

CHAPTER

1

Why Study Social and Behavioral Factors in Public Health?

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Although the social and behavioral sciences are among the newer disciplines to be integrated into public health, the roots of this integration reach deeper than is often recognized. These roots are explored in the opening History section of this chapter, which overviews the professional development of the interdisciplinary field of social and behavioral sciences applied to public health. In the New Public Health paradigm, sociocultural and psychological factors figure importantly in problem analysis, as illustrated in the case study of the social impact of a natural disaster. Next, the overarching framework for the book, the social ecology of health model, is introduced and described in terms of multiple levels of social-behavioral influence on health problems. The application of the model to understanding and addressing health issues is illustrated through three examples, including eating disorders, HIV/AIDS, and a WIC training program.

HISTORY

Public health has always been concerned with the ways in which social conditions influence the health and well-being of communities and human populations. The disciplines of public health and social science both emerged in the latter part of the 19th century along with the recognition of the needs of the poor and marginalized groups and the association between living conditions and health. However, it was not until the mid-20th century that

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professionally trained social scientists became actively involved in public health programs, and by the 1980s, accredited schools of public health in the United States were required to provide formal training in the social and behavioral sciences. The most important challenges for improving health in the 21st century involve social, cultural, and behavioral change. Our knowledge about how social and behavioral factors affect health has grown enormously, but effecting the individual and societal changes needed to reach public health goals is no easy task. Political and economic barriers deeply rooted in the social order constrain what is practically feasible. Nevertheless, emerging new approaches to structural change offer possibilities for surmounting these obstacles and producing higher levels of global community health.

Table 1.1 highlights important milestones in the history of social science contributions to public health. In the 19th century, social theorists in Europe called attention to the unequal distribution of infectious disease among the population, with the poor and working classes being the most prone to infection, and cited the unhealthy living conditions of crowded urban slums, inadequate diet, and physically taxing labor as contributing to the poor health of the disadvantaged. Many important figures contributed to a broad discourse that framed public health issues as socially produced—some with an overt political agenda, such as Marx and Engels; others with a more epidemiologic approach, such as Snow, Panum, and Farr; some as activist physicians, such as Villermé and Guérin; and still others, such as Virchow and Durkheim, with a more sociological orientation (Janes, Stall, & Gifford, 1986). Often referred to as 19th century “social medicine,” this period is significant for establishing the idea that public health is a social science and that social structures and change generate population-level health effects. Moreover, social reform to improve health is also rooted in the early work of advocates such as Virchow and Chadwick. The late 19th century saw the rise of the Sanitary Movement, with organized efforts to improve standards of hygiene and living and working conditions. However, the turn of the century ushered in the bacteriological era, and attention shifted to the discovery and control of biological pathogens in the early decades of the 20th century.

The growth of social and behavioral science applications in public health was strengthened by the redefinition of health in 1948 within the newly formed World Health Organization (WHO) as “a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity.” Since that time, the WHO and other national and international organizations have affirmed the importance of psychosocial well-being as an integral component of health. This expanded conceptualization of health required the expertise of many disciplines to formulate policies and design programs to improve health conditions around the globe. The scope of health promotion again expanded in 1986 with the adoption of the Ottawa Charter for Health Promotion (WHO, 1995), which identified the fundamental prerequisites for a healthy society, including peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice, and equity. This expanded agenda set the stage for an even broader role for social science in public health. The need for comprehensive, multisector approaches to global health promotion was reaffirmed and further outlined in 2005 through the Bangkok Charter for Health Promotion (WHO, 2007).

TABLE 1.1**Important Milestones in the History of Social Sciences in Public Health**

<i>Period</i>	<i>Event</i>	<i>Significance</i>
Greco-Roman & Islamic	Organized efforts to protect the health of vulnerable populations	Emergence of social welfare values in society; use of preventive practices for both physical and mental health
19th century	European social theorists define medicine/public health as "social science"	Social determinants identified as fundamental causes of health and illness: political advocacy for social reform
19th century	Snow and Farr in Britain, Panus in Denmark, and others	Use of social science methods for epidemiological investigation
Late 19th century	Sanitary Movement	Organized efforts to improve lifestyle, living and working conditions of urban poor within industrializing nations
1948	WHO defines health to include mental and social well-being	Set stage for addressing psychosocial factors in health and illness
1950s	Anthropological research on community health	Recognition of cultural factors as barriers to public health interventions; first planned culture change projects to improve health
1955	Medical Sociology Section of the American Sociological Association established	Medical sociology attains subdisciplinary status
1958	Publication of the Health Belief Model	Launched the health behavior change paradigm for public health intervention
1964	U.S. Surgeon General's Report on Smoking and Health	Beginning of movement to reduce health behavior risks to public health
1967–1972	Society for Medical Anthropology, organized in 1967, becomes a section of the American Anthropological Association in 1972	Medical anthropology attains subdisciplinary status
1978	Health Psychology Section of American Psychological Association established	The field of health behavior research and intervention is professionally recognized
1978	Alma Ata Conference on Primary Health Care	Set long-term global agenda to develop comprehensive, community-based approaches to promote basic health
1980s	Behavioral and Social Science Council of the U.S. Association of Schools of Public Health established	Formalization of social and behavioral sciences as integral component of public health training programs
1986	Ottawa Charter for Health Promotion	Identified fundamental social prerequisites for ensuring health and well-being
2005	Bangkok Charter for Health Promotion	Reaffirmed social prerequisites and highlighted role of economic development in health promotion

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Many observers have noted that the AIDS epidemic, which became global in the 1980s, had a significant impact on the position of social and behavioral research in public health. It was the first modern pandemic that could not be controlled primarily through environmental and technological means, such as sanitation and vaccines. Controlling the spread of HIV required changing social norms and values as well as individual behavior, and social scientists rose to the challenge in large numbers (Benoist & Desclaux, 1995). Anthropologists, sociologists, psychologists, and other social scientists have made important contributions to understanding HIV risk behavior and designing interventions to promote safer sex and reduce transmission from injection drug use. Important conceptual and methodologic advances have accompanied this expanded role.

