HEALTH-RELATED BEHAVIOR AND HEALTH PROMOTION

PROLOGUE

“It’s getting worse—those health nuts are all over the place these days, telling me how to live my life,” said Joshua between puffs on his cigarette. Things were not necessarily “worse,” but they had changed. People were now much more health conscious. They were exercising more, eating more healthful diets, and using better hygiene. Does this story describe the contemporary scene in a technologically advanced country? It could, but it could also describe the mid-1800s in America. People of today are not the first to be interested in health and fitness.

In the 1800s, disease was widespread, epidemics were common, and physicians had few effective methods for preventing or treating illness. As a result, health reformers advocated that people change their lifestyles to protect their health (Collins, 1987; Leventhal, Prohaska, & Hirschman, 1985). These reformers were often imbued with patriotic or religious zeal. Some of them advocated vegetarian diets. Others proposed that people chew their food to a watery consistency, or stop smoking cigarettes and drinking, or get more exercise if they led sedentary lives. Often people who exercised wore loose-fitting gym suits and used a variety of apparatuses, such as rowing machines. It was a lot like today, wasn’t it?

This part of the book contains three chapters concerned with behaviors that can enhance or compromise...
HEALTH AND BEHAVIOR

The role of behavior in health has been receiving increased attention in countries around the world because people’s health habits—that is, their usual health-related behaviors—influence their likelihood of developing chronic and fatal diseases, such as heart disease, cancer, and AIDS (WHO, 2009). Illness and early death could be substantially reduced if people would adopt lifestyles that promote wellness, such as by eating healthful diets and not smoking.

The percentage of deaths resulting from any specific cause changes over time. Figure 6-1 depicts the pattern of changes in the United States that occurred since the late 1960s. These changes resulted partly from the modifications people made in behavioral risk factors for major chronic diseases. Cardiovascular disease (heart disease and stroke) is the most deadly illness worldwide. In virtually all developed nations, the first and second leading killers are cardiovascular diseases and cancer (WHO, 2009). Of course, we can’t live forever, but we can extend our lives and be healthier in old age by making several lifestyle changes (Manton, 2008; Yates et al., 2008). If we made all these changes and researchers found cures for most major diseases, people’s average life expectancy in technologically advanced countries would rise several years to about 85 years, its likely upper limit (Olshansky, Carnes, & Cassel, 1990).

LIFESTYLES, RISK FACTORS, AND HEALTH

The typical person’s lifestyle includes many behaviors that are risk factors for illness and injury. For instance, millions of Americans smoke cigarettes, drink excessively, use drugs, eat high-fat and high-cholesterol diets, eat too much and become overweight, have too little physical activity, and behave in unsafe ways, such as by not using seat belts in automobiles. Many people realize these dangers and adjust their behavior to protect their health. Adults with healthful lifestyles that include exercising, eating diets with fruits and vegetables, not smoking, and not drinking too much, can expect to live 12 years longer than they would otherwise (Kvaavik et al., 2010). Each of these four behaviors raises the likelihood of a longer life. Table 6.1 shows that the chances of individuals in their 70s surviving to 90 years of age decrease substantially with each additional risk factor they have.

Figure 6-1 Percentage of all deaths caused by each of the 10 leading causes of death in the United States in the late 1960s (1968) and today. Notice that cancer and COPD deaths increased markedly since 1968 (partly due to cigarette smoking); heart disease and stroke deaths declined (partly due to recent lifestyle changes, such as in diet); deaths from diseases of early infancy declined markedly and are no longer in the top ten. (Data from USBC, 1971, Table 77; USBC, 2010, Table 116.)
Table 6.1  Likelihood of 70-Year-Old Men with Certain Risk Factors Living to Age 90

<table>
<thead>
<tr>
<th>Risk factors present at age 70</th>
<th>Percent living to 90</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the five risk factors examined</td>
<td>54</td>
</tr>
<tr>
<td>Having a sedentary lifestyle</td>
<td>44</td>
</tr>
<tr>
<td>Having high blood pressure</td>
<td>42</td>
</tr>
<tr>
<td>Being obese</td>
<td>32</td>
</tr>
<tr>
<td>Having diabetes</td>
<td>28</td>
</tr>
<tr>
<td>Smoking</td>
<td>25</td>
</tr>
<tr>
<td>Three of the five risk factors</td>
<td>14</td>
</tr>
<tr>
<td>All five of the risk factors</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Data from Yates et al., 2008.

Health Behavior

Health behavior is any activity people perform to maintain or improve their health, regardless of their perceived health status or whether the behavior actually achieves that goal. Researchers have noted that people’s health status influences the type of health behavior they perform and their motivation to do it (Kasl & Cobb, 1966a, b; Parsons 1951). To illustrate these differences, we will consider examples of behaviors people perform when they are well, experience symptoms, and are clearly sick.

Well behavior is any activity people undertake to maintain or improve current good health and avoid illness. These activities can include healthy people’s exercising, eating healthful diets, having regular dental checkups, and getting vaccinations against diseases. But when people are well, they may not feel inclined to devote the effort and sacrifice that healthful behavior entails. Thus, engaging in healthful behavior depends on motivational factors, particularly with regard to the individual’s perception of a threat of disease, the value in the behavior in reducing this threat, and the attractiveness of the opposite behavior. Some unhealthful behaviors, such as drinking or smoking, are often seen as pleasurable or the “in” thing to do. As a result, many individuals do not resist beginning unhealthful behaviors and may reject efforts or advice to get them to quit.

Symptom-based behavior is any activity people who are ill undertake to determine the problem and find a remedy. These activities usually include complaining about symptoms, such as stomach pains, and seeking help or advice from relatives, friends, and medical practitioners. Some people are more likely than others to engage in symptom-based behavior when symptoms appear, and there are many reasons for these differences. For instance, some individuals may be more afraid than others of physicians, hospitals, or the serious illness a diagnosis may reveal. Some people are stoic or unconcerned about the aches and pains they experience, and others do not seek medical care because they simply do not have the money to pay for it. Chapter 9 will examine these and other reasons why people do and do not use health care services.

Sick-role behavior refers to any activity people undertake to get well after deciding that they are ill and what the illness is. This behavior is based on the idea that sick people take on a special “role,” making them exempt from their normal obligations and life tasks, such as going to work or school. You’d be showing sick-role behaviors if...
you got a prescription filled, used it as the physician directed, stayed home from work to recover, and had someone else do your household chores. Although this status ordinarily obligates patients to try to get well, many do not follow their recommended treatment, particularly if it is inconvenient or uncomfortable to do. Sometimes sick-role behaviors seem to serve emotional functions, as when patients moan or sigh and receive sympathy as a result.

How people behave when they are sick depends in large measure on what they have learned. As an example, a study of female college students assessed whether they had been encouraged during adolescence to adopt the menstrual role and menstruation or had observed their mothers exhibit menstrual distress. Compared with students who did not have these experiences, those who exhibited menstrual distress. Compared with students who had been encouraged during adolescence to adopt the menstrual role, many did not follow their recommended treatment, particularly if it is inconvenient or uncomfortable to do. Sometimes sick-role behaviors seem to serve emotional functions, as when patients moan or sigh and receive sympathy as a result.

