CHAPTER 2

Health Issues and Behavior

Learning Objectives

By the end of this chapter, the reader will be able to:

- Describe behaviors related to obesity and its consequences (e.g., diabetes, cardiovascular health problems), and factors influencing those behaviors
- Describe behaviors related to youth violence and its consequences (e.g., injury), and factors influencing those behaviors
- Describe behaviors related to HIV/AIDS transmission, and factors influencing those behaviors

"He had had much experience of physicians, and said 'the only way to keep your health is to eat what you don't want, drink what you don't like, and do what you'd druther not.'"

—MARK TWAIN (1835–1910)

To give you a clearer sense of why an understanding of human behavior is important in addressing public health problems, let's take a look at a few selected health issues and how they are related to behavioral factors—remembering that *behavior* (as understood within an ecological model) is just one factor that determines the nature of a given health problem and, in turn, remembering that there are many factors that influence behavior.

OBESITY*

It is by now well known that obesity and its consequences (e.g., type 2 diabetes, heart disease, certain types of cancer) have become a serious health concern in the United States and other industrialized countries. According to data from the most recent National Health and Nutrition Examination Survey (NHANES) conducted in 2008–2009, more than two-thirds of adults in the United States are overweight or obese, and one-third of the entire population is obese, as measured by body mass index (BMI).[1] Both adults and children are at risk. Compared to similar data from 1973 to 1974, the proportion of children 5 to 17 years old who were obese was five times higher in the 2008–2009 survey.[2] Trends vary by state: 33 states had a prevalence of 25% or more, and 9 of these states (Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Missouri, Oklahoma, Tennessee, and West Virginia) had a prevalence of obesity equal to or greater than 30%.[3] According to the American Heart Association, if these trends continue, total healthcare costs attributable to obesity could reach 16% to 18% of all U.S. healthcare expenditures.[4]

Globally, the situation is similar. The World Health Organization (WHO) has estimated that in 2008, approximately 1.5 billion adults (age 20 or older) were overweight,

*The author wishes to acknowledge the contribution of, and material provided by, Kristen Corey, PhD, in compiling this descriptive section on obesity.

and of these, 200 million men and almost 300 million women were obese.[5] They also project that by 2015, 2.3 billion adults will be overweight and 700 million will be obese. According to the Food and Agriculture Organization,[6] China and many developing economies are experiencing rapid growth in obesity rates. In Brazil and Colombia, some 40% of people are overweight, and even in sub-Saharan Africa, there has been an increase in obesity, especially among urban women.

Where does behavior factor in? Because these trends in overweight/obesity are recent, most agree that interactions between people's behavior and the environment are the primary cause, rather than biological factors.[7,8] In other words, the situation is viewed as *preventable*. Explanations for these sudden and "epidemic" increases in body weight among Americans and populations in other countries generally emphasize *lifestyles* associated with increased overall energy consumption and inactivity. A short list combining behavioral and environmental causes includes the following:[7,8]

- Extensive marketing of unhealthy food products (including fast food)
- Overeating
- Lack of exercise
- Increased reliance on vehicle transportation
- A sedentary lifestyle, related in part to the ubiquity of television, computers, computer games, and multiple labor-saving technologies
- Changes in the quality of available foods
- Increased portion sizes
- Trends toward eating out
- The growth of the convenience food industry
- Increased advertising by the food industry

Think about it. How often do you eat out? When you do, what do you have? How often do you exercise?

For a while, public health efforts to address overweight and obesity concentrated on increasing awareness through education about healthy behaviors. Guidelines for exercise and diet and the health consequences of overweight and obesity aimed to change behavior by arming people with personal knowledge and skills. Despite moderate short-term successes, these approaches have not proved effective in the long term.[8,9] This issue is a good example of the ecological model at work, because the problem appears to be related to environmental factors that shape behavior, *encourage* the overconsumption of food, and *discourage* physical activity.[8]

Many of these earlier efforts also relied on the use of individual behavior change theories—including those we will be discussing in this text—that emphasize the individual as the target of change, and address knowledge, attitudes, decision-making processes, and skills. Critics of these efforts have cited the overreliance on what individuals can and cannot do over sociocultural and physical environmental factors that play a role in their decision making. This can't necessarily be "fixed" simply by adding an intervention focusing on individual behavior to an intervention that targets an environmental cause, because behavior and the environment *interact*.[10]

Interact: To act upon one another.

