

one *section one*

Theory in Context

In this section we provide an introduction to ecological thinking, the role of health behavior in health promotion and public health, and the history and contemporary perspectives on theories of motivation and behavior.

one chapter one

Health Behavior in the Context of Public Health

An ounce of prevention is worth a pound of cure.



—Henry de Bracton

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PRECIS

Public health is generally more concerned with the health of populations rather than of individuals and with prevention rather than with treatment. **Health promotion** is the core public health function for improving behavior and health. Developing successful health promotion programs requires a firm understanding of the cognitive, social, and environmental reasons people behave the way they do regarding their own and others' behavior and health. Behavior theory is a central tool in health promotion practice and research and selecting and applying appropriate theoretical frameworks are the key competences of public health professionals.

In this chapter, we describe the role of health promotion in public health and emphasize the multilevel orientation of health promotion. We emphasize the importance of behavior to health and describe the role of theory in health promotion research and practice to understand and change health behavioral and environmental factors.

OBJECTIVES

The discerning reader of this chapter will be able to

1. Describe concepts of disease and health.
2. Describe the dimensions of health and ways of measuring them on a population basis.

3. Describe the functions of public health and explain how these functions serve the goals of prevention.
4. Describe the basic relationship between health behavior and health.
5. Describe the interactive relationship between health behavior and the environment.
6. Distinguish personal health (or lifestyle) behavior from health-related and health protective behavior.
7. Provide examples of personal health behavior.
8. Provide examples of health-related behavior.
9. Provide examples of health protective behavior.
10. Describe the role of health promotion in public health.
11. Describe health promotion processes.
12. Explain what multilevel means with respect to influences on health and behavior.
13. Explain why health promotion programs often include multiple components.
14. Identify three important ways theory is useful in health promotion research and practice.

DIMENSIONS OF HEALTH

Health is a highly valued quality, particularly when it has been compromised. Recall how miserable you felt the last time you had the flu, or ask someone suffering from a major health problem about the importance of good health. Without health, the great wonder of life and its many challenges and rewards pale. Health is central to our existence and so valued that we routinely greet our family, friends, and colleagues with a question about their health, “How are you?” and genuinely hope that the honest answer is, “Fine.” While each of us knows when we are feeling well and when we are not well, health is a rather complicated concept with multiple dimensions.

According to the World Health Organization, health is not merely the absence of disease or infirmity but consists of a state of complete physical, mental, and social well-being (WHO, 1986). This lofty definition sets the standards rather high, as few of us have actually experienced a complete state of well-being. Nevertheless, the definition introduces the idea that health has several dimensions. We tend to think mainly about the physical aspects of health, but health also includes mental and social dimensions. The interactive nature of the physical, mental, and social dimensions of health are illustrated in **Figure 1-1**. Problems in one dimension of health can lead to problems in another dimension. For example, obesity

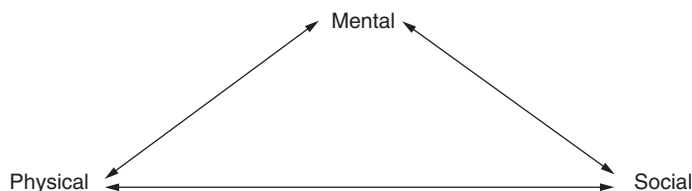


Figure 1-1 The inter-relationship of physical, mental, and social health.

and depression, chronic pain and drug abuse, and mental illness and homelessness are commonly associated. Conversely, problems in one area can be better overcome when the other dimensions are strong.

Another perspective on health was provided by the WHO (1999, p. 3) when it described health as the “extent to which an individual or group is able, on the one hand, to realize aspirations and satisfy needs; and, on the other hand, to change or cope with the environment.” This definition suggests that health may be more a resource for everyday life than an objective of living.

Disease Causation

Before we discuss the dimensions of health, it may be useful to remember that, until relatively recently, there was only a limited understanding about what caused ill health. Two centuries ago, it was thought that then-rampant contagious diseases were caused by divine punishment, imprudent behavior, or bad smelling environments (Tesh & Turnock, 2009). However, by the end of the nineteenth century, it was understood that germs were responsible for spreading contagious disease, and this new understanding eventually led to advances in bacteriology and medicine and ultimately to reductions in contagious diseases. Germ theory, the idea that disease is caused by microorganisms invisible to the naked eye, led to the identification of specific germs and development of treatments that could counter their effects. With the understanding that exposure to germs could occur through water, air, or personal contact, it became clear that such exposures could be reduced through sanitation and personal hygiene.

As important as germ theory has been to the improving health, its limitations in explaining and controlling many modern health problems are widely acknowledged. Indeed, germ theory does not explain injury, cancer, stroke, diabetes, COPD (chronic obstructive pulmonary disease), or heart disease, which are the leading causes of death in the United States and in most of the developed world. Moreover, not everyone exposed to microorganisms, viruses, or other pathogenic agents gets sick; therefore, germ theory is not a complete explanation of disease. Although germ theory remains relevant and important, it may be more generally useful to think about disease in terms of the interactions among host, agent, and environment.

In the host–agent–environment model of disease, the host is the individual or population at risk of becoming ill, the agent is a pathogen (such as a germ) or stressor, and the environment brings the agent and host into contact. The common cold serves as a classic example. People tend to get sick when they are exposed to the cold virus, a germ that is typically transferred from person to person. The environment contains the agent and provides conditions for acute or chronic exposure. People who are not exposed to the virus cannot become infected, but not everyone exposed to the virus actually becomes sick. Thus, we have to think about hosts as varying in susceptibility to disease when exposed to a cold virus or other germ. A host may be more or less susceptible because of a variety of causes, including past experience, health status, or genetics.

This conceptualization works reasonably well to explain the spread of most infectious diseases, and it also provides a partial explanation for injury and chronic disease.

Indeed, a version of the theory has been adapted specifically to explain injury cause (Haddon, 1999). The Haddon matrix, as it is called, explains injuries due to motor vehicle crashes as follows: (1) the agent would be another vehicle or roadside barrier (or after a crash the secondary impact of the unrestrained passenger tossed against objects within the vehicle or in the worse case thrown from the vehicle); (2) the host is the vehicle occupant who is susceptible to injury in a crash, particularly when not protected by a seat belt and air bag; and (3) the environment, including vehicle speed and position, road conditions, and traffic, provides the opportunity and context for the host to come into contact with the agent.

The host–agent–environment conceptualization also works well for chronic diseases, particularly if we appreciate that there are often many causal agents, each of which is only partially responsible.

The host–agent–environment conceptualization also works well for chronic diseases, particularly if we appreciate that there are often many causal agents, each of which is only partially responsible. These partial causes are now known as risk factors, which are “partial—i.e., not sufficient, not always necessary, but nevertheless contributing—component causes” (Krieger, 2008, p. 223). Even genetic causes of disease are often best understood within the con-

text of risk factors. While there are certain maladies caused by a single gene or allele, such as sickle cell anemia, mostly genes contribute to one’s susceptibility, but do not by themselves cause disease. For example, a particular gene marker has been identified that increases susceptibility to lung cancer. Smokers with this gene are much more likely than smokers without this gene to develop lung cancer, but of course, smokers without the gene are more likely to get lung cancer than nonsmokers with or without the gene (Chanock & Hunter, 2008). In this case, genotype can be a risk or protective factor that interacts with the environment and personal health behavior.

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The web of causality, as described eloquently by Glass and McAtee (2006), provides a more sophisticated conceptualization of chronic disease that recognizes physical and social factors. The considerable societal variability in exposure to health-damaging environments, both social and physical, helps explain inequities in patterns of disease due to socioeconomic status, sex, and race. That is, the less privileged tend to suffer greater cumulative exposure, leading to

greater susceptibility to disease. The web of causality and other modern ecosocial perspectives link proximal and distal, biological, and social influences in a comprehensive explanation of health and disease that attempts to understand, account for, and address the powerful influence on health and disease of social inequities. These important concepts are addressed in further detail in **Chapter 2**.

Measuring Health

At the individual level, one may think of being well or being sick, of being relatively better or relatively worse than usual. However, population health is generally measured by statistics that describe the prevalence rate of health problems. **Prevalence rates** are often expressed

Table 1-1 Common Health Indices

<i>Index</i>	<i>Definition</i>
Mortality Incidence	No. of deaths in a population within a prescribed time period
Crude Mortality Rate	No. of deaths/year/1000 population
Cause-Specific Mortality Rate	No. of deaths/specific cause/100,000 population
Life Expectancy	Average no. of years of life remaining
Infant Mortality Rate	No. of infants (0–1 years)/year/1000 live births
Longevity	Average length of life
Morbidity	Measure of disease incidence or prevalence in a given population
Disease Incidence Rate	No. of new cases/specific disease/year/1000 population at risk
Disease Prevalence Rate	No. of existing cases/specific disease/years/1000 population

as the number of cases per 100,000 people. Prevalence rates are useful for assessing health status, allowing comparisons over time and between various population groups. One of the more reliable and prominent measures of national health status reports the rate and causes of specific disease (morbidity) and death (mortality) according to age, sex, region, and race. See **Table 1-1** for definitions of important population measures of health and disease: life expectancy, longevity, mortality, morbidity, and potential years of life lost.