How people behave when they are sick depends in large measure on what they have learned. As an example, a study of female college students assessed whether they had been encouraged during adolescence to adopt the menstrual role, and menstruation or had observed their mothers exhibit menstrual distress. Compared with students who did not have these experiences, those who did reported more menstrual symptoms, disability, and clinic visits for these symptoms as adults (Whitehead et al., 1986). Other research has found that there are cultural differences in the way people respond to their symptoms and go about trying to get well (Korol & Craig, 2001). For example, studies in the United States have found differences among groups of immigrants in their willingness to tolerate pain, but these differences diminish in succeeding generations (Chapman & Breno, 1985). (Go to V.)

## HIGHLIGHT

### Two Health Behaviors: Breast and Testicular Examinations

Breast cancer is a leading cause of women’s deaths around the world and is the second-most-frequent type of cancer diagnosed among women in the United States (ACS, 2009). Compared with breast cancer, testicular cancer is much less prevalent: several thousand cases are diagnosed each year in American men, mainly between the ages of 15 and 35 (ACS, 2009; Ullrich, 2004). Both cancers have very high cure rates if treated early.

Individuals can detect cancer of the breast or testicles in its early stages by self-examination. Breast and testicular self-examinations are done with the fingers, searching mainly for abnormal lumps. For breast self-examination (BSE), the woman lies on her back and uses the middle three fingertips of her opposite-side hand to press flatly against the breast tissue and moves them in a systematic pattern until she examines the entire breast. The method for testicular self-examination (TSE) is relatively simple: the man rotates the entire surface of each testicle between the fingers and thumbs of both hands. Unfortunately, people don’t perform BSEs and TSEs very often for such reasons as not knowing how important early detection can be, being afraid they will find a malignant lump, or just forgetting and having no reminders (Aiken, Gerend, & Jackson, 2001; Moore, Barling, & Hood, 1998; Solomon, 2004; Ullrich, 2004).

One way to encourage the practice of BSE and TSE is through the mass media, which can note the very high cure rates (over 90%) and less extensive and disfiguring treatments for these cancers when detected in early than in later stages. For example, breast cancer in its early stages can often be treated without removing the entire breast. Two other ways to encourage self-examinations involve health practitioners, such as nurses: they can provide information and training through individual and group contacts, such as at worksites and medical offices, and send reminders to do the examinations (Solomon, 2004). Individuals with family histories or other risk factors for cancer should devise effective BSE or TSE reminders, such as by writing them in a calendar.

## Practicing Health Behaviors

What health behaviors do people actually do? In the United States, national surveys of men and women for a limited set of health-related behaviors revealed the results given in Table 6.2. Although these data show important shortcomings in the health practices of American adults, some of these levels of health-related behaviors are improvements over the levels assessed in earlier surveys (McGinnis & Lee, 1995).

Who practices healthful behavior and why? We are far from a complete answer to this question, but there are gender, sociocultural, and age differences in practicing health behaviors (Schoenborn, 1993; NCHS, 2009a). For instance, an international survey of adults in European countries found that women perform more healthful behaviors than men (Steptoe et al., 1994). One reason for such differences is that people seem to perform behaviors that are salient to them. For example, a study compared the health behaviors of medical and nonmedical students and found that the medical students exercised more and were much less likely to smoke cigarettes, drink alcohol excessively, and use drugs (Golding & Cornish, 1987).

You probably know some individuals who are highly health-conscious and others who display little concern...
Table 6.2  Percentages of American Adults with Selected Health-Related Behaviors or Characteristics

<table>
<thead>
<tr>
<th>Behavior/characteristics</th>
<th>Men (%)</th>
<th>Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eat breakfast almost every daya</td>
<td>54.6</td>
<td>58.0</td>
</tr>
<tr>
<td>Rarely snacka</td>
<td>25.6</td>
<td>25.4</td>
</tr>
<tr>
<td>Smoke at least occasionallyb</td>
<td>23.6</td>
<td>18.1</td>
</tr>
<tr>
<td>Drink alcohol at least occasionallyb</td>
<td>67.4</td>
<td>54.9</td>
</tr>
<tr>
<td>Had 5 or more drinks on at least 12 days past year</td>
<td>14.4</td>
<td>4.3</td>
</tr>
<tr>
<td>Get regular leisure time physical activityb, c</td>
<td>33.1</td>
<td>29.0</td>
</tr>
<tr>
<td>Overweight or obese (measured directly)b</td>
<td>72.6</td>
<td>61.2</td>
</tr>
</tbody>
</table>

Sources:  aUSBC, 1995, Table 215 and bNCHS, 2009, Tables 63, 68, 69, 74, and 75.

about their health. To some extent individuals who practice certain behaviors that benefit their health also practice other healthful behaviors, and continue to perform these behaviors over time (Schoenborn, 1993). But other people show little consistency in their health habits (Kaczynski et al., 2008; Mechanic, 1979). Research results suggest three conclusions. First, although people’s health habits are fairly stable, they often change over time. Second, particular health behaviors are not strongly tied to each other—that is, if we know a person practices one specific health habit, such as using seat belts, we cannot accurately predict that he or she practices another specific habit, such as exercising. Third, health behaviors do not seem to be governed in each person by a single set of attitudes or response tendencies. Thus, a girl who uses seat belts to protect herself from injury may watch her weight to be attractive and not smoke because she is allergic to it.

Why are health behaviors not more stable and strongly linked to each other? Here are a few reasons (Leventhal, Prohaska, & Hirschman, 1985). First, various factors at any given time in people’s lives may differentially affect different behaviors. For instance, a person may have lots of social encouragement to eat too much (“You don’t like my cooking?”), and, at the same time, to limit drinking and smoking. Second, people change as a result of experience. For example, many people did not avoid smoking until they learned that it is harmful. Third, people’s life circumstances change. Thus, factors, such as peer pressure, that may have been important in initiating and maintaining exercising or smoking at one time may no longer be present, thereby increasing the likelihood that the habit will change.

INTERDISCIPLINARY PERSPECTIVES ON PREVENTING ILLNESS

The advances in health that have occurred over the years have come about through two avenues: efforts to prevent illness and improvements in medical diagnosis and treatment. Efforts to prevent illness can be of three types, which we’ll illustrate with tooth decay as an example:

- Behavioral influence. In this approach, we might promote tooth brushing and flossing by providing information and demonstrating the techniques.
- Environmental measures. Public health officials might support fluoridating water supplies.
- Preventive medical efforts. Dental professionals can remove tartar from teeth and repair cavities.

In much of the world, behavioral influence approaches may have the greatest impact on health promotion, such as in reducing cigarette smoking and unhealthy dietary practices (Breslow, 1983).

