

CHAPTER

1

THE SCOPE OF HEALTH BEHAVIOR AND HEALTH EDUCATION

The Editors

KEY POINTS

This chapter will

- Discuss the importance of developing successful strategies to improve health behavior.
- Summarize the leading causes of death and disease burden in the United States and globally.
- Describe the scope and evolution of health education.
- Provide key definitions of *health education*, *health behavior*, and *health promotion*.
- Discuss the diverse settings and audiences for health education.
- Highlight progress and challenges in health behavior and health education research.

Perhaps never before have there been so many demands on those in health education and health behavior to facilitate behavior changes, or so many potential strategies from which to choose. Where professionals once might have seen their roles as working at a particular level of intervention (such as changing organizational or individual health behaviors) or employing a specific type of behavior change strategy (such as group interventions or individual counseling), we now realize that multiple interventions at multiple levels are often needed to initiate and sustain behavior change

effectively. And where health education and behavior change professionals once might have relied on intuition, experience, and their knowledge of the literature, increasingly we expect professionals to act on the basis of evidence. In the time since the first edition of this book in 1990, the evidence base for health behavior change has grown dramatically.

A number of systematic reviews have shown that using theory in crafting interventions can lead to more powerful effects than interventions developed without theory (for example, see Ammerman, Lindquist, Lohr, and Hersey, 2002; Legler and others, 2002). It is an exciting time to contemplate behavior change. There are more tools and strategies and a better understanding of the role theory can play in producing effective, sustained behavior change. And the stage has changed from one that is primarily local and country-specific to one that is both global and local, in which we increasingly see the world as interconnected.

These exciting opportunities could not be taking place at a more propitious time. The positive changes of medical innovations, strong evidence base, and exciting and novel tools for health promotion are buffeted by countercurrents of increasing globalization, urbanization, industrialization, and inequalities that deter us from fulfilling the promise of advances in medicine and health promotion. Major challenges include heavy promotion of unhealthy lifestyles, such as tobacco use and fast-food consumption across the globe, increasing pollution, and health problems associated with poverty, such as overcrowding, lack of safe drinking water, unsafe neighborhoods, and limited access to health care services.

It is of little surprise that the number of topics on which health professionals and health education specialists focus has grown and evolved as health problems have changed around the world. Some professionals may counsel people at risk for AIDS about safe sex; help children avoid tobacco, alcohol, and drugs; assist adults to stop smoking; help patients to manage and cope with their illnesses; and organize communities or advocate policy changes aimed at fostering health improvement. Other health professionals may focus on environmental concerns. We expect that, over the next decade, more behavior change interventions will be directed at changing individual and community behaviors related to water consumption and to behaviors that may affect global climate change.

Health education professionals work all over the world in a variety of settings, including schools, worksites, nongovernmental organizations (including voluntary health organizations), medical settings, and communities. Since the first edition of this book, there has been increased recognition that what happens in other parts of the world affects us all, wherever we may be. To the extent that public health is global health and global health is local, we are committed in this volume to exploring the use of health behavior theories around the world and to discussing the potential relevance of what is learned in one setting to others. Although many of the examples are from research conducted in the United States, our perspective is decidedly *not* U.S.-centric.

Since the last edition of this book six years ago, there have been other changes as well. Part of what has made the world feel smaller and people more interconnected is the growth of new communication and information technologies, which have opened

up an unprecedented range of strategies for health behavior change programs. Through the Internet, health behavior change interventions may reach people all over the world, regardless of their location. This means that health behavior change interventions can achieve scale never before imagined, potentially reaching millions of people rather than hundreds or thousands.

There is increased recognition that the fruits of research take too long to reach people who could benefit from them (Glasgow and Emmons, 2007; Viswanath, 2006). This has led to an increased emphasis on the dissemination of evidence-based interventions. Part of the rationale for this book is to speed the dissemination of knowledge about how to use theory, so that theory can inform those who develop and use health behavior interventions around the world.

Health experts are challenged to disseminate the best of what is known in new situations. They may also forge and test fundamental theories that drive research and practice in public health, health education, and health care. A premise of *Health Behavior and Health Education* is that a dynamic exchange among theory, research, and practice is most likely to produce effective health education. The editors believe fundamentally that theory and practice should coexist in a healthy dialectic; they are not dichotomies. The best theory is likely to be grounded in real lessons from practice. The best practice should be grounded in theory.

Kanfer and Schefft (1988) observed that “as science and technology advance, the greatest mystery of the universe and the least conquered force of nature remains the human being and his actions and human experiences.” The body of research in health behavior and health education has grown rapidly over the past two decades, and health education and health promotion are recognized increasingly as ways to meet public health objectives and improve the success of public health and medical interventions around the world. Although this increasing amount of literature improves the science base of health behavior and health education, it also challenges those in the field to master and be facile with an almost overwhelming body of knowledge.