Physical Well-Being

Physical well-being is universally valued. At the population level, physical health is usually measured by the prevalence of illness, disease, injury, and disability. Major threats to physical health have changed over the years. The leading causes of death are shown in **Table 1-2** for 1900 and 2007 (Centers for Disease Control and Prevention, 2007; nchspressroom.wordpress.com/2007/07/06/historical-leading-causes-of-death; *Healthy People 2010*). Notably, there has been a dramatic shift in the causes of death in the United States over the past 100 years. In the early 20th century, Americans were likely to die of infectious diseases such as tuberculosis and diarrhea, while today, Americans mainly die of injury and chronic diseases such as heart disease, cancer, and stroke.

This major shift in causes of death from infectious to chronic diseases has been referred to as the **epidemiologic transition** (Omran, 2005). Not only was there a shift in the major causes of death, but also there were dramatic increases in (1) population size (due in part to a decline in the number of people dying from infectious diseases) and (2) the average age of the population, because fewer young people died of infectious diseases and more people survived into older ages. This aging of the population due to the decline in infectious diseases helped explain why chronic diseases are the leading causes of death in the United States and in other developed countries.

To provide just a simple indication of the extent of the decline in mortality that has occurred in the past 150 years, it is worth noting that the infant mortality rate in the

Table 1-2 Ten Leading Causes of Death as a Percentage of All Deaths—United States, 1900 and 2007

Number	Year	
	1900	2007
1	Pneumonia	Heart disease
2	Tuberculosis	Cancer
3	Diarrhea and enteritis	Stroke
4	Heart disease	Chronic respiratory disease
5	Stroke	Injuries
6	Liver disease	Alzheimer's disease
7	Injuries	Diabetes
8	Cancer	Influenza and pneumonia
9	Senility	Nephritis
10	Diphtheria	Septicemia

Source: Xu, J., Kochanek, K. D., Murphy, S. L., & Tejada-Vera, B. (2010). Deaths: Final Data for 2007. *National Vital Statistics Reports*, 58(19), 1–135.

1870s in the United States occasionally exceeded 250 deaths for each 1000 live births; today, the infant mortality rate is 6.7 per 1000 live births (World Bank, World Development Indicators, 2008). Because people today are less likely to die young because of infectious diseases, they tend to die at relatively advanced ages of chronic disease. The older you are, the more likely you are to develop one or more chronic diseases, such as cardiovascular disease and cancer.

Although some controversy exists about how and why the epidemiologic transition occurred, better medical treatment was only part of the explanation. Most researchers attribute most of the decline in infectious diseases and increases in longevity to a combination of improvements in nutrition and living conditions, such as improvements in sanitation, water supply, food quality, and hygiene. Indeed, most declines in infectious disease mortality occurred long before effective vaccines and antibiotics were developed (McKinlay & McKinlay, 2009).

However, it is not just the control of infectious diseases and subsequent aging of the population that has made chronic diseases so prominent. The modern style of living typified by high-fat diets, low levels of physical activity, high levels of stress, and perhaps other factors, is partly responsible for increasing the relative importance of chronic diseases (Mokdad, Marks, Stroup, & Gerberding, 2000). Chronic disease is responsible for an estimated 70% of deaths and 75% of healthcare costs in the United States (Centers for Disease Control and Prevention, 2007), and the prevalence and costs are rapidly rising in other developed and developing nations (Mathers & Loncar, 2006).

Mental Health

The previous discussion of the causes of health and disease is applicable to mental as well as physical health. Mental health has not always been fully recognized as a health problem with causes and solutions, but today in modern Western societies, mental health is much better recognized and understood than in the past. While some people appear to be susceptible to certain mental health problems due to genetics, many mental health problems are the product of physiologic and environmental processes, much like physical health problems (U.S. Surgeon General, 1999, p. 49). Notably, the homeless, the disenfranchised, the impoverished, victims of violence, and substance abusers are at particularly high risk for mental health problems, illustrating the importance of environmental factors in mental health and illness.

Mental health problems are among the most prevalent and costly of all health problems in the United States (Soni, 2009). Because standard diagnostic criteria were established only in the past few decades, statistics on the prevalence of mental health problems were not available until recently, making it impossible to compare current with past prevalence. We simply do not know whether mental health problems are more common today than in the past. Mental illnesses are diagnosed by mental health professionals using various measurement methods, including self-reports, interviews, and observations. The goal is to determine an individual's inner feelings and ability to function within conventional society. The most common mental health problems are anxiety, depression, and other mood, eating, and stress-related disorders. Many of these mental health problems are transient and resolve over time, particularly when treated, but can sometimes be sustained and progressive. Serious psychological problems, including major anxiety, major depression, bipolar disorders, and dementia, are less prevalent but more debilitating.

Mental health problems are not only unpleasant and debilitating but also are risk factors for other problems, such as job loss, relationship difficulties, suicide, drug dependency, and other self-destructive behaviors (Kessler et al., 2008). During a typical year, about 25% of Americans are estimated to experience a mental health problem severe enough to cause functional impairment, making mental disorders the leading cause of disability in North America/Canada for ages 15–44 years (www.nimh.nih.gov/health/topics/statistics; U.S. Surgeon General, 1999). Fortunately, many mental health problems can now be identified and treated with success. There is a growing recognition of the importance of prevention in mental health. According to the World Health Organization (2005, p. 2), “. . . activities to promote mental health involve the creation of individual, social and environmental conditions that improve the quality of life and narrow the gap in health expectancy between countries and population groups.”

Social Health

Humans are social creatures. People organize into couples, families, neighborhoods, and communities. A certain level of social interaction may be important for sustained mental health. Clearly, having good social relationships with family and friends and getting along with others at work, at school, and in the community indicate social health and

are associated with a range of health outcomes (Cohen, 2004). In *Bowling Alone* (2000), Robert Putnam, argues that Americans are much less connected with others in their communities than they once were, and participation in formerly prominent social structures such as parent, religious, civic groups, and political parties, have disintegrated. At the same time, people all over the world can be connected with one another through social networking sites such as Facebook and MySpace, and most Americans have cell phones and Internet access. There appears to be rapid change in the practical definition of community and it appears that in some ways, community is being rediscovered in new forms.

There appears to be rapid change in the practical definition of community.

It has been argued that the extent of one's social capital (i.e., connections within and between social networks) is a good measure of social health. Of course, it is not exactly clear just how social any particular person should be, and many well-adapted and socially productive individuals spend little time with others. However, those who get along poorly in social contexts or who are isolated and unable to connect with others are at elevated risk for a range of problems, including substance use, mental illness, and violence (Cohen, 2004).

While it is not clear what makes for good social health or how social people should be, good population-based measures of social problems are available. Social health may actually be easier to measure at the group level than at the individual level. For example, statistics on crime, poverty and joblessness, marriage and family dissolution, child abandonment, homelessness, and access to health care are among the many ways the public's social health can be assessed statistically. These social statistics are highly associated with physical and mental health statistics (Berkman & Kawachi, 2000). Increasingly, social capital is associated with health outcomes (Fukuyama, 2002; Kawachi, Subramanian, & Kim, 2008). Well-organized communities that provide ample social services, have good air and water quality, include abundant open spaces, and offer good transportation are desirable places to live and are healthier in many ways than other communities (Frumkin & Frank, 2004). People who have a supportive social network are better able to deal with health problems than those without such support (Simons-Morton, Haynie, & Noelke, 2009). Therefore, social health is important at both an individual and a community level.

Health and Well-Being

Health is a complicated phenomenon, and health status may vary across physical, mental, and social dimensions. Indeed, these dimensions are highly interactive. A person may be relatively well physically, but not so well mentally; however, problems in one dimension often carry over into the other dimensions. Being sick physically is stressful mentally, and both mental and physical health problems can be moderated socially. Lack of social capital can exacerbate physical and mental health problems. Mental health problems often contribute to physical and social health problems. While it is useful to understand that there are several dimensions of health, it is just as important to appreciate how closely they are related.

Healthy Communities

The health status of a population is measured by **population statistics** on a variety of outcomes, for example, morbidity and mortality, access to health care, environmental quality and resources, rates of crime, homelessness, and employment. These statistics can measure the health of a community and can be used to assess health status, plan programs, and evaluate trends. However, it is important not to lose sight that these statistics reflect the health problems of actual people. Moreover, statistics do not tell us everything we might want to know about health. Buchanan (2000) reminds us that health promotion should be concerned not only about specific dimensions of health but also about quality of life, and Kreiger (2008) reminds us that health is due to ecological interactions of multiple factors.

The past decade has witnessed a resurgence of interest in what makes for a healthy and healthful community. The Healthy Cities movement, first developed in the mid-1980s, is a major WHO initiative, particularly advanced in Europe (<http://www.euro.who.int/Healthy-cities>). The WHO Healthy Cities program seeks to improve the social, economic, and environmental qualities of cities by engaging local governments in a process of political commitment, institutional change, capacity building, partnership-based planning, and innovative projects. The program promotes comprehensive and systematic policy and planning focusing on health inequalities, poverty, vulnerable groups, and participatory governance. Many U.S. cities have embraced Healthy Cities concepts and established efforts to integrate the concepts into urban planning (www.cdc.gov/Healthy-CommunitiesProgram). The topic has received some attention from academics in a variety of disciplines (Frumkin & Frank, 2004; Coburn, 2009). However, given the complexity of modern cities, the disparate missions of planning and health units, and taxation and funding practices, at present the movement in the United States remains somewhat diffused, despite the obvious appeal. The health of cities provides an important concluding topic in our discussion of health because it emphasizes complex social units. The health of the cities and towns in which we live is an important measure of the health of the residents. Individual health cannot and should not be disassociated from the health of our communities. Indeed, since the goal of public health is to improve the conditions for population health, community health is a public health goal as well as a measure of health.