We usually think of prevention as occurring before an illness takes hold. Actually, there are three levels of prevention, only one of which applies before a disease or injury occurs (Herndon & Wandersman, 2004, Runyan, 1985). These levels are called primary, secondary, and tertiary prevention. Each level of prevention can include the efforts of oneself in our well, symptom-based, and sick-role behaviors; one’s social network; and health professionals.

Primary Prevention

Primary prevention consists of actions taken to avoid disease or injury. In avoiding automobile injuries, for example, primary prevention activities might include our well behavior of using seat belts, a friend reminding us to use them, and public health reminders on TV to buckle up. Primary prevention can be directed at almost any health behavior, including dietary practices, exercise, tooth brushing and flossing, and immunity against a contagious disease.

Primary prevention for an individual can begin before he or she is born, or even conceived. For example, genetic counselors can estimate the risk of a child’s...
inheriting a genetic disorder and, in some cases, to diagnose genetic abnormalities in the unborn fetus (AMA, 2003). These estimates are based on the parents’ family histories, biological tests for carriers of specific genes, and biological tests on the fetus. Prospective and expectant parents may use this information to help them make important family planning decisions. Physicians can help in selecting genetic counselors. Another way parents can exercise primary prevention is by having their children immunized against several diseases, including diphtheria, tetanus, whooping cough, measles, rubella, mumps, and polio. Although worldwide immunization rates have increased in recent decades, they remain lower in poorer than richer societies (WHO, 2009). In the United States, the percentage of preschool children with full immunization from controllable diseases has increased to nearly 80% across all major ethnic groups (USBC, 2010).

How else can medical professionals promote primary prevention? One way involves having them give health-promotion advice to patients. Because physicians find it hard to incorporate prevention advice in their practices, nurses or other medical staff might be better able to do it (Glasgow et al., 2001; Radecki & Brunton, 1992). A system of reminders to provide such advice with individual patients can improve these activities (Anderson, Janes, & Jenkins, 1998). Another approach involves constructing websites that give health promotion information (for example, http://www.hc-sc.gc.ca).

Secondary Prevention

In **secondary prevention**, actions are taken to identify and treat an illness or injury early with the aim of stopping or reversing the problem. In the case of someone who has developed an ulcer, for example, secondary prevention activities include the person’s symptom-based behavior of seeking medical care for abdominal pain, the physician’s prescribing medication and dietary changes, and the patient’s sick-role behavior of following the doctor’s prescriptions. For other health problems, instances of secondary prevention might include examination of the mouth and jaw regions for early cancer detection during dental visits, free blood pressure measurements at shopping malls, and assessments of children’s vision and hearing at school.

A common secondary prevention practice is the complete physical examination, often done each year. These checkups are costly in time and money because they include several imaging (such as X-ray) and laboratory tests. Because not all of these tests have proven useful in prevention, medical experts now recommend getting specific tests, each with recommended schedules ranging from 1 to 10 years, depending on the person’s age (CU, 1998). For instance, the American Cancer Society recommends regular schedules after specific ages for all women to have mammograms (breast X-ray) and for all adults to have colon inspections, such as a colonoscopy (ACS, 2009). The schedules depend on risk. Individuals who are not healthy or are considered to be at high risk—for example, because of age, past illnesses, family history, or hazardous work conditions—should be examined more often than other people.

These medical examinations are recommended because they detect the disease earlier and save lives. In the case of mammograms, women who follow the recommended schedules after age 50 reduce their mortality rates by 26% in follow-ups of 10 years or so after diagnosis (Kerlikowske et al., 1995). A national survey found that two-thirds of American women over 40 years of age had had a mammogram in the prior 2 years, but the rate was much lower for poor and less educated women (USBC, 2010). Explicitly describing to a woman her relatively high risk of breast cancer due to her family history increases the likelihood that she will increase her frequency of mammograms (Curry et al., 1993). Among elderly middle- and upper-middle-class women, the main reasons for not having mammograms are fears of pain and radiation (Fullerton et al., 1996).

**Tertiary Prevention**

When a serious injury occurs or a disease progresses beyond the early stages, the condition often leads to lasting or irreversible damage. **Tertiary prevention** involves actions to contain or retard this damage, prevent disability or recurrence, and rehabilitate the patient. For people with severe arthritis, for instance, tertiary prevention includes doing exercises for physical therapy and taking medication to control inflammation and pain. In the treatment of incurable forms of cancer, the goal may be simply to keep the patient reasonably comfortable and the disease in remission as long as possible. And people who suffer disabling injuries may undergo intensive long-term physical therapy to regain the use of their limbs or develop other means for independent functioning.

**PROBLEMS IN PROMOTING WELLNESS**

The process of preventing illness and injury can be thought of as operating as a system, in which the individual, his or her family, health professionals, and the community play a role. According to health psychologist Craig Ewart (1991), many interrelated factors and problems can impair the influence of each component
in the system, and each component affects each other. Let’s look at some of these factors, beginning with those within the individual.

Factors Within the Individual

People who consider ways to promote their own health often face an uphill battle with themselves. One problem is that many people perceive some healthful behaviors as less appealing or convenient than their unhealthful alternatives. Some people deal with this situation by maintaining a balance in their lives, setting reasonable limits on the unhealthful behaviors they perform. But other people do not, opting too frequently in favor of pleasure, sometimes vowing to change in the future: “I’ll go on a diet next week,” for example. They see little incentive to change immediately, especially if they think they are healthy. Even when individuals know they have health problems, many drop out of treatment or fail to follow some of the recommendations of their physician.

Four other factors within the individual are also important. First, adopting wellness lifestyles may require individuals to change longstanding behaviors that have become habitual and may involve addictions, as in cigarette smoking. Habitual and addictive behaviors are very difficult to modify. Second, people need to have certain cognitive resources, such as the knowledge and skills, to know what health behaviors to adopt, to make plans for changing existing behavior, and to overcome obstacles to change, such as having little time or no place to exercise. Third, individuals need sufficient self-efficacy regarding their ability to carry out the change. Without self-efficacy, their motivation to change will be impaired. Last, being sick or taking certain drugs can affect people’s moods and energy levels, which may affect their cognitive resources and motivation.

Interpersonal Factors

Many social factors influence people’s likelihood to adopt health-related behaviors. For instance, one partner’s exercising or eating unhealthfully before marriage can lead his or her partner to adopt the same behavior over time (Homish & Leonard, 2008). The social influence probably involves individuals giving social support and encouragement for the other person to change his or her lifestyle.

People living in a family system may encounter problems in their efforts to promote wellness. Some problems come about because the family is composed of individuals with their own motivations and habits. Suppose, for instance, that a member of a family wants to consume less cholesterol, but no one else is willing to stop eating high-cholesterol foods, such as butter, eggs, and red meats. Or suppose the person has begun exercising three times a week, but this disrupts the daily routine of another family member. The interpersonal conflicts that circumstances like these can create in the family may undermine preventive efforts that the majority of family members support. Similar interpersonal conflicts can undermine prevention efforts among friends, classmates at school or college, and fellow employees at work.