The 1950s: Seminal Developments

The post–World War II era ushered in a period of tremendous growth and development for the social and behavioral sciences in public health. There were two main thrusts in this groundbreaking era, one focused on health modernization in developing countries and the other on population-based screening for medical conditions. It was an era of great optimism about the potential for social engineering of health development and the application of social science methods to understanding and improving the health of populations (Paul, 1956).

In the international arena, anthropologists began working on projects aimed at improving the health and diet of traditional populations in the 1930s and 1940s (Firth, 1934; Malinowski, 1945; Richards, 1939). Beginning in 1950, a number of anthropologists were appointed to key positions in international health organizations, including the WHO; the Rockefeller Foundation; and the Institute for Inter-American Affairs, the forerunner of the U.S. Agency for International Development (USAID).

The appointment of anthropologists to institutional posts paralleled the rapid expansion of public health programs worldwide as modern medicine was introduced on a large scale in many areas. The primary role of anthropologists was seen as that of identifying significant cultural barriers to the acceptance of new public health programs. (Coreil, 1990, p. 5)

Many of the important development projects of this era are described in the classic volume edited by Benjamin Paul, *Health, Culture and Community* (1955). These studies defined culture as a barrier to desirable health practice and introduced the role of the social scientist as a culture broker whose expertise can be applied to facilitate directed change. In particular, the focus was on diffusion of health technology to solve problems of “underdevelopment” by overcoming resistance to change grounded in traditional values, institutions, and practices. The conceptualization of culture as a barrier to good health became firmly rooted in social science thinking throughout the latter half of the 20th century, and it persists to the current day in various reformulations, such as “cultural awareness” and “cultural diversity.” However, critics have also challenged this perspective as reflecting ethnocentric and neocolonial ideas of progress through culture change (see Chapter 9).

Concurrent to the above developments, the 1950s brought forth in industrialized countries focused attention on mobilizing large numbers of people to take part in various public health campaigns. Here again, officials encountered resistance to citizen participation and turned to social science expertise for solutions. In this case, social psychologists took the lead in developing approaches to analyze the problem and formulate interventions based on emergent models of individual behavior change. The seminal framework that emerged was the health belief model. Drawing on cognitive and behavioral theories of human behavior, the model conceptualized health practices as motivated by value expectancies, or subjective assessments of the personal benefits of particular outcomes and the expectations that certain actions will achieve desired goals (Janz, Champion, & Strecher, 2002). Developed in the context of a campaign to screen the adult U.S. population for tuberculosis (TB) through voluntary chest X rays offered in mobile clinics, the model was advanced to help explain why, despite the availability of free and convenient screening opportunities, participation remained low. The model posits that the decision to take action to protect one's health is determined by four factors: (1) whether people consider themselves susceptible to the condition, (2) whether the condition is perceived as having serious personal consequences, (3) whether a specific action is expected to reduce the risk of getting the condition or the consequences of it, and (4) whether the perceived benefits of the action outweigh the subjective costs or barriers to taking action. This rational cost-benefit model dominated health behavior change programs for several decades, with various elaborations and modifications over time, and set the stage for the development of other cognitive-behavioral models of health practice. Various behavior change models based on principles of motivation and learning theory were elaborated in subsequent decades and came to occupy a central position in health promotion interventions (see Chapter 4).

Maturation of the Field

Social science contributions to public health were bolstered significantly by the development of more sophisticated conceptual models and methods of research and data analysis, including both quantitative and qualitative techniques. The maturation of the field is reflected in the scope and influence of scholarly articles published in the multidisciplinary journal *Social Science & Medicine*, which first appeared in 1966 and currently boasts a large international readership and a high-impact rating among scientific journals. In the 1980s, significant developments occurred through the involvement of social scientists in international health activities related to child survival programs, HIV/AIDS, and tropical diseases. These activities were promoted and funded through intergovernmental agencies such as United Nations Children's Fund (UNICEF), WHO, and TDR (the interagency, collaborative Special Program for Research and Training in Tropical Diseases) as well as through bilateral development agencies such as USAID, the Canadian International Development Agency, and their European counterparts. Established in 1975, TDR in particular has played an important role in advancing social science research on tropical diseases, through programs that train developing country scientists and support research focused on sociocultural factors and health. A noteworthy strength of its programs has been the promotion of gender-focused research.