PUBLIC HEALTH

Public health is primarily concerned with health at the population level. This is distinct from medicine, which is primarily concerned with health of the individual patient. Of course, public health and medicine intersect around issues of access, coverage, and quality. Historically, a major function of public health has been to provide medical services to the uninsured and to provide certain special health services deemed vital to population health, such as immunizations. Public health is the provider of last resort; it can be thought of as “the practice of medicine on a population basis.” In the modern age, however, the primary function of public health is prevention. The landmark Institute of Medicine report characterized the mission of public health as fulfilling society’s interest in assuring conditions in which people can be healthy (Institute of Medicine, 2002, p. 4–6).

The report underscored the importance of social, economic, political, and medical care factors that affect health. The report identified the core services of public health to include

In the United States, public health is the primary institution and profession concerned with safety and healthfulness of public water supplies, air, food, and means of transportation.

(1) assessment of health status, (2) policy development, and (3) assurance of healthful living conditions. In the United States, public health is the primary institution and profession concerned with safety and healthfulness of public water supplies, air, food, and means of transportation. It has a long history of concern about preventing disease and injury, reducing the incidence and severity of these problems, preventing

recurrence, and moderating the effects of health problems. A list of essential public health services is provided in **Table 1-3** (Turnock, 2009; Scutchfield, Keck, & Mays, 2009). Note how prominent prevention is in this list of public health functions.

Public health has a rather glorious, if poorly appreciated history. Consider the role that public health has played in the dramatic change over the past century in major causes

Table 1-3 Essential Public Health Services

Assessment

1. Monitor health status to identify community health problems.
2. Diagnose and investigate health problems and health hazards in the community.

Health Education and Promotion

3. Inform, educate, and promote the health of the population (health education and health promotion).
4. Mobilize community partnerships to identify and solve health problems.

Policy

5. Develop policies and plans that support individual and community health efforts.
6. Enforce laws and regulations that protect health and ensure safety.

Services

7. Link people with needed personal health services and ensure the provision of health care when otherwise unavailable.

Infrastructure

8. Ensure a competent public health and personal healthcare workforce.

Evaluation and Research

9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
 10. Conduct research for new insights and innovative solutions to health problems.
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Source: Adapted from Public Health in America, Public Health Functions Steering Committee, U.S. Public Health Service, Washington DC, 1994 (cited in Turnock, 2007).

of death and disease. Public health efforts have successfully improved water and food sanitation, increased vaccinations and antibiotics, eradicated some diseases (e.g., smallpox), and mitigated the effects of other afflictions (e.g., pneumonia). Public health is largely credited with establishing methods of monitoring health status and behavior and identifying causes of disease (Turnock, 2009). However, the nature of disease in the United States has changed over time, and this has challenged public health to adapt. A hundred years ago, contagious diseases were highly prevalent throughout the world, but as they have decreased in developed nations (HIV being a notable exception), chronic disease problems such as cardiovascular disease, diabetes, cancer, injury, mental health, substance abuse, and violence have flourished. Chronic diseases are to some extent the product of the success of public health and medicine in minimizing the prevalence and damaging effects of contagious diseases (people have to die of something, and when they do not die of contagious diseases they eventually die of a chronic disease or injury). However, the increase in chronic disease prevalence also reflects changes in lifestyle. Large percentages of the population get little exercise, eat too much of the wrong foods and too little of healthful foods, smoke and drink too much, spend many hours a week commuting, and are exposed to handguns, air pollution, and other hazards. Therefore, while public health remains concerned about outbreaks of infection diseases, such as the annual flu epidemics, and new threats, such as HIV and exotic biological agents, it must also increase its efforts to prevent and control chronic diseases. Meanwhile, the prevalence of mental health and social health problems remains unacceptably high, and both prevention and treatment services are inadequate.

PREVENTION

While public health has always emphasized prevention, the focus of prevention efforts has changed over time. Clearly, public health is still in the business of controlling the impact of the physical environment (i.e., water, food, air, and land) on human health, including both the acute and the long-term environmental contributions to health, disease, longevity, and quality of life. The importance of chronic disease prevention has increased

Therefore, investment in prevention has the potential to greatly reduce the costs associated with major health problems.

with the growing evidence that treatment is often prolonged and expensive. Therefore, investment in prevention has the potential to greatly reduce the costs associated with major health problems. The United States spent an estimated \$2.26 trillion on health care in 2007, about \$7500 per person (U.S. Department of Health and Human Service, Center for Medi-

care and Medical Services, 2007). The United States spends more on health care, both as a proportion of gross domestic product and on a per-capita basis, than any other nation in the world (WHO, 2009; Cohen et al., 2006), but ranks 50th among countries in terms of life expectancy (Central Intelligence Agency, www.cia.gov/library/publications/the-world-factbook, 2009). Sadly, the nation spends only \$1.21 per person on prevention and \$1390 per person to treat disease (Cohen et al., 2006). By one estimate, spending on prevention since the 1990s has been about 3% of total U.S. health expenditures.

Table 1-4 Categories of Prevention

<i>Prevention Level</i>	<i>Goal</i>	<i>Population Targets</i>	<i>Examples</i>
Primordial	Prevent the development of risk factors	General population	Healthful diet, physical activity, sexual behavior, hygiene, injury prevention
Primary	Prevent onset of disease	At risk	Diet, physical activity, sexual behavior, injury prevention
Secondary	Early detection	High risk;	Hypertension, hypercholesterolemia
Tertiary	Adherence	afflicted	HIV+
	Rehabilitation	Afflicted	Cancer, CVD, diabetes,
	Reduce consequences Prevent recurrence		AIDS, injury, surgery

The case for prevention has been well articulated by many authors, but recently, Homer, Hirsh, and Milstein (2007) simulated the benefits of additional emphases on prevention, particularly risk reduction and health protection. Risk reduction includes such things as decreasing the rate of uncontrolled hypertension from the current level of 29%. Prevention includes behaviorally and socially oriented efforts to change adverse behavior and to mitigate unhealthful conditions. Homer et al. (2007) estimated that maximal risk management, for example, could reduce the onset of disease by 40%, while maximum health protection efforts could reduce risk onset by 50%. A sincere commitment to prevention is now recognized as an essential part of national health planning, but funding for prevention remains inadequate and inappropriately low.

Prevention efforts are often described as primary, secondary, or tertiary. In **Table 1-4** and in the discussion that follows, we describe the goals, who is targeted for each level, and provide examples.

Primary Prevention

Primary prevention is concerned with the prevention of the onset of disease or health problems among the general population (Knowler et al., 2002). Primary prevention can focus on those at risk, but it is now popular to describe efforts to prevent the development of risk factors as **primordial prevention**, or sometimes health protection (Friedman, Simons-Morton, & Cutler, 2004). Primary prevention activities include sanitation of water, food, and air; immunization; and health promotion to foster improvements in health-related behavior and healthful environmental conditions. Screening for risk is an important function of primary prevention. Primary (and primordial) prevention goals include improving diet, physical activity, safe sex, substance use, immunization, mental health, and so forth.

Secondary Prevention

Secondary prevention is concerned with reducing the consequences of disease or injury through early detection and treatment among those who are at high risk or already afflicted. Secondary prevention is concerned with screening for health problems and reducing the number of sick days, medical care visits, and emergency room visits associated with a particular health problem. Screening programs for sexually transmitted diseases (STDs), cancer, or diabetes and smoking cessation programs are examples of secondary prevention. A good example is the use of mammography to identify localized breast tumors so that they can be treated before they progress. Another emphasis of secondary prevention is fostering improved adherence to medical advice, for example, taking medicines according to the prescription and participating in rehabilitation activities. Secondary prevention seeks to prevent minor mental health and social problems from becoming major ones.

Secondary prevention is concerned with screening for health problems.

Tertiary Prevention

Tertiary prevention is designed to mitigate the consequences of disease or injury. While secondary prevention is concerned with early detection, tertiary prevention occurs after the problem has progressed. The goal is to provide treatment and rehabilitation to reduce the negative impact and restore functioning. An example of tertiary prevention would be mental health counseling for rape victims, treating a sexually transmitted infection, or administering individually tailored therapies against certain molecular pathways for patients who have developed cancer. Tertiary prevention is largely concerned with treating afflicted people and emphasizes rehabilitation, reduction of lasting effects, and prevention of recurrence.

Type 2 diabetes (T2D) provides a good example of the role of prevention in public health. T2D, or adult-onset diabetes, is the most common form of diabetes and develops largely because of sedentary behavior, poor diet, and obesity. (Type 1 diabetes is an unpreventable, childhood-onset autoimmune disease with uncertain etiology.) T2D has become increasingly common among obese and highly sedentary adults and adolescents. Obesity, once developed, is pretty much a lifelong problem and is extremely difficult and costly to manage, requiring routine medical care and daily drugs, and is related to many other health problems, hospitalization, and early death (American Diabetes Association, 2009).