The science and art of health behavior and health education are eclectic and rapidly evolving; they reflect an amalgamation of approaches, methods, and strategies from social and health sciences, drawing on the theoretical perspectives, research, and practice tools of such diverse disciplines as psychology, sociology, anthropology, communications, nursing, economics, and marketing. Health education is also dependent on epidemiology, statistics, and medicine. There is increasing emphasis on identifying evidence-based interventions and disseminating them widely (Rimer, Glanz, and Rasband, 2001). This often requires individual health education and health behavior professionals to synthesize large and diverse literatures. Evidence-based groups like the Cochrane Collaboration (<http://www.cochrane.org>) and the CDC’s (Centers for Disease Control and Prevention) Guide to Community Preventive Services (<http://www.thecommunityguide.org>) offer regular syntheses of behavioral interventions, some of which include theoretical constructs as variables in analyses of effectiveness.

Many kinds of professionals contribute to and conduct health education and health behavior (HEHB) programs and research. Health education practice is strengthened

by the close collaboration among professionals of different disciplines, each concerned with the behavioral and social intervention process and each contributing a unique perspective. Although health behavior professionals have usually worked this way, there is increasing emphasis on an interdisciplinary or even a transdisciplinary focus (Turkkan, Kaufman, and Rimer, 2000). Psychology brings to health education a rich legacy of over one hundred years of research and practice on individual differences, motivation, learning, persuasion, and attitude and behavior change (Matarazzo and others, 1984), as well as the perspectives of organizational and community psychology. Physicians are important collaborators and are in key roles to effect change in health behavior (Grol and others, 2007). Likewise, nurses and social workers bring to health education their particular expertise in working with individual patients and patients' families to facilitate learning, adjustment, and behavior change, and to improve quality of life. Other health, education, and human service professionals contribute their special expertise as well. Increasingly, there are partnerships with genetic counselors and other specialists in this rapidly developing field.

THE CHANGING CONTEXT OF HEALTH AND BEHAVIOR

The most frequent causes of death in the United States and globally are chronic diseases, including heart disease, cancer, lung diseases, and diabetes (Yach, Hawkes, Gould, and Hofman, 2004). Behavioral factors, particularly tobacco use, diet and activity patterns, alcohol consumption, sexual behavior, and avoidable injuries are among the most prominent contributors to mortality (Schroeder, 2007; Mokdad, Marks, Stroup, and Gerberding, 2004, 2005). Projections of the global burden of disease for the next two decades include increases in noncommunicable diseases, high rates of tobacco-related deaths, and a dramatic rise in deaths from HIV/AIDS (Mathers and Loncar, 2006; Abegunde and others, 2007). Worldwide, the major causes of death by 2030 are expected to be HIV/AIDS, depressive disorders, and heart disease (Mathers and Loncar, 2006).

At the same time, in many parts of the world, infectious diseases continue to pose grim threats, especially for the very young, the old, and those with compromised immune systems. Malaria, diarrheal diseases, and other infectious diseases, in addition to AIDS, are major health threats to the poorest people around the world (The PLoS Medicine Editors, 2007). And, like chronic diseases, their trajectory may be influenced by the application of effective health behavior interventions. Substantial suffering, premature mortality, and medical costs can be avoided by positive changes in behavior at multiple levels. Most recently, there has been a renewed focus on public health infrastructure to plan for emergencies, including both human-made and natural disasters.

During the past twenty years, there has been a dramatic increase in public, private, and professional interest in preventing disability and death through changes in lifestyle and participation in screening programs. Much of this interest in disease prevention and early detection has been stimulated by the epidemiological transition from infectious to chronic diseases as leading causes of death, the aging of the pop-

ulation, rapidly escalating health care costs, and data linking individual behaviors to increased risk of morbidity and mortality. The evidence that early detection can save lives from highly prevalent conditions such as breast and colorectal cancer has also been influential. The AIDS epidemic has also contributed. Moreover, around the world communicable diseases and malnutrition exist alongside increasing problems, like obesity among the middle class (Abegunde and others, 2007).

Landmark reports in Canada and the United States during the 1970s and 1980s heralded the commitment of governments to health education and promotion (Lalonde, 1974; U.S. Department of Health, Education, and Welfare, 1979; Epp, 1986). In the United States, federal initiatives for public health education and monitoring populationwide behavior patterns were spurred by the development of the *Health Objectives for the Nation* (U.S. Department of Health and Human Services, 1980) and its successors, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* and *Healthy People 2010* (U.S. Department of Health and Human Services, 1991, 2000). Similarly, international agencies are drawing attention to the global burden of diseases and health inequalities (World Health Organization, 2007). Increased interest in behavioral and social determinants of health behavior change spawned numerous training programs and public and commercial service programs.

