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Medical Anthropology

A Biocultural Approach

Third Edition



Andrea S. Wiley
Indiana University, Bloomington

John S. Allen
Indiana University, Bloomington

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Preface

A Biocultural Approach to Medical Anthropology

The field of medical anthropology embraces a wide range of perspectives as it seeks to understand human health and illness as fully biocultural phenomena. Medical anthropology emerged as a distinct topic of interest in anthropology in the 1970s and has grown tremendously since then. The Society for Medical Anthropology, a unit of the American Anthropological Association with more than 1,400 members, is one of the largest sections of the association. Anthropologists from across the four subdisciplines (archaeological, biological, cultural, and linguistic anthropology) have contributed to making medical anthropology a vital and essential part of anthropology.

Our interest in writing this text grew out of our dissatisfaction with the existing texts on the market. Having taught medical anthropology over the past 25 years, we have struggled to find a text that matches our pedagogical approaches and our students' backgrounds and interests. We each patched together appropriate readings, but felt the need for a book that could be the core of the course, one that provided both an overview of the field and a clear orienting focus. This is a tall order, but the range and diversity of medical anthropology makes the task of textbook writing an exciting challenge.

To present the field's wide range of content and perspectives in one textbook, it is necessary to develop a cohesive approach; ours is explicitly biocultural. Health and disease have both biological and cultural causes and consequences. An ailment is likely to have a physiological foundation, but its meaning is subject to cultural interpretation and its causes more often than not stem from sociocultural conditions. A biocultural perspective draws on the breadth of anthropological research on health and attempts to articulate and synthesize the ways in which biological and cultural factors interact and affect health.

Our approach is to first present basic biological information on a particular health condition and elaborate from there. We then expand our analysis to include evolutionary, historical, and cross-cultural perspectives that enrich our understanding of particular health conditions. Our emphasis is on understanding biological and sociocultural sources of variation in health both within and between populations and through time; as such, this book makes use of the holistic perspective of four-field anthropology. In our approach, we do not mean to "privilege" physiological explanations of disease, but when teaching our own classes, we have found that expanding from a biological foundation to the social and cultural aspects of health and disease is a pedagogical strategy that works well for our students. Many students come to medical anthropology from the health and biological sciences, and students

in the social sciences, such as anthropology and humanities, also find that their perspectives mesh well with the biocultural approach we present.

We attempt to present a holistic view of the field of medical anthropology, but we recognize that we cannot present the "whole" of the field. Given that teachers of medical anthropology come from diverse perspectives, this text is best used in conjunction with additional resources. After each chapter we list some options for ethnographies or other related texts that would be complementary to the material covered in the chapter. Furthermore, we feature the work of applied medical anthropologists—those who are making use of anthropological perspectives to design, implement, or evaluate health interventions or policies.

What Is Distinctive about This Text

Each of the chapters of this book is organized around a topic central to medical anthropology. The basic biology will be presented and then contextualized by the relevant evolutionary, historical, and sociocultural factors that shape it. In addition, the intersections between the biocultural perspective and other approaches in medical anthropology, especially the political economy of health and applied medical anthropology, will be highlighted.

- *An explicit biocultural focus to each chapter.* Each chapter starts with the basic biology of an ailment and expands the analysis from there to include historical, sociocultural, and political–economic factors that somehow influence it.
- *Holistic anthropological analysis.* The strength of anthropology in general and medical anthropology in particular derives from a broad and inclusive perspective. We include relevant work from all of the subdisciplines of anthropology, but most especially biological and cultural anthropology.
- *Examples of "anthropologists in action."* We highlight anthropologists who make use of their skills to create, evaluate, or implement health policies, both within their home country and across the globe.
- *Accessibility and relevance to students in the biological sciences and social sciences.* Students from both areas learn how biology and culture are essential to understanding health.
- *Up-to-date data.* Research in the health sciences changes rapidly, and we have made every effort to ensure that the biological understanding of disease is current. Similar efforts were made to make certain that anthropological analyses likewise reflect contemporary understandings.
- *Use of both contemporary and historical examples.* Students will see ways in which current health problems are either unique or similar to patterns that have existed in the past.
- *Use of both local and global examples.* The scope of this text is global, and many of our examples are drawn from anthropological research in non-Western cultures. We also draw extensively on work done in the United States (as well as Canada and Europe), which demonstrates to students that the anthropological

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perspective is as useful in industrialized and Western societies as it is in non-Western or developing countries.

- *Has a strong evolutionary component*, based on new and exciting work in Darwinian or evolutionary medicine.
- *The links between the biocultural approach and interventions to improve health* are considered throughout the text.

What Is New in This Edition

Based on reviewers' and users' comments, we have revised this text for the third edition in the following ways:

- All research has been updated to include the latest findings and new approaches
- More discussion of the importance of causation in healing, training in alternative medicine, and decision making in transplant patients
- A new box on food insecurity and hunger
- Elaborated discussion of infertility, sexually transmitted infections, and assisted reproductive technologies
- Elaborated discussion of bed-sharing and room sharing and their relationship with sudden infant death syndrome
- New material on telomeres, stress, poverty, aging, male hormone replacement therapy, cross-cultural attitudes toward erectile dysfunction treatments, and the effects of economic insecurity on mortality
- New material on the Ebola virus disease epidemic of 2014–2015 has been added to Chapter 9
- Updates on culture, mental illness, and the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition, and the conceptualization of culture-bound syndromes
- New section on sleep, including the medicalization of sleep disorders and sleep paralysis, sudden unexplained nocturnal death syndrome, and Hmong migration to the United States

Outline of the Book

Chapter 1 provides a brief introduction to the field of medical anthropology. Chapter 2 discusses the concept of health as the key issue for medical anthropology. A biocultural perspective on health will be explicated, and other more culturally focused approaches to medical anthropology will be introduced.

Chapter 3 provides a discussion of healing systems across cultures, including those of small-scale societies and textual traditions of complex societies. It considers the role of traditional healers and heath care within these societies and how they attempt to provide a system of explanation and therapeutic methods for local health problems.

Health at different times in the life cycle is the focus of Chapters 4 through 7. The life cycle includes gestation, birth, growth and development, reproduction, aging, and death. Chapter 4 outlines the relationships between nutrition and health. Nutrition is fundamental to health throughout life, but each life stage has particular needs and is affected by nutritional deficiencies or excesses in different ways. Across diverse populations, nutritional problems underlie many common diseases, from outright protein-energy undernutrition to coronary heart disease deriving in part from chronic overconsumption.

Chapter 5 focuses on child growth. Since children's bodies are literally being constructed from the earliest stages of embryological development through adolescence, the dietary and environmental conditions to which they are exposed (including chronic over- and undernutrition) will shape their growth trajectory and ultimately affect adult body shape, size, function, and, of course, health.

In Chapter 6, we explore reproductive health with a focus on how conception, pregnancy, and "mothering" are important biological phenomena with clear links to health and how they are heavily influenced by cultural context. Men's reproductive health has been relatively understudied, and here we discuss two pertinent issues facing contemporary men: declining sperm counts and erectile dysfunction.

In Chapter 7 we present an overview of the aging process and its relationship to health and disease. Aging is a biological phenomenon that is strongly influenced by cultural patterns, such as diet, smoking, stress, and social status of the aged, and variation in these factors contributes to substantial population variation in the experience of the aging process.

In Chapters 8 and 9 we explore the range of infectious diseases and their impact on human health cross-culturally. Chapter 8 provides basic relevant information on the taxonomy of pathogens that infect humans and how they cause disease in the body. An overview of the human immune system is also necessary because it will influence the symptomatology of the disease. There is also consideration of how evolutionary factors have influenced the spread, virulence, and human responses to infection.

In Chapter 9 we discuss specific examples of the ways in which human behavior–environment interactions have caused infectious diseases to "emerge" as important diseases in human populations both in the past and in the present. Malaria, cholera, schistosomiasis, human immunodeficiency virus, and tuberculosis are described in detail.

Chapters 10 and 11 consider stress, stress-related disease, and mental health. Chapter 10 focuses on the biology of the stress response, the conditions that activate this response, and the health consequences of chronic stress. This chapter will also consider the relationships among "race," "racism," and disease risk, with a focus on the United States and how these relationships may work through stress-mediated pathways.

Chapter 11 explores mental illness from a cross-cultural and evolutionary perspective. It asks whether mental health problems are similar or significantly different across cultures in their symptomatology and epidemiology and what role predispositions to mental illness might have had in human evolution.

The book concludes with a short epilogue that provides resources for students who want to continue to explore some of the themes and topics raised in this book. Each chapter contains a number of case studies or examples that demonstrate how

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a medical anthropological perspective sheds new light on a particular health condition. In many instances this perspective provides opportunities for a fuller understanding of the factors that contribute to the disease and, as a consequence, new approaches to more effective prevention and/or treatment. We hope that this text will illustrate the ways in which medical anthropology has the potential to help improve the health of populations throughout the world.

Acknowledgments

Much of the material we cover in this book arose from classes we have taught over the years. JSA thanks his former students at the University of Auckland and the University of Iowa, whose keen interest in a range of medical anthropological topics stimulated his own work in this area. ASW thanks her students at the University of Iowa, Binghamton University, James Madison University, and Indiana University, whose feedback in medical anthropology classes has been invaluable. At Indiana University, special thanks go to Dhara Patel, an indefatigable, perennially cheerful, and extraordinary undergraduate researcher, for her help on the revisions, as well as Jennifer Cullin, whose careful reading of the second edition and helpful suggestions greatly improved this new edition. Lindsey Mattern provided useful feedback on the first edition in preparation for the second. ASW also recognizes her graduate student colleagues from the UC Berkeley/UC San Francisco medical anthropology program, who have been a continual source of support and inspiration. Many thanks go to those who so generously contributed photographs for the text.

Thank you also to those whose comments contributed to the revision process for the third edition: Connie Anderson, Hartwick College; Amanda Christopher, Red Rocks Community College; Garrett Cook, Baylor University; Carly Dokis, Nipissing University; Tracey Galloway, University of Manitoba; Charles Klein, Portland State University; J. Bryan Page, University of Miami; and Mary S. Willis, University of Nebraska–Lincoln.

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Chapter 1

Introduction

A Biocultural Approach to Medical Anthropology

CHAPTER GOALS

- To gain an initial understanding of medical anthropology as a field
- To become familiar with the history of anthropology and its four subdisciplines and how medical anthropology is connected to these subdisciplines
- To gain an understanding of a biocultural approach to health and how it differs from biomedical approaches
- To gain an understanding of how health is related to culture, the environment, history, and prehistory

You wake up one morning with a headache and the sniffles and swallow a pill composed of an anti-inflammatory, antihistamine, and decongestant. You feel better and are ready to go about your day. Somewhere else, a young girl wakes up behaving oddly; her parents take her to a local diviner, who ascertains that she is possessed by one of the local temperamental goddesses, who is offended by the lack of recent offerings. A friend's grandmother is diagnosed with breast cancer, which is treated by specialized physicians called oncologists who cut out the tumor and subject the remaining tissue to strong radiation while the woman's relatives pray for her. Yet someone else dies hemorrhaging from their orifices, a victim of the lethal Ebola virus, while a middle-age and otherwise healthy man seeks out a shaman—a practitioner with powers to harness forces of the supernatural—for the loss of his soul. A toddler dies quietly on her sleeping mat while her mother is at work, done in by the combined effects of not enough food and dehydration caused by a bacterial diarrheal disease resulting from her family's lack of access to clean water and food.

How can these diverse experiences be understood? Do they have anything in common? Although the details of each example vary markedly, the experience of suffering is shared by all individuals, and all human cultures have methods to diagnose and treat ill health. Indeed, collecting and transmitting knowledge about

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health and illness has probably characterized human cultures over our entire history as a species.

For better or worse, disease is a human universal. Everyone gets sick, not once but many times during their lives. Yet some people get sick more often or die prematurely, whereas others remain relatively healthy and have long lives. Diseases common in one population may be rare or nonexistent in another. Similarly, attempts to prevent, cure, or lessen the effects of disease also exist in every culture, although these medical traditions exhibit much diversity. Medical anthropologists work to understand the diverse factors influencing variability and universality in health and disease experiences across human populations and across time.

What Is Anthropology?

Anthropology is a discipline that investigates the nature and causes of human variation and those aspects of life that are common to all of humanity. Anthropologists seek to understand similarities and differences in behavior and biology across cultures and populations and how these dimensions change over time (both historic and prehistoric time scales). Hence, all aspects of human behavior, such as language, kinship, economic and political systems, subsistence, religious beliefs, and healing practices, among others, are the focus of anthropological research.