Factors in the Community

People are more likely to adopt healthful behaviors if these behaviors are promoted or encouraged by community organizations, such as governmental agencies and the health care system. Health professionals don’t usually have accurate information regarding their patients’ health-related behavior, and they have traditionally focused their attention on treating, rather than preventing, illness and injury. But this focus began to change some years ago, and physicians became more interested in prevention (Radecki & Brunton, 1992).

The larger community faces an enormous array of problems in trying to prevent illness and injury. These problems include having insufficient funds for public health projects and research, needing to adjust to and communicate with individuals of very different ages and sociocultural backgrounds, and providing health care for those who need it most. In some communities, a lack of safe and convenient places to exercise and a high number of fast food restaurants can impair health promotion. Also, people’s health insurance may not cover preventive medical services. Among the most difficult problems communities face is trying to balance public health and economic priorities. For example, suppose the surrounding community of an industry is
subjected to potentially unhealthful conditions, such as toxic substances. But the community depends heavily on that industry for jobs and tax revenue, and the cost of reducing the potential for harm would force the company out of business. What should the community do? Many such dilemmas exist in most societies throughout the world.

WHAT DETERMINES PEOPLE’S HEALTH-RELATED BEHAVIOR?

If people were all like Mr. Spock of the Star Trek TV show and movies, the answer to the question of what determines people’s health-related behavior would be simple: facts and logic, for the most part. These people would have no conflicting motivations in adopting wellness lifestyles to become as healthy as they can be. In this section we examine the complex factors that affect health-related behavior.

GENERAL FACTORS IN HEALTH-RELATED BEHAVIOR

The “average” person can describe healthful behaviors and generate a fairly complete list: “Don’t smoke,” “Don’t drink too much, and don’t drive if you do,” “Eat balanced meals, and don’t overeat,” “Get regular exercise,” and so on. But practicing these acts is another matter. Several processes affect people’s health habits, and one factor is heredity. Genetic factors influence some health-related behaviors—excessive alcohol use provides a good example. As we’ll see in Chapter 7, twin studies and adoption studies have confirmed that heredity plays a role in the development of alcoholism.

Learning

People also learn health-related behavior, particularly by way of operant conditioning, whereby behavior changes because of its consequences (Sarafino, 2001). Three types of consequences are important.

1. Reinforcement. When we do something that brings a pleasant, wanted, or satisfying consequence, the tendency to repeat that behavior is increased or reinforced. A child who receives something she wants, such as a nickel, for brushing her teeth at bedtime is more likely to brush again the following night. The nickel in this example is a positive reinforcer because it was added to the situation (the word “positive” refers to the arithmetic term for addition). But reinforcement can also occur in another way. Suppose you have a headache, you take aspirin, and the headache goes away. In this case, your headache was unpleasant, and your behavior of taking aspirin removed it from the situation. The headache is called a “negative” reinforcer because it was taken away (subtracted) from the situation. In both cases of reinforcement, the end result is a desirable state of affairs from the person’s point of view.

2. Extinction. If the consequences that maintain a behavior are eliminated, the response tendency gradually weakens. The process or procedure of extinction exists only if no alternative maintaining stimuli (reinforcers) for the behavior have supplemented or taken the place of the original consequences. In the above example of toothbrushing behavior, if the money is no longer given, the child may continue brushing if another reinforcer exists, such as praise from her parents or her own satisfaction with the appearance of her teeth.

3. Punishment. When we do something that brings an unwanted consequence, the behavior tends to be suppressed. A child who gets a scolding from his parents for playing with matches is less likely to repeat that behavior, especially if his parents might see him. The influence of punishment on future behavior depends on whether the person expects the behavior will lead to punishment again. Take, for example, people who injure themselves (punishment) jogging—those who think they could be injured again are less likely to resume jogging than those who do not.

People can also learn by observing the behavior of others—a process called modeling (Bandura, 1969, 1986). In this kind of learning, the consequences the model receives affect the behavior of the observer. If a teenager sees people enjoying and receiving social attention for smoking cigarettes, these people serve as powerful models and increase the likelihood that the teenager will begin smoking too. But if models receive punishment for smoking, such as being avoided by classmates at school, the teenager may be less likely to smoke. In general, people are more likely to perform the behavior they observe if the model is similar to themselves—that is, of the same sex, age, or race—and is a high-status person, such as a physically attractive individual, movie star, or well-known athlete. Advertisers of products such as alcoholic beverages know these facts and use them in their commercials.

If a behavior becomes firmly established, it tends to be habitual; that is, the person often performs it automatically and without awareness, such as when a smoker catches a glimpse of a pack of cigarettes and absentmindedly reaches, takes a cigarette from the pack, and lights up. Even though the behavior may have been learned because it was reinforced by positive consequences, it is now less dependent on consequences...
and more dependent on antecedent cues (seeing a pack of cigarettes) with which it has been linked in the past (Sarafino, 2001). Antecedents are internal or external stimuli that precede and set the occasion for a behavior. A smoker who says, “I must have a cigarette with my coffee after breakfast,” is pointing out an antecedent. Behaviors that become habitual can be very difficult to change.

Because habitual behaviors are hard to change, people need to develop well behaviors as early as possible and eliminate unhealthful activities as soon as they appear. Families play a major role in children’s learning of health-related behaviors (Baranowski & Nader, 1985). Children observe, for example, the dietary, exercise, and smoking habits of other family members and may be encouraged to behave in similar ways. Children who observe and receive encouragement for healthful behavior at home are more likely than others to develop good health habits.

Social, Personality, and Emotional Factors
Many health-related behaviors are affected by social factors (Baranowski & Nader, 1985; Thirlaway & Upton, 2009). Friends and family can encourage or discourage children’s practice of health-related behaviors, such as smoking and exercising, by providing consequences, such as praise or complaints, for a behavior; modeling it; and conveying a value for good health. These social processes may also lead to gender differences in health behavior, such as the greater physical activity of American boys than girls. Very different patterns of encouragement may lead boys more than girls toward healthful physical activity.

Two other factors that are linked to health-related behavior are the person’s personality and emotional state, particularly stress. Conscientiousness—the tendency of a person to be dutiful, planful, organized, and industrious—is a personality characteristic that is associated with practicing many health behaviors, as Table 6.3 describes. And the role of emotions can be seen in two ways. First, among women who have a close relative with breast cancer and are low in conscientiousness, those who are very distressed about cancer are especially unlikely to have a mammogram (Schwartz et al., 1999). A brief cognitive intervention to enhance coping skills can reduce cancer distress among women who have a close relative with cancer and substantially improve their preventive behavior (Audrain et al., 1999). Second, we saw in Chapter 4 that people who experience high levels of stress engage in less exercise and consume poorer diets and more alcohol and cigarettes than those who experience less stress. If you ask people why they smoke, for example, they often will say, “To relieve tension.” Many people cite coping with stress as an important reason for continuing to smoke (Gottlieb, 1983).