While some individuals appear to be particularly susceptible to developing T2D, it is largely preventable to the extent the environmental and personal behavior factors that cause it can be altered. Therefore, primary prevention seeks to identify those at high risk and alter the environment and personal health behaviors that led to its development. These primary prevention efforts focus on the general population and high-risk groups before disease onset. Secondary prevention efforts would seek to ameliorate the effects of T2D through improved access to care and improved adherence to medical advice and changes in behaviors such as diet and physical activity, which are important in diabetes

management. Tertiary prevention efforts would focus on efforts to reduce the consequences of the disease by encouraging routine care, long-term maintenance, treatment of acute events, and rehabilitation.

HEALTHY PEOPLE AND HEALTH OBJECTIVES FOR THE NATION

To combat the most prevalent health problems, the United States has developed a national prevention agenda. The 1979 Surgeon General’s report (U.S. Department of Health and Human Service, 1979) on Health Promotion and Disease Prevention, *Healthy People*, outlined gains made in combating infectious diseases in the earlier part of the 20th century, which resulted in the U.S. Surgeon General’s statement that “the health of the American people has never been better.” However, the report also noted that further improvements could be achieved through a “renewed national commitment to efforts designed to prevent disease and to promote health (p. 1). *Healthy People* laid the foundation for a national prevention agenda that spanned a wide range of health goals focused on reducing early mortality and morbidity through prevention. The agenda has been renewed each decade through an elaborate process that involves a wide range of public health professionals. The leading health indicators for 2020 include physical activity, overweight and obesity, tobacco use, substance abuse, responsible sexual behavior, mental health, injury and violence, environmental quality, immunization, and access to health care. The 2020 objectives can be found at (www.healthypeople.gov/HP2020/Objectives/TopicAreas). The objectives for 2020 are organized into the 36 different focus areas shown in **Table 1-5**. The objectives include population groups (e.g., adolescents and the elderly), diseases (e.g., cancer, cardiovascular disease, and STDs), behaviors (diet, physical activity, violence), processes (e.g., education, communication), and broad categories, such as occupational health, global health, and genetics. Ultimately, these areas provide about 500 health objectives and 10 leading health indicators that can and should be used in measuring progress toward improving national health. These objectives were developed through an elaborate process involving many government and nongovernment agencies, expert contributions, and community input. The final document is designed to encourage and guide prevention action and measure progress.

HEALTH AND BEHAVIOR

Behavior figures prominently in the list of important health topics listed in Table 1-5. It is tempting to categorize some indicators as strictly behavioral, for example, physical activity, obesity, tobacco use, sexual behavior, and immunization, while injury and violence, environmental quality, and access to health care could be categorized as environmental. However, this would not be an accurate categorization because behavior and environment are not strictly independent.

Healthy People documents recognize the importance to health of both environmental factors and personal health behavior.

Healthy People documents recognize the importance to health of both environmental factors and personal health behavior. Because the success of public health efforts to

Table 1-5 Health Objectives for 2020

1. Access to Health Services
 2. Adolescent Health
 3. Arthritis, Osteoporosis, and Chronic Back Conditions
 4. Blood Disorders and Blood Safety
 5. Cancer
 6. Chronic Kidney Disease
 7. Diabetes
 8. Disability and Secondary Conditions
 9. Early and Middle Childhood
 10. Education and Community-Based Programs
 11. Family Planning
 12. Food Safety
 13. Genomics
 14. Global Health
 15. Health Communication and Health Information Technology
 16. Healthcare-Associated Infections
 17. Hearing and Other Sensory or Communication Disorders
 18. Heart Disease and Stroke
 19. HIV
 20. Immunization and Infectious Diseases
 21. Injury and Violence Prevention
 22. Maternal, Infant, and Child Health
 23. Mental Health and Mental Disorders
 24. Nutrition and Weight Status
 25. Occupational Safety and Health
 26. Older Adults
 27. Oral Health
 28. Physical Activity and Fitness
 29. Public Health Infrastructure
 30. Quality of Life and Well-Being
 31. Respiratory Diseases
 32. Sexually Transmitted Diseases
 33. Social Determinants of Health
 34. Substance use
 35. Tobacco Use
 36. Vision
-

Source: U.S. Department of Health and Human Services, Public Health Service, Office of Public Health and Science, Office of Disease Prevention and Health Promotion. Healthy People in Healthy Communities www.healthypeople.gov/. U.S. Department of Health and Human Services. www.healthypeople.gov/hp2020/.

control contagious diseases through environmental change, mainly water sanitation, and because environmental factors are still hugely important in both contagious and chronic health problems, there had been a long-standing emphasis in public health on environmental approaches to prevention, mainly the physical environment. Indeed, there is a long-standing debate among public health professionals about whether to intervene to change the environment or to change personal behavior. There are strong advocates for both positions. This debate is complicated because the environment can be defined broadly not only to include water, air, and food but also to include policies and practices that greatly influence health behavior. For example, policies that would increase the availability of immunizations are important, but the act of getting immunized is a behavior. Probably all types and aspects of behavior are influenced by the environment. Similarly, everything we typically think of as environmental has behavioral components. For example, pollution is an environmental problem, but environmental laws and regulations to control pollution arise through the behavior of legislators and policy makers.

The results of the “Objectives for the Nation” process largely dispelled the myth that only the environment was important to health by including health behaviors such as diet and physical activity in the list of leading health indicators. However, the early versions of the document also created confusion by categorizing certain health behaviors under the term *health promotion*. Hence, many people began to think that health promotion was synonymous with health behavior, rather than a process that seeks to foster improvements in environment and behavior. This was problematic because it suggested that health behaviors were strictly under the control of the person and a matter of personal choice, which is only true to a certain extent.

The continuing arguments about the relative importance of creating healthful environments or promoting personal health behavior are understandable, but unproductive.

The continuing arguments about the relative importance of creating healthful environments or promoting personal health behavior are understandable, but unproductive. For one thing, both environment and behavior are important. For another, environment and behavior are not separable. Changes in the environment result in changes in behavior, behavior change generally requires changes in the environment, and behavior change is required to change the environment (we pick up this important point later in this chapter and in other chapters in the book).

It is instructive at this point to clarify the common terms relating to health behavior. First, **personal health behavior** refers to behaviors that relate to one’s health. The term **health-related behaviors** is sometimes used to describe both behaviors that affect one’s health (personal health behaviors) and behaviors that affect the health of others (for example, parenting and regulatory behavior), but for our purposes refers only to the latter. **Health protective behavior** is undertaken specifically, if not exclusively, out of a concern for one’s one own health or the health of others.

Personal Health Behavior

For a period of time, health promotion was sometimes conceptually linked to “personal health behaviors,” defined here as behaviors performed by an individual that affect their

health, even if the behaviors occur for reasons other than health. These behaviors are personal in that they primarily affect the individual's own health, although they may also affect somewhat the health of others indirectly (for example, smoking affects the health of the smoker and side stream smoke affects the health of family and friends of smokers). Health behaviors generally considered personal include some of those listed in Table 1-5, such physical activity, diet, and substance use. Personal health behavior is also implicated in the cause and prevention of many other topics listed in Table 1-5, for example, cardiovascular disease, cancer, injury and violence, and STDs and HIV.

Personal behaviors are performed by the individual and include elements of choice, but they are not always under individual control. There is substantial research on most of these behaviors, indicating that environmental influences are quite important. For example, people get more physical activity when they live in environments where there are opportunities and facilities for safe and convenient walking, biking, and playing outside (Sallis et al., 2009). Seemingly all behaviors are susceptible to social influences, for better or worse, including diet (Story, Neumark-Sztainer, & French, 2002), physical activity (Giles-Corti & Donovan, 2002), and substance use (Simons-Morton et al., 2004). Other examples include the following: mothers are more likely to place their newborn infants on their backs (as they should) when they observe a nurse doing so soon after delivery (Brenner et al., 2003); passengers are more likely to wear safety belts if the driver does (Williams, McCartt, & Geary, 2003); adolescents are more likely to smoke cigarettes if their friends do (Simons-Morton et al., 2004). Moreover, many health behaviors are habits that develop over time that do not require much conscious effort and therefore are not really motivated by a concern for health. Diet is the obvious example. While some people are very attentive to the health properties and effects of foods they eat, others are really only concerned about taste (which is partially a learned phenomenon) and cost or are guided by habit. While personal health behaviors may include aspects of personal choice, they are not fully volitional because they are influenced by habit and environmental factors. Although it is theoretically possible for people to behave in any way they wish, in practice, there are many physical and social influences on any particular behavior at any particular time, not to mention the effect of lifelong environmental influences that precede and condition behavior.

People do sometimes seem to be purposeful about their health-damaging behavior (driving fast, drinking too much, smoking, overeating, etc.); however, the idea that personal health behaviors are always intentional should be resisted because many factors contribute to their occurrence. For example, many people exercise for reasons other than health, for example, because they enjoy the process, the competition, the outdoors, or the social aspects, or possibly, because they live or work near a lovely park where it is convenient to walk and spend time. For some people, physical activity is mainly important because they like it, because it allows them to be competitive, it helps them maintain good appearance, and health may not be an important reason. Similarly, some people wear safety belts mainly to satisfy other family members, avoid the vehicle warnings, or merely out of habit, but not because safety belts protect their health. People may choose to (or choose not to) smoke, drink, and use marijuana for reasons that have nothing to do with

health. These may be described as personal behaviors, but they are not necessarily purposeful with respect to health.

