BRIEF CONTENTS

PART I An Introduction: Basic Issues and Processes 1

- Chapter 1* An Overview of Psychology and Health 1
Chapter 2 The Body's Physical Systems 28

PART II Stress, Illness, and Coping 53

- Chapter 3* Stress—Its Meaning, Impact, and Sources 53
Chapter 4 Stress, Biopsychosocial Factors, and Illness 77
Chapter 5 Coping with and Reducing Stress 104

PART III Lifestyles to Enhance Health and Prevent Illness 125

- Chapter 6* Health-Related Behaviour and Health Promotion 125
Chapter 7 Substance Use and Abuse 155
Chapter 8 Nutrition, Weight Control and Diet, Exercise, and Safety 185

PART IV Becoming Ill and Getting Medical Treatment 215

- Chapter 9* Using Health Services 215
Chapter 10 In the Hospital: The Setting, Procedures, and Effects on Patients 240

PART V Physical Symptoms: Pain and Discomfort 265

- Chapter 11* The Nature and Symptoms of Pain 265
Chapter 12 Managing and Controlling Clinical Pain 289

PART VI Chronic and Life-Threatening Health Problems 309

- Chapter 13* Serious and Disabling Chronic Illnesses: Causes, Management, and Coping 309
Chapter 14 Heart Disease, Stroke, Cancer, and AIDS: Causes, Management, and Coping 334

PART VII Looking to the Future 361

- Chapter 15* What's Ahead for Health Psychology? 361

CONTENTS

PART I An Introduction: Basic Issues and Processes 1

Chapter 1 An Overview of Psychology and Health 1

What Is Health? 2

An Illness/Wellness Continuum 2

Illness Today and in the Past 3

Viewpoints from History: Physiology, Disease Processes, and the Mind 5

Early Cultures 5

Ancient Greece and Rome 5

The Middle Ages 5

The Renaissance and After 6

Seeing a Need: Psychology's Role in Health 7


Problems in the Health Care System 7

"The Person" in Health and Illness 7

 *Assess Yourself:* What's Your Lifestyle Like? 8

How the Role of Psychology Emerged 9

Health Psychology: The Profession 11

 *Clinical Methods and Issues:* Behaviourism's Legacy: Progress in Health Psychology's Goals 11

Current Perspectives on Health and Illness 12

The Biopsychosocial Perspective 12

Lifespan and Gender Perspectives 14

Related Scientific Fields: Foundations and Connections for Health Psychology 15

Related Fields 15

Health and Psychology Across Cultures 16

 *Highlight:* Related Nonpsychology Careers 17

Research Methods 19

Experiments 20

Correlational Studies 21

Quasi-Experimental Studies 22

Genetics Research 24

Which Research Method Is Best? 26

Chapter 2 The Body's Physical Systems 28

Module 1: The Nervous System 29

How the Nervous System Works 29

The Central Nervous System 30

 *Clinical Methods and Issues:* Biofeedback Treatment for Paralysis 32

The Peripheral Nervous System 33

Module 2: The Endocrine System 35

The Endocrine and Nervous Systems Working Together 35

Adrenal Glands 36


Other Glands 36

 *Highlight:* Our Physiological Individuality 37

Module 3: The Digestive System 38

Food's Journey through Digestive Organs 38

Using Nutrients in Metabolism 40

 *Assess Yourself:* How Many Calories Do You Burn While Resting? 41

Module 4: The Respiratory System 41

The Respiratory Tract 41

Respiratory Function and Disorders 42

Module 5: The Cardiovascular System 43

The Heart and Blood Vessels 43

Blood Pressure 44

Blood Composition 45

Cardiovascular Disorders 46

Module 6: The Immune System 47

Antigens 47

The Organs of the Immune System 48

Soldiers of the Immune System 48

Defending the Body with an Immune Response 50

 *Highlight:* When Immune Functions Are Absent 50

Less-than-Optimal Defences 51

PART II Stress, Illness, and Coping 53

Chapter 3 Stress—Its Meaning, Impact, and Sources 53

Experiencing Stress in Our Lives 53

What Is Stress? 54

Appraising Events as Stressful 55


 *Clinical Methods and Issues:* Post-Traumatic Stress Disorder (PTSD) 56

Dimensions of Stress 57

Biopsychosocial Aspects of Stress 57

Biological Aspects of Stress 57

Psychosocial Aspects of Stress 60

 *Highlight:* Transgenerational Trauma in First Nations People 63


Sources of Stress throughout Life 64

Sources within the Person 64

Sources in the Family 65

Sources in the Community and Society 67

 *Highlight:* Can Work Stress "Spill Over" to the Home? 68

 *Highlight:* Does Environmental Stress Affect Reactivity to New Stressors? 70

Measuring Stress 70

Physiological Arousal 70

Life Events 71

Daily Hassles 73

Chronic Stressors in Specific Domains 73

Can Stress Be Good for You? 73


 *Assess Yourself: Hassles in Your Life* 74

Chapter 4 Stress, Biopsychosocial Factors, and Illness 77**Psychosocial Modifiers of Stress 78**

Social Support 78

 *Assess Yourself: How Much Emotional Support Do You Get?* 79

A Sense of Personal Control 83

 *Clinical Methods and Issues: Social Support, Therapy, and Cognitive Processes* 83

Personality as Resilience and Vulnerability 86


Type A Behaviour and Beyond 89

How Stress Affects Health 91

Stress, Behaviour, and Illness 92

Stress, Physiology, and Illness 92

Psychoneuroimmunology 94

 *Highlight: Stress and Wound Healing* 96

Psychophysiological Disorders 97

Digestive System Diseases 97

Asthma 97

Recurrent Headache 98

Other Disorders 98

Stress and Cardiovascular Disorders 99

Hypertension 99

Coronary Heart Disease 101

 *Highlight: Does Acculturation Increase Blood Pressure?* 101

Stress and Cancer 102**Chapter 5 Coping with and Reducing Stress 104****Coping with Stress 104**

What Is Coping? 105

Functions and Methods of Coping 105

 *Assess Yourself: Your Focuses in Coping* 105


Reducing the Potential for Stress 110

 *Highlight: Do Religiousness and Spirituality Reduce Stress and Enhance Health?* 110

Enhancing Social Support 111

Managing Interpersonal Problems 111

Improving One's Personal Control 112

 *Highlight: Coping with Stigma: Transgender Stress and Implications for Health* 112