This is where ecological models come in.[11,12] Ecological models integrate the various influences on health behavior, including interpersonal, organizational, community, and public policy factors, to name a few. So, you could say that obesity-related behavior is influenced by many factors:

- Individual factors (e.g., genetics, taste/food preferences, attitudes, beliefs, knowledge, hunger)
- Social factors (e.g., interpersonal processes, relationships, social status)
- Cultural factors (i.e., shared beliefs/values related to food, the body, eating practices)
- Physical environment (i.e., availability/cost of food or exercise options, physical layout of environment)

These factors interact, and to understand behavior, it is important to understand that interaction. An ecological intervention (with a goal of changing behavior) can then include components that address several factors where, for example, an environmental change supports behavior change.[12] For example, removing vending machines, or altering the products they sell (an environmental change), will cut down on the eating of high-fat snacks (a behavior).

Food, Eating, and Obesity

We all know that eating involves choices about what to eat, so it is no surprise that taste, cost, convenience (availability), and individual food preferences are key influences on dietary choices.[13,14] This, however, does not say much in itself. A lot of factors go into the process of choice. For example:

- *Availability of healthy food:* Many studies have documented the lack of supermarkets, farmers markets, and grocery stores in low-income areas.[15,16] These kinds of stores are more likely to have fresh fruits and vegetables. In other words, choice of food is limited by where one lives in some cases.
- *Attitudes, beliefs, and sociocultural norms related to diet:* The cross-cultural literature suggests that dietary choices also are shaped by social and cultural factors.[17,18] Foods are associated with individual or group identity and with ideas about how daily life should be. Conceptions of what constitutes food or a meal, as

well as how foods should be consumed and prepared, vary by ethnicity, geographic region, gender, age, and social class. An important issue is demonstrated in this example: People's ideas about *what constitutes a good or acceptable meal* differ. Typically, across cultures, definitions of the ideal meal include a meat or other protein source and a "starchy" food such as bread, rice, or one of numerous root crops. In many cases, the starchy food is the main component of the meal in part because it is more available or accessible.[19-23]

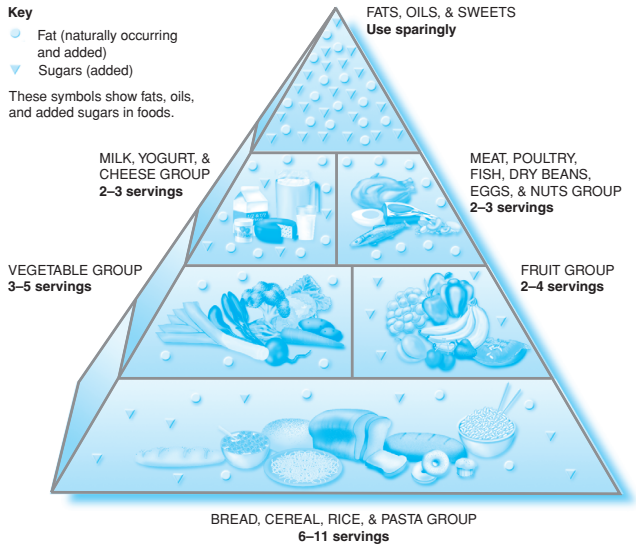
In the United States, the Department of Agriculture typically disseminates information on what constitutes a healthy, balanced meal (see **Figures 2-1**, **2-2**, and **2-3** for how this has evolved).