Data systems and surveillance initiatives now make it feasible to track trends in risk factors, health behaviors, and healthy environments and policies in the United States and developed countries and, in some cases, to tie these changes to disease incidence and mortality (<http://www.who.int/research/en>). Indeed, positive change has occurred in several areas. A major accomplishment in the United States has been surpassing the targets for reducing deaths from coronary heart disease and cancer (National Center for Health Statistics, 2001). Blood pressure control has improved, and mean population blood cholesterol levels have declined. Alcohol-related motor vehicle deaths and deaths due to automobile crashes and drowning have continued to decrease. Following major litigation against the tobacco industry and a multistate settlement, there are increased restrictions on tobacco advertising and enforcement of laws against selling tobacco to minors (Glanz and others, 2007). In the United States, fewer adults are using tobacco products—the reduction in adult smoking from 42.4 percent to 20.8 percent between 1965 and 2006 (Centers for Disease Control and Prevention, 2007b) is hailed as one of the top public health achievements of the past century. More adults are meeting dietary guidelines for higher consumption of fruits, vegetables, and grain products, as well as decreased dietary fat as a percentage of calories (National Center for Health Statistics, 2001). Rates of HIV/AIDS in the United States have leveled off, and transfusion-related HIV infections have decreased markedly. The proportion of women age fifty and older who have had breast examinations and mammograms exceeded the goal of 60 percent in forty-seven states in the past decade. Yet the recent leveling off of mammography use in the United States indicates just how fragile behavior change can be and points to the need for attention to maintenance of behavior changes (Centers for Disease Control and Prevention, 2007a; Breen and others, 2007). The collective efforts of those in health education and public health have indeed made a difference.

Although this progress is encouraging, much work remains to be done in these areas. More adults and children are overweight. Diabetes is increasing in near-epidemic proportions. More adolescents are sexually active. After major increases in seatbelt use in the early 1990s, rates have declined and remain at 67 percent—well below the target rate of 85 percent (National Center for Health Statistics, 2001). One-fifth of children under three years old have not received a basic series of vaccinations for polio, measles, diphtheria, and other diseases. Sixteen percent of adults under sixty-five years of age have no health insurance coverage. Ethnic minorities and those in poverty still experience a disproportionate burden of preventable disease and disability, and the gap persists between disadvantaged and affluent groups in use of preventive services (National Commission on Prevention Priorities, 2007).

The disease burden is not limited to the United States. Data from Popkin (2007) and others suggest that, like the tobacco epidemic, the obesity epidemic has taken on global proportions. One study of the burden of chronic diseases in twenty-three low- and middle-income countries posits that chronic disease is responsible for 50 percent of the disease burden in 2005 and estimates an economic loss of almost \$84 billion (U.S. dollars) between 2006 and 2015 if nothing is done to address the burden (Mathers and Loncar, 2006).

Changes in the health care system provide new supports and opportunities for health education. Respect for patients' rights and more participatory patient-centered communication can lead to improved health outcomes (Arora, 2003; Epstein and Street, 2007), and shared decision making is now recognized as fundamental to the practice of medicine (Levinsky, 1996). Moreover, there is increased attention to issues of shared decision making (Edwards and Elwyn, 1999). Increasingly, patients are driving their own searches for health information by using the Internet (see, for example, Rimer and others, 2005; Hesse and others, 2005), though disparities remain in information seeking between those of higher and lower socioeconomic status (Ramanadhan and Viswanath, 2006). Clinical prevention and behavioral interventions are often considered cost-effective but are neither universally available nor equally accessible across race and socioeconomic groups (Schroeder, 2007; Gostin and Powers, 2006).

The rapid emergence of new communication technologies and new uses of older technologies, such as the telephone, also provide new opportunities and dilemmas. A variety of electronic media for interactive health communication (for example, the Internet, CD-ROMs, and personal digital assistants [PDAs]) can serve as sources of individualized health information, reminders, and social support for health behavior change (Viswanath, 2005; Ahern, Phalen, Le, and Goldman, 2007). These new technologies also may connect individuals with similar health concerns around the world (Bukachi and Pakenham-Walsh, 2007). This may be especially important for people with rare or stigmatized health conditions. However, the new products of the communications revolution have not equally reached affluent and more disadvantaged populations (Viswanath, 2005, 2006).

E-health strategies are becoming an important part of the armamentarium of strategies for those in health education and health behavior. Internet and computer-based applications, along with wireless technologies, can support many of the *Health Behavior*

and *Health Education* strategies based on the theories presented in this book. Use of new technologies should be based on theories of health behavior and be evaluated (Ahern, Phalen, Le, and Goldman, 2007). Otherwise, we risk being technology-driven instead of outcome-driven.