Organizing One's World Better 113

Exercising: Links to Stress and Health 113

Preparing for Stressful Events 114


Reducing Stress Reactions: Stress Management 114

Medication 114

Behavioural and Cognitive Methods 115

Massage, Meditation, and Hypnosis 119

 *Clinical Methods and Issues: Treating Insomnia* 119

 *Highlight: Stress Reduction through Education: The DeStress for Success Program* 121


Using Stress Management to Reduce Coronary Risk 122

Modifying Type A Behaviour 122

Treating Hypertension 123

PART III Lifestyles to Enhance Health and Prevent Illness 125**Chapter 6 Health-Related Behaviour and Health Promotion 125****Health and Behaviour 125**

Lifestyles, Risk Factors, and Health 126

 *Highlight: Which Health Behaviours Are Beneficial against Breast Cancer?* 128


Interdisciplinary Perspectives on Preventing Illness 129

Problems in Promoting Wellness 130

What Determines People's Health-Related Behaviour? 131

General Factors in Health-Related Behaviour 131

The Role of Beliefs and Intentions 133

 *Highlight: Is Raising Perceived Threat Enough During an Outbreak?* 135

The Role of Less Rational Processes 138

Developmental, Gender, and Socio-cultural Factors in Health 139

Development and Health 140

Gender and Health 142

Socio-cultural Factors and Health 142

Programs for Health Promotion 144

Methods for Promoting Health 144

 *Clinical Methods and Issues: Dialogues to Help People Stop Smoking* 146

Worksite and Community-Based Wellness Programs 148

Electronic Interventions for Health Promotion 149

Prevention with Specific Targets: Focusing on HIV/AIDS 149

 *Assess Yourself: Your Knowledge about HIV/AIDS* 151

Chapter 7 Substance Use and Abuse 155**Substance Abuse 155**

Addiction and Dependence 155

Processes Leading to Dependence 156


Smoking Tobacco 158

Who Smokes, and How Much? 158

Why People Smoke 159

 *Highlight: Applying the Stages of Change Model to Smoking Susceptibility and Uptake* 160


Smoking and Health 162

 *Highlight: Does Someone Else's Smoking Affect Your Health?* 164

Alcohol Use and Abuse 165


 *Assess Yourself: What's True about Drinking?* 165

Who Drinks, and How Much? 166

 *Assess Yourself: Do You Abuse Alcohol?* 168

Why People Use and Abuse Alcohol 168

Drinking and Health 169

 *Highlight: Drinking—Games People Play* 169

Drug Use and Abuse 170

 *Highlight: Types and Effects of Drugs* 170

Who Uses Drugs, and Why? 171

Drug Use and Health 172


Reducing Substance Use and Abuse 172


Preventing Substance Use 173

 *Highlight:* Insite: Canada's Supervised Drug Injection Site 173

Quitting a Substance without Therapy 175

Treatment Methods to Stop Substance Use and Abuse 177

 *Highlight:* Where Should Treatment Occur, and What Should Be the Goals and Criteria for Success? 177

 *Clinical Methods and Issues:* Behavioural Methods for Treating Substance Abuse 179

Dealing with the Relapse Problem 181

Chapter 8 Nutrition, Weight Control and Diet, Exercise, and Safety 185**Nutrition 185**

Components of Food 185

What People Eat 187

Nutrition and Health 188

Weight Control and Diet 191


Desirable and Undesirable Weights 191

Becoming Overweight 193

 *Highlight:* Do Intestinal Bacteria Contribute to Obesity? 195

Dieting and Treatments to Lose Weight 198

 *Highlight:* Which "Carbs" to Avoid 198

 *Clinical Methods and Issues:* Problem-Solving Training to Control Weight 200

Eating Disorders 202

Exercise 204

The Health Effects of Physical Activity 204

 *Highlight:* Types and Amounts of Healthful Exercise 205

Who Gets Enough Exercise, Who Does Not—and Why? 207

Reasons for Not Exercising 208

 *Assess Yourself:* Do You Get Enough Exercise? 208

Promoting Exercise Behaviour 209

Safety 210

Accidents 210

Environmental Hazards 212

PART IV Becoming Ill and Getting Medical Treatment 215**Chapter 9 Using Health Services 215****Types of Health Services 215**

Specialized Functions of Practitioners 216

Office-Based and In-Patient Treatment 216

The Canadian Health Care System 216

Health Care Systems In Other Countries 217

Perceiving and Interpreting Symptoms 218

Perceiving Symptoms 218

 *Highlight:* Understanding the Placebo Effect 219

 *Highlight:* Symptoms by Suggestion? 221

Interpreting and Responding to Symptoms 221

Using and Misusing Health Services 222

Who Uses Health Services? 223

Why People Use, Don't Use, and Delay Using Health Services 224

Using Complementary and Alternative Medicine 226

Problematic Health Service Usage 227


The Patient–Practitioner Relationship 228

Patient Preferences for Participation in Medical Care 228

The Practitioner's Behaviour and Style 228

 *Highlight:* Fighting for Your Life 229

The Patient's Behaviour and Style 230

 *Assess Yourself:* Do You Know the Meanings of Medical Terms? 231


Compliance: Adhering to Medical Advice 232

Extent of the Nonadherence Problem 232

Why Patients Do and Do Not Adhere to Medical Advice 233

Patient–Practitioner Interactions 235

Increasing Patient Adherence 236

 *Clinical Methods and Issues:* Simple Methods to Promote Adherence 237

Focusing on Prevention 238**Chapter 10 In the Hospital: The Setting, Procedures, and Effects on Patients 240****The Hospital—Its History, Setting, and Procedures 241**

How the Hospital Evolved 241

The Organization and Functioning of Hospitals 241

Roles, Goals, and Communication 242

 *Assess Yourself:* Who's Who in Physician Care 242

The Impact of the "Bottom Line" 243

Being Hospitalized 244

Relations with the Hospital Staff 244

Sick-Role Behaviour in the Hospital 245


Emotional Adjustment in the Hospital 246

Coping Processes in Hospital Patients 246

Preparing Patients for Stressful Medical Procedures 248

 *Highlight:* Lamaze Training as a Method of Psychological Preparation for a Medical Procedure 250

When the Hospitalized Patient Is a Child 251

 *Clinical Methods and Issues:* Preparing Children for Impending Hospitalization 253