The cross-cultural literature also highlights many *meanings* associated with food and eating, and many of these have social implications. Food sharing is commonly associated with strong individual, family, and group ties and often invokes values of hospitality, mutual caring, group solidarity, and common goals, as well as social and even political obligations.[17-28] (See **Figure 2-4**.) Failure to share when it is socially expected or offering inappropriate foods is identified with negative values or used to express dissatisfaction with social relationships.[26-28] In contrast to nutritional models that determine the healthiness of foods based on their composition, investigations of local models suggest that the most commonly eaten foods that leave the consumer feeling full are often considered the most healthful.[18,29]

People may also be at risk for obesity-related problems because they do not know the relationship between diet and disease.[19,29] Remember that calling obesity a "disease" is a new phenomenon; until recently, many people would not have thought of it that way. In fact, "being large" has positive value in a number of societies. Weight gain, good appetite, and large stature have been considered signs of good physical and social health. By contrast, weight loss, poor appetite, and thinness have been considered signs of poor health.[30-35] Decisions about whether to choose low-fat, healthy foods are affected by (1) people's beliefs about how much benefit those foods will have and (2) their "confidence" (usually referred to as *self-efficacy*) that they can in fact manage their choices.[10] Obese individuals may also feel that obesity is not preventable given the social pressures surrounding eating, or they may expect a "cure" for the condition, rather than dietary advice.[36,37]

Finally, it is hard for people to take risks seriously if they are not meaningfully connected to lifestyle, personal experience, and ideas of lifelong health status.[38-41] Although many behaviors may threaten long-term health, the immediate

FIGURE 2-1 USDA Food Pyramid, 1999.

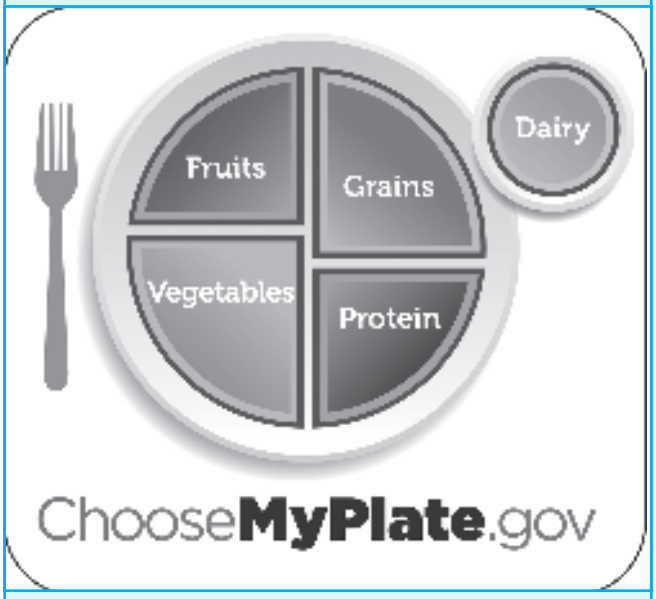


Reproduced from the U.S. Department of Agriculture Center for Nutrition Policy and Promotion. (2011). *A Brief History of USDA Food Guides*. http://www.choosemyplate.gov/food-groups/downloads/MyPlate/ABriefHistoryOfUSDAFoodGuides.pdf. Accessed May 1, 2013.

FIGURE 2-2 USDA Food Pyramid, 2006.

Reproduced from the U.S. Department of Agriculture Center for Nutrition Policy and Promotion. (2011). *A Brief History of USDA Food Guides*. http://www.choosemyplate.gov/food-groups/downloads/MyPlate/ABriefHistoryOfUSDAFoodGuides.pdf. Accessed May 1, 2013.

FIGURE 2-3 USDA MyPlate, 2011.



Courtesy of USDA Center for Nutrition Policy and Promotion.

FIGURE 2-4 Family meal.

© Photodisc/Getty Images.

benefits of risky behavior may be seen to enhance one's state of well-being. This has been demonstrated with respect to smoking and adolescent self-image;[38] with risky needle sharing among injection drug users, in relation to its perceived practical as well as social benefits;[42] with perceptions of alcohol use among American Indian adolescents;[43] and with other risky activities. Thus, if there are "positive" social/normative benefits associated with unhealthy eating habits, these may affect subjects' perceptions of risk in the same manner.