At the same time, new technologies have the potential to cause harm through misleading or deceptive information, promotion of inappropriate self-care, and interference in the patient-provider relationship (Science Panel on Interactive Communication and Health, 1999), although the empirical evidence on harms remains to be documented. Interactive health communications provide new options for behavioral medicine and preventive medicine (Noell and Glasgow, 1999; Fotheringham, Owies, Leslie, and Owen, 2000) and are altering the context of health behavior and health education as they unfold and as their effects are studied (Hesse and others, 2005).

HEALTH EDUCATION AND HEALTH BEHAVIOR

The Scope and Evolution of Health Education

In the fields of health education and health behavior, the emphasis during the 1970s and 1980s on individuals' behaviors as determinants of health status eclipsed attention to the broader social determinants of health. Advocates of system-level changes to improve health called for renewal of a broad vision of health education and promotion (Minkler, 1989; see Chapter Twenty). These calls for moving health education toward social action heralded a renewed enthusiasm for holistic approaches rather than an entirely new worldview. They are well within the tradition of health education and are consistent with its longstanding concern with the impact of social, economic, and political forces on health. Focusing merely on downstream (individual) causes of poor health rather than the upstream causes risks missing important opportunities to improve health (McKinlay and Marceau, 2000).

Over the past forty years, leaders in health education have repeatedly stressed the importance of political, economic, and social factors as determinants of health. Mayhew Derryberry (1960) noted that "health education . . . requires careful and thorough consideration of the present knowledge, attitudes, goals, perceptions, social status, power structure, cultural traditions, and other aspects of whatever public is to be addressed." In 1966, Dorothy Nyswander spoke of the importance of attending to social justice and individuals' sense of control and self-determination. These ideas were reiterated later, when William Griffiths (1972) stressed that "health education is concerned not only with individuals and their families, but *also with the institutions and social conditions* that impede or facilitate individuals toward achieving optimum health" (emphasis added). Green and Kreuter's PRECEDE/PROCEED Model (2005; see Chapter Eighteen), which was first widely introduced over twenty-five years ago, addresses the multiple forces that affect health. Individual health does not exist in a social vacuum.

The view of health education as an instrument of social change has been renewed and invigorated during the past decade. Policy, advocacy, and organizational change

have been adopted as central activities of public health and health education. Most recently, experts have explicitly recommended that interventions on social and behavioral factors related to health should link multiple levels of influence, including the individual, interpersonal, institutional, community, and policy levels (Smedley and Syme, 2000). This volume purposefully includes chapters on community and societal influences on health behavior and strategies to effect community and social policy changes in addition to the individual-level theories. In this context, definitions of *health education* and *health promotion* can be recognized and discussed as overlapping and intertwined.

Definitions of Health Education

According to Griffiths (1972), “health education attempts to close the gap between what is known about optimum health practice and that which is actually practiced.” Simonds (1976) defined *health education* as aimed at “bringing about behavioral changes in individuals, groups, and larger populations from behaviors that are presumed to be detrimental to health, to behaviors that are conducive to present and future health.”

Subsequent definitions emphasized voluntary, informed behavior changes. In 1980, Green defined *health education* as “any combination of learning experiences designed to facilitate voluntary adaptations of behavior conducive to health” (Green, Kreuter, Deeds, and Partridge, 1980). The Role Delineation Project defined it as “the process of assisting individuals, acting separately or collectively, to make informed decisions about matters affecting their personal health and that of others” (National Task Force on the Preparation and Practice of Health Educators, 1985).

Health education evolved from three settings: communities, schools, and patient care settings. Kurt Lewin’s pioneering work in group process and his developmental field theory during the 1930s and 1940s provide the intellectual roots for much of health education practice today. One of the earliest models developed to explain health behavior, the Health Belief Model (HBM), was developed during the 1950s to explain behavior related to tuberculosis screening (Hochbaum, 1958).

As we already have noted, health education includes not only instructional activities and other strategies to change individual health behavior but also organizational efforts, policy directives, economic supports, environmental activities, mass media, and community-level programs. Two key ideas from an ecological perspective help direct the identification of personal and environmental leverage points for health promotion and education interventions (Glanz and Rimer, 1995). First, behavior is viewed as being affected by, and affecting, *multiple levels of influence*. Five levels of influence for health-related behaviors and conditions have been identified: (1) intrapersonal, or individual factors; (2) interpersonal factors; (3) institutional, or organizational factors; (4) community factors; and (5) public-policy factors (McLeroy, Bibeau, Steckler, and Glanz, 1988). The second key idea relates to the possibility of *reciprocal causation* between individuals and their environments; that is, behavior both influences and is influenced by the social environment (Glanz and Rimer, 1995; Stokols, Grzywacz, McMahan, and Phillips, 2003).