How Health Psychologists Assist Hospitalized Patients 254

Initial Steps in Helping 255

Tests for Psychological Assessment of Medical Patients 255

Promoting Patients' Health and Adjustment 256


When the Illness Is Terminal 257

The Patient's Age 257


Psychosocial Adjustment to Terminal Illness 258

Medical and Psychological Care of Dying Patients 259

 *Assess Yourself:* Your Living Will Choices 260

 *Highlight:* Finding Dignity in Death: The Right to Die in Canada 261

A Place to Die—Hospital, Home, or Hospice? 262

 *Clinical Methods and Issues:* Saying Goodbye 262

PART V Physical Symptoms: Pain and Discomfort 265**Chapter 11 The Nature and Symptoms of Pain 265****What Is Pain? 266**

The Qualities and Dimensions of Pain 266

 *Highlight:* Acute Pain in Burn Patients 268

Perceiving Pain 268

Theories of Pain 270

Early Theories of Pain 271

 *Highlight: Inducing Pain in Laboratory Research* 271

The Gate-Control Theory of Pain 272

Biopsychosocial Aspects of Pain 274

Neurochemical Transmission and Inhibition of Pain 274

Personal and Social Experiences and Pain 275

 *Highlight: Placebos and Pain* 276

Emotions, Coping Processes, and Pain 278

 *Clinical Methods and Issues: Canadian Contributions: Psychosocial Perspectives on Pain* 279

Assessing People's Pain 281

Self-Report Methods 281

 *Assess Yourself: Describing Your Pain* 283

Behavioural Assessment Approaches 284

Psychophysiological Measures 285

Pain in Children 286

Pain and Children's Sensory and Cognitive Development 286

Assessing Pain in Children 286

Chapter 12 Managing and Controlling Clinical Pain 289

Clinical Pain 290

Acute Clinical Pain 290

Chronic Clinical Pain 290

Medical Treatments for Pain 291

Surgical Methods for Treating Pain 292


Chemical Methods for Treating Pain 292

 *Highlight: Types of Pain-Relieving Chemicals* 293

Behavioural and Cognitive Methods for Treating Pain 295

The Operant Approach 295

Fear Reduction, Relaxation, and Biofeedback 296

 *Clinical Methods and Issues: Guiding a Client to Pain Redefinition* 300

Hypnosis and Interpersonal Therapy 301

Hypnosis as a Treatment for Pain 301

 *Assess Yourself: Would Behavioural or Cognitive Methods Help Your Pain?* 302

Interpersonal Therapy for Pain 302

Physical and Stimulation Therapies for Pain 303

Stimulation Therapies 303

Physical Therapy 304

Pain Clinics 305

Multidisciplinary Programs 305

 *Highlight: Physical Activity and Back Pain* 306

Evaluating the Success of Pain Clinics 307

Part VI Chronic and Life-Threatening Health Problems 309

Chapter 13 Serious and Disabling Chronic Illnesses: Causes, Management, and Coping 309

Adjusting to a Chronic Illness 310

Initial Reactions to Having a Chronic Condition 310

Influences on Coping with a Health Crisis 310

The Coping Process 312

Impacts of Different Chronic Conditions 313

Asthma 314

Epilepsy 316

 *Highlight: What to Do for a Seizure* 316

Nervous System Injuries 317

Diabetes 319

 *Assess Yourself: Do You Have Diabetes?* 320

 *Highlight: Self-Managing Diabetes* 322

Arthritis 324

Alzheimer's Disease 327

Psychosocial Interventions for People with Chronic Conditions 329

Educational, Social Support, and Behavioural Methods 329

Relaxation and Biofeedback 331

Cognitive Methods 331

 *Clinical Methods and Issues: Treating Asthma with Biofeedback and Relaxation* 331

Interpersonal and Family Therapy 332

Collaborative or Integrated Care Approaches 332

Chapter 14 Heart Disease, Stroke, Cancer, and AIDS: Causes, Management, and Coping 334


Coping with and Adapting to High-Mortality Illness 335

Adapting While the Prospects Seem Good 335

Adapting in a Recurrence or Relapse 336

Heart Disease 336

Who Is at Risk of Heart Disease, and Why? 337

 *Highlight: Anatomy of a Heart Attack* 338

 *Assess Yourself: Are You at Risk for Heart Disease?* 338

Medical Treatment and Rehabilitation of Cardiac Patients 339

The Psychosocial Impact of Heart Disease 341

Psychosocial Interventions for Heart Disease 342

Stroke 343

Causes, Effects, and Rehabilitation of Stroke 343

Psychosocial Aspects of Stroke 345

 *Clinical Methods and Issues: Stroke Rehabilitation for Visual Neglect* 345

Cancer 346

The Prevalence and Types of Cancer 346

The Sites, Effects, and Causes of Cancer 347

Diagnosing and Treating Cancer 349

The Psychosocial Impact of Cancer 351

Psychosocial Interventions for Cancer 353

Childhood Cancer 354

 *Highlight: Can Psychosocial Interventions Improve Cancer Survival?* 354

HIV/AIDS 355

Risk Factors, Effects, and Treatment of HIV/AIDS 355

The Psychosocial Impact of HIV/AIDS 357

Psychosocial Interventions for HIV/AIDS 357

The Survivors: And Life Goes On 358

Physical and Psychosocial Impact 358

Psychosocial Interventions for Bereavement 359


Reaching a Positive Adaptation 359

PART VII Looking to the Future 361

Chapter 15 What's Ahead for Health Psychology? 361

Goals for Health Psychology 361

- Enhancing Illness Prevention and Treatment 361
- Improving Efforts for Helping Patients Cope 363
- Identifying Evidence-Based Interventions and Cost–Benefit Ratios 363
- Expanding Psychologists' Roles in Medical Settings 364


 *Clinical Methods and Issues:* Psychologists in the Primary Care Team 365

Careers and Training in Health Psychology 366

- Career Opportunities 366
- Training Programs 366

Issues and Controversies for the Future 366

- Environment, Health, and Psychology 367
- Quality of Life 367

 *Highlight:* The Growing Role of Climate Change in Human Health 368

- Ethical Issues in Health Care 369
- Expanding Definitions of Health 369

Future Focuses in Health Psychology 369

 *Assess Yourself:* Some Ethical Dilemmas: What Do You Think? 370

- Lifespan Health and Illness 370
- Socio-cultural Factors In Health 372
- Gender Differences and Women's Health Issues 373

Factors Affecting Health Psychology's Future 373

Glossary 375

References 381

Author Index 473

Subject Index 493

1

AN OVERVIEW OF PSYCHOLOGY AND HEALTH

What Is Health?