Physical Exercise and Obesity

Cost, time, safety, and access are major factors affecting an individual's decision to take on or increase regular physical activity. In the course of day-to-day life, the possibility of incorporating exercise as a common routine varies widely depending on an individual's circumstances related to their job, the amount of free time, the availability of space or facilities, and the physical characteristics of the neighborhood, worksite, or school (commonly referred to as the *built environment*).

> The *built environment* can be defined as "the man-made surroundings that provide the setting for human activity, ranging from the large-scale civic surroundings to the personal places."[44]

A number of research studies have identified links between the built environment and physical activity.[45,46] If there are changes in the built environment that remove barriers, it may, for example, be more possible to walk or bike to destinations, to exercise on lunch breaks, or simply to take the stairs.[47] People will be more likely to do this on their own without the use of an actual intervention. Several promising studies support the idea that changing the built environment across different settings has an effect on behavior. Adding signs to increase stair use among shoppers,[48] providing showers and changing rooms for employees,[49] and increasing access to trails in rural communities[50] are examples of interventions that have increased physical activity.

YOUTH VIOLENCE

When we talk about youth violence as a public health problem in relation to behavior, the concern is the *injury and personal trauma* that violence causes—because, of course, violence itself is not a condition, but a behavior with serious consequences. The World Health Organization now views violence as "one of the leading public health issues of our time,"[51] particularly youth violence. Although violence is a leading cause of death irrespective of age, interpersonal violence among young people aged 15 to 29 was responsible for 36.2% of the total reported by WHO.[51] And despite some indications of a downturn in U.S. rates for youth violence in recent years, serious violent crimes by youth and young adults have continued to rise. Moreover, "national rates

mask variation among cities, many of which report ongoing increases in perpetration of violent crime and weapons offenses by this age group during the first two quarters of 2010."[52] The increases are typically in selected high-poverty communities and related to youth/young adults under 25 years of age.[53] In the United States, intentional violence is the leading cause of death for African American youth ages 10 to 24, the second leading cause of death for Latino youth, and the third leading cause for Asian/Pacific Islander and American Indian/Alaska Native youth.[54] In general, homicide was the second leading cause of death for young people 10 to 24 years old in 2007, and 83% of those victims were killed with a firearm.[54] Some population groups are disproportionally affected. Although the homicide rate in 2007 for Hispanic males was more than 5 times the rate for Caucasian males, the rate for African American youth was about 3 times the Hispanic rate (and more than 15 times the Caucasian rate). In short, it is an ongoing and serious issue.

Violence is clearly a problem that takes many forms—from intimidation and threat, to situational violence, to intentional violence—and it is largely a problem of young people. Research on youth violence has indicated that serious acts of violence generally begin between ages 12 and 20, with only a very small percentage initiating any violence before age 10 or after age 20.[55-58] Thus, the peak period for violence involvement (engaging in acts of violence) coincides with the developmental stage of adolescence.

Why is there so much violence among young people? There are biological and developmental explanations concerning aggressive behavior[55] and a range of social and psychological explanations that have to do, again, with behavior as it relates to interactions between youth and their personal, family, community, and school environments. Many of the latter explanations address violence as one of a number of adolescent "risk behaviors," including delinquency, substance abuse, sexual risk, school dropout, and others.

Let's take a look at a few of these social and psychological explanations for youth violence.

Risk and Protective Factor Explanations

This kind of explanation describes violence-related behaviors by parents, peers, the community, and others that may *influence* or shape violent behavior engaged in by young people. These influences are said to be *risk factors* and include family problems, family conflict and violence, absence of positive role models, being a victim of violence, witnessing violence when young, poverty, living in a crime-ridden community where weapons are easily available, social norms that support violence, and other such factors.[59-61] Typically, many of these risk factors occur as influences on violence as a behavior. It has been argued, however, that these risk factors can be offset by the presence of positive or *protective* factors, such as an adult who is present and cares about the youth, or connections to school or other youth who are not involved in violence.[62-66] Some protective approaches center on the development of *resilience* among youth. One of the most recent approaches of this type is called *positive youth development* (PYD).[67,68] The goal of PYD is to promote "thriving" among youth as a way to overcome exposure to risk.