Shift From Infectious to Chronic Disease

Over the course of the 20th century, the public health enterprise underwent significant transformation as a result of a radical shift in focus from infectious diseases to chronic conditions as the major challenges to population health in industrialized societies. Tied to demographic, environmental, and social change, this transformation, also known as the *epidemiologic transition* (see Chapter 2), required profound alterations in how public health problems were addressed. Chronic conditions such as heart disease, cancer, diabetes, mental illness, and health problems of older persons replaced TB, pneumonia, childhood diarrhea, and other infections as the leading causes of morbidity and mortality in industrial countries (although TB, malaria, and, later, AIDS remained the major killers in developing countries). As chronic diseases and disability became the focus of public health interventions, the role of social and behavioral factors became increasingly important for disease prevention and control. Multilevel models that emphasized the social and political environment reemerged to replace the traditional medical model grounded in the germ theory of disease as well as the traditional public health model emphasizing host-agent-environment interactions. Anthropology, sociology, political science, demography, gerontology, and other social sciences made important contributions to this reframing of public health. With their focus on broad social processes and macrolevel determinants, the social sciences helped redefine the public health agenda as one integrally concerned with policy, economics, social organization, and cultural dynamics across diverse institutions. This shift built on advances in the professional development of these disciplines, theoretical and methodological contributions, and political advocacy on the part of diverse communities (see Chapter 16).

Primary, Secondary, and Tertiary Prevention

One of the ways in which public health is often contrasted with clinical medicine is the degree to which it focuses on *prevention* of disease and disability, while medical practice emphasizes the *treatment* of health problems after they occur. It is commonplace in public health to further differentiate between *primary, secondary, and tertiary prevention*. In primary prevention, the focus is on activities that forestall the development of pathological conditions. For example, preventing the onset of heart disease through healthy lifestyle behavior would fall in this category. Secondary prevention, on the other hand, refers to detection of disease or its precursors at an early stage to take ameliorative action that can thwart full development or enable measures to keep the problem in check. Regular screening for detectable conditions such as hypertension, breast and colorectal cancer, diabetes, and sexually transmitted infections falls in this category. Finally, tertiary prevention includes interventions at later stages of disease to prevent secondary complications, sustain optimal disease management, and ensure the best quality of life. Treatment for hypertension, diabetes, depression, osteoporosis, lymphedema, and other chronic conditions illustrates the third category of prevention. Social and behavioral factors figure importantly in all three types of prevention; however, over the decades, interest has grown particularly in their potential contribution to

primary prevention. Health economists have demonstrated that it is far more cost-effective to prevent conditions before they develop than to provide long-term care for chronic conditions. The cost factor is particularly salient as more people live to an advanced age and governments are mandated to ensure the provision of care. There is also the desire for people to live healthy, productive lives for as long as possible.

Of all the public health disciplines, the social and behavioral sciences can make unique contributions to primary prevention. Influencing lifestyle patterns and the social context in which people live is fundamental to prevention of the major health conditions facing society today. It also poses one of the greatest challenges, because the force of macrolevel influences on individual behavior is tremendous. One need only consider the facts of the contemporary way of life—such as sedentary daily routines; people spending many hours of the day in front of computers; increasing reliance on processed and “fast” food; and the tendency toward workaholicism, lack of sleep, and chronic stress—to appreciate the obstacles facing such programs. It is a basic tenet of intervention that it is far easier to modify the more proximate determinants of health, such as individual food choices, than it is to alter the intermediate and distal forces that affect those choices. Changing the organization of society and the core components of culture poses an enormous challenge, yet there is growing recognition that only through alteration of the fundamental causes of disease (e.g., inadequate income and access to health care, unemployment, racial and gender discrimination, lack of social support, stressful work settings, failure to provide educational opportunities) can true primary prevention be realized (Link & Phelan, 1995).

Professional Development of the Field

At the close of the 20th century, important conferences and publications marked the maturation of the field and recognition of the significance of “higher-level” analysis of the social and cultural aspects of health. In 1998, the U.S. Centers for Disease Control and Prevention (CDC), in collaboration with the American Psychological Association and other professional social science organizations, sponsored a multidisciplinary conference, *Public Health in the 21st Century: Behavioral and Social Science Contributions*. Two years later, the National Institutes of Health (NIH) organized an agenda-setting conference, *Towards Higher Levels of Analysis: Progress and Promise in Research on Social and Cultural Dimensions of Health* (Schneiderman, Speers, Silva, Tomes, & Gentry, 2001). A recurrent theme in these meetings was the recognition that, despite impressive advances in understanding the biological and genetic bases for disease, “Knowledge about biological and genetic markers is important but limited in predicting who gets sick, who seeks treatment for health problems, and who recovers from illness. The social sciences contribute to filling these gaps in our understanding of health” (NIH, 2001, p. 1). These conferences marked a critical juncture in the development of the field—that is, the accumulation of knowledge about the complex interplay of macro- and microlevel influences on health, as well as new technologies for putting into practice strategies for influencing the impact of those factors. Outside the United States, similar events and publications marked this important turning point in the field, such as the volume published

by the French Association for Medical Anthropology Applied to Development and Health (AMADES), *Systèmes et politiques de santé: De la santé publique à l'anthropologie* (Hours, 2001); the creation of the WHO Commission on Social Determinants of Health (2005); and the 2007 conference, Social, Cultural and Economic Determinants of Health, held in Portugal.