Health education covers the continuum from disease prevention and promotion of optimal health to the detection of illness to treatment, rehabilitation, and long-term care. It includes infectious and chronic diseases, as well as attention to environmental issues. Health education is delivered in almost every conceivable setting—universities, schools, hospitals, pharmacies, grocery stores and shopping centers, recreation settings, community organizations, voluntary health agencies, worksites, churches, prisons, health maintenance organizations, migrant labor camps; it is delivered through mass media, over the Internet, in people's homes, and in health departments at all levels of government. These settings are discussed later in this chapter.

Health promotion is a term of more recent origin than *health education*. As defined by Green, it is “any combination of health education and related organizational, economic, and environmental supports for behavior of individuals, groups, or communities conducive to health” (Green and Kreuter, 1991). A slightly different definition is suggested by O'Donnell (1989): “Health promotion is the science and art of helping people change their lifestyle toward a state of optimum health. . . . Lifestyle changes can be facilitated by a combination of efforts to enhance awareness, change behavior, and create environments that support good health practices.” Definitions arising in Europe and Canada have yet another emphasis (Kolbe, 1988; Hawe, Degeling, and Hall, 1990). The *Ottawa Charter for Health Promotion* defines *health promotion* as “the process of enabling people to increase control over, and to improve, their health . . . a commitment to dealing with the challenges of reducing inequities, extending the scope of prevention, and helping people to cope with their circumstances . . . create environments conducive to health, in which people are better able to take care of themselves” (Epp, 1986).

Although greater precision of terminology might be achieved by drawing a clear distinction between health education and health promotion, to do so would be to ignore longstanding tenets of health education and its broad social mission. Clearly, health educators have long used more than “educational” strategies. In fact, the terms *health promotion* and *health education* are often used interchangeably in the United States. In some countries, such as Australia, health education is considered a much narrower endeavor than health promotion. Nevertheless, although the term *health promotion* emphasizes efforts to influence the broader social context of *health behavior*, the two terms remain closely linked and overlapping, share historical and philosophical foundations, and are often used in combination. In most cases, we consider the two terms too closely related to distinguish between them. In this book, the term *health education* is used most often. It is to be understood in the historical sense—as a broad and varied set of strategies to influence both individuals and their social environments, in order to improve health behavior and enhance health and quality of life.

Definitions of Health Behavior

The central concern of health education is health behavior, writ large. It is included or suggested in every definition of *health education* and is the crucial dependent variable in most research on the impact of health education intervention strategies. Positive, informed changes in health behavior are typically the ultimate aims of health

education programs. If behaviors change but health is not subsequently improved, the result is a paradox that must be resolved by examining other issues, such as the link between behavior and health status or the ways in which behavior and health (or both) are measured. Informed decision making is a desirable endpoint for problems involving medical uncertainty, and studies suggest that shared decision making may lead to improved patient satisfaction and health outcomes (Rimer and others, 2004). Likewise, environmental or structural interventions to change presumed social environmental determinants of health behavior are intended to improve health by changing behavior (Smedley and Syme, 2000; Story, Kaphingst, Robinson-O'Brien, and Glanz, 2008). Thus, efforts to improve environments and policies should ultimately be evaluated for their effects on health behavior. If policy changes but does not lead to measurable changes in behavior, it may be either too weak or too short-lived, or it could be only a limited determinant of behavior.

In the broadest sense, *health behavior* refers to the actions of individuals, groups, and organizations, as well as their determinants, correlates, and consequences, including social change, policy development and implementation, improved coping skills, and enhanced quality of life (Parkerson and others, 1993). This is similar to the working definition of *health behavior* that Gochman proposed (though his definition emphasized individuals): it includes not only observable, overt actions but also the mental events and feeling states that can be reported and measured. He defined *health behavior* as “those personal attributes such as beliefs, expectations, motives, values, perceptions, and other cognitive elements; personality characteristics, including affective and emotional states and traits; and overt behavior patterns, actions, and habits that relate to health maintenance, to health restoration, and to health improvement” (Gochman, 1982, 1997).

Gochman's definition is consistent with and embraces the definitions of specific categories of overt health behavior proposed by Kasl and Cobb in their seminal articles (1966a, 1966b). Kasl and Cobb define three categories of health behavior:

1. *Preventive health behavior*: any activity undertaken by an individual who believes himself (or herself) to be healthy, for the purpose of preventing or detecting illness in an asymptomatic state.
2. *Illness behavior*: any activity undertaken by an individual who perceives himself to be ill, to define the state of health, and to discover a suitable remedy (Kasl and Cobb, 1966a).
3. *Sick-role behavior*: any activity undertaken by an individual who considers himself to be ill, for the purpose of getting well. It includes receiving treatment from medical providers, generally involves a whole range of dependent behaviors, and leads to some degree of exemption from one's usual responsibilities (Kasl and Cobb, 1966b).