This complex and fluid interaction between an individual and risk/protective factors in one or more domains has been described as a "web of influence," and draws from the *ecological* perspective of Bronfenbrenner;[69] again, this is a key concept in public health.[70]

Problem Behavior Syndrome, Developmental, and Self-Concept Approaches

Problem Behavior Syndrome Approaches

In these approaches, violent behavior and its influencing factors are understood to be related to a coherent pattern of risk taking. Risk for substance abuse, delinquency/violence, early sexual activity, and other behaviors is viewed as a *problem behavior syndrome* of one form or another, where the risk factors and trajectories are similar and/or overlapping.[71-76] Hawkins and Weis, for example, noted that of the 19 risk factors they identified for adolescent problem behavior, 16 are common for both delinquency and substance abuse, 11 are common for violence and substance abuse, and 9 are common for all three.[77]

The *coherent pattern* may reflect a kind of conflicting or antagonistic relationship between youth involved in violence and the conventional world (the segment of society for which the risk behaviors are viewed as negative or antisocial[†]), a conflict with the values, goals, institutions, and socializing forces of conventional society. Adolescents who, for a wide variety of reasons including the frustration of aspirations due to poverty, school failure, social disorganization in the community or family, or other such factors, are said to have a low commitment to conventional society and do not endorse its values are more likely to engage in delinquent or violent behavior and substance abuse, and are more likely to have stronger bonds to other youth who are involved in the same behavior patterns.

†See Hirschi T. *Causes of Delinquency*. Berkeley: University of California Press; 1969, and other social control theory.

Developmental Pathways Approaches

A third perspective addressing the integration and operation of risk factors includes several theoretical approaches that consider crime and violence as an outcome of a developmental pathway (or trajectory) beginning at an early age that is shaped by multiple risk factors.[78-81]

Self-Concept Approaches

Self-concept can be defined as "the mental image one has of oneself." Moving beyond the idea of problem behavior syndrome is another approach that seeks to understand a little more about how that antagonistic relationship operates on an individual level. This approach focuses on *self-concept*, particularly what an adolescent views as a "possible self" in the world that he or she can envision as relevant to his or her life.[82,83] If a "task of adolescence" is to experiment with and resolve social roles,[84] the possible selves factor is very important. If an adolescent can think of a satisfactory possible self in the conventional domains of family, friends, or school, this will help motivate him or her in making a successful transition to adulthood. If not, adolescents may seek alternative ways to define themselves. Delinquency and violence are alternative routes toward positive self-definition and prestige,[84-86] particularly if there is a significant peer group that views these kinds of behaviors as valued. Drawing from the theories of Ogbu[87] and Bourdieu,[88,89] among others, Oyserman and Packer note that the identity-formation process is connected to specific social contexts as well.[90] So, for example, in high-poverty situations where academic success may not be perceived as related significantly to available life paths, the behavior patterns and meanings associated with academic success may not be valued, whereas other patterns (e.g., those including violence or other risk behaviors) will be.

Socioecological Models

In the spirit of an ecological approach, youth risk behaviors such as violence have also been viewed as *health disparities* (inequities), where involvement in violence and the causes of involvement differ by the socioeconomic status (SES) of particular groups. For example, it has been argued that drug use/involvement is motivated more powerfully by economic factors for minority youth than for nonminority youth. Research has shown that lower SES youth—particularly minority youth—are more likely to be involved in drug dealing and less likely to be involved in drug use (see, for example, Floyd et al., 2010; Centers & Weist, 1998; Altschuler & Brounstein, 1991; NIDA, 1990).[91-94] Clearly, drug dealing places youth at much higher risk for violence,[95-98] because violence is so often a part of that environment. W. J. Wilson, in his seminal work on underclass communities, described the isolated and uniformly poverty-ridden nature of inner-city underclass communities, where economic opportunities are so limited and there is a historical pattern of disconnection from mainstream economic activity, so that drug selling and other aspects of the "street economy" become the dominant playing field for achievement and status,[99] and thus have a strong role in the development and perpetuation of norms and attitudes about violence.[100-103] Some of the work in this area describes "codes of the street" that govern violent or potentially violent interactions, with reference to the immediate social context of such codes.