THE NEW PUBLIC HEALTH

In the 20th century, the field of public health underwent tremendous change and diversification. In the early part of the century, infectious diseases posed the greatest health challenge for people, whether they lived in industrialized countries or developing nations. Control of communicable diseases was the focus of public health practice, through organized efforts such as provision of safe water and sanitation, immunization services, and monitoring and surveillance of disease outbreaks. After 1930, antibiotic therapy became an essential component of infection control, and it remains an important aspect of public health programs that deal with sexually transmitted diseases and other communicable illnesses. In the second half of the century, however, with the emergence of chronic diseases, injury, substance abuse, and other health problems as the focal public health challenges, the dominant paradigm has shifted toward social and behavioral approaches to disease prevention and health promotion. While the more traditional activities of infection control and environmental protection remain important in today's world, much attention and effort are now focused on changing the social conditions that undermine health as well as the behavioral patterns that put people at risk of illness and injury.

Sometimes referred to as the “new public health,” this emergent paradigm in public health parallels the reconceptualization of individual health within the field of medicine along similar lines (Frenk, 1993). Whereas in the past, the germ theory of disease dominated medical research and practice, we now view individual health as shaped by complex interacting systems of biological, social, and environmental factors. While tremendous advances in biomedical technology have dramatically improved our ability to treat illness and prolong life through the use of sophisticated diagnostic testing, powerful drugs, and advanced surgery, medicine has increasingly recognized the importance of cultural context, social organization, and lifestyle choices for individual health. Various labels—“social medicine,” “behavioral medicine,” and “medical ecology”—the new medical model shares with public health a broadened framework for analyzing health problems in terms of complex biosocial systems.

A number of developments contributed to the rise of the social ecology paradigm in medicine and public health (Krieger, 1994). One was the shift in epidemiologic patterns from infectious to chronic diseases noted above. This shift was part of a broader, postindustrial transformation of society, involving changing demographic trends and patterns of morbidity and mortality. People now live longer and healthier lives, and the health problems they do face involve conditions that cannot be “cured” in the traditional sense. The major illnesses affecting industrial populations today, such as heart disease, cancer, and diabetes, can only be controlled through primary prevention or “managed” over the long term to improve

quality of life. Prevention and treatment of chronic diseases depends heavily on behavioral practices such as diet, exercise, substance use, and stress reduction. Likewise, behavior and social conditions are the central components of preventive approaches for other leading public health problems such as unintended pregnancy, substance abuse, motor vehicle accidents, and violence. Even with the new and emergent (or resurgent) infectious diseases, such as HIV/AIDS, TB, and sexually transmitted diseases, sociobehavioral factors are widely recognized as critical for their control.

Another important contribution to the social ecology model of public health has been the wealth of scientific discoveries linking biology, behavior, and culture. Nearly all diseases and health conditions are now known to have multifactorial etiologies involving complex interactions of processes located inside and outside people's bodies. We know, for example, that stress is an underlying component of all illness, including both acute infections and chronic disorders, and that physical and psychological stress can affect one's ability to fight disease and restore health. In fact, illness is increasingly viewed as a breakdown in the body's natural defense system, which is highly sensitive to internal emotions and external stressors in the social environment (see Chapter 5). The negative impact of social discord, whether from family relationships, the work setting, or school pressure, can play as important a part in whether someone gets a cold or flu as exposure to specific pathogens. Indeed, some argue that psychosocially mediated immunity is the primary factor in most people's susceptibility to infection (Kaplan, 1991). It is worth noting that only 25 years ago, researchers were just beginning to investigate the relationship between stress and illness; today, the role of stress in health is well documented, and research has spawned a dynamic field of study called psychoneuroimmunology.

Research on stress and health is closely linked to studies of social support—that is, the way in which our connections to other people has a protective effect on well-being. It has been shown, for instance, that people who interact with a large network of friends and family members get sick less often and recover from illness faster than those who do not. Similarly, people who live alone have higher rates of death and suicide than those who live with others (Syme, 1986). These trends illustrate one kind of mechanism through which the social environment can affect health status. The social environment can also influence health through social structural arrangements, which position people at different places in society and mediate access to resources such as education, income, medical services, status, and prestige (Link & Phelan, 1995). Because people occupy different positions in the socioeconomic structure, disease and mortality are not evenly distributed within a population. The field of study that addresses such variation in health risks is known as social epidemiology. Many advances in understanding social risk factors have occurred in recent decades, leading to redefinitions of health as “socially produced” and increased attention to interventions focused on organizational change (Goodman, Steckler, & Kegler, 1997).

We have also learned a great deal about how cultural factors influence health—for example, the ways in which people think about and behave regarding food, the relative value they place on work and leisure, how health and illness are perceived and managed, and the role of ethnic identity in shaping disease patterns. Approaches to studying cultural

influence have broadened to encompass notions of gender culture, family culture, organizational culture, and corporate culture, all having important lessons for public health research and practice. In Chapter 2, we take a closer look at disease history in relation to long-term cultural evolution, highlighting the relationship between human subsistence strategies and patterns of disease and injury.