Perception and Cognition
The symptoms people experience can influence their health-related behaviors. The way they react varies from ignoring the problem to seeking immediate professional care. Certainly when the perceived symptoms are severe—as with excruciating pain, obvious bone fractures, profuse bleeding, or very high fever—almost everyone who has access to a health care system will try to use it (Rosenstock & Kirscht, 1979). When symptoms are not so severe, people often adjust their health habits, such as by limiting certain foods and drink, to meet the needs of the health problem as they see it (Harris & Guten, 1979).

Cognitive factors play an important role in the health behaviors people perform. As we saw earlier, people must have correct knowledge about the health issue and the ability to solve problems that arise when trying to implement healthful behavior, such as how to fit an exercise routine into their schedules. People also make many judgments that have an impact on their health. They assess the general condition of their health, such as whether it is good or bad, and make decisions about changing a health-related behavior. If I begin an exercise program, will I stick to it? But the judgments they make can be based on misconceptions, as when hypertensive patients overestimate their ability to change.

Table 6.3 Associations of Conscientiousness with Health-Related Behaviors or Characteristics

<table>
<thead>
<tr>
<th>Higher Conscientiousness is Linked to Higher</th>
<th>Higher Conscientiousness is Linked to Lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitness level†</td>
<td>Alcohol use†</td>
</tr>
<tr>
<td>Healthy food selection†</td>
<td>Drug use†</td>
</tr>
<tr>
<td>Mammogram testing†</td>
<td>Risky driving†</td>
</tr>
<tr>
<td>Medication taking, as prescribed†</td>
<td>Risky sex†</td>
</tr>
<tr>
<td>Self-reported health†</td>
<td>Tobacco use†</td>
</tr>
</tbody>
</table>

Sources: †Bogg & Roberts, 2004; ‡Siegel, Feaganes, & Rimer, 1995; †Christensen & Smith, 1995; ‡Hampson et al., 2006.
to sense when their blood pressure is high (Baumann & Leventhal, 1985; Brondolo et al., 1999; Pennebaker & Watson, 1988). Hypertensive patients often report that they can tell when their blood pressure is up, citing symptoms—headache, warmth or flushing face, dizziness, and nervousness—that are actually poor estimators of blood pressure. People’s assessments of their blood pressure often correlate with their symptoms and moods, but not with their actual blood pressure. The potential harm in their erroneous beliefs is that patients often alter their medication-taking behavior or drop out of treatment on the basis of their subjective assessments of their blood pressure. Clearly, beliefs are important determinants of health behavior.

Another important belief that can impair health behavior is called unrealistic optimism. Neil Weinstein (1982) studied how optimistically people view their future health by asking them, “Compared to other people your age and sex, are your chances of getting lung cancer greater than, less than, or about the same as theirs?” He then had students fill out a questionnaire with a long list of health problems, rating each problem for their own likelihood of developing it, relative to other students of the same sex at the university. The results revealed that the students believed they were less likely than others to develop three-quarters of the health problems listed, including alcoholism, diabetes, heart attack, lung cancer, and venereal disease. They believed they were more susceptible than other students to only one of the health problems—ulcers. In a later study, Weinstein (1987) used similar questions in a mailed survey with 18- to 65-year-old adults in the general population. He found that these people were just as unrealistically optimistic as the students and that this optimism is based on illogical ideas—for instance, that they are at lower risk than other people if the health problem occurs rarely and has not happened to them yet. These factors do not affect one’s risk relative to that of others.

Do people remain optimistic about their health when they are sick or when a threat of illness is clear? Evidently not. Using a procedure similar to Weinstein’s, a study found that university students who were waiting for treatment at the student health center were less optimistic about their future health than were healthy students in a psychology course (Kulik & Mahler, 1987b). Another study was conducted with students in Poland, just after the radioactive cloud reached their community from the explosion of the atomic power plant at Chernobyl in the Soviet Union (Dolinski, Gromski, & Zawisza, 1987). Although these people believed they were less likely than others to have a heart attack or be injured in an accident, they believed they were equally likely to develop cancer and more likely than others to suffer illness effects of the radiation over the next several years. Thus, in the face of a real threat, they showed “unrealistic pessimism” regarding their health.

Studies of optimistic and pessimistic beliefs are important for three reasons. First, they have revealed that feelings of invulnerability are not a unique feature of adolescence (Cohn et al., 1995). Second, people who practice health behaviors tend to feel they would otherwise be at risk for associated health problems (Becker & Rosenstock, 1984). This means that people with unrealistically optimistic beliefs about their health are unlikely to take preventive action. Third, health professionals may be able to implement programs to address these beliefs in helping people see their risks more realistically. The next section examines the role of people’s health beliefs in more detail.

THE ROLE OF BELIEFS AND INTENTIONS

Suppose your friend believes in reflexology, a “healing” method that involves massaging specific areas of the feet to treat illnesses. The belief that underlies this method is that each area of the foot connects to a specific area of the body—the toes connect to the head, for instance, and the middle of the arch links to certain endocrine glands (Livermore, 1991). For a patient with recurrent headaches, a reflexologist’s treatment might include massaging the toes. Your friend would probably try ways to prevent and treat illness that are different from those most other people would try. Psychologists are interested in the role of health beliefs in people’s practice of health behaviors. A widely researched and accepted theory of why people do and do not practice these behaviors is called the health belief model (Becker, 1979, Becker & Rosenstock, 1984; Rosenstock, 1966). Let’s see what this theory proposes.

The Health Belief Model

According to the health belief model, the likelihood that a person will take preventive action—that is, perform some health behavior—depends directly on the outcome of two assessments he or she makes. Figure 6.2 shows that one assessment pertains to the threat the person feels regarding a health problem, and the other weighs the pros and cons of taking the action.

Three factors influence people’s perceived threat—that is, the degree to which they feel threatened or worried by the prospect of a particular health problem.

1. Perceived seriousness of the health problem. People consider how severe the organic and social consequences are likely to be if they develop the problem or leave it untreated. The more serious they believe its effects will
be, the more likely they are to perceive it as a threat and take preventive action.

2. **Perceived susceptibility** to the health problem. People evaluate the likelihood of their developing the problem. The more risk they perceive for themselves, the more likely they are to perceive it as a threat and take action.

3. **Cues to action**. Being reminded or alerted about a potential health problem increases the likelihood of perceiving a threat and taking action. Cues to action can take many forms, such as a billboard about the dangers of unprotected sex, a friend or relative developing an illness, an episode about a specific illness and its symptoms on a TV medical drama, or a reminder phone call for an upcoming medical appointment.

Figure 6-2 shows that in weighing the pros and cons of performing a health behavior, people assess the **benefits**—such as being healthier or reducing health risks—and the **barriers** or costs they **perceive** in taking action. What barriers might people see in preventive action? For the health behavior of getting a physical checkup, the barriers might include financial considerations (“Can I afford the bills?”), psychosocial consequences (“People will think I’m getting old if I start having checkups”), and physical considerations (“My doctor’s office is across town, and I don’t have a car”).