Data on homicide patterns offer strong support for socioecological arguments about youth violence. The steep rise in juvenile homicide from the mid-1980s to the mid-1990s was closely tied to two factors: (1) the volatile crack cocaine epidemic, which entailed the recruitment of urban youth into the "business" of dealing, and (2) the consequent increase in gun use[104-107] with the incorporation of guns as part of the norm for violent interaction even well after the decline of the crack boom.[103] Thus the codes or culture of the street now include the use of guns as routine. Some research on youth gang violence follows this approach. Spergel, for example, outlined a comprehensive gang intervention model that views the presence of gangs as largely related to a lack of socioeconomic opportunities, social disorganization, poverty, institutional racism, social policy deficiencies, and a lack of or misdirected social controls.[108]

Social-Cognitive Models

Lastly, while focusing on related aspects of violent behavior, social-cognitive models of violence focus on decision making, reasoning, and other cognitive processes surrounding acts of aggression. In this social information processing model of aggression[109-111] aggressive behavior happens when a youth evaluates social/behavioral cues (like a facial grimace or insult), interprets those cues based on what he or she understands them to mean in a particular context, and then chooses a potentially violent response. Aggressive behavior is said to result from difficulties in coding and interpretation of social cues or to a limited repertoire of nonaggressive behavioral responses. Interpretation of cues and selection of responses is, not surprisingly, related to beliefs about aggression. In numerous studies, aggressive behavior in youth has been related to beliefs about the legitimacy of aggression,[112-115] and positive beliefs about aggression have been associated with perceived neighborhood danger.[116]

Furthermore, such approaches also intersect with other approaches discussed thus far. For example, several aspects of the environmental context, such as prevalence of violence in the community, utility of violence for achieving desired outcomes, significant others' (e.g., peers') perceptions of violence, and consequences of violence involvement, are viewed as having implications both for youth beliefs about aggressive behavior and for their involvement in violence.

HIV/AIDS

By the end of 2011, approximately 34 million people around the globe were living with HIV/AIDS[117] with a nearly incomprehensible additional toll in orphaned children, decimated families and workforces, and stigmatization. Nearly 30 million people have died from HIV/AIDS, and there are approximately 2.5 million or more new infections annually,[117] indicating that the pandemic continues to expand. Since the 1980s, when the disease was first identified, the global HIV/AIDS pandemic has become one of the worst global health crises in history. It is an epidemic that affects the well-being of societies as a whole, not just with respect to health. These effects have included a decrease in average life expectancy, significant reduction in household income (because fewer household members work, and medical expenses may be high), decimation of educational system capacity and school attendance, a general decrease in economic production and increase in poverty, and, as previously noted, a generation of children without parents.

HIV/AIDS has also been a crisis filled with ambiguity and controversy, precisely *because* its epidemiology—the way in which it spreads—is so clearly tied to behavior and because even though anti-retroviral drugs (administered in multiple forms, known as highly active anti-retroviral therapy, or HAART) can treat the condition, there is still no cure. This places a huge burden on *prevention*, which is largely about behavior.[118] There are essentially three major routes of transmission: sexual transmission (either heterosexual or same-sex), sharing intravenous drug equipment, and mother-to-child (perinatal) transmission; a distant fourth is the use of contaminated blood products via transfusion. All of these routes of transmission are actually behaviors or the direct result of behaviors. Most importantly, these behaviors, for the most part, are closely intertwined with deeply rooted moral, cultural, and socioeconomic issues, all interacting at the same time. Understandings about sexual behavior, for example, are at the center of the moral-religious systems of virtually every society and culture. Yet sexual behavior is also closely tied to *gender definitions and relationships* across cultures, and it is inescapably tied to issues of poverty and wealth. Therefore, to understand sexual transmission of HIV in a particular place, you will need to look at all of these factors, at a minimum! And this doesn't even touch on HIV risks that people take because they simply don't know that they are taking a risk.