Another development that has enlarged the scope of public health is its expansion into new arenas of social welfare, including primary care services; reproductive health; child and family protection; injury prevention; and the health consequences of natural disasters, war, and political violence, to name but a few. Contemporary public health encompasses an enormous diversity of specialized fields, which in turn draw on the knowledge and perspectives of many disciplines. The social and behavioral sciences have become increasingly relevant in this robust endeavor, contributing new conceptual, methodologic, and policy perspectives to the field. Nowadays it is just as likely to find public health professionals talking about consumer satisfaction, political advocacy, and community empowerment as about more traditional issues such as disease surveillance and government regulation. While the “new public health” has been widely endorsed by diverse disciplines and constituencies within the health arena, it is not without critics (Bunton, Nettleton, & Burrows, 1995; Petersen & Lupton, 1996). The latter apply poststructuralist perspectives to highlight the ever-expanding control public health institutions tend to exert on everyday life, through social constructions, the creation of expert knowledge, moral discourse on behavior, interpersonal relations, and other health “risks.”

To illustrate the holistic approach outlined above, the following section presents a case study analyzing the sociocultural and behavioral impact of an acute environmental crisis, the 1989 oil spill in Prince William Sound, Alaska, and subsequent efforts to clean up the area.

CASE STUDY

The *Exxon Valdez* Oil Spill

The grounding of the *Exxon Valdez* oil tanker in 1989 released 11 million gallons of crude oil into a once-pristine environment where Native Alaskans depended heavily on marine resources for their livelihood. A year after the accident, the anthropologist Lawrence Palinkas and colleagues conducted a population-based survey of nearly 600 households in 13 localities (Palinkas, Downs, Petterson, & Russel, 1993). The researchers measured demographic variables, levels of exposure to the spill, impact on social relations within families and the community, changes in traditional subsistence activities, and indicators of mental and physical health. By comparing respondents with high exposure scores and those with less exposure to the effects of the spill and cleanup, a dose-response relationship could be established for different consequences.

The damage from the oil spill, along with the ensuing efforts to clean up the area, set off a chain of events with profound social, cultural, and psychological impacts on the affected communities. Exposure status was significantly associated with degree of reported decline in social relations, including conflicts among family members, neighbors, friends, and coworkers. Not only

did the spill dominate daily conversation in the year following the accident, but a large proportion of residents were directly involved in the intensive cleanup efforts, which required a large labor force over several months. The high wages offered to attract workers made it difficult for local communities to retain unskilled employees, and many families were disrupted when one or both parents worked long hours away from home. Only the able-bodied could handle the work, so not everyone benefited from the cleanup operation, causing some resentment among those excluded. Conflicts with outsiders who came for the lucrative work were commonplace. In some villages, more than 40% of respondents reported friendships ending over cleanup disputes, often related to whether one worked on the cleanup or not. Those who worked in the cleanup reported spending less time with friends and less participation in religious activities and festivals and in volunteer activities compared with those less exposed to the spill.

Economic disputes were also rampant, over issues such as equitable distribution of monetary compensation among permit holders and crewmen for lost fishing. Furthermore, involvement in the spill and its aftermath had a dramatic effect on subsistence activities for this population. Hunting, fishing, and harvesting of certain traditional foods had long played an important symbolic role in maintaining native identity, culture, and family solidarity. These activities were drastically curtailed because of environmental pollution from the spill and because so many people were working long hours in the cleanup. Issues of cultural survival were seriously discussed in relation to the disaster (Picou, Gill, & Cohen, 1997).

Finally, in the health arena, high-exposed individuals scored significantly higher than low-exposed persons on measures of psychiatric disorders and physical health status, and they reported higher perceived increases in community levels of substance abuse and domestic violence. Exposure status was associated with generalized anxiety disorder, posttraumatic stress disorder, and depression. It was also linked to higher numbers of physician-verified illness conditions occurring postspill as well as a self-assessed decline in health status. These data were corroborated by documented increases in visits to community clinics for primary care and mental health services throughout the region. Furthermore, the psychosocial impact of the spill differentially affected ethnic groups living in the region. Other studies of the disaster found that Alaska Natives reported higher levels of stress and posttraumatic stress symptoms than did non-Native commercial fishermen (Gill & Picou, 1997; Palinkas, Petterson, Russel, & Downs, 2004). These findings corroborate studies of other disasters in which ethnic groups were affected in different ways (Palinkas, in press), and they underscore the importance of cultural context in understanding the impact of disasters.

The *Exxon Valdez* oil spill illustrates the extensive ways in which environmental disasters can produce direct and indirect social and psychological effects in affected communities. At a more general level, it illustrates the harmful impact of rapid sociocultural change in a case example that is likely to recur in other areas of the world. It allows the examination of the association of processes of sociocultural change and subsequent health and well-being. It would be interesting to investigate the long-term impacts of the Alaskan spill; however, access to affected populations for purposes of research has been severely limited due to litigation issues (L. A. Palinkas, personal communication, November 26, 2007).