An Illness/Wellness Continuum
Illness Today and in the Past

Viewpoints from History: Physiology, Disease Processes, and the Mind

Early Cultures
Ancient Greece and Rome
The Middle Ages
The Renaissance and After

Seeing a Need: Psychology's Role in Health

Problems in the Health Care System
"The Person" in Health and Illness
How the Role of Psychology Emerged
Health Psychology: The Profession

Current Perspectives on Health and Illness

The Biopsychosocial Perspective
Lifespan and Gender Perspectives

Related Scientific Fields: Foundations and Connections for Health Psychology

Related Fields
Health and Psychology Across Cultures

Research Methods

Experiments
Correlational Studies
Quasi-Experimental Studies
Genetics Research
Which Research Method Is Best?

PROLOGUE

"I suppose I should feel lucky, but mostly I just feel really lousy," Alec said from his bed in the intensive care unit the day after open-heart surgery. "We're all lucky, but things in our lives need to change," replied Maia, his worried and exhausted wife, grateful that she still had a husband and

their two university-age girls still had a father. It was a close call.

In the prior few weeks, Alec had noticed he was more tired than usual, became short of breath during exertion, and had odd sensations that felt like indigestion. He first thought that his demanding job managing an electronics store was getting to him, making for long days, too little sleep, and too much fast food at the mall where he worked. He decided his symptoms were temporary; "I just need a vacation," he thought. But at home two days ago, Maia noticed he was perspiring excessively and complaining of nausea and pain in his left shoulder, so she insisted that he go to the hospital. Alec was lucky. Thanks to his wife, he got treatment before his heart suffered much damage. He would be in the hospital for a few more days, and then sent home to a life changed in ways he was only beginning to grasp.

Maia was right about their lives changing. To avoid further heart trouble in the future, Alec would have to adhere faithfully to a medical regimen that included several daily medications and some major lifestyle changes. He would need to watch his diet, get regular exercise for the first time in many years, and reduce the stress he felt at work. Maia knew that Alec's father had died of a heart attack at a young age, and hoped that these changes would help limit any susceptibility to heart disease Alec may have inherited. She also knew she would have to help him stick with his lifestyle changes, but felt they were essential for Alec and could also be good for her and for their girls if they made them as well.

This story about Alec and his family illustrates important issues related to health. For instance, our dietary and activity habits can contribute to serious illnesses. Current health care can save lives, but people undergo complex decisions about whether or not they need care and whether to follow medical advice when they get it. Making the correct decisions can be a matter of life and death. Furthermore, people's everyday stress can

influence their health, and developing a health problem can become a major source of stress. Health problems affect the patients and their families, and their interrelationships can promote the health of all of them. In this book, we will examine the relationships between health and a variety of biological, psychological, and social factors in people's lives.

This chapter introduces the relatively new and exciting field of study called *health psychology*. We look at its scope, its history, its research methods, and how it draws on and supports other sciences. As we study these topics, you will begin to see how health psychologists would answer such questions as: *Does the mind affect our health? What role does the cultural background of individuals play in their health? Does the age of a person affect how he or she deals with issues of health and illness?* But first let's begin with a definition of health.

WHAT IS HEALTH?

You know what health is, don't you? How would you define it? You would probably mention something about health being a state of feeling well and not being sick. We commonly think about health in terms of an absence of (1) objective *signs* that the body is not functioning properly, such as measured high blood pressure, or (2) subjective *symptoms* of disease or injury, such as pain or nausea (Kazarian & Evans, 2001; MedlinePlus, 2012). Dictionaries define health in this way, too. But there is a problem with this definition of health. Let's see why.

AN ILLNESS/WELLNESS CONTINUUM

Consider Alec, in the opening story. Before he noticed growing fatigue and other vague symptoms, was he

healthy? Even though he had no outward signs of the serious illness he was about to suffer, his diet was poor, and he got far too little exercise. In fact, his heart disease had begun many years before, progressing with no obvious signs or symptoms. What about someone who feels fine but whose lungs are being damaged from smoking cigarettes? These are all signs of improper body functioning. Are people with these signs healthy? We would probably say they are not "sick"—they are just *less healthy* than they would be without the unhealthful conditions.

This means that health and sickness are not entirely separate concepts—they overlap. There are degrees of wellness and of illness. Medical sociologist Aaron Antonovsky (1979, 1987) has suggested that we consider these concepts as ends of a continuum, noting that "We are all terminal cases. And we all are, so long as there is a breath of life in us, in some measure healthy" (1987, p. 3). He also proposed that we revise our focus, giving more attention to what enables people to stay well than to what causes people to become ill. Figure 1-1 presents a diagram of an **illness/wellness continuum**, with *death* at one end and *optimal wellness* at the other.

The World Health Organization (WHO) has formally defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1946). In line with this perspective, we will use the term **health** to mean a positive state of physical, mental, and social well-being—not simply the absence of injury or disease—that varies over time along a continuum. At the wellness end of the continuum, health is the dominant state. At the other end of the continuum, the dominant state is illness or injury, in which destructive processes produce characteristic signs, symptoms, or disabilities.