As an academic field anthropology has its roots in the early twentieth century, amid colonialism and widespread migration to areas such as North America. These processes put exposure to non-Western cultures front and center and raised questions about the spectrum, source, and meaning of cultural diversity. Anthropologists took these on as their central questions, and the foundations were laid for contemporary cultural anthropology. Simultaneously, this cultural variability coexisted with linguistic and biological diversity, leading to similar types of questions about language and biological variation. Franz Boas, a German-born physicist and geographer who immigrated to the United States, became a pivotal figure in the history of anthropology and its development in the U.S. context. During his geographic work in the Arctic, he became intrigued by the lifeways of local peoples and began to advocate systematic and long-term fieldwork as a way of understanding peoples from different cultures. He did not restrict his observations to behavior, but included language, biology, and cultural histories, accessible through archaeological excavation, thus setting the stage for an integrated, holistic anthropology that sought to understand the human condition in its entirety. Moreover, he brought to this enterprise an insistence on rigorous methodology and data collection, which could inform theoretical insights that then could be tested by further data collection. This set the standard for contemporary ethnographic fieldwork, during which anthropologists would collect data on mythology and tribal lore, religion, social taboos, marriage customs, physical appearance, diet, handicrafts, means of obtaining food, etc.

One of Boas's great contributions was the concept of **cultural relativism**, which means that cultures must not be evaluated in relation to another that is judged superior (which had often been "Western" civilization), but rather understood or "made sense of" on their own terms. In other words, he did not view cultural change

as a progression from "primitive" to "civilized" or peoples whose society differed from Europeans as inferior. Rather, he saw them as uniquely adapted to their own particular circumstances, a concept that applied to biology, culture, and language. This was a critical point, and anthropology has become a discipline known for overturning views of racial and cultural superiority/inferiority.

The burden of collecting multiple kinds of data (and hence being trained in numerous methodologies and analytic techniques) ultimately led to specializations within the field of anthropology, and four distinct subfields emerged: cultural, linguistic, biological, and archaeological anthropology. These subfields can be found in most contemporary American four-field anthropology departments. Briefly, cultural anthropologists study human behavior in the context of societies, their traditions, and their institutions, whereas linguistic anthropologists focus on

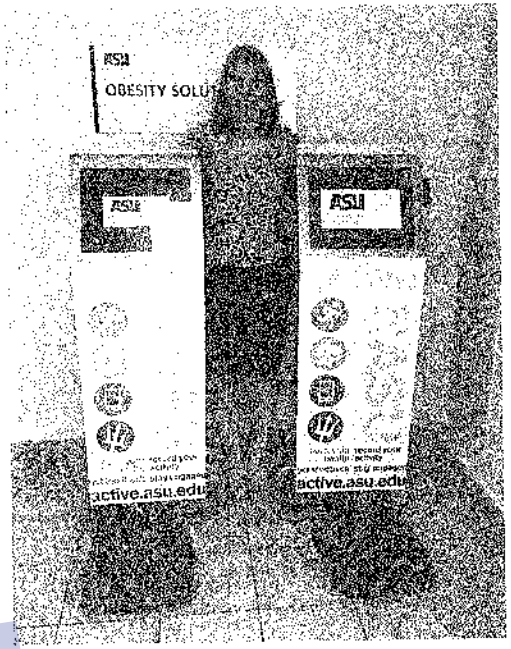


Figure 1.1
Alexandra Brewis is a biocultural anthropologist who investigates how stigma undermines global health efforts (Figure 1.1). Much of her recent research has focused on the challenge of growing antifat ideas around the globe and how increasing shaming and blaming related to weight unintentionally reinforces weight gain. She has conducted long-term fieldwork in the island Pacific, in Mexico, and across the United States. Most recently she has been working with the Mayo Clinic to understand how stigma interventions might improve long-term outcomes for patients undergoing weight-loss surgery and doing applied work at Arizona State University to understand the cultural bases of college weight gain. Here she stands between automated campus stations where students can provide data for campus studies.
Photo courtesy of Alex Brewis.

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language. Archaeologists study the behavior of past populations—either historic or prehistoric—based on material remains. Biological anthropologists are concerned with human biology and ask how and why humans are biologically similar or different across groups and in relation to other species (especially those most closely related to humans, the primates) and how humans have changed biologically over the past hundreds, thousands, or millions of years.

Regardless of their area of specialization, anthropologists are united by a comparative perspective—whether it be cross-cultural comparisons or comparisons across historical and prehistorical time frames. This comparative approach allows anthropologists to understand and appreciate the many ways in which humans vary and at the same time ascertain the characteristics that humans share. Furthermore, anthropology as a field is committed to understanding the "whole" of the human experience, or "humankind in all of its aspects." Although not all anthropologists see their work as explicitly holistic, many work collaboratively across the subdisciplinary spectrum and adopt theories and methods from other subdisciplines in their research. A focus on a particular topic is one of the most useful ways to employ this holistic approach, which may also include collaboration with researchers in other disciplines. Human health is one such topic.

The Development of Medical Anthropology

Among the data that would be collected by anthropologists, regardless of subfield, were those related to health. Healing traditions and concepts of disease causation and their relationship to religious cosmologies and ethnomedical systems, including knowledge of the medicinal properties of plants or animals, were often described. Furthermore, many early anthropological investigations in non-Western or tribal societies were conducted by physicians involved in colonial health care (see Chapter 9 for further discussion), and they gravitated to the study of these health-related aspects of culture. By the mid-twentieth century, especially during World War II and its aftermath, there was growing employment of anthropologists to gather data related to the health and nutrition of populations in the United States and abroad, not only to ascertain the "fitness" of Americans for war but also to confront the wretched health conditions and lack of public health infrastructure faced by countries newly independent from their colonial rulers. With the creation of the World Health Organization in 1948, anthropologists were hired to help understand (and break down) "cultural barriers" to health promotion campaigns and craft ones that were more "culturally appropriate" (Castro and Farmer 2007). Anthropologists thus served an important role in countering the prevailing public health views that resistance to biomedical interventions was the result of ignorance, superstition, or stubbornness that needed to be overcome among non-Western populations. George Foster, one of the major figures in the founding of medical anthropology, worked with international public health organizations to demonstrate the utility of anthropological knowledge to enhance the efficacy of any health intervention, be it admonitions to "boil water" or accept vaccinations.

Foster's colleague, Benjamin Paul, argued in his 1955 book of anthropological analyses of successful and failed health interventions, "If you wish to help a community improve its health, you must learn to think like people of that community. Before asking that community to assume new health habits it is wise to ascertain the existing habits, how these habits are linked to one another, what functions they perform, and what they mean to those who practice them" (Paul 1955, 1). For example, in Edward Wellin's contribution to this volume, he describes resistance to using boiled water among residents of a Peruvian village. Although this seems like a relatively straightforward practice to adopt, the health worker's attempts to get villagers to boil water were often—but not always—met with resistance, despite public health lectures about the health benefits of doing so. Wellin was able to ascertain the cultural logic of this resistance: water was needed during the heat of midday and needed to be cool by that time, yet the only time available for boiling it was after breakfast, when women did not have time. Furthermore, access to fuels needed for boiling were scarce, and the village's relative insularity often resulted in suspicion of outsiders and their ideas, although in this case the health worker was generally well liked. Others rejected the idea that there were waterborne germs that could cause disease. As some villagers commented, "There are enough *real* threats in the world—'cold' and 'airs' and poverty and hunger—without bothering oneself with animals that one cannot see, hear, touch, or smell" (Wellin 1955, 92). In other words, what may have appeared to be "irrational beliefs" by villagers were made sense of by an anthropologist who had taken the time and effort to ascertain how this new public health message related to other established beliefs and behaviors.

Thus, medical anthropology in the mid-twentieth century centered around two different, although related topics: **ethnomedicine** (including formal medical systems with written treatises and training institutions and those of smaller-scale or tribal groups that were passed down through oral traditions) and international health. In other words, from its inception, medical anthropology had an academic mission as well as an applied one, with the latter focusing on efforts to enhance health through more effective policies and interventions. In 1970 the Society for Medical Anthropology was formed as a section of the American Anthropological Association and is now one of the largest of these sections, with many subsidiary interest groups. Medical anthropology is also well represented in the Society for Applied Anthropology, and many medical anthropologists continue the tradition of working with national, international, and nongovernmental organizations in designing, implementing, and evaluating health programs.

What Is Medical Anthropology?

So, what is this field and what are its objectives for the twenty-first century? **Medical anthropology** is the study of health, illness, health care, and related topics from a broad anthropological perspective. More specifically, the Society for Medical Anthropology defines medical anthropology this way:

> Medical anthropology is a subfield of anthropology that draws upon social, cultural, biological, and linguistic anthropology to better understand those factors which influence health and well being (broadly defined), the

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experience and distribution of illness, the prevention and treatment of sickness, healing processes, the social relations of therapy management, and the cultural importance and utilization of pluralistic medical systems. The discipline of medical anthropology draws upon many different theoretical approaches. It is as attentive to popular health culture as bioscientific epidemiology, and the social construction of knowledge and politics of science as scientific discovery and hypothesis testing. Medical anthropologists examine how the health of individuals, larger social formations, and the environment are affected by interrelationships between humans and other species; cultural norms and social institutions; micro and macro politics; and forces of globalization as each of these affects local worlds. (http://www.medanthro.net/about/about-medical-anthropology/)

Medical anthropologists investigate differences in health and disease experience using a cross-cultural approach, comparing and contrasting sociocultural situations to illuminate the underlying causes of variation or similarity. What factors contribute to differences in disease patterns or to variation in responses to disease? There are many possibilities: social arrangements, subsistence practices, economic resources, hygiene, gender roles, religious practices, access to medical

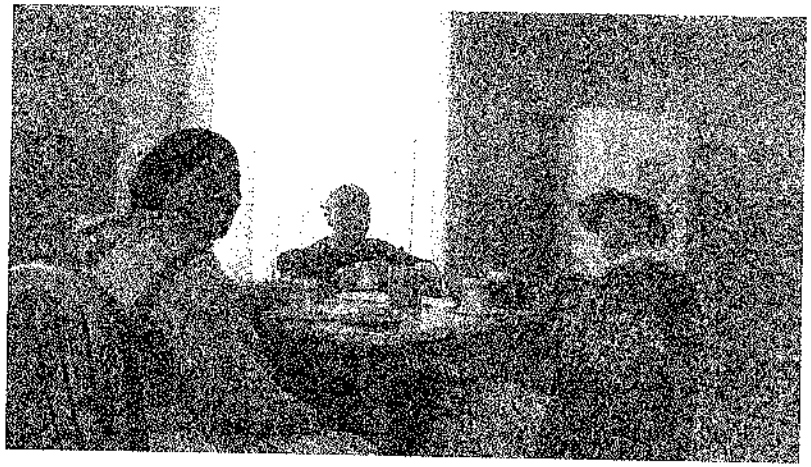


Figure 1.2
The anthropologist Virginia Vitzthum studies reproductive health in the Bolivian Andes. She is the director of Project REPA (Reproduction and Ecology in Provincia Aroma), a longitudinal study of reproductive functioning and health in the rural Bolivian highlands. The project's main purpose is to test hypotheses regarding the environmental, behavioral, and biological determinants of variation in fertility (e.g., reproductive hormone levels, the probability of conception, the probability of pregnancy loss). This is the first study in any population to have investigated reproductive functioning in women at the peak of their fecundity (their twenties and thirties) and again 14 years later as they experience the perimenopausal transition. Here she is pictured with her long-term collaborator, Esperanza Caceres, and one of the women who participated in her study.
Photo courtesy of Virginia J. Vitzthum.

institutions or healers; ecological conditions such as climate, altitude, aridity, plants and animals in an environment; biological factors such as genes, nutritional status, immunological competence, age, or sex; and myriad others.

Which of these factors are most important? That depends on the specific health condition and on the context because each community has a unique combination of cultural, economic, ecological, and biological characteristics. Even within a group whose members live in the same basic natural environment and are biologically similar, both subtle and more obvious behavioral differences contribute to health disparities. For example, there may be occupational variation that leads to different risk of job-related accidents, exposure to toxic chemicals, or infectious diseases. These may correlate with economic status or ethnic differences. Or, it might be that there are groups with similar cultural attributes who live at slightly different altitudes or with access to different natural resources (water, marine resources, woodlands, pasturage, etc.), which, in turn, contribute to variation in disease vulnerability. Finally, groups with evolutionary histories that have resulted in genetic variations can have similar behavioral patterns and live in the same place, but face a different array of disorders that derive from these genetic variations. Thus, it is important to consider the broadest range of possible factors to ascertain which are the most significant determinants of health within groups or that contribute to differences in health between groups. Comparative analysis highlights the ways in which different combinations of factors affect health, whether they are local social processes or configurations or a population's evolutionary history, or whether there are universalities that stem from a common evolutionary history or the current forces of globalization.