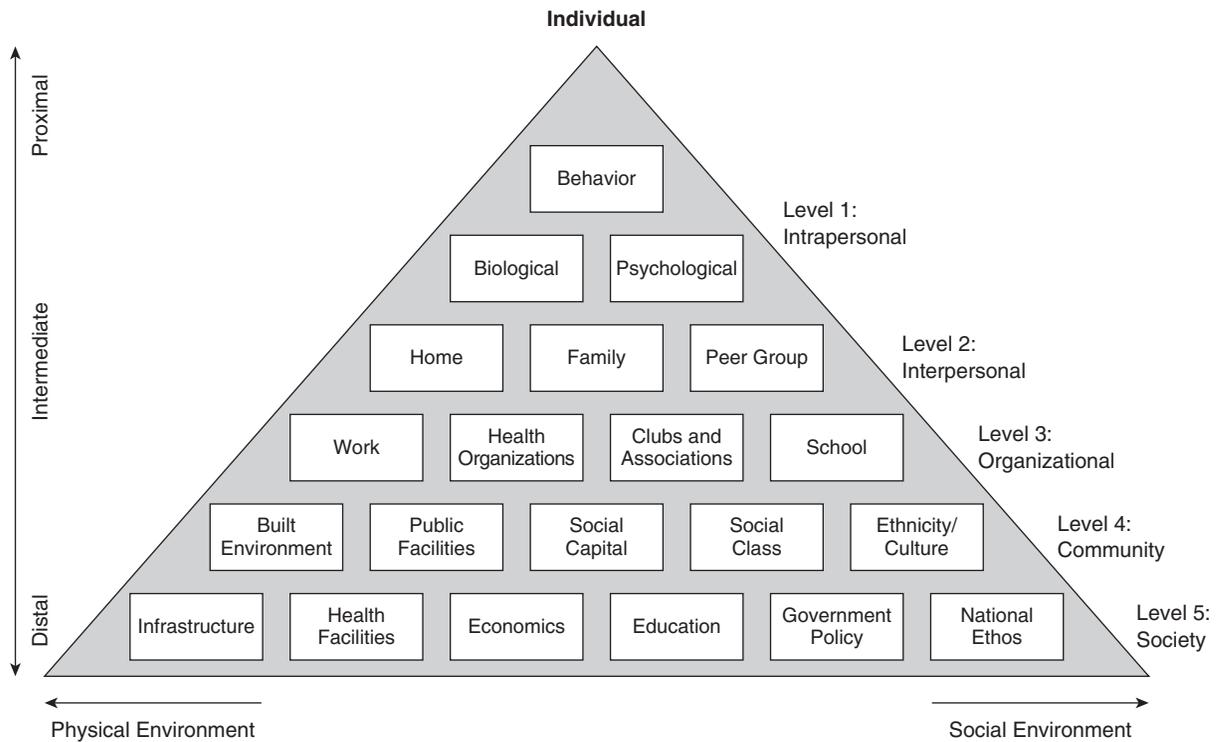
SOCIAL ECOLOGY OF HEALTH MODEL

The *Exxon Valdez* case study highlights a variety of social and behavioral factors that are relevant to a holistic analysis of public health problems. These dimensions were presented without reference to a particular organizing framework; however, in the remainder of this volume we will use the social ecology of health model as an organizing framework for understanding health problems and planning interventions.

A number of formulations of the social ecological model have been developed. They all have in common the notion of multilevel systems of mutual influence and interaction, moving from the individual level through linkages to larger social networks including the family, community, social institutions, the state, and global systems. Key concepts include system integration, change, and adaptation over time (Richard, Potvin, Kishchuk, Prlic, & Green, 1996). One formulation of the model that has gained prominence is that developed by McLeroy and colleagues for application to health promotion (McLeroy, Bibeau, Steckler, & Glanz, 1988). This model is organized around five hierarchical levels of influence: (1) intrapersonal factors, (2) interpersonal processes and relations with primary social groups, (3) institutional factors, (4) community factors, and (5) public policy. It has been widely applied to the study of diverse health topics, including physical activity, drug use, adolescent pregnancy, infant feeding, cancer, and heart disease.

The model we are using in this textbook is very similar to that of McLeroy and colleagues (1988) in that it organizes determinants of health according to five hierarchical levels of influence—that is, intrapersonal, interpersonal, organizational, community, and society. Our visual depiction of the model is adapted from Hanson and colleagues' (2005) Injury Iceberg model, with the tip of the iceberg or triangle representing behavior and successive underlying levels representing social contextual and structural factors (see Figure 1.1). Examples of factors influencing health at the intrapersonal level include biological and psychological factors such as genetics, cognition, and personality. At the interpersonal level, we identify home, family, and peer group influences, while the organizational level might include work and school settings, civic associations, and health care organizations. At the level of community, we can identify factors such as ethnicity, social class, social capital, public facilities, and the built environment. The more macrolevel societal factors include policy issues, national ethos and cultural values, infrastructure, economics, and education. Aspects of the physical environment are positioned toward the left side of the pyramid, while social contextual factors are located to the right. Our model also incorporates the notion of proximate, intermediate, and distal determinants of health (see Causal Continuum, Chapter 3), with the more proximate factors located near the tip of the pyramid, the individual level; intermediate factors corresponding with interpersonal and organizational levels; and distal factors corresponding with community and societal influences. This model can be applied to the analysis of many public health problems, as will be illustrated throughout the book.

Although systems strive toward equilibrium, perfect balance is never achieved because systems are open to internal and external changes and thus constantly require adjustment or adaptation. Because all levels of an ecosystem are integrated, change at any level of the system may require adjustment at other levels. The process of adaptation in response to change is one way

FIGURE 1.1**The Social Ecology of Health Model**

SOURCE: Hanson et al. (2005). *Health Promotion Journal of Australia*, 16, 5–10. Used by permission.

of conceptualizing stress, and again it can occur at different levels, including psychological distress, family dysfunction, community disruption, rapid culture change, and environmental degradation. Sociocultural or environmental change can have repercussions that eventually affect communities, families, and individuals (Ell & Northen, 1991). For example, an economic recession often leads to high unemployment rates; within families, a provider may lose his or her job, leading to loss of medical benefits and reduced income, which affects access to health care. Social support can buffer the negative effects of stress at different levels of the system, such as through close friendships, strong families, community resources, and one's integration with (or alienation from) the larger society.