The outcome of weighing the benefits against the barriers is an assessed **sum**: the extent to which taking the action is more beneficial for them than not taking the action. This assessed sum combines with the perceived threat of illness or injury to determine the likelihood of preventive action. Thus, for the health behavior of having a medical checkup, people who feel threatened by an illness and believe the benefits of having a checkup outweigh the barriers are likely to go ahead with it. But people who do not feel threatened or assess that the barriers are too strong are unlikely to have the checkup. According to the health belief model, these processes apply to primary, secondary, and tertiary prevention activities.

The theory also proposes that characteristics of individuals can influence their perceptions of benefits, barriers, and threat. These factors include the person’s age, sex, race, ethnic background, social class, personality traits, and knowledge about or prior contact with the health problem. Thus, for example, people who are poor are likely to see strong barriers to getting medical treatment. Women, but not men, over 50 are likely to perceive a substantial risk of breast cancer. And elderly individuals whose close friends have developed severe cases of cancer or heart disease are more likely to perceive a personal threat of these illnesses than young adults whose friends are in good health.

Has research generally supported the health belief model’s explanation of health-related behavior? The model has generated hundreds of studies, most of which have upheld its predictions for a variety of health behaviors, including getting vaccinations, having regular dental visits, and taking part in exercise programs (Becker & Rosenstock, 1984; Conner & McMillan, 2004a; Kirscht, 1983). For instance, compared to people who do not take prescribed medication as directed or do not stick with dietary programs, those who do are more likely to believe they would be susceptible to the associated illness without the behavior and that the benefits of protective action exceed the barriers. Perceived risk (susceptibility) and perceived barriers appear to be critical elements for predicting health behavior, such as getting vaccinations and performing BSEs (Brewer et al., 2007; Conner & McMillan, 2004a), but strong barriers may have more influence than risk. Research has also supported the role of cues to action—for instance, individuals are more likely to perform BSEs or engage in brisk walking if they receive reminders (Craun & Deffenbacher, 1987; Prestwich, Perugini, & Hurling, 2010).

Despite the health belief model’s success, it has some shortcomings. One shortcoming is that it does not account for health-related behaviors people perform habitually, such as tooth brushing—behaviors that probably originated and have continued without the person’s considering health threats, benefits, and costs. Another problem is that there is no standard way of measuring its components, such as perceived susceptibility and seriousness. Different studies have used different...
questionnaires to measure the same factors, thereby making it difficult to compare the results across studies. These problems do not mean the theory is wrong, but that it is incomplete. We now turn to another theory that focuses on the role of people’s beliefs on their practice of health-related behavior.

The Theory of Planned Behavior

Suppose you are having dinner at a restaurant with Dan, a friend who is overweight, and you wonder whether he will order dessert. How could you predict his behavior? That’s simple—you could ask what he intends to do. According to the theory of planned behavior (Ajzen, 1985), an expanded version of the theory of reasoned action (Ajzen & Fishbein, 1980), people decide their intention in advance of most voluntary behaviors, and intentions are the best predictors of what people will do.

What determines people’s intentions? The theory indicates that three judgments determine a person’s intention to perform a behavior, which we’ll illustrate with a girl named Ellie who has decided to start exercising:

1. **Attitude regarding the behavior**, which is basically a judgment of whether or not the behavior is a good thing to do. Ellie has decided that exercising “would be a good thing for me to do.” This judgment is based on two expectations: the likely outcome of the behavior (such as, “If I exercise, I will be healthier and more attractive”) and whether the outcome would be rewarding (for example, “Being healthy and good looking will be satisfying and pleasant”).

2. **Subjective norm.** This judgment reflects the impact of social pressure or influence on the behavior’s acceptability or appropriateness. Ellie has decided that exercising “is a socially appropriate thing for me to do.” This decision is based on her beliefs about others’ opinions of the behavior (such as, “My family and friends think I should exercise”) and her motivation to comply with those opinions (as in, “I want to do what they want”).

3. **Perceived behavioral control**, or the person’s expectation of success in performing the contemplated behavior (which is very similar to the concept of self-efficacy). Ellie thinks she can do the exercises and stick to the program.

The theory of planned behavior proposes that these judgments combine to produce an intention that leads to performance of the behavior. If Ellie had the opposite beliefs, such as, “Exercising is a waste of time,” “I don’t care about my family’s opinion,” and “I’ll never find time to exercise,” she probably wouldn’t generate an intention to exercise, and thus would not do so. Self-efficacy is an important component. When deciding whether to practice a health behavior, people appraise their efficacy on the basis of the effort required, complexity of the task, and other aspects of the situation, such as whether they are likely to receive help from other people (Schunk & Carbonari, 1984).

The theory of planned behavior has generated many dozens of studies, including a meta-analysis showing that attitudes toward a behavior, subjective norms, and perceived behavioral control (self-efficacy) influence intentions and behavior (Conner & McMillan, 2004b). Table 6.4 gives a sample of studies on a variety of health-related behaviors that support the role of the three factors. Also, a meta-analysis of dozens of experiments revealed that interventions can change the factors, and these changes strongly influence intentions, which, to

<table>
<thead>
<tr>
<th>Factor</th>
<th>Intention/Behavior</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude regarding the behavior</td>
<td>Donating blood</td>
<td>Bagozzi, 1981</td>
</tr>
<tr>
<td></td>
<td>Starting smoking</td>
<td>Van De Ven et al., 2007</td>
</tr>
<tr>
<td></td>
<td>Quitting smoking</td>
<td>Norman, Conner, &amp; Bell, 1999</td>
</tr>
<tr>
<td></td>
<td>Exercising</td>
<td>Wurtele &amp; Maddux, 1987</td>
</tr>
<tr>
<td></td>
<td>Eating healthful diet</td>
<td>Conner, Norman, &amp; Bell, 2002</td>
</tr>
<tr>
<td>Subjective norm</td>
<td>Starting smoking</td>
<td>Van De Ven et al., 2007</td>
</tr>
<tr>
<td></td>
<td>Cancer screening</td>
<td>Sieverding, Materne, &amp; Ciccarello, 2010</td>
</tr>
<tr>
<td></td>
<td>Exercising</td>
<td>Latimer &amp; Ginis, 2005</td>
</tr>
<tr>
<td>Perceived behavioral control (self-efficacy)</td>
<td>Starting smoking</td>
<td>Van De Ven et al., 2007</td>
</tr>
<tr>
<td></td>
<td>Quitting smoking</td>
<td>DiClemente, Prochaska, &amp; Gilbertini, 1985</td>
</tr>
<tr>
<td></td>
<td>Exercising</td>
<td>Armitage, 2005</td>
</tr>
<tr>
<td></td>
<td>Losing weight</td>
<td>Schifter &amp; Ajzen, 1985</td>
</tr>
<tr>
<td></td>
<td>Rehabilitation exercises</td>
<td>Jenkins &amp; Gortner, 1998, Kaplan, Atkins, &amp; Reinsch, 1984</td>
</tr>
</tbody>
</table>

Table 6.4 A Sample of Research Supporting the Theory of Planned Behavior

The theory proposes that for each of three factors, the higher its level the more likely the intention will be made and the behavior will be performed. Each study referenced below found this relationship between the factor and the intention or behavior.
a much lesser extent, improve the targeted health behaviors (Webb & Sheeran, 2006).