The Culture Concept

Patterns of behavior that are common to a group are referred to as **culture**, a key concept in anthropology. Culture includes the beliefs, values, practices, and traditions of behavior of a group. These traditions of behavior include subsistence and economic practices, social organization, rituals, diets, and healing practices, among many others. It is important to recognize that although many aspects of cultural behavior persist over generations (and thus are referred to as "traditions"), culture is not static. Instead, it is dynamic and creative, changing and reforming in a historical and geographic context, as its members simultaneously enact and create culture through their unique experiences and behaviors.

To adequately understand the complexities of culture, anthropologists often engage in long-term fieldwork in a society. This is called **ethnographic fieldwork** (*ethnography* refers to the systematic description of human culture). Fieldwork often requires residing in a community, speaking the local language, and participating in daily life as a member of that community, as Boas urged back in the early twentieth century. **Participant-observation**—the active participation in social and cultural life along with open-minded, detached observation of a group's behavior—is a hallmark of this kind of research. Participant-observation provides both an insider's and an outsider's perspective. The insider's view is referred to as an **emic** perspective, which is that of members of the society. An emic account is how a

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member of the group would describe or interpret the behavior of group members. In contrast, an **etic** viewpoint is that of an outsider, observing behavior as if from a distance and with no prior knowledge about its emic meaning.

One way in which medical anthropologists explore the "emic" and "etic" perspectives is through definitions of health (discussed further in Chapter 2). For example, Naomi Adelson, a medical anthropologist who has worked extensively with the Cree, an indigenous population of northern Canada, describes how the Cree use the term "*miyupimaatisiiun*" to describe health, more accurately translated as "being alive well" (Adelson 2000). Being alive well encompasses protection from the cold, physical activity, and eating distinctively Cree bush foods, which come from hunting and gathering. Thus, it more broadly references the quality of the land that provides them with this food, their history, and the social relations that supported their livelihoods as hunters. In the context of political struggles over land rights and incursions of "white man's foods" in local stores, *miyupimaatisiiun* is difficult to achieve. An etic description of health among the Cree might include standard biomedical measures such as levels of cholesterol, body mass index, or prevalence of hypertension, but an emic description in this context provides a richer understanding of how the Cree view their health, or state of being alive well. There are many such examples within the field of medical anthropology.

Anthropologists thus have a unique dual perspective that allows them to describe and understand the emic worldview but also makes possible cross-cultural analysis. In practice, separation of these two perspectives is not easily maintained, nor is it necessarily desirable. Anthropologists are drawn into intracultural dynamics and bring to the ethnographic encounter their own set of biases that preclude a "truly" objective view; they also bring with them a status (e.g., foreign, economic, ethnic, gender) that influences the way people interact with them. For example, it is not unusual for anthropologists working in cultures with limited access to Western medical care to become a source of medicine to treat common ailments. Anthropologists can thus become part of a complex cultural dynamic that is altered to some extent by their participation.

Careful observation of behavior within a community makes it possible to ascertain local patterns of disease, their likely causes, and the ways in which people respond to threats to their well-being. These are likely to depend heavily on interactions that individuals have with their environment. All groups live in natural environments that can be described in part by *abiotic* (physical, climatic) and *biotic* (living forms) features, and these constitute part of the context for local disease patterns. Aridity and humidity, presence of bodies of fresh water, seasonality in temperature and light cycles, barometric pressure, and local flora and fauna, to name a few, are important in determining what kinds of health problems are likely to be faced by the population. However, as mentioned earlier, the extent to which these factors actually impact health is closely related to how the population interacts with the environment. Such interactions are strongly influenced by cultural practices and traditions and occur within the confines of socioeconomic structures. Thus, although ecological conditions play an important role in disease, they are never the sole determinant of disease in a population.



Figure 1.3
The medical anthropologist Bill Dressler with a family in Brazil. Dr. Dressler studies the cultural dimensions of stress and stress-related diseases. He has developed an important model in wide use in medical anthropology called cultural consonance, which predicts that stress results in individuals who do not conform to prevailing cultural ideals or who cannot attain cultural norms because of economic or other constraints. He has also contributed in key ways to discussions of the utility of ethnicity, race, or culture as variables in public health research and policy making. He is currently overseeing a project in Brazil on the relationship among cultural consonance, depression, and genetic variation in serotonin receptors.
Photo courtesy of M. C. Balieiro.

A Biocultural Perspective

The preceding introduction has outlined a **biocultural perspective** on health. This perspective considers the social, ecological, and biological aspects of health issues and how they interact within and across populations. It is a uniquely anthropological and holistic view of health, incorporating these different aspects of the human experience. Ecological conditions include all natural and social components of the environments in which humans live, and those environments have, in turn, been shaped by historical processes. The body has also been shaped by a history—an evolutionary history—during which it has been molded by changing environmental conditions. Thus, a full biocultural analysis must also consider the historical processes—operating on both local and global scales—that have indirectly contributed to current health problems. This is, of course, an enormous project, and in reality, some topics are more amenable to this kind of analysis than others. Furthermore, a biocultural approach is but one of several that medical anthropologists bring to the study of health. Although it tries to be broadly holistic in its consideration of

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Figure 1.4
The applied medical anthropologist Crystal Patil with a group of children in rural Tanzania. Dr. Patil conducted foundational biocultural ethnography that allowed her to deeply understand household family health and whether and how families access health systems. She learned a great deal about pregnancy, women's work, childbirth, food, eating, and the feeding of babies and children, as well as the joys and difficulties of women's lives. Building on this research, her research path went in two applied directions. First, she is currently the principal investigator on a study piloting a group care model to improve the quality of antenatal care in Malawi and Tanzania. The second direction seeks to identify pathways to improve child nutrition and health in Tanzania.
Photo courtesy of Crystal Patil.

both biology and culture as important to health, many medical anthropologists focus their analysis on the sociocultural factors affecting health.

Human bodies, culture, and history have complex interactive relationships. For example, not all bodies are equally at risk of disease, despite location in a similar cultural context. Why is this? As noted earlier, it is partly the result of genetic and behavioral characteristics that are unique to individuals and that derive from individuals' unique life histories and genealogies. Furthermore, to get beyond the simple exercise of "cultural component *X* increases or decreases the risk of disease *Y*," it is useful to ask these questions: *Why* this particular disease? *Why* this particular cultural factor? These questions, like those pertaining to individual-level variation, require a more historical view. Biocultural analysis is inherently historical, seeking the roots of cultural behavior. Furthermore, in the case of the physical body, biocultural analysis employs a longer-term evolutionary perspective that considers the forces that have shaped human biology and population biological variation. Given the intrinsic biocultural nature of health and disease, cultural, historical, and evolutionary factors must be taken into consideration.

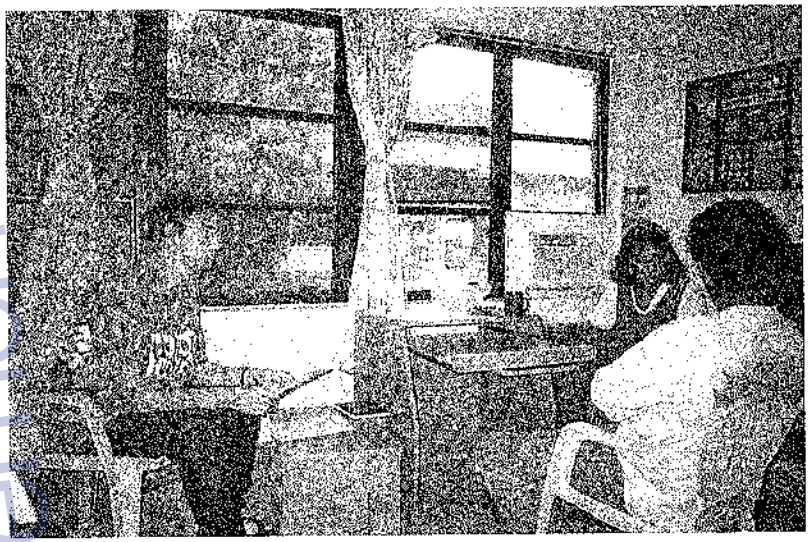


Figure 1.5
The anthropologist Roger Sullivan studies mental health in Palau, Micronesia. Here, he and a social worker interview a patient. His work is discussed further in Chapter 11.
Photo courtesy of Roger Sullivan.

Biocultural analysis considers the individual body as a starting point. In many ways, human bodies are similar; there are also significant ways in which they differ. Some of this variation is patterned across populations, but there also exists a tremendous amount of variability among individuals within a population. Just as the anatomy of individuals is visibly different, so is the anatomy of the organs, which are only visible through imaging techniques. As Roger Williams (1956) so elegantly demonstrated in his book *Biochemical Individuality*, individuals differ greatly (and perhaps unexpectedly) in their biochemical processes, nutritional requirements, and internal anatomy. Although individual variation is interesting and it is important to never lose sight of its significance to individual health and clinical practice, it is not something that anthropological analyses frequently address. After all, anthropologists are interested more in group-level biological, cultural, and health phenomena.

One of the first tasks of medical anthropology is to define health in a way that both acknowledges different cultural models of sickness and allows for comparative analysis. Disease processes alter biological function in more or less predictable and measurable ways. Although populations differ in the types of afflictions they suffer from, the way these maladies unfold physiologically is fairly consistent. In a biocultural analysis, it is possible to make use of these regularities, which are well described in the biomedical literature. Hence, there are some intersections between the biocultural approach and that taken by Western medicine, or **biomedicine** (sometimes also referred to as cosmopolitan medicine because of its global spread).

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Biomedicine is the form of medicine that developed out of the scientific tradition in eighteenth-century Europe; as such, it is a medical system that arose out of a particular cultural context. It views disease as having a unique biological cause within the body, whether it be a microorganism causing infection, the growth of malignant cells, deficiency of a nutrient, or the failure of an organ because of repeated insults (such as alcohol consumption). It has a well-developed and widely applicable set of diagnostic criteria used to describe a large number of disease states.

Biocultural analyses most often utilize biomedical categories of disease as a standard that can be used for cross-population comparison of health and disease. It is extremely important to have some sort of common standard by which to do comparative analysis because definitions of health and disease vary significantly across cultures. Thus, although a syndrome that is well described by one culture may have no apparent analogue in another, a biocultural approach to disease that employs local cultural models and biomedical measures may nonetheless be used to frame a comparative analysis. That said, it is important to note that biocultural approaches differ from those based in biomedicine. Clinical biomedical understandings of disease tend to privilege the body as the only relevant site for understanding disease causation, which gives rise to the view that individuals are uniquely responsible for their health (McKeown 1979). As described previously, a biocultural approach looks beyond the body to its interactions with the social and natural environment to ascertain the broader causes of disease.



Figure 1.6
The medical anthropologist Andrea Wiley studies the impact of cow's milk consumption on different aspects of child growth in the United States and India. She is interested in how milk might have some unusual effects on human biology, given that it is produced for calves, not humans, and given that milk is produced by mammals specifically to support the growth and development of nursing infants of a given species, yet is often consumed by both children and adults. She is also concerned with how milk drinking came to be a normative part of childhood diets in many parts of the world and how ideas about milk's relationship to child growth inform peoples' decisions to feed their children cow's milk. Furthermore, most people in the world stop being able to digest milk in adulthood, yet there is widespread promotion of this food for individuals of all ages. Her work is discussed further in Chapters 4 and 5.
Photo courtesy of Richard Lippke.

Looking Ahead

The chapters of this book are organized around a series of topics central to medical anthropology. Each is presented from a biocultural perspective, highlighting uniquely anthropological insights into these health topics. The basic biology of a given health topic will be presented and then contextualized by the relevant evolutionary, historical, and sociocultural factors that shape it. Our emphasis is on understanding sources of variation in health, both within and between populations and through time. In addition, the intersections between biocultural and other perspectives in medical anthropology, especially the political economy of health, are emphasized, and we discuss other approaches in medical anthropology in more detail in Chapter 2. The practical implications of this approach to each topic are also addressed—that is, how can this perspective be used in the development of policies to enhance health? Thus, the links between the biocultural approach and interventions to improve health are specified, and starting with Chapter 3, chapters feature the work of an applied anthropologist. We hope that this text illustrates the ways in which medical anthropology, whether practiced in universities, research centers, public health institutions, or nongovernmental or global health organizations, has the potential to help improve the health of populations throughout the world.

Study Questions

1. What is anthropology and how did it become established as a viable field of study?
2. What is medical anthropology and what do medical anthropologists study? How does the history of medical anthropology relate to the history of anthropology as a field?
3. What are the advantages and disadvantages of ethnographic fieldwork as a method for studying human behavior?
4. What are the diverse kinds of information that the biocultural perspective takes into account to explain human health and disease?

Critical Thinking and Discussion

1. In what ways do you think your own health status is a product of your biology and in what ways is it a product of your culture? Is it possible to make such a distinction?