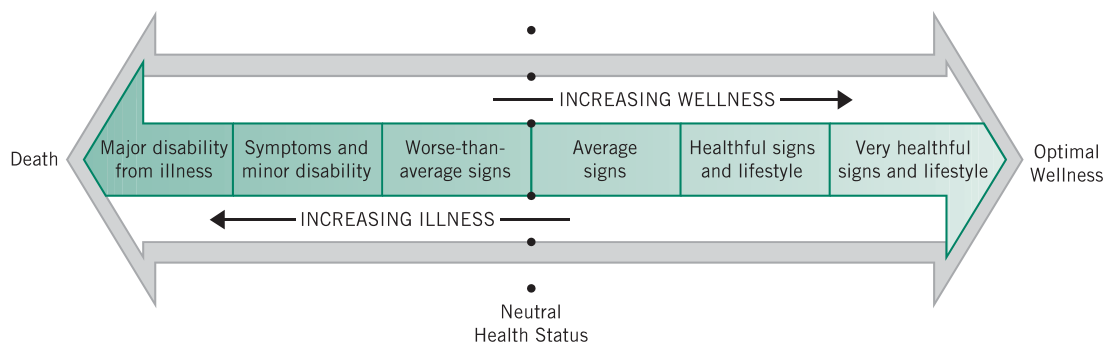


Figure 1-1 An illness/wellness continuum to represent people's differing health statuses. Starting at the centre (neutral level) of the diagram, a person's health status is shown as progressively worse to the left and progressively healthful as it moves to the right. The segments in the central band describe dominant features that usually characterize different health statuses, based on the person's *physical condition*—that is, his or her signs (such as blood pressure), symptoms, and disability—and *lifestyle*, such as his or her amount of regular exercise, cholesterol consumption, and cigarette smoking. Medical treatment typically begins at a health status to the left of the neutral level and intensifies as the physical condition worsens. Medical treatment can bring the person's health status back to the mid-range of the continuum, but healthful lifestyles can help, too. Increasing wellness beyond the mid-range can be achieved through lifestyle improvements. (Based on information in Antonovsky, 1987; Bradley, 1993; Ryan & Travis, 1981.)

ILLNESS TODAY AND IN THE PAST

People in Canada and other developed, industrialized nations live longer on average than they did in the past, and they suffer from a different pattern of illnesses. During the seventeenth, eighteenth, and nineteenth centuries, people in North America mainly suffered and died from two types of illness: dietary and infectious (Grob, 1983). *Dietary diseases* result from malnutrition—for example, beriberi is caused by a lack of vitamin B₁ and is characterized by anemia, paralysis, and wasting away. **Infectious diseases** are acute illnesses caused by harmful matter or micro-organisms, such as bacteria or viruses, in the body. In much of the world today, infectious diseases continue to be a main cause of death. Specifically, in lower income or developing countries, lower respiratory infections such as pneumonia and tuberculosis, diarrheal diseases, and HIV/AIDS are among the leading causes of death (WHO, 2014a).

A good example of the way illness patterns have changed in developed nations can be drawn from the history of diseases in Canada. From the colonial days through the eighteenth and nineteenth centuries, early settlers to Canada experienced periodic epidemics of many infectious diseases, especially smallpox, cholera, diphtheria, measles, and influenza. It was not unusual for hundreds, and sometimes thousands, of people to die in a single epidemic, with children being particularly hard hit. Most, if not all, of these infectious diseases did not exist in North America before European settlers arrived—the settlers brought the diseases with them—and the death toll among Aboriginal communities skyrocketed. Some Aboriginal groups, like the Beothuk of Newfoundland and the Sadlermiut Inuit of Southampton Island in Hudson Bay, were completely eradicated as a result of these diseases (Historica Canada, 2013). This high death rate occurred for

two reasons. First, the native populations had never been exposed to these new micro-organisms, and thus lacked the natural immunity that our bodies develop after lengthy exposure to most diseases (Grob, 1983). Second, their immune functions were likely limited by a low degree of genetic variation among these people (Black, 1992).

Aboriginal and native communities across North America were severely affected by the introduction of new infectious diseases from Europe, experiencing famine, social unrest, and population depletion that had lasting effects on subsequent generations. This was made worse by the unhealthy living conditions of many early reserves and settlements. Over time, resistance to disease was lowered further by malnutrition resulting from a loss of traditional food supplies (Historica Canada, 2013). This is an example of how culture can play an important role in our health. We will revisit this issue later in the book.

In the nineteenth century, infectious diseases were still the greatest threat to the health of Canada's early settlers. The illnesses of the colonial era continued to claim many lives. Montreal experienced a smallpox epidemic in 1885 that resulted in nearly 20,000 cases and up to 6,000 deaths. This epidemic was so severe that it led to the formation of Quebec's provincial public health act and board of health in 1887, while Ontario established the first health laboratory in North America in 1890. In some parts of the country, the Hudson's Bay Company served as a makeshift public health agency into the early nineteenth century (Canadian Public Health Association, 2010). New diseases had also emerged, the worst of which was tuberculosis, or "consumption" as it was often called. In 1867, at the time of Confederation, tuberculosis was the greatest cause of death in Canada. Data collected from Montreal and Toronto in 1880 indicated approximately 200 deaths from tuberculosis for every 100,000 individuals (Canadian



Courtesy of Bettman/Corbis Images

Epidemics of deadly infectious diseases have occurred throughout the world. Before the twentieth century, there were no effective methods for prevention or treatment of the plague, for instance, which is the disease illustrated in this engraving.

Lung Association, 2014). But by the end of the nineteenth century, deaths from infectious diseases began to decrease sharply throughout North America. For instance, the death rate from tuberculosis declined by about 60% around the turn of the century.

Did this decrease result primarily from advances in medical treatment? We might be inclined to believe this given that some vaccinations were developed very early on. In response to the 1885 smallpox epidemic in Montreal, for instance, municipal authorities attempted to mandate vaccination for all citizens, an effort that was initially met with public suspicion and resistance. Outbreaks of smallpox continued to claim lives well into the twentieth century, but only among those who were unvaccinated. The disease was finally eradicated in 1979 by a vaccination campaign led by the World Health Organization (Historica Canada, 2013). Although such medical advances and global health initiatives were important, the decline in deaths related to infectious diseases began before effective vaccines and medications were introduced. This was the case for most of the major diseases we've discussed, including tuberculosis, diphtheria, measles, and influenza (Clark, 1990; Leventhal, Prohaska, & Hirschman, 1985). It appears that the decline resulted chiefly from *preventive* measures such as improved personal hygiene, greater resistance to diseases (owing to better nutrition), and public health innovations, such as building water purification and sewage treatment facilities (Clark, 1990; Historica Canada, 2013). Many people had become concerned about their health and began to heed the advice of health reformers like William Alcott, an American advocate of moderation in diet and sexual behaviour (Leventhal, Prohaska, & Hirschman, 1985). Fewer deaths occurred from infectious diseases because fewer people contracted them. In 1896, the University of Toronto established a Department of Hygiene dedicated to empirical research on the topic. Shortly thereafter, the Department of the Interior and of Indian Affairs appointed a medical officer to oversee the health of Aboriginal communities across Canada (Canadian Public Health Association, 2010). These steps further reinforced the changing health attitudes and behaviours of the Canadian population.