The patterns by which HIV/AIDS is spread vary from country to country, from society to society, by gender, and by subgroup. Not only that, but these patterns change over time as the epidemic evolves. A few examples:

- In the United States, HIV/AIDS was first identified, and took its earliest toll, among men who had sex with men (MSM). Not long after, it became clear that injection drug users and their sex partners were seriously affected as well, along with other specific high-risk populations (e.g., sex workers, runaway and homeless youth, incarcerated populations). Although the discovery of multiple anti-retroviral therapies in the mid-1990s reduced HIV/AIDS mortality because of increased survival rates, new infections continue. More recently, the bulk of new infections have continued to occur among MSM, with the highest increases among young African American MSM. And the epidemic continues to affect women of color (primarily heterosexual transmission) at a significantly disproportionate rate.[119] Since the epidemic began, an estimated 1,129,127 people in the United States have been diagnosed with AIDS, and nearly 619,400 people have died.
- In sub-Saharan Africa, where the pandemic is currently most severe, unprotected heterosexual transmission has been, and remains, the primary path of infection, though there have been small increases in injection drug–related transmission.[120] This is generally because of a number of factors, including patterns of migrant work, traditional gender roles in which men have multiple female partners, and lack of access to prevention and treatment. It has also been exacerbated because prolonged ethnic conflict and civil war, like such conflicts everywhere, often involve rape and abuse of women. Infection of women then raises the likelihood of perinatal transmission to newborns.
- In Southeast Asia, Thailand was an early epicenter of HIV/AIDS, largely due to the sex trade but also because of high rates of injection drug use.[121] Because of an intense, government-led program of condom distribution and prevention, the spread of HIV/AIDS was slowed. However, it then began to increase

rapidly in Vietnam, because of injection drug use and the sex trade; in Cambodia, because of the sex trade (heterosexual transmission) and largely associated with a rapid move toward economic development following the cessation of civil war in the 1990s (which drew migrant labor to big cities such as the capital, Phnom Penh); and in Myanmar (Burma).[120] Currently, HIV rates are high in some Southeast Asian countries among MSM and even higher among injection drug users, the latter in Thailand, Myanmar, and Vietnam.[120]

- In Eastern Europe and Central Asia, the epidemic is more recent, and is primarily associated with injection drug use and its concomitant spread to sexual partners of injection drug users, as well as the intersection between injection drug use and sex work.[120] However, according to UNAIDS, it expanded rapidly. The number of people living with HIV has almost tripled in this region since 2000. The economic changes after the early 1990s may have a lot to do with the early phases of the epidemic in the region, resulting in a dramatic increase in trade—both legal and illegal—and a scramble for ways to make money.
- According to World Bank estimates, up to 2.9 million people in India are living with AIDS.[122] The behavioral risk factors are concentrated around unprotected sex, which accounts for about 84% of infections and is intertwined with multiple contributing factors, including the low status of women, sex trade, migration and mobility patterns, MSM, and to a lesser degree injection drug use. The issue of migration and mobility means that a significant number of migrant workers are away from family and community for extended periods of time and may have sex with sex workers. Regarding MSM, limited data suggest that some MSM concurrently have heterosexual partners, becoming a "bridge" population for HIV transmission. The risk related to injection drug use centers on the sharing of injection equipment. Low status of women contributes to the spread of the epidemic because of unequal relationships and therefore increased vulnerability of women to infection. Finally, stigma against those who are infected results in marginalization and higher concentrations of risk.
- In China, the HIV/AIDS epidemic was limited until the mid-1990s, when it began to grow dramatically.[123] This initial growth was focused on injection drug users and people using donated blood. According to UNAIDS China,[124] by 2011 there were about 780,000 people living with HIV, about one-third of whom were women. Of those with HIV, 46.5% were infected through heterosexual transmission, 17.4% through MSM, 28.4% through injection drug use, 6.6% were former blood donors or transfusion recipients, and 1.1% were infected through mother-to-child transmission.