Despite our protestation, the term *personal health behavior* seems to suggest that behavior is strictly a matter of choice, while the term *lifestyle behavior* suggests that behavior is contextual, depending on patterns of living. Certainly, a strong case can be made that many health behaviors are influenced by social and physical contexts that dictate opportunity and reinforcement. People who grow up in areas with good public transportation and bad roads are likely to walk a lot and those who grow up mainly eating vegetables, grain, and seafood are likely to be thinner and live longer than those who grow up mainly eating meat. People who grow up and live in families and communities that emphasize physical activity, moderation in food and alcohol, and a healthy respect for injury preventive behaviors are more likely to adopt these behaviors than those who grow up and live in families and environments where physical activity is avoided, excess consumption of food and alcohol is common, and injury risk behaviors are tolerated. Each of us is influenced by our experiences growing up. Those who live in the suburbs and high-income urban neighborhoods experience different environmental influence on behavior than those who live in low-income areas.

Health-Related Behavior

Health-related behavior is often used interchangeably with *personal health behavior*. However, at least when used in this book, health-related behavior refers exclusively to behavior that affects the health and health behavior of other people and not necessarily

As with personal health behavior, health-related behavior is not always purposefully undertaken for health reasons but affects others' health, nonetheless.

that of the person who engages in the behavior. As with personal health behavior, health-related behavior is not always purposefully undertaken for health reasons but affects others' health, nonetheless. The behavior of friends, family members, administrators, policy makers, regulators, and others affects the health and behavior of others. The teenager who drives in a risky manner engages in behavior that endangers vehicle

occupants, although health considerations may have had little to do with the way the teen drives. The parent who shops for groceries is engaging in health-related behavior because grocery selections affect the health of family members, although the primary selection criteria may be taste, cost, and convenience, not health. The community planner who provides neighborhood sidewalks and bike paths engages in health-related behavior, although health may not have been the primary concern. Agents responsible for licensing commercial outlets that sell cigarettes, alcohol, or fast food may not factor health into their decisions, but nonetheless engage in health-related behavior. Legislators and government policy makers who authorized the use of food commodities for school food services may have been motivated mainly by concerns about the economics of agribusiness and not health, but they were engaged in health-related behavior. Legislators who passed laws subsidizing oil exploration and refining were motivated by economic and not health concerns, but they engaged in health-related behavior. Policy makers who set standards for vehicle gasoline mileage may do so mainly out of a concern for conservation and

not out of an immediate concern for public health. Similarly, land use decisions are often made mainly on the basis of concerns about transportation and commerce, with little concern for air quality or nonvehicular transportation routes, which are important to health.

It is useful conceptually and for programmatic purposes to distinguish health-related behavior from personal health behavior. One goal of health promotion is to facilitate improvements in personal health behavior. However, personal health behavior, as we have defined it and understand it, is influenced by environmental factors, many of which are not under the control of the individual. Moreover, some would argue that a goal of health promotion is to create healthful environments, which presumably would result in improved personal health. In any case, whether one's focus is on individuals directly or on environmental factors that affect health, a firm understanding of health-related behavior is useful. For health promotion to be effective, it must target not only those whose health and health behavior are of interest but also those whose actions contribute or create environmental influences on personal health behavior—health-related behavior.

Health-related behavior is essential to multilevel thinking. In health promotion, we should target both personal health behavior and health-related behavior. Indeed, targeting only personal health behavior without appreciating the environmental influences on behavior can be a form of victim blaming (Cottrell, Girvan, & McKenzie, 2008). Keep the following points in mind: (1) personal health behavior affects the health and behavior of the person engaging in the behavior, while (2) health-related behavior affects the health and health behavior of others. While personal health behavior and health-related behavior affect health, they are not necessarily motivated by health concerns. We hope that over the course of the book, as we come back to the concept many times, you will appreciate distinctions and the advantages of thinking about health behavior in these ways.

Health Protective Behavior

Health protective behavior is distinguished by its specific concern for health. Exercise is a health protective behavior to the extent it is undertaken to improve health. Rou-

Health protective behavior is distinguished by its specific concern for health.

tinely wearing a safety belt, getting a flu vaccination, flossing one's teeth, and refusing dessert are health protective behaviors because they are undertaken with health in mind, even if other factors also played a role. Similarly, making your child wear a safety belt or bicycle helmet, encouraging your partner

to stop after two drinks, cooking low-fat meals for the family, and driving carefully are health protective behaviors because they are undertaken purposefully, if not exclusively, to protect or improve the health of others. Socially oriented health protective behavior is undertaken to improve the social conditions that contributed importantly to health (Northridge, 2003; Gerberding, 2005).

Health protective behaviors can be undertaken by health professionals as well as by individuals acting on their own. Health protective behaviors include the actions of health educators, health promotion and other public health professionals, and many other individuals and organizations outside public health. Protective health behavior

can be socially oriented, when individuals and groups work to improve their communities and otherwise attempt to improve environmental conditions or mitigate the effects of unhealthful conditions. In many health areas, the public health professionals and professionals from other disciplines and practices, for example, environmentalists, bicyclists, social workers, child advocates, and concerned citizens work together for changes that would improve health behavior and health conditions. Similarly, in most areas of health, public and private groups have overlapping concerns about health and undertake independent and concerted change efforts. Adolescent substance abuse is one of many examples in which public health, media advocates, criminal justice professionals, child advocates, and concerned citizens all are interested in reducing child and adolescent substance use problems. By striving to improve health by creating environments that promote health and health behavior, one engages in health protective behavior.

HEALTH PROMOTION

Health promotion is a relatively recent concept with a range of perspectives on what it entails. Health promotion has been defined variously as a process concerned with changing personal behavior, empowering people to change, changing lifestyle, and changing environmental influences on behavior (Simons-Morton, Greene, & Gottlieb, 1995).

There is modern agreement about one thing: health promotion is a process and not a particular set of health behaviors.

Indeed, it is all of these things. There is modern agreement about one thing: health promotion is a process and not a particular set of health behaviors. A recent World Health Organization document (www.who.int/topics/health_promotion, 2009) defined health promotion as “the process of enabling people to increase control over, and to improve, their health.

It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions.”

According to the Health Promotion Funding Integrated Research, Synthesis and Training [FIRST] bill (2004):

Health promotion is the art and science of motivating people to enhance their lifestyle to achieve complete health, not just the absence of disease. . . . The most effective health promotion programs include a combination of strategies to develop cultures and physical environments that will increase awareness, facilitate behavior change and that encourage and support healthy lifestyle practices.

Health promotion has become an integral part of public health and an essential element of public health training (Riegelman & Albertine, 2008; Holmes, 2010). Most schools of public health have academic units that emphasize and train students in health promotion (Association of Schools of Public Health, www.asph.org), and many state and local health departments have health promotion programs. Here, we consider two questions of particular importance for this book and its focus on theory. Who is responsible for health promotion, and what are health promotion processes?

Who Does Health Promotion?

Many public health and education professionals undertake health promotion activities. Health education is the only profession devoted to health promotion, but the work of many other professionals (e.g., social workers, nutritionists, nurses, physicians, health psychologists, health communication specialists) is consistent with health promotion, whether or not they consider this work health promotion. Moreover, everyone in public health should have some responsibility for health promotion because health behaviors and health-related behaviors are important in nearly every area of public health. Indeed, many people outside public health should be involved in health promotion, including teachers, youth workers, social workers, and others. The more health professionals are trained in health promotion, the better it is for the nation's health. However, health promotion is not a simple process and cannot be learned without substantial formal training.

What Are Health Promotion Processes?

Most health promotion programs have three main goals: (1) providing services and activities that improve behavior and health; (2) strengthening the environment to support personal health behavior; and (3) facilitating healthful behavior. However, under usual conditions, health promotion cannot directly alter the environment—policy, regulations, or physical environments. Maybe some high-level government officials have the capability of establishing a policy or regulation, but for most health promotion professionals, policies, regulations, and environments are goals, not processes. Can you think of how anyone in public health could actually adopt a policy, pass legislation, or directly change the physical environment? These things are mostly not under the control of public health professionals. They are complicated, political, and involve many individuals and agencies with diverse goals and constituents. However, public health professionals can influence these outcomes. Environmental influences (including policies and regulations) on health and behavior are largely controlled by policy makers, legislators, regulators, and others who engage in daily health-related behavior. A key health promotion process is fostering changes in the health-related and health protective behavior of those who control or exert environmental influences on health and health behavior.

Health promotion includes practice and research functions. Practice processes include developing, implementing, and evaluating health promotion programs and applying change processes. Research focuses on identifying health problems, elucidating determinants of health and behavior, evaluating program efficacy and effectiveness, and translating effective programs from one setting or population to another. These processes are not limited to any one specific health problem or behavior and can be applied to a range of settings, population groups, health problems, and risk factors.

Another important category of health promotion practices involves creating or developing necessary conditions for sustaining health promotion programs and activities. Health promotion must compete with other activities for resources. Most of us think of health promotion as programs and activities to promote or to protect the health of

people. Health promotion programs and activities, however, usually require resources, such as staff salaries, meeting and office space, equipment and materials, methods of recruiting participants, personnel to carry out and manage programs, program guidelines and instructions, and money for travel costs. To secure resources, we frequently have to identify an external funding agency or organization, identify one or more local agencies to manage and support the program, submit funding requests, apply for grants, and otherwise secure necessary program resources.