SETTINGS AND AUDIENCES FOR HEALTH EDUCATION

During the past century and more specifically during the past few decades, the scope and methods of health education have broadened and diversified dramatically. This

section briefly reviews the range of settings and audiences of health education today. We note that the ideas of “settings” and “audiences” have expanded and become more diversified over the past decade.

Where Health Education Is Provided

Today, health education can be found nearly everywhere. The settings for health education are important because they provide channels for delivering programs, provide access to specific populations and gatekeepers, usually have existing communication systems for diffusion of programs, and facilitate development of policies and organizational change to support positive health practices (Mullen and others, 1995). Seven major settings are particularly relevant to contemporary health education: schools, communities, worksites, health care settings, homes, the consumer marketplace, and the communications environment.

Schools. Health education in schools includes classroom teaching, teacher training, and changes in school environments that support healthy behaviors (Luepker and others, 1996; Franks and others, 2007). To support long-term health enhancement initiatives, theories of organizational change can be used to encourage adoption of comprehensive smoking control programs in schools. Diffusion of Innovations theory and the Theory of Reasoned Action have been used to analyze factors associated with adoption of AIDS prevention curricula in Dutch schools (Paulussen, Kok, Schaalma, and Parcel, 1995).

Communities. Community-based health education draws on social relationships and organizations to reach large populations with media and interpersonal strategies. Models of community organization enable program planners both to gain support for and to design suitable health messages and delivery mechanisms (see Chapter Thirteen). Community interventions in churches, clubs, recreation centers, and neighborhoods have been used to encourage healthful nutrition, reduce risk of cardiovascular disease, and use peer influences to promote breast cancer detection among minority women.

Worksites. Since its emergence in the mid-1970s, worksite health promotion has grown and spawned new tools for health educators. Because people spend so much time at work, the workplace is both a source of stress and a source of social support (Israel and Schurman, 1990). Effective worksite programs can harness social support as a buffer to stress, with the goal of improving worker health and health practices. Today, many businesses, particularly large corporations, provide health promotion programs for their employees (National Center for Health Statistics, 2001). Both high-risk and populationwide strategies have been used in programs to reduce the risk of cancer (Tilley and others, 1999a, 1999b; Sorenson and others, 1996) and cardiovascular disease (Glasgow and others, 1995). Integrating health promotion with worker safety and occupational health may increase effectiveness (Sorensen and Barbeau, 2006).

Health Care Settings. Health education for high-risk individuals, patients, their families, and the surrounding community, as well as in-service training for health care providers, are all part of health care today. The changing nature of health service

delivery has stimulated greater emphasis on health education and provider-focused quality improvement strategies in physicians' offices, health maintenance organizations, public health clinics, and hospitals (Grol and others, 2007). Primary care settings, in particular, provide an opportunity to reach a substantial number of people (Campbell and others, 1993; Glanz and others, 1990). Health education in these settings focuses on preventing and detecting disease, helping people make decisions about genetic testing, and managing acute and chronic illnesses.

Homes. Health behavior change interventions are delivered to people in their homes, both through traditional public health means, like home visits, and through a variety of communication channels and media such as Internet, telephone, and mail (Science Panel on Interactive Communication and Health, 1999; McBride and Rimer, 1999). Use of strategies such as mailed tailored messages (Skinner and others, 1999) and motivational interviewing by telephone (Emmons and Rollnick, 2001) makes it possible to reach larger groups and high-risk groups in a convenient way that reduces barriers to their receiving motivational messages.

The Consumer Marketplace. The advent of home health and self-care products, as well as use of "health" appeals to sell consumer goods, has created new opportunities for health education but also can mislead consumers about the potential health effects of items they can purchase (Glanz and others, 1995). Social marketing, with its roots in consumer behavior theory, is used increasingly by health educators to enhance the salience of health messages and to improve their persuasive impact (see Chapter Nineteen). Theories of Consumer Information Processing (CIP) provide a framework for understanding why people do or do not pay attention to, understand, and make use of consumer health information such as nutrient labels on packaged food products (Rudd and Glanz, 1990).

The Communications Environment. As noted earlier, there have been striking and rapid changes in the availability and use of new communications technologies, ranging from mass media changes (for example, online versions of newspapers, blogs of radio programs) to personalized and interactive media (for example, PDAs, interactive telephone and Internet exchanges) and a host of wireless tools in homes, businesses, and communities (Viswanath, 2005). These channels are not "settings" per se and can be used in any of the settings described earlier. Yet they are unique and increasingly specialized, providing opportunities for intervention; they also require evaluation of their reach and impact on health behaviors (Ahern and others, 2007).