The twentieth century witnessed great changes in the patterns of illness afflicting Canadians. At the end of World War I, 50% of all deaths had been caused by infectious diseases like influenza. Following the war, the proportion of deaths due to infection fell dramatically, replaced by increasing deaths from chronic illnesses like heart disease and cancer (Ostry, 2006). In a short span of time, average life expectancy in Canada increased considerably. For example, in 1921, life expectancy at birth was 59 years for men and 61 years for women (Statistics Canada, 2010); today life expectancy in Canada is approximately 80 years for men and 84 years for women (WHO, 2012). A similar trend has been observed in other developed and industrialized countries. In the United States, average life expectancy has increased

from 48 years at the turn of the century (USDHHS, 1987) to 78 years in 2012 (USBC, 2012). Today the death rate for North American children is much lower, and only a small difference exists in the expected total life span for newborns and 20-year-olds. Despite improvements in life expectancy in Canada and around the world, it is important to consider that not all of those years will necessarily be spent free of disease and illness. It is estimated that the average Canadian will spend approximately 70 of 80 years in good health (Statistics Canada, 2010). Life expectancy also varies according to a number of factors, including region and ethnicity; in Canada, life expectancy at birth is lower in the Territories compared with British Columbia, while Registered Indians (those who have legal status as "Indians" with the Government of Canada) have a lower life expectancy compared with the rest of the population (Employment and Social Development Canada, 2009). We will revisit the role of these socio-cultural variables later in the book.

Death is still inevitable, of course, but people die at later ages now and from different causes than in the past. The main health problems and causes of death in Canada and other developed countries today are **chronic diseases**—that is, degenerative illnesses, such as heart disease, cancer, and stroke—that develop or persist over a long period of time. As a result, more Canadians are dying in hospitals rather than in their homes like they did in the past. Worldwide, chronic illnesses now account for more than half of all deaths (WHO, 2014a). These diseases are not new, but they were responsible for a much smaller proportion of deaths before the twentieth century. Why? One reason is that people's lives are different today. For example, more people today survive to old age, and chronic diseases are more likely to afflict older than younger individuals. Thus, a major reason for the current prominence of chronic diseases is that more people are living to the age when they are at high risk for contracting them. In addition, the growth of industrialization increased people's stress and exposure to harmful chemicals. Trends show that chronic diseases are increasing rapidly in low-income or developing nations of the world: in the next few decades, deaths due to infectious diseases other than HIV/AIDS are expected to decrease, and deaths from cardiovascular disease; tobacco-related chronic disease; and chronic diseases related to obesity, such as diabetes, are likely to rise (Mathers & Loncar, 2006).

Are the main causes of death in childhood and adolescence different from those in adulthood? Yes. In Canada, for example, the leading cause of death in children and adolescents, by far, is not an illness, but accidental injury (Statistics Canada, 2011). In the age range from 1 to 24 years, about 35% of deaths result from accidents, frequently involving automobiles. In this age group, the next four most frequent causes of death are homicide, suicide, cancer, and cardiovascular diseases. All

five of these causes of death are far more common among 15- to 24-year-olds than for younger ages. Clearly, the role of disease in death differs greatly at different points in the lifespan.

VIEWPOINTS FROM HISTORY: PHYSIOLOGY, DISEASE PROCESSES, AND THE MIND

Is illness a purely physical condition? Does a person's mind play a role in becoming ill and getting well? People have wondered about these questions for thousands of years, and the answers they have arrived at have changed over time.

EARLY CULTURES

Although we do not know for certain, it appears that the best-educated people thousands of years ago believed physical and mental illness were caused by mystical forces, such as evil spirits (Benyamini, 2011). Why do we think this? Researchers found ancient skulls in several areas of the world with coin-size circular holes in them that could not have been battle wounds. These holes were probably made with sharp stone tools in a procedure called *trephination*. This procedure was done presumably for superstitious reasons—for instance, to allow illness-causing demons to

leave the head. Because there are no written records from those times, we can only speculate about the reasons for the holes.

ANCIENT GREECE AND ROME

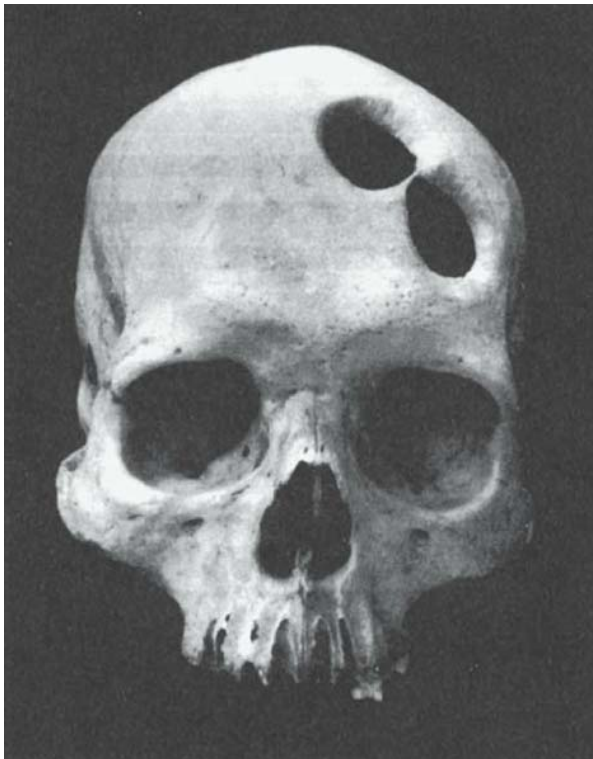
The philosophers of ancient Greece produced the earliest written ideas about physiology, disease processes, and the mind between 500 and 300 BCE. Hippocrates, often called “the Father of Medicine,” proposed a *humoral theory* of illness. According to this theory, the body contains four fluids called *humours*. (In biology, the term *humour* refers to any plant or animal fluid.) When the mixture of these humours is harmonious, or balanced, we are in a state of health. Disease occurs when the mixture is faulty (Friedman & Adler, 2011; Stone, 1979). Hippocrates recommended eating a good diet and avoiding excesses to help achieve humoral balance.

Greek philosophers, especially Plato, were among the first to propose that the mind and the body are separate entities (Marx & Hillix, 1963; Schneider & Tarshis, 1975). The mind was considered to have little or no relationship to the body and its state of health. This remained the dominant view of writers and philosophers for more than a thousand years. Today, the body and mind are separate concepts: The *body* refers to our physical being, including our skin, muscles, bones, heart, and brain; the *mind* refers to an abstract process that includes our thoughts, perceptions, and feelings. Although we can separate the mind and body conceptually, an important issue is whether they function independently. The question of their relationship is called the **mind/body problem**.