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Chapter 2

Anthropological Perspectives on Health and Disease

CHAPTER GOALS

- To understand the concept of health and the challenge of defining it as a universal concept
- To be able to distinguish among disease, illness, and sickness and their relationship to each other
- To understand the concept of adaptation in relation to health and disease
- To become familiar with the major cultural approaches to the study of health
- To become familiar with standard epidemiological concepts and terminology

The term "leper" refers to someone with leprosy (Hansen's disease) or, more generally, to someone who is an outcast, excluded from participation in social life for fear of contamination. Ronald Barrett, a medical anthropologist, describes working with patients with leprosy in India: although their disease is curable (it is caused by the bacterium *Mycobacterium leprae*) and not particularly contagious, "the social stigma of leprosy furthers its physical stigma, which returns to reinforce individual and collective models of discrimination" (Barrett 2005, 225). In other words, the social consequences of the disease far exceed its biological capacity to harm, especially in the age of antibiotics. Barrett's work with leprosy patients in India reveals how health and disease have meanings that are cultural and biological, and in this chapter we provide some conceptual anthropological and epidemiological tools for understanding health and disease.

Definitions of Health

The first task in this survey of medical anthropology is to understand what the concepts of health and disease refer to. Defining **health** is a tricky business because health has many dimensions. In a famous pronouncement from the Alma Ata conference in 1978, the World Health Organization (WHO), the international organization based in Geneva, Switzerland, that oversees health problems and interventions around the world, defined health as a state of complete social, psychological, and physical

well-being. Although this definition is useful to the WHO, which has the laudable (and lofty) goal of achieving health for all of the world's citizens, it begs the question of what exactly is this state, and is it something that would be universally recognized? That is, what may constitute this sense of well-being in one society may differ significantly from well-being in another. With respect to physical well-being, for example, having a substantial amount of body fat might be seen as a sign of excellent health in one population but interpreted as "overweight" and requiring medical intervention in another. Depressed behavior may be seen as a cause of hospitalization in one culture but evidence of the power of witchcraft in another. Or, a hemoglobin reading of 17 mg/dl might be seen at sea level as evidence of polycythemia, a condition in which an individual has too many blood cells, resulting in thick blood, whereas at 15,000 feet above sea level the same reading would be evidence of a beneficial adaptation to hypoxia, the relatively low oxygen pressure that characterizes high-altitude environments. There is also variation in what constitutes "healthiness" within populations. A body weight considered healthy for a man may be considered overweight for a woman; pregnancy in a 25-year-old woman may be seen as entirely routine, whereas pregnancy in a 45-year-old woman may be considered "risky." Hence the concept and appropriate measure(s) of well-being are specific to, and meaningful within, a set of local conditions.

Medical anthropologists find it useful to make a distinction among three terms, which are often used interchangeably in popular language: disease, illness, and sickness.

Disease

Disease refers to a physiological alteration that impairs function in some way. Descriptions of disease processes largely derive from Western biomedical science. As such, disease is a more or less "objective" measure of health that can be used cross-culturally. However, as the earlier hemoglobin example demonstrates, what constitutes "disease" in one environment may in fact enhance function in another. These categories are thus a useful starting point because they describe alterations in biology and physiological function, but it is important to be careful about ascribing the same meaning to them across populations and environments.

Here we list some common disease states and their causes. Most of these are by no means unique to humans, and several may co-occur simultaneously or derive from interactions among causes.

1. *Injury.* All organisms are vulnerable to injury or damage to some part of the anatomy as a function of random accidents, living in a dangerous environment (on a cliff, in a neighborhood where crime is common), behavior that increases the risk (driving recklessly, competing with others for mates), or some combination thereof (having a job in a factory working with heavy machinery).

2. *Infection.* Infectious disease derives from microorganisms that spread from one individual to another and cause some sort of challenge to the body's function. Infectious diseases can be viruses, bacteria, protozoa, or multicellular (such as worms) and vary from those that cause relatively little harm (such as rhinoviruses that cause the common cold) to those that cause permanent disability (such as the Zika virus) or that are potentially fatal (such as malaria or anthrax).

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3. *Malnutrition.* These are physiological disorders that stem from the lack or surfeit of nutrients, including vitamins, minerals, carbohydrates, protein, and fat. A lack of food in general contributes to protein-energy malnutrition, and micronutrient deficiencies can contribute to specific disorders (e.g., scurvy from vitamin C deficiency). In contrast, long-term overconsumption can contribute to chronic diseases such as diabetes, cardiovascular disease, and some forms of cancer.

4. *Genetic.* In the process of sexual reproduction, **mutations** may occur in the formation of egg or sperm. These mutations can ultimately create alterations in fetal development or contribute to some form of compromised function after birth. Any given genetic disorder occurs relatively rarely at the rate of mutation (often estimated at about 1 in 10,000 genes), but may become more common when passed down in reproductively isolated and inbred populations or when the disorder confers some other biological benefit, as in the case of sickle-cell hemoglobin, which seems to protect against deadly forms of malaria.

5. *Chronic.* Some forms of chronic disease stem from genetic factors, but most result from lifelong behaviors. Included in this category is cardiovascular disease, which is related to long-term dietary and activity patterns, cancers such as those related to smoking or exposure to toxic compounds, and type II diabetes, which is in many cases related to long-term overconsumption, lack of activity, or both. Importantly, these forms of disease are by and large absent from wild-living organisms, although they do manifest in domesticated pets or zoo animals as a function of diet and activity modifications. They are also relatively absent from human populations engaged in subsistence agriculture or hunting and gathering. Other disease states can be chronic, such as allergies (immune responses to benign foreign substances) or autoimmune disorders (immune responses to one's own body tissues).

6. *Psychological or behavioral.* These forms of disease are also relatively absent from wild organisms, but they have come to be common among humans in industrialized societies. Depression, anxiety, and attention deficit disorder, among others, are increasingly diagnosed in countries such as the United States. These complex disorders are caused by many factors, both biological and social, that are incompletely understood. They increasingly are treated with medications that alter the balance of neurotransmitters such as serotonin in the brain.

As is evident from this list, an individual's behavior in relation to his or her environment is critical to understanding variation in disease risk. Different social environments, patterns of behaviors, and ecological conditions all give rise to variation in the risk of any of these disorders across human populations.

Illness

Illness is used to describe the subjective experience of symptoms and suffering, and it motivates changes in behavior to alleviate the discomfort (such as altering the diet, resting, or seeking professional help). Arthur Kleinman, a medical anthropologist (see Figure 2.1), distinguishes **illness** from disease in the following way:

> Illness complaints are what patients and their families bring to the practitioner. Indeed, locally shared illness idioms create a common ground for patient and practitioners to understand each other in their initial encounter.

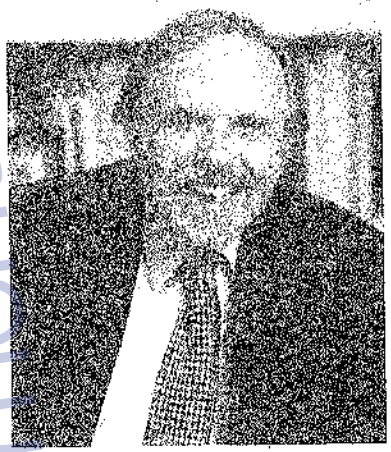


Figure 2.1
Arthur Kleinman.
Photo courtesy of Arthur Kleinman.

> For the practitioner, too, has been socialized into a particular collective experience of illness. Disease, however, is what the practitioner creates in the recasting of illness in terms of theories of disorder. (Kleinman 1988, 5)

The subjective experience of suffering is informed by cultural contexts that provide ways of thinking about and understanding what we are feeling. That is, there are culturally specific and culturally appropriate ways of being ill and expressing that experience. In a successful therapeutic encounter, there is a close match between the articulation of illness and the diagnosis of disease. However, in many cases, the fit may not be so clear. The clinician may fail to find objective evidence of disease or declare a diagnosis that reflects an incomplete resolution of the patient's complaints. In other words, a patient may present his or her "illness problem" and receive the diagnosis that "nothing is wrong." Conversely, a person feeling well (i.e., not exhibiting illness behavior) might, through a chance clinical encounter, discover that he or she has a serious disease, such as a symptomless early-stage cancer.

Anthropologist in Action: Arthur Kleinman

The medical anthropologist Arthur Kleinman holds an M.D. and a master's degree in anthropology. He is a professor of psychiatry, as well as a professor of medical anthropology, at Harvard University and has made fundamental contributions to the field of medical anthropology, while maintaining a psychiatric practice until recently.

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Dr. Kleinman has worked in the United States and has carried out extensive research in Taiwan and China. He has been active as a consultant for WHO, working on global mental health issues as well as issues related to infectious diseases, such as SARS and AIDS.

In his early work, Dr. Kleinman developed the concept of the explanatory model—what individuals construct to interpret and "make sense" of their experience of maladies, describing them in what Kleinman called "illness narratives" (Kleinman 1988). These illness narratives and explanatory models stem not only from an individual's cultural context but also from his or her own life history, family and community, and belief systems. In an article outlining the relevance of these models for clinical practice, Kleinman, Eisenberg, and Good (1978) suggest asking: (1) What do you think has caused your problem? (2) Why do you think it started when it did? (3) What do you think your sickness does to you? How does it work? (4) How severe is your sickness? Will it have a short or long course? (5) What kind of treatment do you think you should receive? (6) What are the most important results you hope to receive from this treatment? (7) What do you fear most about your sickness? What are the chief problems your sickness has caused for you?

In this work and throughout his career, Kleinman has been concerned with improving the doctor–patient relationship to best alleviate not only the physiological symptoms of disease but also the multiple social dimensions of patient suffering. As a psychiatrist, he has seen how the "routine" health crises that people inevitably face (for themselves or loved ones) often precipitate a medical diagnosis (depression or anxiety), yet he argues that the moral issues that suffering brings to the fore should not be medicalized or turned into "disease" (see Q&A with Arthur Kleinman, *The Boston Globe*, July 23, 2006).

In recent years, Kleinman has turned to the consideration of how caregiving must be fully integrated into medical education, such that the diagnostic/technological aspects of medicine are not cleaved from the humanistic and moral aspects of patient care. As he writes,

> I do believe that what doctors need to be helped to master is the art of acknowledging and affirming the patient as a suffering human being; imagining alternative contexts and practices for responding to calamity; and conversing with and supporting patients in desperate situations where the emphasis is on what really matters to the patient and his or her intimates. . . . The implementation of useful programmes will require parallel attention to the structural and cultural barriers that undermine caregiving in practice settings so as to encourage the experience of caregiving as core to the professional and personal life of the doctor. This will also mean that students and practitioners acquire those interpretive skills of critical self-reflection that enable them to understand and respond to all those barriers that cause doctors to fail at the art of healing. (Kleinman 2006, 23)

In a new book, he and co-author Iain Wilkinson extend this charge to the social sciences (Wilkinson and Kleinman 2016).

Because illness reflects a set of individually experienced symptoms of discomfort, the disease diagnosis may not fully—or even partially—resolve these feelings. As Kleinman noted, "When chest pain is reduced to chronic coronary artery disease for which calcium blockers and nitroglycerine are prescribed, while the patient's fear, the family's frustration, the job conflict, the sexual impotence, and the financial crisis go undiagnosed and unaddressed, it [the disease diagnosis and treatment] is unsuccessful" (Kleinman 1988, 6). Hence, a focus on disease is often considered reductionist; that is, it reduces the illness experience to a physiological locus. Treatment of an identifiable disease may or may not resolve the experience of illness, either for patients or for their loved ones. Illness is closely tied to the sense of well-being, as the WHO definition of health indicates, and there are psychological, social, and physical aspects of illness that should be addressed. Illness is thus a more holistic concept than disease because it links the individual, his or her lived experience, cultural orientation, and social environment.

Sickness

Sickness is another term that is used in relation to health. Sometimes it is equated with disease, illness, or both, but it has a sociological meaning as well. Talcott Parsons, a famous medical sociologist, coined the phrase the "**sick role**." What Parsons meant is that there is a socially recognized set of expectations for "sick" individuals (Parsons 1979). These expectations may include being exempt from occupational work, household tasks, or the other obligations expected of "well" individuals. To be able to take on the sick role, one must have an illness that is recognized as legitimate by the social group. Legitimacy may require documentation by a health expert, such as a clinician. Doctor's notes are often required in industrialized societies to exempt a person from work or to allow him or her to receive what is called in the United States "worker's compensation," financial compensation for wages missed while the worker is sick. Given the benefits that can derive from assuming the sick role, it can be abused. Among students, it is not uncommon for sickness to be used as an excuse for missing assigned work or an examination; from the professor's perspective, documentation from a clinician is often required to legitimize the excuse.