After a program is finally developed and implemented, it is necessary to secure the resources and support necessary for program maintenance and continuation. This has led to focusing on factors associated with program continuation in planning, implementing, and evaluating our programs and activities (Pluye, Potvin, & Denis, 2004). One set of factors associated with program continuation refers to the extent to which a program is “institutionalized,” or embedded, in the host organization. That is, the extent to which the program has survived important organizational passages, such as budget cycles; the extent to which the program becomes established within the organization (having its own staff, space, management, etc.); and the extent to which the program is recognized to fulfill an important institutional niche.

Program Development, Implementation, and Evaluation

A key health promotion process is **program development**, which includes establishing, implementing, evaluating, replicating, and disseminating programs. Health promotion should be conducted within the context of planned programs that have carefully identified goals and objectives, actions, and measures of success. The obvious advantages of careful planning include the increased likelihood of efficient, economic, and effective programs.

Program development entails multiple functions, including identifying a need for the program, developing components and plans, implementing interventions, and conducting evaluation. There are many important problems and only those that become a priority are likely to receive proper programmatic attention. Therefore, many health promotion specialists and other public health professionals spend considerable time establishing the need for programs, identifying populations at high risk, and facilitating priority setting and resource allocation. Assessments are often conducted to identify populations at risk, to develop an understanding of the target population(s), and to try out ideas and methods. Once a health problem and population at risk is established as a priority, a program must be developed, conducted, and evaluated. Many programs have multiple components, each with unique target populations and objectives. Activities for program implementation include recruiting, training, supervising, and monitoring staff; procuring resources; developing intervention materials; and conducting and evaluating interventions. Evaluation is conducted to assess implementation processes, implementation, and effects, and this information should be fed back into the program for its improvement. Theory is an important consideration in these health promotion activities (Green, 2000).

Change Processes

Perhaps the most important part of health promotion is the selection, adaptation, and implementation of change processes. **Change processes** refer to what health promotion professionals do to produce change in individuals, organizations, or communities with whom they work to accomplish specific outcomes. For example, it is one thing to recognize that tobacco users have positive attitudes toward smoking and tend to discount negative consequences of smoking, but

Perhaps the most important part of health promotion is the selection, adaptation, and implementation of change processes.

quite another to change their attitudes or perceptions of consequences. A change process is the general approach taken to change smokers' perceptions or attitudes. For example, we could provide smokers with information about the consequences of smoking, recruit peer group leaders as antismoking advocates to change group norms, raise the consequences of smoking by facilitating an increase in excise taxes, and fostering a ban smoking at work or in public places. The important issue is the recognition that (1) there are multiple ways of fostering change, (2) there are multiple potential targets of intervention, and (3) there are multiple levels that could be targeted.

The general categories of change processes include teaching; training; counseling; community development; communication, media, and social marketing; organizational change; and advocacy. Probably all approaches to change can be included within these broad change process categories, although there are a huge number of specific strategies and methods. These general change processes are described in brief in **Table 1-6**. While each

Table 1-6 Health Promotion Change Process

<i>Process</i>	<i>Description</i>
Teaching	Processes of facilitating change in knowledge, beliefs, attitudes, skills, and behaviors through information and learning activities in a group setting.
Counseling	Processes of facilitating change in knowledge, beliefs, attitudes, skills, and behaviors through information and learning activities with one individual or in a small group.
Communication	Process of developing and delivering informative and persuasive messages.
Social Marketing	The application of marketing principles to achieve specific behavioral goals for a social good
Organizational Change	The process by which desired goals of organizations are reached.
Community Development and Social Capital	Actions designed to improve community involvement, resources, programs, policies, and functioning; social support; social capital.
Advocacy	Actions designed to gain political commitment, policy support, and social acceptance for goal, program, policy, or practice. Advocacy actions include lobbying, organizing, and activism.

process is discrete, change processes overlap and are often used in combination. These general change processes are typified by conceptual and logistic considerations. For example, teaching is used when the target population is more or less captive and a structured curriculum can be developed. Counseling is used in settings in which the target population can be seen in a one-to-one or small-group context. Social marketing is used when the population is “at large” and can only be reached through media. Communication strategies are included in almost every health promotion program and are often adapted for use in each program component. Change processes should not be confused with strategies, which describe how the change process is to be implemented, or with methods, which are more specific than change processes, tend to be theory based, and are used within each of these processes. Notably, specific teaching/learning/change activities can be developed to address specific objectives.

Change processes are relevant for personal health behavior, health-related behavior, and health protective behavior. One function of program development is to identify targets of each component, one of which usually includes the at-risk population, the group about whose health and health behavior the program is concerned, and one or more other components concerned about environmental influences on the health and behavior of the at-risk population. For example, in a program developed to improve the diet of preadolescent children, one component might target the children of interest, another component might target their parents, a third component might target those who manage and prepare school meals. Each program component may employ one or several change processes. These concepts are discussed more fully in Chapter 13.

Research

Research is needed to determine the prevalence of health problems and health behaviors; identify at-risk populations; assess the personal and environmental determinants of health and behavior; evaluate programs and monitoring implementation and diffusion; and assess program efficacy, effectiveness, and translation.

Research on Prevalence Most health promotion research is designed to determine the prevalence of health problems and the populations most at risk. Using surveys and applied behavioral epidemiology methods, this work is concerned with identifying rates of a health problem and how these rates vary according to the characteristics of the population of interest, such as by age, sex, race, or neighborhood. For example, we may be interested to know the prevalence of smoking by age and geographic region so that programs can be developed for particular age groups or locations. Alternatively, we might be interested in determining the rates of childhood immunizations among different population subgroups.

Health promotion researchers are concerned about the factors associated with health and behavior.

Research on Determinants of Health Outcomes Health promotion researchers are concerned about the factors associated with health and behavior. For example, this research might seek to determine the environmental and behavioral

factors associated with a flu outbreak. Environmental factors would include virulence of the flu strain, population concentration, general health of the population, vaccine availability and distribution systems, healthcare access, other availability and access issues, and policies regarding minimizing contamination in public places and work sites. On the personal behavior side, this research would seek to determine the health care seeking behavior and personal health and hygiene. This research would identify the factors linked to flu contagion and would help identify possible prevention objectives and program components. This research is important to the extent it identifies appropriate goals. If people are motivated to get the vaccine, but the vaccine is not available or convenient, then it may be more important to work on the supply side than the demand side. Conversely, if there is plenty of vaccine conveniently available, but people are not motivated to get vaccinated, then the program needs to focus on the demand side of the problem. This research can include a wide array of mainly observational (vs. experimental) research methods.

Research on Mediators of Health Behavior

Most health promotion research is concerned about identifying changeable factors associated with personal health and health-related behavior. Mediators are factors that are associated with the outcome of interest and when altered increase the likelihood of behavior change. Mediators can be either cognitive or environmental. That is, behavior is generally an interaction between cognitions and environment factors. Therefore, this research might be concerned with identifying relevant knowledge, beliefs, attitudes, and behaviors of the population groups of interest with respect to the health behaviors and outcomes of interest. It might also be concerned with the environmental influences on these behaviors. If the outcome of interest is reducing flu contagion and the personal health behavior of interest is getting people vaccinated, then initially this research might focus on the at-risk population's knowledge, perceptions, attitudes, and behavior with respect to the flu and vaccinations against it. As part of this research, we might find that behavior and some cognitions are related to environmental factors, such as the availability, cost, and effectiveness of the vaccine. Some cognitions may be inconsistent with logic and reality, in which case objectives can be created to alter incorrect perceptions. In cases in which cognitions are inconsistent with healthful behavior but accurately reflective of environmental conditions, it may be necessary to identify environmental objectives. Similarly, in addition to research on the influences on the behavior of a population at particular risk of the flu (elderly, school children, etc.), this research might be interested in the influences on the behavior of medical care professionals, social workers, teachers, and others with respect to promoting immunizations against the flu. This research would seek to understand the knowledge, attitudes, and behavior of these professionals and the environmental factors that influence their cognitions and behavior.

Some determinants of behavior (determinants are factors associated with the behavior or other outcome) are less modifiable than others or not modifiable at all. However, determinants that are not easily changeable, for example, the effectiveness of the vaccine and its cost, or the relatively greater susceptibility of certain groups to the flu, are sometimes

usefully targeted in health promotion programs. Determinants that are potentially changeable, typically cognitive mediators, become important program objectives.

Some cognitions are more important than others because they mediate behavior change, and research is needed to identify those cognitions that are mediators and can

Some cognitions are more important than others because they mediate behavior change, and research is needed to identify those cognitions that are mediators and can be targeted for intervention.

be targeted for intervention. Sometimes certain kinds of knowledge or beliefs can mediate behavior. If an otherwise motivated person believes that the vaccine does not work, when it actually works in 50% of cases, it may be possible to alter this belief, leading to an increased likelihood of vaccination. If a decision maker believes that if she orders enough vaccine to cover the population, but that it would spoil before

it could be delivered, when in fact the vaccine can be refrigerated and stored for a long period of time, then providing correct information to that decision maker might mediate a change in her behavior with respect to vaccine purchase. Research that identifies mediators of behavior is valuable for program development. All of this will become clearer as we take up topics such as ecological models of change and health promotion program planning and provide examples in later chapters.