Galen was a famous and highly respected physician and writer of the second century CE who was born in Greece and practised in Rome. Although he believed generally in the humoral theory and the mind/body split, he made many innovations (Friedman & Adler, 2011). For example, he “dissected animals of many species (but probably never a human), and made important discoveries about the brain, circulatory system, and kidneys” (Stone, 1979, p. 4). From this work, he became aware that illnesses can be localized, with pathology in specific parts of the body, and that different diseases have different effects. Galen's ideas became widely accepted.

THE MIDDLE AGES

After the collapse of the Roman Empire in the fifth century CE, much of the Western world was in disarray. The advancement of knowledge and culture slowed sharply in Europe and remained stunted during the Middle Ages, which lasted almost a thousand years. The influence of the Church in slowing the development of medical knowledge during the Middle Ages was



Courtesy of John Verano, National Museum of Natural History; Courtesy Smithsonian Institution

A skull with holes probably produced by trephination. This person probably survived several of these procedures.

enormous. According to historians, the Church regarded the human being

“as a creature with a soul, possessed of a free will which set him apart from ordinary natural laws, subject only to his own willfulness and perhaps the will of God. Such a creature, being free-willed, could not be an object of scientific investigation. Even the body of man was regarded as sacrosanct, and dissection was dangerous for the dissector. These strictures against observation hindered the development of anatomy and medicine for centuries.” (Marx & Hillix, 1963, p. 24)

The prohibition against dissection extended to animals as well, as they were thought to have souls, too.

People’s ideas about the cause of illness took on pronounced religious overtones, and the belief in demons became strong again (Sarason & Sarason, 1984). Sickness was seen as God’s punishment for doing evil things. As a result, the Church came to control the practice of medicine, and priests became increasingly involved in treating the ill, often by torturing the body to drive out evil spirits.

It was not until the thirteenth century that new ideas about the mind/body problem began to emerge. The Italian philosopher St. Thomas Aquinas rejected the view that the mind and body are separate and saw them as interrelated (Leahey, 1987). Although his position did not have as great an impact as others had had, it renewed interest in the issue and influenced later philosophers.

THE RENAISSANCE AND AFTER

The word *renaissance* means rebirth—a fitting name for the fourteenth and fifteenth centuries. During this period in history, Europe saw a rebirth of inquiry, culture, and politics. Scholars became more “human-centred” than “God-centred” in their search for truth and “believed that truth can be seen in many ways, from many individual perspectives” (Leahey, 1987, p. 80). These ideas set the stage for important changes in philosophy once the scientific revolution began after 1600.

The seventeenth-century French philosopher and mathematician Rene Descartes probably had the greatest influence on scientific thought of any philosopher in history (Schneider & Tarshis, 1975). Like the Greeks, he regarded the mind and body as separate entities, but he introduced three important innovations. First, he conceived of the body as a machine and described the mechanics of how action and sensation occurred. For example, Figure 1-2 shows his concept of how we experience pain. Second, he proposed that the mind and body, although separate, could *communicate* through the pineal gland, an organ in the brain (Leahey, 1987). Third, he believed that animals have no soul and that the soul in humans leaves the body at death (Marx & Hillix, 1963). This belief meant



Figure 1-2 Descartes’ concept of the pain pathway. Descartes used this drawing to illustrate the mechanisms by which people experience and respond to pain: The heat of the fire (at A) sends tiny particles to the foot (B) that pull on a thread (C) that courses from the foot to the head. This action opens a pore (d e), releasing spirits from a cavity (F) that travel to the parts of the body that respond (e.g., the leg moves away). From R. Melzack and P. Wall (1965). “Pain Mechanisms: A New Theory.” *Science*, 150: 971–979. Reprinted with permission from AAAS.

that dissection could be an acceptable method of study—a point the Church was now ready to concede (Engel, 1977).

In the eighteenth and nineteenth centuries, knowledge in science and medicine grew quickly, helped greatly by improvements in the microscope and the use of dissection in autopsies. Once scientists learned the basics of how the body functioned and discovered that micro-organisms cause certain diseases, they rejected the humoral theory of illness and proposed new theories. The field of surgery flourished after antiseptic techniques and anaesthesia were introduced in the mid-nineteenth century (Stone, 1979). Before then, hospitals were “notorious places, more likely to spread diseases than cure them” (Easterbrook, 1987, p. 42). Over time, the reputation of physicians and hospitals began to improve and people’s trust in the ability of doctors to heal increased.

These advances, coupled with the continuing belief that the mind and body are separate, laid the foundation for a new approach, or “model,” for conceptualizing health and illness. This approach—called the **biomedical model**—proposes that all diseases or physical disorders

can be explained by disturbances in physiological processes, which result from injury, biochemical imbalances, bacterial or viral infection, and the like (Engel, 1977; Suls, Luger, & Martin, 2010). The biomedical model assumes that disease is an affliction of the body and is separate from the psychological and social processes of the mind. This viewpoint became widely accepted during the nineteenth and twentieth centuries and still represents the dominant view in medicine today.

Yet, during this formative period of the biomedical approach, some physicians took the view that the mind could influence health. For instance, Sir William Osler had this late nineteenth-century view of heart disease:

“In the worry and strain of modern life, arterial degeneration is not only very common, but occurs often at a relatively early age. For this the high pressure at which men live, and the habit of working the machine to its maximum capacity, are responsible, rather than excesses in eating and drinking.” (Osler, 1897, pp. 153–154)

Although we might disagree with Osler about the role of diet and alcohol intake in heart disease, we'll see later that his view of the role of stress and related aspects of everyday life on the heart has validity; this view has become a focus of modern medical research.

SEEING A NEED: PSYCHOLOGY'S ROLE IN HEALTH

The biomedical model has been very useful, guiding researchers to make enormous achievements. They conquered many infectious diseases, such as polio and measles, through the development of vaccines. They also developed antibiotics, which made it possible to cure illnesses caused by bacterial infection. Despite these great advances, the biomedical model needs improvement. Let's see why.


PROBLEMS IN THE HEALTH CARE SYSTEM

Scarcely a week goes by when we don't hear, through the mass media, that health care costs are rising rapidly, particularly for prescription drugs and for hospital and nursing home care. Countries worldwide have been facing escalating costs in health care. In Canada, total health costs increased from 8.8% to 11.4% of gross domestic product (GDP) between 2000 and 2010 alone (WHO, 2014a). Similar trends have been occurring in Europe and other developed nations. In the United States, health-related costs have increased at a particularly alarming rate, from about 13% of GDP in 2000 to nearly 18% in 2010 (WHO, 2014a). Because of such rising health care costs, new approaches for improving people's health are needed.