Although in these contexts adopting the sick role provides some relief from obligations, the sick role may also be associated with stigma, which in turn triggers additional suffering. Afflicted individuals may be avoided or even ostracized, especially when the symptoms are visible, as in the case of leprosy. In her 1978 book *Illness as Metaphor*, Susan Sontag (who died of cancer in 2004) discussed the ways in which cancer is perceived as mysterious and generates fear, such that patients may be "shunned by relatives and friends and are the object of practices of decontamination by members of their household, as if cancer, like TB, were an infectious disease. . . . [Cancer] is felt to be obscene—in the original meaning of that word: ill-omened, abominable, repugnant to the senses" (Sontag 1978, 6, 9). In this case, individuals with cancer may not wish to take on the sick role for fear of being stigmatized.

In the sick role, the distinction between illness and disease becomes relevant. In societies such as the United States where biomedically trained clinicians have authority in health matters, clinical evidence of a disease often must be present to authenticate a patient's claim to the sick role. If no such evidence is found, the sick

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role may not be legitimated, even if the person continues to complain of not feeling well. In most, if not all societies, healers may need to "vet" a person's health status if he or she is to continue in a sick role, exempt from normal responsibilities.

These are useful terminological distinctions to make, but they do not provide an answer to the question of what defines health. Disease, illness, and sickness are all related to the WHO's definition of "social, psychological, and physical well-being." They are each an important aspect of health and point to the fact that health cannot simply be defined as the *absence* of disease, illness, or sickness. However, many people may not have a sense of complete well-being, yet they would not classify themselves as ill or seek the sick role or the services of a healer. For example, a person who is chronically sleep deprived because of the demands of work or an overactive social life may not have a particularly strong sense of well-being but is unlikely to seek medical attention to treat a condition derived from having a particular lifestyle. Under these conditions, a person is able to carry out his or her normal functions, albeit with the sense that all is not as well as it could be. So, perhaps health is related to one's ability to carry out normal functions to one's satisfaction. Only when the routines of "normal" life are disrupted by an increasing or acute sense of "dis-ease" does a person recognize that he or she is suffering from ill health.

In the WHO definition of health, "social well-being" is specifically included. What does this mean? In one society it may mean being inextricably embedded in a complex network of kin relations; in others it may mean autonomy or self-reliance. For the patients with Hansen's disease in India, social well-being was severely eroded through discrimination and permanent untouchable status, even after being cured of the disease. They both continued in the sick role and expressed illness symptoms, even going so far as to further disfigure themselves as the physical confirmation of their internal suffering (Barrett 2005). Another example comes from the work of Naomi Adelson with the Cree described in Chapter 1. Adelson notes that "Of course, the ideals that comprise 'being alive well' (*miyupimaatisiiun*) cannot always be met, and one may then not 'be alive well.' This does not always necessarily imply a pathological condition of the individual, however, so much as it might of society" (Adelson 1998, 11). The Cree recognize that being alive well is not merely about the absence of an individual pathology; it involves the integrity of a whole society and way of life.

If you are used to thinking about health as having an exclusively bodily locus, it may seem odd to consider social well-being an aspect of health. Indeed, for biocultural analysis, the body is often the focus of investigation. Yet as anthropologists understand and as other social and medical scientists are becoming increasingly aware, social networks seem to have a great deal of relevance to health. People with well-developed sources of social support often get sick less, recover faster, or live longer than those with less support. A recent meta-analysis of 148 studies encompassing more than 300,000 participants showed that having strong social support networks of various kinds resulted in a significant increase in the likelihood of survival (Holt-Lunstad, Smith, and Layton 2010). As Figure 2.2 shows, overall there was a 50 percent increase in odds of survival among individuals with stronger social relationships. Multidimensional assessments of social integration that included supportive social interactions and perceptions of social support (i.e., "functional" social support) as well as integration in social networks ("structural" social support) resulted in a 91 percent increase in the

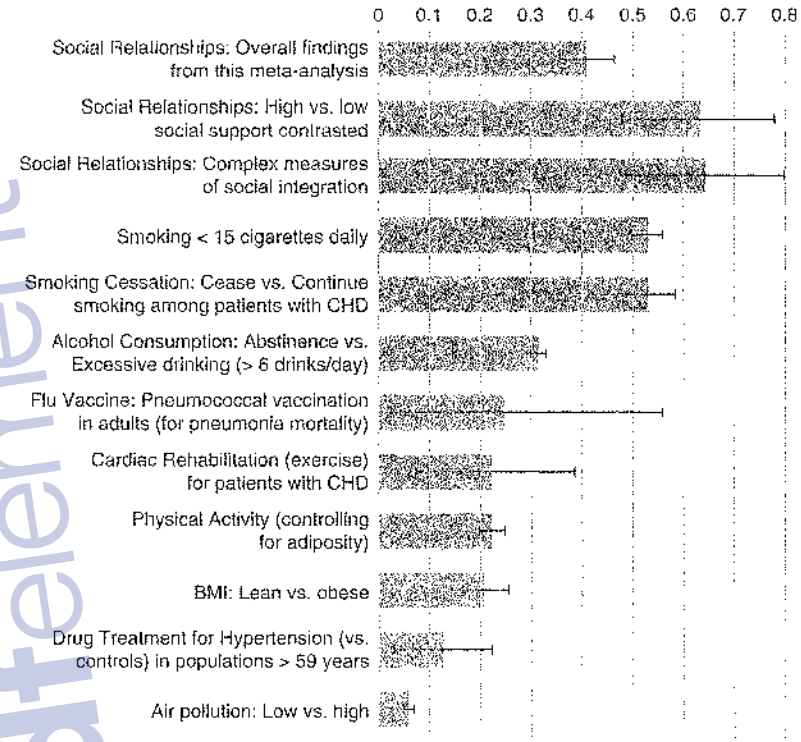


Figure 2.2
Comparison of odds of decreased mortality across several conditions associated with mortality. Zero indicates no effect.
Credit: Holt-Lunstad J, Smith TB, Layton JB (2010) Social Relationships and Mortality Risk: A Meta-analytic Review. *PLoS Med* 7(7): e1000316. doi:10.1371/journal.pmed.1000316

odds of survival. Figure 2.2 illustrates that the magnitude of the effect of social support on survival is potentially greater than that of well-known risk factors such as smoking, body mass index, or physical activity, among others. The results were consistent across adult ages, gender, initial health status, follow-up period, and cause of death.

Health, Ethics, and Cultural Relativism

The WHO's definition of health as a state of complete social, psychological, and physical well-being raises some ethical questions for medical anthropologists. One of the hallmarks of anthropology is the concept of "cultural relativism"—the idea that the

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elements of each culture must be understood on their own terms, without evaluations based on norms derived from other cultures. However, if a particular practice (such as female genital cutting or maternal detachment from their infants, as discussed in Chapter 6) is physically deleterious or painful, yet enhances a person's social or psychological well-being, is this practice "healthy?" If it is accepted that a universal component of well-being is freedom from physical pain and suffering, but also that well-being encompasses social and mental attributes, what is an appropriate medical anthropological interpretation or action? There is no clear resolution to this issue, and medical anthropologists take a variety of stances. Some use their research as a way of helping to understand these paradoxes; others attempt to find ways of eradicating the physical suffering while preserving the cultural meanings or integrity of a practice; others seek to effect cultural change, regardless of what social benefits such physical suffering is associated with; still others use their writing to bring these complexities to a broader audience, including policy makers.

Furthermore, one important anthropological contribution is to bring to light the ways in which health is not evenly distributed across cultures and to clarify the ways in which local culture is implicated in improving or worsening health and the ways in which larger political and economic forces contribute to health differentials. As Paul Farmer (1999) has argued, it should not be assumed that poor health in one population is just an intrinsic part of that culture, such that there is little to be done about it without "disrupting" cultural integrity. Instead, medical anthropological analyses should elucidate the various local, historical, and more global factors that contribute to variation in health across cultures. As Farmer notes, what people with poor health tend to have in common around the world is poverty; despite different cultural attributes, the common denominator to low life expectancy or high infant mortality, for example, is being at the low end of the economic hierarchy (this is covered in more detail in Chapter 10). Moreover, just because biomedicine is derived from Western culture (suggesting that its introduction might undermine local ethnomedical traditions) does not mean that it cannot be extremely effective in treating many diseases, and such resources should be made universally accessible.

The Locus of Health: The Body and Society

In a seminal paper in *Medical Anthropology Quarterly*, Nancy Scheper-Hughes and Margaret Lock (1987) argued that there are three bodies to be considered in the analysis of health and disease: the individual body, the social body, and the body politic. The *individual body* ("self") has been privileged in Western biomedical praxis as the sole locus of disease. A separation of the mind and body, the legacy of Rene Descartes's attempt to separate the "intangible mind" from the material body, has

resulted in the latter being privileged over the mind in the search for the cause of a particular ailment. The extent to which people recognize social or even psychological phenomena to be aspects of health is highly variable across cultures. That is, health may be viewed as an exclusively somatic state rather than a characteristic of society.

Whether social or other forms of external forces (e.g., supernatural) are recognized as valid causes of illness or disease is also highly variable. Scheper-Hughes and Lock described the *social body* as the seam between the physical body and the social world of the individual. The ills of society may be inscribed on the body via disease; individual wellness in turn may be, at least in part, reflective of a harmonious social world. A society rife with social divisions, inequality, or conflict is likely to harm individual health (e.g., via stress, increased exposure to infection, or violence); in contrast, well-integrated or egalitarian societies should generate improved health for their members (see Chapter 10, R. G. Wilkinson 1996; R. G. Wilkinson and Pickett 2009; Marmot 2015). The *body politic* refers to the ways in which social and political forces exert control over the bodies of individuals in a society and thereby constrain opportunities for optimal health for all.

Considering health in relation to all three "bodies" makes clear the ways that individual health is connected to larger social conditions and how individuals come to "embody" the conditions of their social worlds. In the context of biomedicine, it is fair to say that health has come to be exclusively the concern of medical practitioners and its links to larger social phenomena are not made explicit (Farmer 1999). Indeed, there is in biomedicine, as well as in other medical traditions, a tendency to medicalize conditions that have clear social roots. **Medicalization** refers to the defining of a condition as a disease, or in need of medical surveillance. It often occurs in situations in which medicine and medical practitioners have social and cultural authority or when there is resistance to seeing health as closely tied to social conditions.

Pregnancy and childbirth, which can certainly be considered intrinsic to the life cycle, are good examples of life cycle processes that have been medicalized over the twentieth century. It is widely held that pregnancy should be monitored by clinicians and that birth should occur in hospitals (see Chapter 6). Similarly, depression, which in many cases is clearly related to an individual's satisfaction with his or her life and social network, has come to be considered predominantly a biological disease and is treated accordingly with pharmaceuticals (see Chapter 11, as well as the box about Arthur Kleinman). How social forces increase the risk of such conditions is often subsumed in such discussions, and the focus turns toward how to best "treat" these diseases. Thus, ills of the social body come to be treated as diseases of the individual body. This may result in inappropriate or ineffective treatments that sidestep the underlying cause; in other words, the focus is on biomedical treatment rather than social policies that might prevent the condition, reduce its frequency, or ameliorate suffering from it.

Biological/Medical Normalcy

There is an important distinction to be made between a biocultural and a biomedical perspective on disease. Both take the body as their focus and assume that a cause or locus of disease can be found there. But this is a *starting* point for

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biocultural analysis rather than an *end*point, as it is in biomedicine. A useful distinction to make here is between the **proximate** and **ultimate** causes of disease. Proximate literally means nearby, and in this case it refers to the immediate cause of some physiological disruption. It could be a bacterial infection that is the proximate cause of a high fever, lassitude resulting from too little thyroid hormone, or difficulty breathing caused by unimpeded growth of cancer cells in the lungs. This is where biomedical analysis often stops.

In contrast, biocultural analysis takes off from here to investigate the more distant or "ultimate" causes of the disease. It asks why—why this individual, in this population, living under a set of household, community, regional, national, or global conditions, each of which has been shaped by historical and evolutionary forces. What factors put the individual at risk for the bacterial infection? Was it the lack of attention to hygiene in a nursing home, and why was the person there to begin with? Was the individual exposed to asbestos in the course of his job as a demolition worker, and how did he end up with that job anyway? Ultimate factors can also be locally defined and include supernatural forces that are believed to cause disease, such as witchcraft, sorcery, or some other form of divine intervention.

Biocultural analyses (and medical anthropological analyses in general) try to get at these more "distant" or ultimate causes of a malady. They cast a critical eye on standards of health derived from biomedicine, which have most often been developed in a Western context. The example described earlier of hemoglobin levels in sea-level and high-altitude populations is illustrative of this. Another example is that standards for growth (achieved weight and especially height for age) routinely used in cross-population analysis often derive from the well-known U.S. Centers for Disease Control and Prevention (CDC) growth charts. When used in this way, frequently it appears that the population being compared with the CDC standards is "failing" to achieve the same age-specific body size. Figure 2.3 compares the CDC charts for growth in weight among boys against the WHO standards published in 2007. In general, the WHO standards are lower than the CDC standards, especially from ages 6 months to 32 months. The WHO standards are based on healthy children from diverse populations and call into question the CDC standards as the global norm for "optimal" growth (de Onis et al. 2007). That is, contemporary children in the United States may in fact be overnourished and able to grow at rates that are historically unprecedented. Hence, the wisdom of using these standards as an ideal is being questioned, especially because U.S. children are now manifesting increasing rates of what used to be considered adult-onset diseases such as diabetes. This topic is taken up in more detail in Chapter 4.