Efficacy and Effectiveness Research

A good deal of health promotion research is designed to determine how well programs worked; what they accomplished; how they can be improved; how they can be modified for other contexts, populations, or problems; and how they can be translated to other settings and populations, and disseminated. This research employs systematic methods to assess process, impact, and outcome evaluation to determine efficacy and effectiveness within experimental or quasi-experimental designs program. Much of this research seeks to determine program efficacy, which is how well it worked under relatively ideal conditions, or its effectiveness, which is usually tested under typical rather than ideal conditions, or sometimes under well-controlled conditions but in comparison with another program or approach of equal or near equal magnitude. Community participatory research can provide evidence that programs can be implemented. Efficacy and effectiveness research is nearly always conducted using experimental or quasi-experimental designs in which participants or groups (e.g., schools or communities) are randomized to treatment conditions. The replication of efficacy and effectiveness research in various contexts provides the evidence-base for health promotion practice.

ECOLOGICAL PERSPECTIVES AND MULTILEVEL PROGRAMS

A primary theme of this book that should now be apparent is that behavior and health can best be understood as the product of a web of related factors. Indeed, we have argued

The environment influences behavior and behavior influences the environment.

that the environment influences behavior and behavior influences the environment. Taking this one step further, **Figure 1-2** shows the social cognitive conceptualization of interrelationships between the person, the behavior, and the

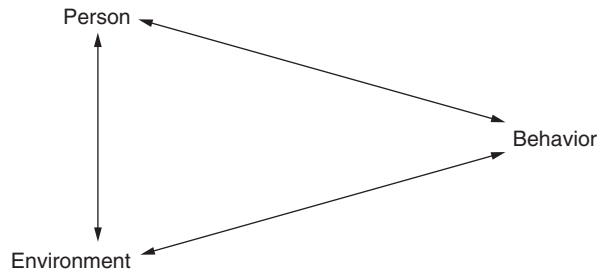


Figure 1-2 Reciprocal determinism.

Source: Adapted from Bandura, A. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall, 1986.

environment (Bandura, 1996). Person factors include personality attributes and cognitive processes of the individual. The environment includes both physical and social aspects of the environment, anything that influences availability and opportunity or provides reinforcement, including norms, structures, policies, programs, practices, economic factors, social influences, and the like. Behavior, of course, includes any action that one takes. Person, environment, and behavior interact constantly. Behavior (for example, seeking to get a flu vaccine) provokes environmental responses (for example, the person gets the vaccine or experiences barriers to getting vaccinated) that can be reinforcing or not, and these experiences are interpreted variably by each person, according to their unique character and existing cognitions. The environment influences behavior, by either stimulating or frustrating it. During a lifetime, a person learns from his or her experience how to judge environment cues and the likelihood of reinforcement.

While this simple model is useful for understanding these relationships in general, how a person, behavior, and environment interact is complex. While one of the main ways people learn is through the response of the environment to behavior, behavior–environment interactions are complicated. Take physical activity for example. If you and I both go for a run, each of us will be engaging in a certain category of behavior, physical activity or running. However, you may run much faster or much slower and push yourself more or less than I. Also, either of us could run in a gymnasium, on a treadmill, or outside in the park with a friend. Therefore, while we may both have run for 30 minutes, our behaviors may be qualitatively different and our interactions with the environment unique. Running with a friend may provide social support, while running in a gym or running outside may exert different amounts and forms of environmental reinforcement. Each of us may engage in more or less the same behavior and get more or less the same response from the environment but perceive it differently because of our unique perspectives.

To add to the complexity, *person* is a dynamic concept. I might run on a regular basis for months and, then, suddenly, I stop. People have competing motivations and priorities influenced by their environment and their behavior that they develop and change during a lifetime. Schedules and responsibilities change, and motivation wanes. This is a simple

model that will be expanded in later chapters. Keep the following points in mind, as we move forward: (1) behavior is influenced by its interaction with environmental and personal factors; (2) each person develops uniquely because of the interaction of genetic and lifelong environmental factors; and (3) the environment is influenced by behavior and understood uniquely by the person.

A number of theorists have conceptualized influences on behavior as occurring at multiple levels. Bronfenbrenner (1979), whose work is discussed more fully in Chapter 2, was one of the first to describe the interactions between human development and behavior and multiple environmental levels. More recent, Glass and McAtee (2006) provided a lucid description of the web of causality with respect to behavior and health. Similarly, McLeroy et al. (1993) and others have long sought to extend ecological thinking beyond the multilevel influences on personal behavior to focus more on the social systems within which people exist. As we discuss more extensively in Chapter 2, from a systems perspective, the goals of health promotion are to improve health, reduce inequality, and foster justice. It is important to seek to improve the social and physical environment not only to foster human health but also to create the best and most sustainable earth possible.

These conceptualizations are informative for health promotion, which is concerned not only about understanding the nature of these multilevel influences but also about what we can do to make them health enhancing. If health and behavior are influenced at many levels, most of which are beyond the control of the person whose health and behavior we may be concerned about, our efforts to facilitate changes in personal health behavior will be limited by the extent to which these behaviors are supported at other societal levels.

A fundamental health promotion task is to develop effective interventions at multiple levels.

Accordingly, a fundamental health promotion task is to develop effective interventions at multiple levels. Remember, health promotion is concerned about and seeks to understand and influence the behavior of individuals with respect to their

personal health behavior, the health-related behavior of those whose actions can affect the health and health behavior of others, and health protective behavior. Health-related and health protective behaviors can be exercised by a range of individuals, family members, friends, neighbors, health and education professionals, regulators, policy makers, and others, representing various societal levels. Therefore, many health promotion programs address health-related behavior at multiple levels. Fortunately, many theories and the principle of behavior change discussed in this book have relevance to personal health behavior and health-related behavior.

In **Figure 1-3**, we present a simple conceptualization of the goals of health promotion, which are to foster improvements in personal health behavior and healthful environments. This simple ecological model makes sense in the context of personal health behaviors influenced by other environmental factors. Of course, if we want to facilitate change in peoples' behavior and health we can work with them directly and we can seek to alter the environmental influences on their behavior. Health promotion is always concerned about behavior, but this can be personal health behavior, health-related, or health

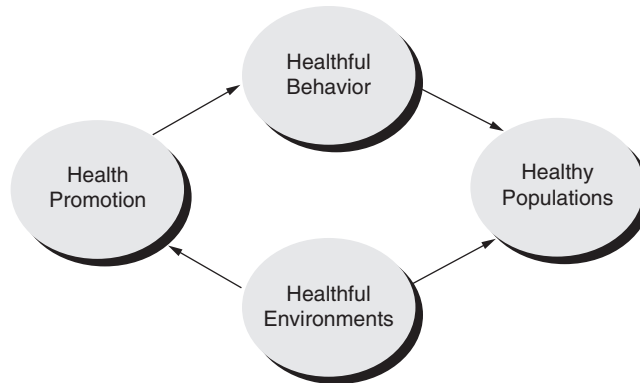


Figure 1-3 The goals of health promotion are to foster healthful behavior and healthful environments.

protective behavior. As shown in Figure 1-3, if we want to alter environmental influences on personal health behavior, we need to identify and intervene with those individuals whose behavior affects the health and behavior of the population of concern.

Take for example the diet of preadolescent children. Children have some responsibility for what they eat, exercising preferences at every meal. However, they are also influenced by what foods are available, by which are served, and by what their parents and friends want them to do, and so on. Accordingly, a health promotion program designed to improve children's diet might address children's personal behavior with respect to food choices they make, parents' health-related behavior with respect to food purchase and preparation, and school food service directors' health protective behavior with respect to the healthfulness of school meals. These concepts are dealt with more systematically in **Chapter 13**.

THEORY AND PRACTICE

A theory is basically a hypothesis supported by data. We are used to thinking about hypotheses as being specific, testable statements that are a standard part of every research

A theory is basically a hypothesis supported by data.

proposal, but they are really just statements about expected relationships. We often attempt to understand the data from daily life by developing personal hypotheses and then evaluate the hypothesis as we collect additional information. For

example, the last time you got a cold you might have thought to yourself, I got cold germs from someone at work that was sick and left germs in the kitchen or on a doorknob. So you decide that maybe you could avoid getting sick in the future if you washed your hands more consistently. You do this conscientiously for some time without getting sick again. Your behavior is reinforced when you come across an article that reports that hand washing is one of the best ways to avoid picking up germs. Assuming you avoid picking up a new cold, you might conclude from the evidence that your hypothesis is correct. Now that

you have some evidence, it is possible to develop your hypothesis further, maybe even develop a theory.

Theories are designed to foster understanding of and making predictions about particular subject matter. A theory can be thought of as a sort of map that describes the objects of interest. A theory is not necessarily the truth, but it describes relationships and defines terms and is stated in such a way as to be testable. Indeed, a great strength of a theory is that it facilitates research, and over a long period of time, the utility of the theory can be determined. In the case of the theory that germs cause disease and hand washing can prevent contagion, there is a lot of evidence supporting it. Indeed, hand washing to prevent contagion is consistent with what is known about germs and the spread of contagious disease.