Audiences for Health Education

For health education to be effective, it should be designed with an understanding of recipients'—target audiences'—health and social characteristics, beliefs, attitudes, values, skills, and past behaviors. These audiences consist of people who may be reached as individuals, in groups, through organizations, as communities or sociopolitical entities, or through some combination of these. They may be health professionals,

clients, people at risk for disease, or patients. This section discusses four dimensions along which the potential audiences can be characterized: (1) sociodemographic characteristics, (2) ethnic or racial background, (3) life cycle stage, and (4) disease or at-risk status.

Sociodemographic Characteristics and Ethnic/Racial Background. Socioeconomic status has been linked with both health status and health behavior, with less affluent persons consistently experiencing higher morbidity and mortality (Berkman and Kawachi, 2000). Recognition of differences in disease and mortality rates across socioeconomic and ethnic or racial groups has led to increased efforts to reduce or eliminate health disparities (Smedley, Stith and Nelson, 2003; World Health Organization, 2007). For example, it has long been known that African Americans die at earlier ages than whites. Life expectancy for African American males is almost seven years less than for white males. The difference of five years for African American versus white women is smaller, but still alarmingly discrepant. The gaps have grown over the past three decades and are even greater for those with lower levels of education and income (Crimmins and Saito, 2001; Franks, Muennig, Lubetkin, and Jia, 2006).

A variety of sociodemographic characteristics, such as gender, age, race, marital status, place of residence, and employment characterize health education audiences. The United States has experienced a rapid influx of new immigrant populations, especially from Africa and Europe, and the proportion of non-white minority residents continues to climb. These factors, although generally not *modifiable* within the bounds of health education programs, are important in guiding the targeting of strategies and educational material, and identifying channels through which to reach consumers. Health education materials should be appropriate for, and ideally matched to, the educational and reading levels of particular target audiences and be compatible with their ethnic and cultural backgrounds (Resnicow, Braithwaite, DiIorio, and Glanz, 2002).

Life Cycle Stage. Health education is provided for people at every stage of the life cycle, from childbirth education, whose beneficiaries are not yet born, to self-care education and rehabilitation for the very old. Developmental perspectives help guide the choice of intervention and research methods. Children may have misperceptions about health and illness. For example, they may think that illnesses are punishment for bad behavior (Armsden and Lewis, 1993). Knowledge of children's cognitive development helps provide a framework for understanding these beliefs and ways to respond to them. Adolescents may feel invulnerable to accidents and chronic diseases. The Health Belief Model (HBM; see Chapter Three) is a useful framework for understanding the factors that may predispose youth to engage in unsafe sexual practices. Older adults and their health providers may attribute symptoms of cancer to the inexorable process of aging rather than the disease itself. Such beliefs should be considered in designing, implementing, and evaluating health education programs (Rimer and others, 1983; Keintz, Rimer, Fleisher, and Engstrom, 1988). Federal health protection goals stress reaching people in every stage of life, with a special focus on vulnerability that may affect people at various life cycle stages (<http://www.cdc.gov/osi/goals/people.html>).

Disease or At-Risk Status. People who are diagnosed with specific diseases often experience not only symptoms but also the distress associated with their prognosis and having to make decisions about medical care (see Chapter Ten). Thus, they may benefit from health education, but illness may compromise their ability to attend to new information at critical points. Because of this, timing, channels, and audiences for patient education should be carefully considered. Successful patient education depends on a sound understanding of the patient's view of the world (Glanz and Oldenburg, 2001). For individuals at high risk due to family history or identified risk factors, health behavior change interventions may have heightened salience when linked to strategies for reducing individual risk (see Chapter Six on the Precaution Adoption Process Model). Even so, strategies used to enable initial changes in behavior, such as quitting smoking, may be insufficient to maintain behavior change over the long term, even in these people. Models and theories of health behavior can suggest strategies to prevent relapse and enhance maintenance of recommended practices for high-risk individuals (Glanz and Oldenburg, 2001).

PROGRESS IN HEALTH PROMOTION AND HEALTH BEHAVIOR RESEARCH

Over the past two decades, research programs have been established to identify and test the most effective methods to achieve health behavior change. More precise quantification of personal health behaviors and improved health outcomes has grown from partnerships between behavioral scientists and biomedical experts. During this period, findings from some major health behavior intervention studies have become available and have provided important insights for the field.