A question raised by this example is: what is biologically normal? This is a crucial issue because "normal" tends to be equated with healthy. It is important to develop a better sense of (1) the range of what might be considered normal (as in the *norm*—the most common form of a characteristic), either across populations or across history, and (2) what evidence exists supporting a relationship between a trait and an increased or decreased risk of disease across populations and environments (G. C. Williams 2000). The concept of **biological normalcy** can also be applied to conditions for which there is no known cause or cure within a given society, which are thus labeled normal. For example, the dowager's hump, now known to be

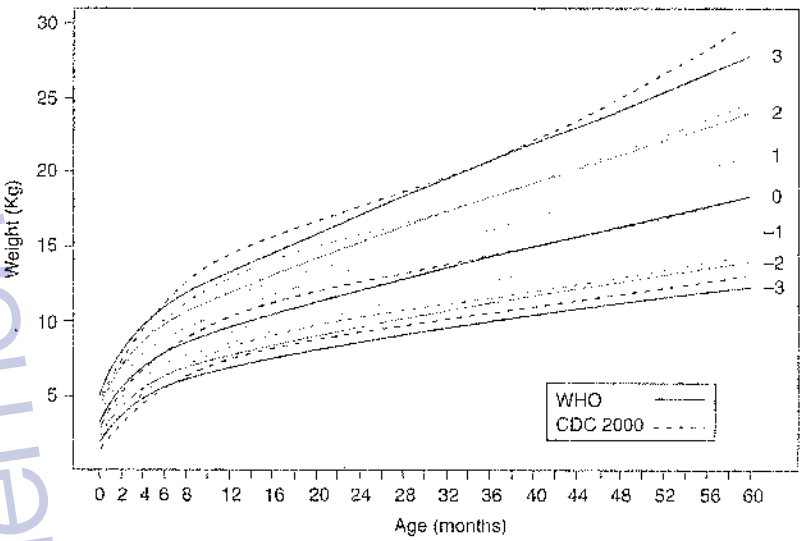


Figure 2.3
The CDC and WHO growth standards for weight for age for boys. Units are *z* scores, which represent deviations from the population mean. Note that the CDC standards are higher at almost every age, but especially so from ages 6 months to 32 months.
Source: de Onis, Mercedes, et al. 2007. "Comparison of the WHO child growth standards and the CDC 2000 growth charts." *J. Nutr* 137:144–148. Reprinted with permission from American Society for Nutrition.

caused by osteoporosis of the spine, long described a normal aspect of aging among women in Western societies. Barbara Mintzes (2002) notes the pernicious effects of direct-to-consumer drug advertising as a way to encourage individuals who might have considered themselves relatively healthy (i.e., normal) to see themselves as at risk and in need of pharmaceutical treatment.

Thus, although in this book descriptive characteristics of bodily states (e.g., height, weight, parasite load, blood pressure) are used, the meaning of their particular measures will be subject to investigation, with no prior expectation that they will be associated with the same risks or derive from the same causes across populations or that they are considered problematic within any given society.

The issue of biological normalcy is especially relevant to our understanding of human biological variation. There are some well-known biological differences across human populations, and historically these were understood as aspects of **race**. Races were seen as different "types" of humans, with each type having some unique set of biological characteristics that differentiated it from others. We now understand that these differences are in degrees of frequency rather than simply all members of one population having a trait that is not found in another (the topic of race and health is considered in detail in Chapter 10). Some of these genetic differences can be understood as the outcome of variation in the diseases faced by

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populations and therefore they have health significance. Thus, to understand the sources of this biological variation among human populations, it is necessary to outline an evolutionary perspective on health. Biocultural analyses often make extensive use of evolutionary perspectives in efforts to understand how culture—especially as it affects interactions with the natural environment—has long-term consequences for the body, in the form of biological changes.

Evolutionary Perspectives on Health

To start, evolutionary theory is a set of well-supported hypotheses that explains how biological systems came about, how they change over time, and how they are maintained. Evolutionary theory is the overarching paradigm for all of the life sciences—those branches of science that are concerned with living organisms. The core principles of evolutionary theory are straightforward and have clear relevance to health. These principles derive from the pathbreaking work of Charles Darwin (1809–1882) in the nineteenth century. Darwin, along with the less-celebrated Alfred Russell Wallace, provided a process—**natural selection**—that could explain how organisms came to have their traits and how these traits were closely related to the environment in which the organisms lived. Simply put, within populations individuals vary in their characteristics, and many of these variations are heritable (capable of being passed on to offspring via DNA). Because resources such as food, space, mates, protection from predation or climate, and so on are usually limited, there is often competition among individuals for those resources. Individuals with characteristics that give them some advantage in that struggle will get more resources, which in turn will provide those individuals an advantage in survival, reproduction, or both. For example, individuals who have some trait that allows them to better resist infection or metabolize energy more efficiently have an advantage in environments characterized by infectious disease or food shortages. Ultimately, they likely will have more offspring than those without these favorable traits. Over time, such favorable traits should spread in the population, and the characteristics of that population, as evident in the frequency of those traits, will have changed, as illustrated in Figure 2.4. This is **evolution**: changes in the characteristics of a population over time. Natural selection is a mechanism by which such changes can occur.

The traits that confer some survival or reproductive advantage are referred to as **adaptations**. Importantly, an adaptation is specific to an environmental context; what provides an advantage in a tropical forest may not be at all adaptive in an Arctic environment. Predators, food resources, and infectious diseases are problems that all organisms must solve, but the particularities of those problems and their adaptive responses vary by environment. Adaptive responses can occur throughout the body—natural selection may favor more acute vision, blood cells that do not allow infection by a parasitic disease, darker or lighter skin, larger or smaller intestines, or a bowl-shape pelvis for upright walking versus a flat pelvis that serves quadrupedalism well. Bodies can thus be thought of as bundles of adaptations. Keep in mind that although natural selection is often seen as "the strongest survive," the adaptation of interest may have nothing to do with strength per se and the "competition" may be invisible to us.

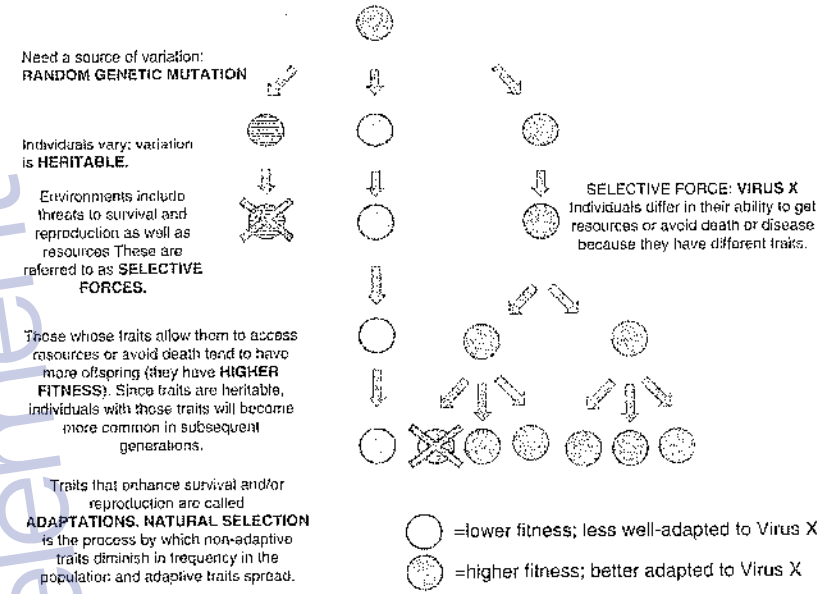


Figure 2.4
Evolution through natural selection and the concept of adaptation.

Adaptations are measured by the **fitness** of the individuals who possess these traits. Fitness is defined as reproductive success (how many offspring or grandoffspring, etc., you have). To have fitness, you must survive to reproductive maturity or make some contribution to the reproductive fitness of close biological relatives (this is known as *inclusive fitness*). Because the strict measure of fitness is often difficult to assess, especially in humans with their long generation times, health indexes are often used as proxies for fitness—that is, for the assessment of adaptations. By definition, these are linked—either directly or indirectly—to survival and reproduction (Little 1989). Frequently used indexes include standard biological measures—hemoglobin status, infectious disease status or parasite load, child height and weight, blood pressure, reproductive outcomes such as miscarriage, or birth weight. All of these signal something about health that has significance for survival chances and overall reproductive success. Ideally, these measures can be linked together in a prospective study—that is, by assessing individual health characteristics and following an individual over longer periods of time to assess his or her fertility and survival (or age at death). Prospective studies are difficult to do because they require monitoring of individuals over long periods of time, so more often than not health measures are used as proxies for adaptation if they are known to affect survival or reproduction.

Selective forces are environmental factors that ultimately challenge survival and reproduction, but more immediately endanger health and well-being. They are sometimes referred to as **stressors**. Exposure to pathogens, lack of food or specific

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nutrients in the diet, or overexposure to heat or cold, among many others, all serve as selective forces, and individuals with characteristics that help them cope with these stressors have higher fitness and better health than others. Those characteristics then get passed on with greater frequency to the next generation of the population. Natural selection acting in different environments on different existing organisms contributes not only to variation between species but also to variation observed between populations within a species that inhabits a broad geographic range, such as humans. Hence, an evolutionary perspective is relevant to investigations of health, especially those that consider population differences in health.

Natural selection is a slow process, producing a gradual change in the frequencies of adaptive traits over generations. When environmental changes are relatively rapid, however, natural selection must play "catch-up." Genetic adaptations evolved in response to the previous environmental conditions; when environments change quickly relative to generation time, there will be a period during which there is a mismatch between the population's genetic characteristics and the environment. This time is likely to be characterized by higher rates of morbidity and mortality.

This mismatch is especially relevant to health among contemporary populations (Gluckman and Hanson 2006; Moalem 2007; Nesse and Williams 1994). Cultural change is rapid relative to genetic change, and the historical changes in lifeways that have occurred over the past hundreds of years have resulted in most contemporary humans living in environments that differ substantially from those in which we evolved. For some 2 million years, members of our genus *Homo* were hunter-gatherers, eating a diverse diet of wild plants and animals; living in small, mobile, kin-based groups; and engaging in energetically demanding activities. Few human groups live by subsistence hunting and gathering anymore, and most rely on the products of agriculture, which differ from wild foods. Furthermore, in industrialized or highly urbanized societies, work patterns are no longer shaped by foraging or food production, but are often sedentary in nature. Combined with urbanization, which creates large, dense accumulations of people, this creates a set of environmental or lifestyle conditions at odds with those that prevailed during much of our genetic evolution. The types of diseases that prevail among industrialized societies are likely to reflect, at least in part, this mismatch.

Adaptability

Adaptations derived from natural selection are based on heritable variation, and they are therefore accompanied by genetic changes in DNA that are passed from generation to generation. There are other forms of biological adaptation, however. One form is physiological plasticity or **adaptability**. This refers to shorter-term, nonheritable changes that occur in individuals when they are confronted with immediate challenges to their survival. The capacity for specific adaptability responses has a genetic foundation, but the engagement of that response depends entirely on environmental exposure. For example, in response to a sudden drop in temperature, an individual shivers to generate heat, and vasoconstriction (narrowing of the blood vessels) occurs to reduce heat loss. Likewise, when bacteria or a virus infects tissues in the body, the body responds by raising body temperature. To the individual, this

manifests as fever, but to the bacteria this is a severe obstacle to reproduction. As soon as the challenges have passed, the individual reverts to physiological baseline. Note that these short-term responses are meant to be just that—of short duration. That is because they are expensive to maintain in terms of bodily resources and are inefficient or even deleterious over the long term.

For stressors that persist over longer periods of time, the body engages more efficient kinds of adaptive responses. If cold stress continues, the body shifts to alternating constriction and dilation of the blood vessels. In the context of an infectious disease threat, other arms of the immune response are engaged (see Chapter 8). When individuals increase weight-bearing activity, bones increase in density to match the new load; when individuals travel to high altitude, they build more red blood cells to more adequately take up and deliver oxygen. These responses are entirely reversible: bone density declines with less activity, and red blood cell production goes back to baseline levels when the individual returns to sea level.