Although we have emphasized social environmental factors above, because of the subject matter of this book, the social ecology of health model also incorporates aspects of the physical environment. At the household level, we can consider housing conditions and hazards in the home; at the community level we must take into account physical aspects such as the built environment, water quality, air pollution, toxic waste, noise, crowding, and other features; at the societal level, examples of physical environmental concerns might include atmospheric change (e.g., global warming), changes in flora and fauna (e.g., deforestation,

vector habitat), climatic stress (e.g., heat waves, cold spells), and natural disasters (floods, tornadoes, hurricanes). The impacts of these biophysical phenomena are always mediated through social system arrangements that shape how humans respond to and manage environmental events.

In public health, we are concerned with changes emanating from the larger social system, including government legislation, regulation, and budgetary matters that directly affect health issues. The health of the economy almost always has social welfare repercussions. We are also concerned with more local-level institutions, such as state politics, community health services, school systems, and law enforcement. The social ecology of health model provides a framework that allows one to locate these disparate public health issues within a coherent organization.

To illustrate the model's application to public health problems, we present three examples. The first provides a brief overview of the general approach, using eating disorders as a case study. Next, the model is more systematically applied at different levels to the chronic epidemic of HIV/AIDS. Finally, a practical application of the model in designing a public health intervention is presented.

Eating Disorders

As a brief illustration of the model's application, we can discuss the different levels of influence on the problem of eating disorders. In recent years, there has been increasing recognition of the seriousness, prevalence, and repercussions of eating disorders in the United States. Although obesity can be considered an eating disorder, we will focus this example on malnutrition related to anorexia and bulimia as it affects adolescent girls. Purging, the use of laxatives, self-induced vomiting, and related unhealthy behaviors have been associated with poor self-esteem in young women, an intrapersonal factor strongly influenced by the social context in which girls live. Familial pressure to excel, peer pressure to maintain an ideal body size, and media images depicting ultrathin fashion models and celebrities all contribute to the tendency of young girls to set unrealistic goals for their physical appearance. Girls who suffer from eating disorders often have a distorted self-image and seek to attain control over their lives through purging and extreme dieting. More distal social structural influences on the problem include gender stereotypes whereby women are valued for their physical beauty and as sex symbols, with the female body being used to sell consumer products. The popular media give lavish attention to topics of weight, weight loss, and dieting, reinforcing the importance accorded to maintaining an ideal body size. The cult of celebrity in American society leads to excessive attention to the thinness or fatness of Hollywood and television stars. Young girls have limited exposure to role models that reflect realistic physical attributes of women.

The HIV/AIDS Epidemic

In the early 1980s, the HIV/AIDS epidemic burst on the international stage signaling alarming and sobering challenges. Here was a highly lethal infection with unclear etiology

and transmission, spreading rapidly among disparate social groups and with no effective treatment in sight. In North America and Europe, during the early stages of the epidemic, the disease affected primarily gay men, hemophiliacs, and injection drug users. In 1984, the microbial agent, HIV (human immunodeficiency virus) was identified, along with transmission routes involving sexual practices and contaminated blood, and a test for HIV became available in 1985. Screening of blood supplies eliminated the risk of infection from transfusions, but altering sexual and drug use practices proved to be a much bigger public health challenge. It soon became clear that more than any other major health problem addressed to date, AIDS was a disease in which social and behavioral factors played a dominant role in etiology and control. Primary prevention was the only effective intervention available. Moreover, efforts to curb the epidemic through behavior change (i.e., safer sexual practices) encountered overwhelming obstacles at both individual and societal levels. Of particular interest was the way in which social responses to the disease revealed disturbing patterns of moral condemnation, stigmatization of marginal groups, and questionable ethics in research and medical care.

Before long, the heterosexual transmission pattern dominant in developing countries emerged as a serious problem in the global North as well. However, as noted in the previous section, not everyone in the population was equally at risk; not surprisingly, groups living in poverty at the margins of society were the most affected (with the exception of gay men)—ethnic and racial minorities, sex workers, and people living in high-crime urban neighborhoods. The social epidemiology of AIDS mirrored the health situation of the world's cities.

Applying the social ecology of health model to the HIV/AIDS epidemic underscores the fact that the epidemic served as a lightning rod for a host of psychosocial issues (Rushing, 1995). At the individual level, the illness was charged with intense emotion: fear of diagnosis for its victims, who often could anticipate social rejection and discrimination and an agonizing deterioration ending in death, as well as anxiety among health workers, whose job put them at risk of infection.

The social impact of the epidemic on families, communities, and health care systems was profound. Many people with AIDS were abandoned by their families on account of fear, shame, and economic hardship. The devastating effects included family disintegration, orphaned children, and infants born HIV positive through exposure in utero. In some areas, the magnitude of adults affected seriously diminished the productive workforce. To its credit, the gay community responded positively by organizing for political advocacy and spearheading local educational campaigns. Because the disease involved expensive medical care for multiple conditions over an extended time period, issues of access to care surfaced quickly, highlighting ongoing ethical dilemmas about who should bear the burden of health care costs and how to allocate limited therapeutic resources. Even with the advent of effective drug treatment, which has reduced health care costs, issues of equitable distribution have remained unresolved. Likewise, ethical controversies continue in the realm of research involving subjects from poor countries, which cannot afford the costly new medicines.