In the late 1970s and early 1980s, three large community cardiovascular disease intervention studies were begun in California, Minnesota, and Rhode Island (Winkleby, 1994). Each study addressed smoking, hypertension, high-fat diets, obesity, and physical inactivity—all widespread risk factors that many practitioners were tackling. The multicomponent risk-reduction programs in these trials used mass media, interpersonal education programs for the public, professionals, and those at high risk. Community organization strategies were used to create institutional and environmental support for the programs, and theoretically derived program planning strategies emphasized community participation (Winkleby, 1994). In the 1990s, all three studies reported their findings on risk-factor changes. They each found favorable secular trends in control sites and modest or nonsignificant intervention effects on risk-factor reduction (Farquhar and others, 1990; Luepker and others, 1994; Carleton and others, 1995). Two large worksite trials of multicomponent nutrition and smoking interventions yielded similar findings (Glasgow and others, 1995; Sorensen and others, 1996).

These studies produced a wealth of knowledge about health behavior, and many of the short-term, targeted interventions within the larger studies were found to be effective (Winkleby, 1994). Nonetheless, the results cast doubt on the presumed effectiveness of population-based intervention strategies over the long term, especially against the backdrop of a dynamic, changing environment. Still, the lack of signifi-

cant communitywide effects in these studies should not be assumed to “disprove” the conceptual foundations of the intervention methods. An alternative view is to regard the interventions used in these studies as contributors to the substantial secular trend in chronic disease prevention (Winkleby, 1994). At the same time, several campaigns were effective in producing behavior changes conducive to health (Hornik, 2002). These experiences suggest that health education interventions must be carefully planned, developed from strong formative research, and theory-based (Randolph and Viswanath, 2004). Although randomized, controlled trials provide the most rigorous test of health behavior interventions, the past two decades have been marked by an increase in carefully designed evaluation research in health education, which combines quantitative and qualitative methods. Evaluations of community-based AIDS-prevention projects (Janz and others, 1996) and coalitions for prevention of alcohol, tobacco, and other drug abuse (Butterfoss, Goodman, and Wandersman, 1996) exemplify newer applications of community research methodologies that offer in-depth process information across multiple programs in diverse settings.

Overall, there has been a growing trend toward evidence-based health education and health behavior (HEHB), as the findings of numerous large health behavior intervention studies have been published (Rimer, Glanz, and Rasband, 2001). One review of research in health education from 1994 to 2003 observed a significant increase in the use of quantitative statistics, finding that the most common types of articles are from cross-sectional studies and review articles (Merrill, Lindsay, Shields, and Stoddard, 2007). That review was limited to three “health education” journals. However, other reviews of research design and statistics also found a preponderance of correlational and descriptive studies (Noar and Zimmerman, 2005; Weinstein, 2007; Painter and others, forthcoming).

As the research literature grows, it is increasingly important that the evidence base become accessible to both researchers and practitioners (Von Elm and others, 2007). Evidence reviews are defined as those using formalized methods to collect, prioritize, and weigh the findings of intervention research. Important progress has been made over the past ten to fifteen years to improve the process of systematic reviews and meta-analysis (Mulrow, Cook, and Davidoff, 1997). In reality, literature reviews cut across a continuum of scientific rigor in their methodologies for selecting, evaluating, and reporting the evidence. They may exclude all but the most rigorous studies or be all-inclusive, may provide detailed information on methodology or only report on findings, or may be highly quantitative in drawing conclusions or rely heavily on expert judgment (Rimer, Glanz, and Rasband, 2001; Lipsey, 2005). An important effort has been under way in the United States since the late 1990s and should continue to advance the evidence base in HEHB in the next few years. The U.S. Task Force on Community Preventive Services is defining, categorizing, summarizing, and rating the quality of evidence on the effectiveness of population-based interventions for disease prevention and control; providing recommendations on these interventions and methods for their delivery based on the evidence, and identifying and summarizing research gaps (Briss and others, 2000; <http://www.thecommunityguide.org>). Parallel efforts are under way in other countries as well, such as

the National Institute for Health and Clinical Excellence (NICE) efforts in England (<http://www.nice.org.uk>).

The challenge of understanding and improving health behavior is central for health policy today and is “one of the most complex tasks yet confronted by science. To competently address that challenge, the . . . research community must simply do more and do it better” in certain key areas of behavioral research (McGinnis, 1994). A coordinated and focused effort will be essential to resolving many of the most vexing health issues facing our society (Smedley and Syme, 2000). Integration of the best available knowledge from theory, research, and health promotion and education practice can advance that agenda in the next decade.

SUMMARY

This chapter has discussed the dynamic nature of health education and health behavior today in the context of changing patterns of disease and trends in health care, health education, and disease prevention in the United States and globally. It has provided definitions of *health education*, *health promotion*, and *health behavior* and described the broad and diverse parameters of this maturing field. Health behavior research has experienced great progress, but mixed findings raise new questions and pose methodological, theoretical, and substantive challenges. The interrelationships and importance of theory, research, and practice are set against a backdrop of the important, growing, and complex challenges in health education and health behavior.

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