Other adaptability responses that are less reversible, but more efficient, are those that occur during the early periods of growth and development. If a stress is encountered during this period, when the body is most malleable, growth and development can be fundamentally altered in ways that increase survival and reproduction under those conditions. For example, if undernutrition is encountered chronically in utero or during early childhood, growth in height will be stunted to preserve the development of more critical physiological systems such as the brain. Other adaptive responses may be engaged that make metabolic function more efficient. These kinds of alterations are often permanent, and they can be beneficial if in fact the future environment is characterized by the same kinds of stressors, such as chronic food scarcity. However as we will see in Chapter 5, these also come with costs to individual health that may manifest during childhood or later in life. Thus, whether these are adaptive or problematic (or both) is subject to differing interpretations (Schell and Magnus 2007).

Behavioral Adaptability

There are also behavioral adaptability responses, and these are likely to be especially important for a large-brained, cognitively astute species such as *Homo sapiens*. Variation in behavioral adaptations may be evident in cultural traditions because groups have been exposed to different threats to their health over time as a result of their different historical and ecological situations. For example, differences in home-building styles may reflect differences in exposure to malaria. Researchers have shown that building houses high off the ground can reduce exposure to malaria-carrying mosquitoes that have a low flight ceiling (Charlwood et al. 2003). Healing traditions likewise reflect local health threats and may be adaptive in that context. Furthermore, unlike genes, which can only be passed from one generation to the next, behaviors can be transferred quickly across individuals or populations. However, there are barriers to the transmission of behaviors: those strongly linked to a specific cultural or religious tradition may be less likely to be transferred in the absence of migration, war, colonization, or proselytizing.

In many cases, behavioral adaptations involve modification of the environment itself. That is, instead of adapting to the environment, the environment is adapted or

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changed. Although the difference between adapting to an environmental challenge or adapting the environment such that it no longer poses a challenge may be subtle, for humans, the latter has been a key part of our adaptive behavioral repertoire. Most often this takes the form of buffering us from health threats. Building shelters, separating drinking water from wastewater, building houses high off the ground, or using mosquito netting are all examples of this kind of environmental modification. Using insecticides to control insect-borne diseases or fertilizer to increase crop productivity also fit into this category, as do medical systems that effectively reduce mortality from life-threatening diseases. All reflect the creative abilities of *H. sapiens* to modify the environment in ways that reduce threats to survival, health, or well-being.

There is an important caveat to these kinds of technological innovations: although they may solve a particular problem, especially in the short term, it is also possible that they disrupt some other part of the environment such that a new challenge emerges. Building dams for irrigation or hydroelectricity can increase agricultural or economic productivity, but it also changes the ecological conditions such that new disease vectors can flourish. When the Aswan Dam was built to create Lake Nasser in Egypt, the lake became home to *Bulinus* snails, which carry the helminthic infection schistosomiasis, a debilitating disease associated with blood loss and scarring of the blood vessels surrounding the liver, intestines, or bladder. When people started using the still water for a variety of activities (fishing, washing, playing), they were exposed to these helminthes, which are parasitic worms (Desowitz 1981; see also Chapter 9). Thus, environmental modifications often have unforeseen consequences for health, and they may also contribute to the problem of genetic–environment mismatch mentioned previously.

These examples illustrate another important point: all adaptations are in some way *compromises*. This means that there are both benefits and costs to changes made in response to a health challenge, regardless of whether the adaptation is genetic, developmental, a short-term physiological alteration, or a behavioral change. It is difficult to imagine what optimal adaptations would be—that is, those that come with few or no costs. Sickle-cell hemoglobin may be a genetic adaptation to malaria, but it increases the frequency of sickle-cell anemia, a life-threatening disorder of red blood cells. Fever serves to reduce bacterial infection but requires many cellular resources and may be destructive to an individual's own cells. Insecticides may kill mosquitoes initially, but over time mosquitoes evolve resistance and are able to resurge.

There are thus two dimensions of investigation in biocultural analysis: one considers local adaptive responses to health challenges (genetic, physiological adaptability, or behavioral adaptability), which we have just described, and the other considers the nature of those specific challenges and how they became threats to health in that population (Wiley 1992). Many of these challenges are likely to be derived from historical circumstances that have altered the social environment in ways that result in ill health. The colonial era had a particularly deleterious effect on local health patterns when new modes of employment, including the shift away from subsistence agriculture to commodity production for export, new forms of stratified social relations, and ecological changes derived from new modes of production and transportation all fundamentally altered health conditions in colonized areas. One outcome of this was an improvement of health in many European

countries as their economies expanded and new supplies of food were available, even as the colonies experienced a perceptible decline in health conditions. In the Americas, indigenous population numbers plummeted because of exposure to new infectious diseases from Europeans, and a legacy of major health disparities between native and European-derived populations persists well into the twenty-first century. Disparities in health across the globe came to be more distinct during this time, and these persist today. These are evident in huge differences in life expectancy among countries around the world—from a low of about 50 years in some sub-Saharan countries to more than 80 in Scandinavian countries and Japan, as shown in Table 2.1. Life expectancy is the average length of life in a population and, as such, is strongly affected by levels of mortality early in life. Variation in life expectancies reflects differences in disease burdens, especially early in life, and years

Table 2.1 Life Expectancy and Income across Countries, 2014–2015

	Life Expectancy at Birth	Gross National Income, Purchasing Power Parity, Per Capita
Central African Republic	50	$610
Ethiopia	64	$1,500
Haiti	64	$1,750
Sierra Leone	50	$1,830
Afghanistan	61	$1,980
Bangladesh	71	$3,340
Palestinian Territory	73	$5,080
Pakistan	66	$5,100
India	68	$5,760
Bolivia	67	$6,130
Philippines	69	$8,300
China	75	$13,130
Costa Rica	79	$13,900
Thailand	75	$13,950
Brazil	75	$15,900
Cuba	78	$18,710
Turkey	77	$19,040
Russia	71	$24,710
Greece	81	$26,130
South Korea	82	$34,620
Japan	83	$37,920
United Kingdom	81	$38,370
Australia	82	$42,880
Canada	81	$43,400
Sweden	82	$46,710
United States	79	$55,860

Source: Population Reference Bureau, 2014 and 2015 World Population Data Sheets. http://www.prb.org

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of life lost as a result of these diseases. Thus, global and local political economies, which have taken shape under specific historical conditions, have been important forces producing variation in health.

In the context of poverty, opportunities for adaptation may be limited. All adaptive responses require resources of some kind, and if they are not available, the ability to adapt can be seriously compromised, leading to a downward spiral of health. Impoverished living conditions generate multiple stressors that challenge health and well-being, including crowding, unclean water or contaminated food, insufficient heating or cooling mechanisms, lack of access to health care, and increased levels of violence, among many others, such that not only are resources scarce, but also challenges to health exist on multiple fronts. Poverty is a root cause of health differentials within and between populations. Wealthier individuals have more resources and hence more adaptive options but also face fewer challenges to their health and well-being. It is tempting to consider the relatively poor health often seen among impoverished populations as evidence of "failure to adapt," but this is tantamount to blaming the victim. Instead, it is critical that the root causes of resource disparities be illuminated, because only with attention to these causes will lasting solutions to entrenched health problems of the poor be possible. As Richard Wilkinson (1996) has demonstrated, it is also the case that in populations that are highly stratified, with large resource differentials within them, not only do the poor suffer more, but also everyone's health suffers compared with populations with more egalitarian resource distributions (see Chapter 10).

Cultural Approaches in Medical Anthropology

A biocultural perspective attempts to integrate both biological and cultural factors in the holistic study of health. However, some medical anthropologists employ approaches that are specifically cultural in focus. This reflects not only a pragmatic but also a theoretical orientation: the body, its biology, and evolution are considered of secondary importance to the social and cultural factors that more immediately influence health, healing, and well-being. But how does culture influence health? Culture is a set of shared meanings (i.e., it exists at the group level), embedded in social institutions, and an implicit shaper of individual beliefs and behavior. Indeed, when individual beliefs or behavior is at odds with a set of shared meanings, health may be compromised. William Dressler has pioneered "cultural consonance" analysis and demonstrated in several contexts that individuals who do not conform to or participate in some core cultural components (i.e., their experience does not match expectations about how the world works) tend to have worse health than those who do conform or participate (Dressler 1995). Several of these cultural approaches are outlined next.

Political Economy of Health

Sometimes also called **critical medical anthropology**, this perspective examines power differentials and their impact on health (Singer and Baer 1995). This perspective traces its origins to Rudolf Virchow (1821–1902), the pioneering German pathologist who was also a crusader for social reform in the service of public health. As demonstrated previously, one of the most obvious sources of variation in health across the globe is economic status. Wealthy groups within and across countries tend to have overall better nutrition, fewer infectious diseases, and longer life spans than poor groups. This difference in wealth can be traced to historical processes that have resulted in differential access to important economic resources such as land, other forms of capital, credit, political power, and so on, which mostly stem from the capitalist world system. Individuals with fewer resources are doubly at risk of poor health: they are more likely to be exposed to hazardous conditions that increase their risk of disease (through occupational hazards, contaminated domestic environments, unclean water or food, violence, etc.) and they have access to fewer health-care resources. This is what the physician-anthropologist Paul Farmer refers to as "structural violence": how the social machinery of oppression is embodied in adverse health outcomes and needless suffering among the poor or victims of racism, sexism, or all of the above (Farmer 2004).

From this perspective, the only lasting solution to health differentials lies in changes to the social, cultural, economic, and political structures that support or maintain differential access to resources within and between populations. Any other kind of specific health intervention will address only one or at best a few of the problems and usually only temporarily, leaving underlying structures unchanged.

Power differentials can exist in many social domains. They are easily seen in cross-country comparisons. As Table 2.1 indicates, there is a clear positive correlation between life expectancy and per capita wealth. Within countries there are differences that correlate with local levels of economic or social stratification, political systems and ideologies, cultural heterogeneity, and ecology. In the United States, there are substantial differences among subpopulations with regard to health indexes, and they tend to track along with economic status (see Chapter 10). Gender differences in health are likely to be pronounced in societies with strong gender hierarchies. For biological reasons that are not well understood, women live longer than men, but this biological advantage can be undercut by social factors that serve to reduce female survival. On the one hand, across societies, females are more likely to have lower incomes, less representation in governments, and less power within a household context to make decisions about resource allocations. As a result, female health is often compromised relative to that of males. On the other hand, men may be subjected to other kinds of occupational hazards more often than women (coal mining, high-stress white-collar jobs, factory work). Likewise, children are vulnerable to such inequities because they rarely have access to their own economic resources and lack the skills to manage their own health and health care. They are subject to household decision making that may privilege the health of economically productive adults over that of children, sons over daughters, or older children over younger children.

Ethnomedical Systems

Some of the earliest work in medical anthropology was on indigenous healing systems (**ethnomedical systems**) and how they vary cross-culturally (Foster and

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Anderson 1978). Although the practice of healing may appear to be strikingly different across cultures (from chanting shamans to surgeons wielding scalpels), healing traditions have elements in common: all have theories of etiology (disease causation), diagnostic criteria, therapeutic measures, formalized interactions between patients and healers, and mechanisms for training new healers (see Chapter 3; Fabrega 1997). The complexities of healing systems tend to track along with social complexity in general. In highly structured, large-scale societies (such as India or China), the practice of medicine is likely to be institutionalized, with formal mechanisms for training, authoritative medical texts, professional organizations of healers, and a complex pharmacopoeia for treatment. In smaller-scale societies, there may be no textual tradition and more informal mechanisms for training and transmission of knowledge. Thus, healing traditions and institutions are cultural products and "make sense" within their cultural context. To individuals within a culture, local healing traditions produce explanatory models of health and disease. Arthur Kleinman pioneered the concept of *explanatory models* in his research on doctor–patient clinical interactions, which revealed that physicians and patients (especially when they are from different cultural backgrounds) often have different explanatory models for the cause, appropriate treatment, and definition of an ailment (Kleinman, Eisenberg, and Good 1978; see also Anthropologist in Action: Arthur Kleinman box). This goes for highly complex systems such as Western biomedicine, Chinese medicine, Āyurveda (practiced in South Asia), or "folk healers" or shamanism.

One of the major distinctions among medical traditions is the extent to which the cause of a given ailment is located within or beyond the patient. In biomedicine, clinicians look for evidence of some disruption in function at the cellular level (a proximate cause), which may involve an infectious agent or replication of abnormal cells or other organic disturbances. Likewise, in Āyurveda, practitioners search for evidence of an imbalance in the body's humors (wind, bile, phlegm). Other traditions consider the possibility that religious or moral transgressions have resulted in divine punishment or that other individuals can "send" sickness out of spite or jealousy. These etiological differences in turn lead to the use of different types of therapies to restore health. In biomedicine these tend to be individual focused because interventions are focused on the body of the sick individual. In other contexts in which the cause of disease is supraindividual, social, or supernatural, appropriate interventions may include prayer, sacrifice, social reconciliation, and other types of group-level therapies, sometimes in conjunction with therapies that treat the immediate physiological cause.