What shortcomings does the theory of planned behavior have? One problem is that intentions and behavior are only moderately related—people do not always do what they plan (or claim they plan) to do. But the "gap" between intention and behavior can be reduced. Research has found that people are more likely to carry out their intentions if they make careful plans for doing so, keep track of their efforts, and recognize that they will need to continue the behavior on a long-term basis and are confident they can (Sniehotta, Scholz, & Schwarzer, 2005). Keep in mind that people's intentions to perform a health behavior, such as using condoms for safer sex, can change from one day to the next (Kiene, Tennen, & Armeli, 2008). But if individuals perform preparatory behaviors, such as buying and carrying condoms, after the intention is made, the chances of actually using condoms in sex increases greatly (Bryan, Fisher, & Fisher, 2002).

Another problem is that the theory is incomplete; it does not include, for example, the important role of people's prior experience with the behavior. In the blood donation study listed in Table 6.4, the subjects were asked about their past behavior in donating or not donating blood (Bagozzi, 1981). Of those subjects who said they intended to give blood, those who had given before were more likely actually to give than those who had not donated in the past. Similarly, studies have found that people's history of performing a health-related behavior, such as exercising or using alcohol or drugs, strongly predicts their future practice of that behavior (Bentler & Speckart, 1979; Godin, Valois et al., 1987). Thus, for example, compared to adults who have engaged in little exercise in the past, those who have engaged in moderate levels—for example, for individuals who smoke more than 15 cigarettes a day (Sastre, Mullet, & Sorum, 1999; Weinstein, 2000).

The Stages of Change Model

A wife’s letter in a newspaper advice column once described her worry about her husband, who had suffered a heart attack but hadn’t tried to lose weight or exercise as his doctor recommended. This situation is not uncommon. Although there are probably many reasons why this man hadn’t changed his behavior, one may be that he wasn’t ‘‘ready.’’ Readiness to change is the main focus of a theory called the stages of change model (also called the transtheoretical model because it includes factors described in other theories) (DiClemente et al., 1991; Prochaska & DiClemente, 1984; Prochaska, DiClemente, & Norcross, 1992). Figure 6-3 defines the model’s five stages of intentional behavior change and shows how they spiral toward successful change.

According to the stages of change model, people who are currently in one stage show different psychosocial characteristics from people in other stages. For instance, people in the precontemplation stage regarding an unhealthy behavior, such as eating a high-cholesterol

Figure 6-3 Five stages of change in the transtheoretical model advancing as a spiral from precontemplation (bottom), when the person is not considering change, to maintenance, when change is complete and stable.
diet, are likely to have less self-efficacy and see more barriers than benefits for changing that behavior than people in the more advanced stages. Efforts to change the behavior are not likely to succeed until these individuals advance through the stages. But people's stages may regress, too: someone who reached the action stage and began to change may fail, drop back to a less advanced stage, and repeat the process of advancing toward change. People who justify continuing an unhealthy behavior, such as when smokers say, "I know heavy smokers who have lived long, healthy lives," tend to progress through the stages slowly (Kleinjans et al., 2006).

Is it possible to help people advance through the stages? Two ways that help are having them:

- Describe in detail how they would carry out the behavior change, such as the foods they would eat to achieve a low-fat diet (Armitage, 2006).
- Plan for problems that may arise when trying to implement the behavior change, such as if they crave a cigarette after quitting smoking (Armitage, 2008).

Another way uses a unique feature of the stages of change model: it describes important characteristics of people at each stage, enabling an intervention to match strategies to the person's current needs in order to promote advancement to the next stage (Perz, Diclemente, & Carbonari, 1996; Prochaska, Diclemente, & Norcross, 1992). Let's consider an example of matching. Suppose you are a nurse providing care to an elderly woman with heart disease who doesn't exercise, even though her physician advised her to do so. If she is at the precontemplation stage, you might talk with her about why exercise would help her and not exercising would harm her physically, for instance, and have her generate ways this would improve her general functioning. The goal at this point is just to get the person to consider changing the behavior. If she is at the contemplation stage, the goal might be to help her decide to change soon. Discussing the benefits and barriers she perceives in exercising, finding ways to overcome barriers, and showing her that she can do the physical activities would help.

The stages of change model is a very useful theory. Table 6.5 lists a sample of studies which have confirmed that people at higher stages are more likely than others to succeed at adopting healthful behaviors. Research has also confirmed the processes the model describes as leading to advancement or regression within the stages (Schumann et al., 2005) and the value of matching an intervention to people's stage of readiness to improve its success in changing unhealthful behaviors, such as smoking (Spencer et al., 2002). However, some evidence suggests that a smaller number of stages with somewhat different focuses may account better for behavior changes (Armitage, 2009).

In the preceding sections, we have examined many aspects of people's beliefs and intentions that appear to influence their health-related behavior. These aspects include people's perceived susceptibility to illness, perceived barriers and benefits to changing unhealthy behavior, ideas about what behaviors are socially acceptable and encouraged by family and friends, self-efficacy beliefs, and readiness to change. These factors seem sensible for individuals to consider, but the decisions they make are often irrational or unwise. The flawed decisions that people make about their health often result from motivational and emotional processes that are not addressed in the theories. For instance, these theories do not provide an adequate explanation for the widespread tendency of patients who have painful heart attacks to delay obtaining medical aid. Typically, when the afflicted person thinks of the possibility that it might be a heart attack, he or she assumes that "it couldn't be happening to me." The patient's delay of treatment is not attributable to unavailability of medical aid or transportation delays; approximately 75% of the delay time elapses before a patient decides to contact a physician (Janis, 1984, pp. 331–332).

Thus, theories that focus on rational thinking do not adequately consider the processes we're about to see that can override logical decision making.

### The Role of Less Rational Processes

Although body builders generally know that using anabolic steroids can harm their health, some may try to justify using these substances to build muscles.
with statements like, “Experts have been wrong before.” Why do people make decisions regarding health-related behavior that are not more rational? We’ll look first at motivational factors that influence people’s decisions.

**Motivational Factors**

People’s desires and preferences influence the judgments they make of the validity and utility of new information through a process called motivated reasoning (Kunda, 1990). In one form of motivated reasoning, individuals who prefer to reach a particular conclusion, such as to continue to eat fatty foods or smoke cigarettes, tend to use biased cognitive processes: they search for reasons to accept supportive information and discount disconfirming information. The reasons they choose seem “reasonable” to them, even if the logic is actually faulty.