At the societal level, the collective moral outrage tended to find a scapegoat in “undesirable” groups that deviated from the norms of the privileged majority. A striking example of

such a response was the labeling of Haitians in general as a “risk group” for several years, clearly a reflection of racially based fears of social contamination from foreigners. Most telling was the stark exposure of the deep-seated homophobia triggered by the crisis. Scientific thinking was incredibly suspended as the dogma of “punishment for sin” was espoused from pulpit to podium, and government officials blocked efforts to increase public funding for AIDS research and educate the public about safe sex. The social control functions of illness labeling (see Chapter 7) were clearly operating in many domains during the epidemic. Cultural taboos about sex prevented open discussion of the problem for a long time. The pernicious effects of gender stratification also were evident in the epidemiology of and failure to control the spread of HIV, particularly in poor countries, where women’s economic dependence on sexual relations with men placed them at risk of infection.

At the global systems level, the HIV/AIDS epidemic has generated tremendous international collaboration in policy development, research, and treatment. The annual International AIDS Conference, first convened in 1990, has grown into one of the largest assemblies of scientists and professionals in the health field. A more recent offshoot of this meeting, the International AIDS Impact Conference, provides a forum for scholars working in intervention programs and with populations affected by the disease. In recent years, substantial financial support through the Global Fund to Fight AIDS, Tuberculosis and Malaria and President Bush’s Emergency Plan for AIDS Relief has enabled noteworthy progress in making effective drugs available to low-income countries.

WIC Training Program

The previous example illustrates how the socioecological model can help identify various factors that affect health problems at different levels. The model also has utility in planning public health programs. The following example describes the application of the ecological model to designing a training program for county health department employees. The focus of the program was training staff involved in the Child Growth Monitoring Project (CGMP) of the New York State WIC (Women, Infants and Children) program. Worldwide, monitoring the growth of infants and children is a fundamental public health activity and is considered an essential component of disease prevention and health promotion in both industrialized and developing countries (de Onis, Wijnhoven, & Onyango, 2003). Children are regularly weighed and measured for height and head circumference to ensure that healthy growth is occurring and to intervene if it falters. In the United States, public sector involvement in child growth monitoring is focused on the Special Supplemental Nutrition Program for Women, Infants and Children, which provides nutrition education and counseling to mothers as well as food supplements and growth monitoring for children. Prior to planning health intervention programs, social and behavioral scientists often conduct formative research to guide program development. In the New York project, researchers used the ecological model to guide formative research “because it offered a concrete framework to account for the reciprocal interaction of behavior and environment” (Newes-Adeyi, Helitzer, Caulfield, & Bronner, 2003, p. 283). The goal was to identify priorities for training WIC staff in

plotting and interpreting growth data and implementing nutrition education and counseling for mothers of enrolled children. The researchers focused their data collection efforts on those ecological levels considered potentially amenable to change through training—individual, interpersonal, and organizational. At the individual level, the study found that WIC staff held positive attitudes about the usefulness of growth monitoring in their work but did not include nutritional counseling for caretakers as part of the anthropometric assessment of children. At the interpersonal level, provider-client interaction was found to focus primarily on completion of paperwork for certification of eligibility, with little attention to the client’s perspective on the child’s growth progress. At the organizational level, the research found that the sequencing of child measurement and caretaker counseling was disjointed, with counseling typically occurring 1 to 2 months after growth assessment. Taken together, the study results showed “gaps in the counseling skills of the WIC providers as well as organizational issues that did not promote the application of comprehensive growth monitoring as advocated in the literature” (Newes-Adeyi et al., 2003, p. 287). Based on these findings, the training program that was developed focused on reinforcing the link between anthropometry and nutritional counseling.

One of the lessons learned in the CGMP study was the recognition on the part of the researchers that the study “could have benefited from utilizing a more comprehensive ecological model in the design of the formative research” (Newes-Adeyi et al., 2003, p. 288). For example, it became evident that a missing piece involved provider-provider relationships in the implementation of a team approach to growth monitoring. There appeared to be less than full support for the team approach, and more information on this aspect would have been helpful. At the community level, lack of information about formal and informal professional networks of WIC staff limited the planners’ ability to incorporate strategies for using such networks in the training program. Finally, at the policy level, a better understanding of state-level regulations and policies would have helped in identifying ways to reinforce new strategies for implementing coordinated assessment and counseling.

CONCLUSION

The foundations of social and behavioral science perspectives in public health have roots in 19th-century ideas about the social bases of health. These same ideas continue to have relevance for framing health problems as embedded in complex social environmental contexts. The social ecology of health model provides a framework for understanding the multiple levels of influence on health outcomes. Conceptual and methodologic advances across disciplines have improved research and practice in this field. Application of the model to the examples of eating disorders, HIV/AIDS, and program planning illustrates the kinds of factors that come into play at different levels.

The chapters that follow will explore in greater depth how social, cultural, and behavioral factors influence disease patterns as well as individual and collective responses to ill health. The next chapter takes a historical perspective by examining changes in health conditions across different time periods of human history.

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