In practice, healing traditions have come to be *pluralistic*, meaning that elements of one may be incorporated into another or that individuals in a society may seek out healers from various traditions in their quest for health. In India, Āyurvedic practitioners dispense antibiotics or give vaccinations or other injections; biomedical practitioners may recommend massage or acupuncture for pain (Leslie 1992). Thus, although people may profess a belief in one particular medical paradigm, in fact many are willing to try others, especially when a particular illness proves resistant to one therapeutic approach. This kind of permeability seems to be at odds with the idea that medical systems are embedded within one particular cultural context, but it may well be that when individuals are suffering they become more

open to alternative approaches in their search for relief. Furthermore, as biomedical therapies have become widely available around the globe and their clear success at treating or preventing some ailments such as bacterial infections or vitamin deficiencies has been demonstrated, these therapies have become widely acceptable and desirable for some types of symptoms. People may understand or subscribe to only bits and pieces of the explanatory model of biomedicine but will still make use of its therapies.

As groups encounter members of other populations or alter their subsistence or habitation patterns, their patterns of disease may likewise change. In response, new explanations of disease or therapies may be adopted. One phenomenon that medical anthropologists have frequently described is that individuals in diverse cultures may try numerous healing methods that derive from widely varying cultural traditions in their efforts to cure themselves of seemingly intractable health problems. In the United States, surveys show that more than one-third of all American adults use some form of complementary or alternative medicine in addition to biomedicine and that this number has remained relatively steady since the late 1990s (Tindle et al. 2005). Most common were herbal therapies, relaxation techniques, chiropractic care, and yoga. Individuals make use of these healing traditions although they are derived from cultures with different concepts of the body or understandings of the causes of ill health. This openness to other forms of medicine suggests that beliefs and behaviors related to health and disease are aspects of culture that are especially open to change or, at the very least, experimentation. It may also reflect a pragmatic approach, in which there is evaluation of different therapies for different ailments.

Although it may be tempting to see biomedicine as "superior" to other healing traditions, because of its widespread success at treating many ailments, it can also be viewed as an ethnomedical system of Western societies (Rhodes 1990). Biomedicine reflects the values of these societies as much as other medical systems reflect the beliefs and values of non-Western groups. For example, biomedicine focuses on purely natural causes of disease and sees the supernatural as irrelevant to disease causation. Furthermore, metaphors of the body as a machine with functional or malfunctioning parts are common. Medical anthropologists have argued that the rise of this common metaphor coincides with a transition to a factory-based production system in industrialized societies (Martin 1994). Political metaphors also pervade biomedicine, as in the immune system's capacity to "defend" the body against harmful "invaders," with which it is "at war" (E. Cohen 2009).

Interpretive Approaches to Illness and Suffering

Many anthropologists interpret medical systems, health, and disease strictly within their cultural contexts. This **interpretive approach** was strongly influenced by Clifford Geertz's notion of ethnography as "thick description." That is, the anthropologist must fully understand (through the process of long-term, in-depth ethnographic fieldwork) the role that various behaviors play within their cultural context and how the behaviors make sense within that milieu. Thus, the analysis of illness requires that these behaviors be considered in the context of the worldview of

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individuals, which is itself related to historical, ecological, political, economic, and myriad other factors. It becomes possible to see illness as the embodiment of an individual's role within that culture. For example, Nichter (1981) has described illness as an "idiom of distress," a culturally sanctioned way of expressing dissatisfaction with one's position or role at a given time.

Such idioms of distress are culture specific. Similarly, a locally recognized syndrome can be considered culturally constructed. Historically, in medical anthropology these were referred to as culture-bound syndromes—clusters of symptoms that were recognized as illness in one society but not necessarily within another. Examples included *pibloktoq*, a syndrome recognized by Arctic peoples as a set of psychological symptoms that made afflicted individuals behave in ways at odds with their normal roles (see Chapter 11). Likewise, among the Hmong of Laos, including those who have migrated to the United States, a syndrome known as *tsog tsuam* (nightmare attack) attributed to the *dab tsog* (nightmare spirit) is described (see further discussion of *pibloktoq* and *tsog tsuam* in Chapter 11). This was given the biomedical label sudden unexplained nocturnal death syndrome (SUNDS) because it often results in sudden death during sleep, but no proximate cause has been uncovered by biomedical researchers. The Hmong describe this syndrome as being caused by failure to perform traditional religious obligations, and it is characterized by intense psychological stress, especially in relation to their displacement and trauma subsequent to political persecution in Laos (Adler 1995).

The WHO **International Classification of Disease** provides standardized definitions of all known human diseases. It was originally developed in 1900 by a group of representatives from the International Statistical Institute, and the WHO took over responsibility for it in 1948. The International Classification of Disease represented a concentrated effort to create a universal classification of diseases that could be applied in any cultural setting. Nonetheless, anthropologists have found that even these standardized categories are subject to interpretation because they intersect with locally defined disease categories. For example, infant diarrhea may be recognized across cultures, but its causes and appropriate treatment vary widely. Similarly, in Ladakh, India, where average birth weight is around 2,700 grams, the WHO definition of 2,500 grams for low birth weight (below which babies are seen to be at greater risk of death) is relatively meaningless because almost 50 percent of newborns fall into this category (Wiley 2004a).

The cultural construction of disease refers to how disease categories, **nosologies** (systems of disease classification), symptomatologies, and treatments are subject to cultural influence. This is a major theme in culturally focused medical anthropology. This perspective links to the political economic approach by considering not only how disease is interpreted culturally but also how it is produced by social structures, cultural beliefs, values, and behaviors. For example, how do social conditions such as occupation, housing, and social stratification act to produce infant diarrhea? What historical processes produced these conditions and ultimately contributed to this outcome? How do culturally prescribed beliefs and behaviors contribute to this health outcome? In this case, disease is seen as a reflection of socially and culturally created conditions and, in turn, is interpreted within that cultural context.

An important component of this interpretive approach is analysis of language. As humans express culture through language, the particular words and expressions that individuals use in talking about health and disease are revealing. It is common in medical traditions with Greek and Arabic roots to talk about diseases as "hot" or "cold," reflecting a conception of the body as being made up of humors. Linguistic analysis can illustrate how worldviews are manifest in the classification of disease etiology. For example, Joseph Bastien (1985) has described how the Qollahuaya Indians of Bolivia have a similar conceptualization of their bodies as they do of their surrounding mountain environment. Sickness and ecological problems derive from the same source, and both must be healed to reestablish wholeness and health (see also Adelson 2000).

Linguistic interactions between healers and patients likewise provide insights into social relationships. How do patients and healers describe the patients' symptoms and their causes differently? Is there mutual understanding and clear communication, or does each seem to be speaking a different language? How does their interaction illuminate social distinctions between patients and healers? Analyses of these "illness narratives" provide rich insight into divergence between a clinician's perspective and that of the patient, which in turn has implications for the likely success or failure of the prescribed treatment regimen. John Heritage and Douglas Maynard (2006) note that there are opportunities at every stage of the doctor–patient interaction during clinic visits (which they describe as having six stages: opening, presenting complaint, examination, diagnosis, treatment, and closing) for power differentials, lay versus biomedical misunderstandings, contesting diagnoses and treatment regimens, and so on to play out. The extent to which there are differences between patient and clinician understandings, priorities, and authority can have important effects on the success of the interaction and ultimately the resolution of the complaint.

Applied Medical Anthropology

A large number of medical anthropologists are engaged in applying the principles and ethnographic knowledge derived from anthropological scholarship to the design or implementation of health policies and interventions and, hence, are doing **applied medical anthropology**. They may work in a clinical setting by, for example, mediating between a patient's understanding of his or her condition and that of the clinician. Often patients and healers are from different social, cultural, and economic contexts, leading to a mutual lack of understanding. Anthropological "culture brokers" can play a vital role in facilitating communication between clinicians and patients, thereby increasing the likelihood of a positive outcome. This goes beyond simple language translation to ensure compliance by the patient with the treatment regimen. Instead, medical anthropologists in clinical settings help both patient and clinician to understand each other's perspectives and explanatory models so as to facilitate communication and ultimately enhance the likelihood of therapeutic success. In such a context, the medical anthropologist works as a kind of patient advocate. Most clinics do not have medical anthropologists on staff, and social workers often play this advocacy role. It is important that whoever is filling

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this role have some basic training in medical anthropology, especially in a multicultural society.

Applied medical anthropologists also work in institutions where health policies are designed to target specific populations or health problems. Here they bring their ethnographic knowledge and experience to bear on the development of health policy or interventions. They try to bring a user's perspective to the table, helping to ensure that any health intervention programs are culturally appropriate, do not violate social norms, or do not require resources that are simply not available. Organizations that employ medical anthropologists include various nongovernmental organizations; the WHO; federal, state, and local public health bureaus; and in the United States, the Centers for Disease Control and Prevention (CDC), among many others. In such contexts, medical anthropologists also act as community advocates by ensuring that members' voices are heard in the design of health programs and policies. Applied medical anthropologists may also be hired to conduct short-term ethnographic research to assess the feasibility and likely success of a particular health-related intervention. Arthur Kleinman is a particular kind of "applied anthropologist" insofar as he brought his anthropological insights into his clinical practice (and vice versa); others will be featured throughout the book.

Epidemiology

Before delving further into medical anthropological topics, it is important to become familiar with some of the terminology used in the study of health at the population level. Many of these terms come from a discipline closely related to medical anthropology: **epidemiology**, which is the study of the distribution of disease in a population. Epidemiology is a key part of public health, a branch of health studies that is concerned with the health of the population (i.e., the public) as opposed to the individual (referred to as clinical health, or clinical medicine). Although epidemiology originated as the study of infectious diseases and how they spread, epidemiology is concerned with the distribution of all diseases, infectious or not. It is concerned with the factors that influence the distribution of disease and thereby affect the risk of disease. The following terms are used to describe patterns of disease in epidemiological work:

1. **Prevalence**—The total number of individuals with the disease in a particular time period.
2. **Incidence**—The number of new cases in a particular time period.
3. **Endemic**—A disease that has a long history in the population, with little change in either prevalence or incidence over time.
4. **Epidemic**—A disease that dramatically increases its incidence and prevalence in a short period of time. In the context of an infectious disease, epidemics result when an infection spreads rapidly through the population. Infectious disease epidemics often have a cycle, with rapid increases in incidence, followed by a decrease in incidence (see Figure 8.3 for an example of an influenza epidemic). The decrease results from the fact that most individuals will have been exposed (or are dead) and hence are no longer susceptible to contracting the infection. There can also be epidemics of noninfectious diseases. It is not uncommon to hear about epidemics of childhood obesity or hypertension in the United States.
5. **Pandemic**—An epidemic that occurs on a global scale. HIV is considered a pandemic, and diabetes is quickly becoming one because its incidence and prevalence have increased dramatically in populations throughout the world.

Two other relevant terms are **morbidity** and **mortality**. Morbidity refers to disease; mortality refers to death. The mortality rate is the number of deaths in a given time period divided by the total population size. In the United States, the CDC publishes the *Morbidity and Mortality Weekly Report* (MMWR; http://www.cdc.gov/mmwr). Its ominous name aside, the MMWR lists the number of cases of notifiable infectious diseases[1] that occurred that week and for the previous year; this is the "morbidity" part of the MMWR. It also provides tables listing the number of deaths from those diseases (i.e., the mortality from those diseases) that occurred during those same time periods. **Infant mortality**, which we refer to in many places in this text, refers to death in the first year of life.

Medical anthropologists often work with epidemiologists or seek additional training in epidemiology to complement their anthropological skills. A sampling of their work can be found in *Anthropology and Public Health*, edited by Robert Hahn and Marcia Inhorn (2009). Many medical anthropologists bring to bear their ethnographic skills, which can be profitably combined with larger-scale (but necessarily less "rich") epidemiological surveys, thereby melding qualitative and quantitative methods. Their work can also help make sense of epidemiological patterns in ways that help better design culturally appropriate interventions. Anthropologists who use epidemiological data have much in common with social epidemiologists, who focus on the social factors that influence disease risk in a given population. In that way, there is overlap between critical medical anthropology and social epidemiology because it is routinely evident that marginalized or impoverished populations or those living in countries with high income inequality have poorer health than those in the mainstream, with higher incomes, or living in more equitable societies (Krieger 2011; see also Chapter 10). Other epidemiologists focus on genetic factors that give rise to population patterning of disease (genetic epidemiologists); these are of great relevance to medical anthropologists using an evolutionary approach to health.

Conclusion

Medical anthropologists are a diverse group of anthropologists who employ a variety of perspectives in their attempts to understand health within its local cultural context, variation in health between populations, or the ways in which health conditions have changed as a function of evolutionary or historical processes. There are important differences among the approaches with respect to the level of analysis. Some are concerned with individuals—their individual life histories that have made them vulnerable to a particular disease, how their maladies are interpreted

[1] The CDC has a list of notifiable infectious diseases that must be reported to them. Local health officials compile these data and send them to the CDC on a weekly basis.

Rapidshare