Gender Roles and HIV Risk Among the Roma (Gypsies)

The Roma (Gypsies), the largest ethnic minority group in Central and Eastern Europe, have cultures that are traditional, often closed, and autonomous with respect to majority populations. Roma communities are characterized by pervasive social health problems, widespread poverty, limited educational opportunities, and discrimination. Although some evidence suggests high levels of HIV and sexual risk behavior among Roma, little is known about the cultural and social contexts in which risk behavior occurs. In this study, in-depth interviews were used to elicit detailed information about types of sexual partnerships and associated sexual risk behaviors, as well as the use and perception of protection, knowledge and beliefs about AIDS and sexually transmitted diseases (STDs), and sexual communication patterns in a sample of 42 men and women aged 18 to 52 living in Roma community settlements in Bulgaria and Hungary. Based on the interview data, men appeared to have significantly more latitude with respect to sexual behavior before and during marriage, engaging in unprotected sex with primary and multiple outside partners, with considerably more relationship power and control than women. In contrast, women are expected to maintain virginity before marriage and then sexual exclusivity to their husbands. Condom use is not normative and is mainly perceived as a form of contraception. Although awareness of AIDS was common, it was generally not perceived as a personal threat. Misconceptions about how HIV is transmitted are widespread, and women—in particular—have very little knowledge about STDs, HIV transmission, and protective steps. The study suggested an urgent need for the development of HIV prevention programs culturally sensitive to Roma populations in Eastern Europe, where HIV rates continue to rise.

Adapted from Kelly JA, Amirkhanian YA, Kabakchieva E, et al. Gender roles and HIV sexual risk vulnerability of Roma (gypsies) men and women in Bulgaria and Hungary: an ethnographic study. *AIDS Care*. 2004;16(2):231–245.

Addressing HIV/AIDS-related risk behaviors is clearly complex. For each of the major routes of transmission, there are many behaviors involved, and a great deal of variation across cultures and circumstances. To examine sexual transmission as a topic area of research interest, here are only a few of the kinds of behavioral issues you would need to think about:

- What is the range of sexual practices, and in what contexts do they occur? Heterosexual? Same-sex? With migrant workers?
- Which is riskiest for HIV transmission: multiple or single partners?
- What types of partners are there, and are risk situations different by type of partner?
- Are there situations where sex is forced, or necessary for survival?
- What are the gender rules and relationships that are involved? Can one partner, for example, easily communicate to the other about HIV risk and prevention? Or will this be difficult?

Or, for example, to take on injection drug use and the sharing of needles:

- Who are the users (e.g., young, old, male, female, poor, middle class)?
- Do people inject in a public setting (like a park, alley, or house), with others, or by themselves?
- Is sharing of equipment common or necessary? How is this done (for example, do people actually share needles, or do they share water used for rinsing)?
- Do injection drug users know about HIV risks? Are they able to take precautions, or does addiction override such attempts?
- What are the treatment and prevention options? Are there, for example, needle exchange programs? Drug treatment programs?

BEHAVIORS, THEORIES, AND INTERVENTIONS

The examples provided in the three previous sections show the complex link among behavior, social and environmental factors, and a health problem. The kinds of theories and frameworks discussed in this text are meant to be *tools* that will help guide you through the thick web often associated with health behavior. Trying to figure out what to do is made at least a little easier through the process of *identifying* what you think is going on (in terms of behavior and ecological influences), *choosing appropriate theories or frameworks* that best address what you think is going on, and using them to help you design programs.

Chapter Questions

1. What are some key links between the environment and behavior in terms of the problem of obesity?
2. Would it be fair to say that obesity is a problem resulting just from individual choice in terms of behavior?
3. What kinds of factors may influence youth to engage in violence?
4. What are consistent patterns of behavioral risk for HIV/AIDS around the globe? How do you think these patterns are influenced by the larger social or economic context?
5. Where would you focus your efforts to address behaviors related to obesity? Youth violence? HIV/AIDS?

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