An additional point of consideration is the structure of the health care system itself. Canada's publicly funded health system is based on the principle of equal access to care at no cost to the individual. This encourages more frequent use of health services by a larger number of people, supporting a healthy Canadian population. Despite its advantages over a privatized, pay-per-use system, rising health care costs can result in added burden on taxpayers, a concern that was noted by many Americans in the passing of the U.S. Affordable Care Act in 2010 (also known as “Obamacare”). Later in this book, we'll take a closer look at how the structure and organization of the health care system can influence how people use health services.

We've seen that the patterns of illness affecting people have changed, particularly in developed nations, where the main health problems now are chronic rather than acute diseases. Consider cancer, for example. Although a great deal of progress is being made in understanding the causes of cancers, improvements in techniques for treating them have been modest: gains in cancer survival rates from the 1950s to the 1980s, for instance, resulted more from earlier detection of the disease than from improved treatments (Boffey, 1987). Indeed, the biomedical model is limited in its ability to treat chronic illnesses. Although detection occurs earlier today partly because diagnostic methods have improved, another explanation is that *people* have changed. Many individuals are more aware of signs and symptoms of illness, more motivated to take care of their health, and better able to afford visits to physicians than they were in the past. These factors are clearly important and relate to psychological and social aspects of the person. But *the person* as a unique individual is not factored into the biomedical model (Engel, 1977, 1980).

“THE PERSON” IN HEALTH AND ILLNESS

Have you ever known someone who always seems to be sick? Some people appear to get illnesses more frequently than others and take longer to get well. Although these differences between people can result from biomedical sources, such as variations in physiological processes and exposure to harmful micro-organisms, psychological and social factors also play a role. Let's look briefly at two of these factors: the lifestyle and personality of the person. (Go to —as described in the Preface, this instruction prompts you to read the nearby boxed material that has the same icon.)

Lifestyle and Illness

Earlier we saw that the occurrence of infectious diseases declined in some nations in the late nineteenth century chiefly because of preventive measures, such as improved nutrition and personal hygiene. These measures involved changing people's *lifestyles*—their everyday patterns of behaviour, such as in washing, preparing, and eating healthful foods. Changes in people's lifestyles can also reduce chronic illnesses. Let's see how.



ASSESS YOURSELF

What's Your Lifestyle Like?

At various points in this book, you'll find brief self-assessment surveys like this one that you should try to fill out as accurately as you can. These surveys relate to the nearby content of the chapter, and most of them can be completed in less than a minute or two.

This survey assesses seven aspects of your *usual* lifestyle. For each of the listed practices, put a check mark in the preceding space if it describes your usual situation.

_____ I sleep 7 or 8 hours a day.

_____ I eat breakfast almost every day.

_____ I rarely eat between meals.

_____ I am at or near the appropriate weight for my height (see Table 8.3 in Chapter 8).

_____ I never smoke cigarettes.

_____ I drink alcohol rarely or moderately.

_____ I regularly get vigorous physical activity.

Count the check marks—six or seven is quite good. The more of these situations that describe your lifestyle now and in the future, the better your health is likely to be, particularly after the age of 50.

Characteristics or conditions that are associated with the development of a disease or injury are called **risk factors** for that health problem. Although some risk factors are *biological*, such as having inherited certain genes, others are *behavioural*. For example, it is well known that people who smoke cigarettes face a much higher risk of developing cancer and other illnesses than non-smokers do. Other risk factors for cancer include eating an unhealthy diet and having a family history of the disease. People who “do more” or “have more” of these characteristics or conditions are more likely to contract cancer than people who “do less” or “have less” of these factors. Keep in mind that a risk factor is *associated* with a health problem—it does not necessarily *cause* the problem. For example, being a member of an Aboriginal or First Nations group in Canada is a risk factor for type 2 diabetes (Health Canada, 2011), but that status does not cause the disease—at least, not directly.

Many risk factors result from the way people live or behave, such as smoking cigarettes and eating unhealthful diets. Some behavioural risk factors associated with the five leading causes of death in Canada are:

1. *Cancer*—smoking, high alcohol consumption, and obesity.
2. *Heart disease*—smoking, high blood pressure, high dietary cholesterol, obesity, and lack of exercise.
3. *Stroke*—smoking, high blood pressure, high dietary cholesterol, and lack of exercise.
4. *Chronic obstructive pulmonary disease* (COPD) (chronic lung diseases, e.g., emphysema)—smoking.
5. *Accidents* (including motor vehicle)—alcohol/drug use and not using seat belts. (Sources: Public Health Agency of Canada, 2009, 2011a, 2013a, 2014; Statistics Canada, 2011, 2013; Road Safety Canada Consulting, 2011)

Many of the people who are the victims of these illnesses and accidents live for at least a short while

and either recover or eventually succumb. Part of today's high medical costs result from people's lifestyles that contribute to their health problems. Society, not the individual, often bears the burden of medical costs through public and private health insurance programs.

How influential are lifestyle factors on health? Researchers studied this question by surveying nearly 7,000 adults who ranged in age from about 20 to over 75, asking them two sets of questions. One set asked about the health of these people over the previous 12 months—for instance, whether illness had prevented them from working for a long time, forced them to cut down on other activities, or reduced their energy level. The second set of questions asked about seven aspects of their lifestyles: sleeping, eating breakfast, eating between meals, maintaining an appropriate weight, smoking cigarettes, drinking alcohol, and getting physical activity. The questions you answered previously are similar to those in this research. When the researchers compared the data for people in different age groups, they found that at each age health was typically better as the number of healthful practices increased. In fact, the health of those who “reported following all seven good health practices was consistently about the same as those 30 years younger who followed few or none of these practices” (Belloc & Breslow, 1972, p. 419). And these health practices were also important in the future health of these people. Breslow (1983) has described later studies of the same people, conducted to find out which of them had died in the 9½ years after the original survey. The data revealed that the percentage dying generally decreased with increases in the number of healthful behaviours practised, and this impact was greater for older than younger people, especially among males. These findings suggest that people's practising of healthful behaviours can reduce their risk of illness and early death substantially.