Unlike our simple example of hand washing to prevent contagion, general theories of behavior such as operant conditioning, values expectancy, social cognition, and persuasion apply to a wide range of behaviors. However, they may have started out as simple hypotheses. Indeed, operant conditioning prides itself on being the scientific observation of how people respond to the environment (i.e., how reinforcement influences the frequency of a response). Similarly, the premise of the transtheoretical model is that the methods people use in their independent efforts to change their behavior can be identified (according to stage) and employed programmatically. Most theories started out as simple ideas or hypotheses based on observation and eventually become elaborate theories of behavior through research. Of course, many such observations do not hold up to rigorous logic or empirical findings.

Generally, as an applied field, health promotion is less interested in testing theory than in applying it; however, a lot can be learned about theory from careful evaluation of programs, particularly well-controlled evaluations. The main concern with theory in health promotion, however, is its use as an essential tool for effective health promotion practice and research. Even if we could somehow conduct successful health promotion programs without using theory, we would not be able to interpret the results and generalize them to other contexts and health problems. The philosopher Immanuel Kant noted the following: “Experience without theory is blind, but theory without experience is mere intellectual play.”

Theory is useful in health promotion in several ways. First, it provides conceptual context for understanding behavior. For example, operant conditioning provides the perspective that behavior is a matter of reinforcement, and this helps us to understand why people behave as they do and how to facilitate behavior change. Second, theory guides research that seeks to identify the determinants of health-related behavior and guides program planning with respect to objectives and change processes. For example, effective health promotion programs must address the key cognitions associated with behavior. Theory provides us with logical candidate variables that can be assessed, objectified, and targeted for intervention. Third, theory suggests methods that can be incorporated into health promotion practice. Kurt Lewin notes that “There is nothing as practical as a good theory.”

The better health promotion specialists understand theory, the more effective they will be.

The better health promotion specialists understand theory, the more effective they will be. In this book, we describe many of the most relevant and popular theories used in health promotion. We believe that most of these theories are relevant

to a wide range of behaviors, and each theory is particularly useful for certain behaviors under certain situations. Some theories are specific to certain kinds of behavior, while other theories are general and can be applicable to almost any health-related behavior. At first, it can be confusing that there are many different theories and some of them seem to overlap but use different terms for similar concepts or the same term to mean something slightly different. There are many theories because there are many kinds of behavior, many facets of behavior, many contexts for behavior, many influences on behavior, and many different ways of understanding behavior. Consequently, new theories or variations on existing theory are constantly being developed. However, a limited number of theories have been used widely and they can be grouped according to certain characteristics, making them easier to understand. In this book, we focus on theories that have been widely used in health promotion research and practice.

Because there are many theories, the tendency has been to teach each theory separately to maintain its integrity. This is sometimes referred to as the “theory of the week” approach. While this approach can be frustrating for students because it is difficult to digest so many different theories in a short period, to their credit, professors want to make sure that students develop familiarity with many different theories. They don’t like lumping theories into clusters out of a concern that students will not develop an appreciation for their nuances and unique contributions. However, what can suffer in a theory-of-the-week approach is a broader understanding of how theories are related, which may be most relevant for any particular problem, and how theory can be used to guide and evaluate practice. There is no easy solution to this problem, but the approach taken in this book is to orient the reader first to ecological models of behavior and then to organize related theories conceptually within each section and chapter, sometimes only one theory and sometimes several closely related theories to a chapter.

The student then must do the real work of applying each theory to relevant problems by reviewing the literature to see how theory has been applied previously and figuring out which theory might work best and how to use the theory to best effect. Admittedly, this is not easy. Indeed, those of us who have worked in this area for decades are still learning about theories and their use. Most of us become particularly familiar with one or two theories and tend to think about health-related behaviors from those perspectives. Moreover, researchers have left a thoughtful trail of theory application from which we can learn. It is up to us to review and interpret the literature carefully and build on the findings from past research and when possible to apply theory in interesting ways and extend research on that theory. The great Renaissance man Leonardo da Vinci is thought to have stated the following: “He who loves practice without *theory* is like the sailor who boards a ship without a rudder and compass and never knows where he may cast.”

As discussed earlier, many health promotion programs have multiple components, each addressing a different population. Most programs have at least one component directed at personal health behavior, but many programs also have components directed at the health-related behavior of those who influence or control environmental influences on personal health behavior. For example, if we were interested in improving the diet of preadolescent children, as previously discussed, it would make sense to have one component that addressed children's knowledge, attitudes, and behavior. This component might be based on a particular theory of behavior, for example, operant conditioning, social cognitive theory, reasoned action, or attribution theory. However, children have only so much control over their diets, so another program component might address school lunch. Those who influence or control school lunch would include school administrators, managers, and cooks. The goal of these components would be to modify the composition of foods offered in school lunch. Not surprisingly, this program component would probably address the knowledge, perceptions, attitudes, and behavior of this target population and the environmental influences on these cognitions and behaviors. The theory employed might be the same or different from the one employed in the child component. Another component might address families of the at-risk population of children. Here, the objectives would be to alter the knowledge, attitudes, and behavior of family members in a manner that would lead to changes in the family environment with respect to food and eating. This component might employ the same or a different theory than the one employed to address the children directly. Other components might address food offerings at school or changes in local grocery or fast food menus, while another component might be directed at extending the local food co-op to a greater number of high-risk families. These components would benefit from theories relating to organizational change, community development, and social change. Different theories might be employed in each component because of the nature of the behavioral goals, developmental and social context, and programmatic considerations.

CAVEATS AND ASSUMPTIONS

Let's be clear about some issues that may be lingering about theory and orientation of this book.

Imperfection in the Cognition–Theory–Change Continuum

We have tried not to suggest that health behavior is simply a matter of personal dispositions and environmental influences. We believe that behavior is logical and predictable, within certain limits. Indeed, this perspective is the basis for most research and practice in the behavioral sciences. However, we recognize that behavior is complicated. Often, even the person engaging in the behavior cannot always be sure why he or she is acting in that manner. Behavior is not simply the sum of cognitive factors that support the behavior minus the factors that discourage it, although this is partly true and a thorough

understanding of these factors is invariably informative and useful. Information about key cognitions, those that are associated with the behavior, good measurement, and theory help us better explain behavior, not completely, but within the bounds of probability and with a level of accuracy that can guide and enable program development. That is, we can develop an understanding of particular behaviors well enough to develop programs that target important variables and lead to behavior change. However, there will always be uncertainty and variability because people are complex and unique. The more narrowly we can focus on a particular population group, the better we can assess the factors related to their health and behavior, and the better we can develop programs consistent with their needs.

Health Promotion Does Not Blame the Victim

Health promotion has sometimes been accused of blaming the victim. This accusation has come about, we believe, because of two unfortunate misconceptions. The first is that health promotion seeks to make people responsible for behavior over which they have little control. I hope our discussion of the terms *personal health behavior*, *lifestyle behavior*, and *health-related behavior* fully dismiss this misconception. Health promotion is concerned about both the cognitive and environmental influences on behavior. Indeed, health promotion is, or should be, just as concerned with health-related and health protective behavior as with personal health behavior.

The second misconception is that health promotion is somehow manipulative. Nothing could be further from the truth. There are many change processes and methods available for use in health promotion, but education is central to all of them, and education is empowering, not manipulative. Education is an essential function of public health and a fundamental element of personal freedom and democracy, not a matter of manipulation. So let's be clear that health promotion, broadly speaking, is an educational enterprise that has as its goal improvements in the ability of individuals to manage their behavior and changes in the environment conducive to healthful living.

Whose Behavior Anyway?

We hope that the chapter has made clear that theories about individual behavior are relevant not only to personal health behavior but also to health related and health protective behavior.

Theories about individual behavior are relevant not only to personal health behavior but also to health related and health protective behavior.

Moreover, we have begun to move beyond individual behavior theories to understand the multiple influences on individuals' behaviors and to identify both theories and change processes that may be useful in improving the health of individuals and populations. In addition, we have begun to frame individuals' behaviors as part of

a broader system in which behavior affects and is affected by other people, settings, and broader social and environmental influences. Finally, we try to balance the focus on the behavior of the at-risk population (or population of concern) with a needed emphasis on the behavior of individuals and groups who influence the environments within which personal behavior occurs.

ECOLOGICAL PERSPECTIVES AND MULTILEVEL PROGRAMMING

While most theories of behavior were developed with personal behavior in mind, many of these theories can be extended to health-related and health protective behavior, and other theories have been developed to explain community and other collective behavior. We argue that health promotion professionals should take an ecological perspective with respect to all health behaviors of interest because such thinking provides perspective for multilevel program development. Not every program can develop and implement program components at multiple levels, but each component should be developed with the broader picture in mind. While the vast proportion of published research has focused on personal health behavior and not on health-related behavior or on systems, the book addresses broader applications of theory as possible.

TAKE HOME MESSAGES

1. Public health is mainly concerned with prevention.
2. Health promotion is a process that seeks to facilitate healthful behavior and environments.
3. Behavior, out of a concern for health or not, may affect the health of the person engaging in that behavior, termed *personal health behavior*, the health of other people, termed *health-related behavior*, or intentionally creating healthful conditions, termed *health protective behavior*.
4. Recognizing that there are influences on health at many societal levels, health promotion programs tend to have multiple components addressing personal health behavior and health-related behavior.
5. The person, behavior, and the environment interact in complex ways.
6. Theory is an essential tool for understanding behavior and developing health promotion programs.

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