Studies have demonstrated nonrational thought processes in several types of health-related decisions. First, of people with a chronic illness, such as diabetes, those who tend to use illogical thought patterns in health-related situations tend not to follow medical advice for managing their illness (Christensen, Moran, & Weibe, 1999). Second, people who use defense mechanisms a lot to cope with stressful information are more likely than other individuals to deny that they are at risk for AIDS, especially if their risk of infection is high (Gladding et al., 1992). Perhaps their high feeling of threat motivates their use of denial. Similarly, individuals seem to use irrelevant information, such as a sexual partner’s attractiveness, to judge the risks in having sex with that person (Blanton & Gerrard, 1997; Gold & Skinner, 1996). Third, people who smoke cigarettes give lower ratings of risk than nonsmokers do when asked to rate their own risk of developing smoking-related diseases, such as lung cancer (Lee, 1989; McCoy et al., 1992). Beliefs like these appear very resistant to change (Kreuter & Strecher, 1995, Weinstein & Klein, 1995).

**False Hope and Willingness**

Here are two features of health-related behaviors the theories we’ve considered don’t account for well. First, most people who lose weight gain it back within a year or so, yet they try again at a later time. Similar patterns occur for quitting smoking or starting to exercise. Second, many risky behaviors occur spontaneously, without the individuals having thought it through.

It’s encouraging to know that people who don’t maintain a healthier behavior try again, but why do they decide to retry if they’ve failed previously and are likely to fail again? The reason may be that they develop false hopes, believing without rational basis that they will succeed (Polivy & Herman, 2002). They form false hopes because they did succeed for a while, which provides reinforcement for the efforts they made to that point, and they misinterpret their failures. Probably most changed behaviors are not maintained because people expect too large a change in their behavior, too great an effect it would have for them, and too quick and easy a process of change. But they often decide instead that they just didn’t try hard enough for enough time—after all, they succeeded initially.

What risky behaviors occur without careful thought? Lots, maybe most. People often find themselves in situations they didn’t expect to happen in which they have the opportunity to perform an attractive behavior, such as drinking a bit too much or having sex, but there’s some risk. In this type of situation, the critical issue may not be whether they “intend” to engage in a risky behavior, but whether they are willing to do it. High willingness to engage in a risky behavior depends on four factors (Gibbons et al., 1998). Two factors are positive subjective norms and attitudes toward the behavior, which we considered as part of the theory of planned behavior. The other two factors that heighten willingness are having engaged in the behavior previously and having a favorable social image of the type of person who would perform the behavior.

**Emotional Factors**

Stress also affects the cognitive processes people use in making decisions. For example, when given health promotion information, people under high stress pay less attention to it and remember less of it than people under low stress (Millar, 2005). Conflict theory presents a model to account for both rational and irrational decision making, and stress is an important factor in this model (Janis, 1984, Janis & Mann, 1977). According to conflict theory, the cognitive sequence people use in making important decisions starts when an event challenges their current course of action or lifestyle. The challenge can be either a threat, such as a symptom of illness or a news story on the dangers of smoking, or an opportunity, such as the chance to join a free program at work to quit smoking. This produces an appraisal of risk: if the person sees no risk, the behavior stays the same, and the decision-making process ends; but if a risk is seen, the process continues—for instance, with a survey of alternatives for dealing with the challenge.

Conflict theory proposes that people experience stress with all major decisions, particularly those relating to health, because of the importance of and conflicts about what to do. People’s coping with decisional conflict depends on their perceptions of the presence or absence of three factors: risk, hope,
and adequate time. These three factors produce different coping patterns, two of which are:

- **Hypervigilance.** People sometimes see serious risks in their current behavior and those alternatives they have considered. If they believe they may still find a better solution but think they are fast running out of time, they experience high stress. These people tend to search frantically for a solution—and may choose an alternative hastily, especially if it promises immediate relief.

- **Vigilance.** When people perceive serious risks in all possibilities they have considered but believe they may find a better alternative and have time to search, they experience only moderate levels of stress. Under these conditions, people tend to search carefully and make rational choices.

When the challenge is very serious, such as a physician’s warning or obvious symptoms of illness, vigilance is the most adaptive coping pattern. Although the conflict theory has not been tested sufficiently to know its strengths and weaknesses, there is little question that the impact of stress is an important determinant of preventive action, particularly in people’s symptom-based and sick-role behavior.

We have examined how each of many different psychological and social factors can affect people’s health behavior. But we have not yet considered the influence of age, sex, and sociocultural background, which we examine next.

**DEVELOPMENTAL, GENDER, AND SOCIOCULTURAL FACTORS IN HEALTH**

It comes as no surprise that people’s health changes across the life span, that women and men have some differences in health risks and needs, and that variations in preventive behavior occur between individuals of different social classes and ethnic backgrounds.

What are some of these changes and differences, and why do they exist? Let’s examine these health issues, starting with the role of development.

**DEVELOPMENT AND HEALTH**

The biological, psychological, and social factors that affect people’s health change throughout the life span, causing individuals to face different health risks and problems as they develop. For instance, adolescents and young adults are at relatively high risk for injury from automobile accidents, but older adults are at relatively high risk for hypertension and heart disease. As a result, people’s preventive needs and goals change with age. Table 6.6 presents main preventive goals for each period in the life span. Other individuals, such as parents, may assume responsibility for prevention, especially early and very late in the life span.

**During Gestation and Infancy**

Each year millions of babies around the world are born with birth defects—in the United States alone, there are over 120,000 cases, or 3 out of every 100 births annually (MD, 2010). These defects range from relatively minor physical or mental abnormalities to gross deformities; some are not apparent until months or years later, and some are fatal. Birth defects result from genetic abnormalities and harmful factors in the fetal environment.

A mother can control much of the fetal environment through her behavior. Early in gestation, a *placenta* and *umbilical cord* develop and begin to transmit substances to the fetus from the mother’s bloodstream. These substances typically consist mostly of nourishment, but they can also include hazardous microorganisms and chemicals that happen to be in her blood. Many babies are at risk of low birth weight, which can result from three prenatal hazards. First, the mother may be malnourished due to inadequate food supplies or knowledge of nutritional needs. In addition to low weights, babies born to malnourished mothers tend to have poorly developed immune and central nervous systems and a high risk of mortality in the first weeks after birth (Chandra, 1991; Huffman & del Carmen, 1990; Smart, 1991). Second, certain infections the mother may contract during pregnancy can also attack her gestating baby, sometimes causing permanent injury or death (LaBarba, 1984; Tortora & Derrickson, 2009). Vaccinations can prevent most of these infections.
Table 6.6  Prevention Goals over the Life Span

<table>
<thead>
<tr>
<th>Health Goals of Gestation and Infancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To provide the mother a healthy, full-term pregnancy and rapid recovery after a normal delivery.</td>
</tr>
<tr>
<td>• To facilitate the live birth of a normal baby, free of congenital or developmental damage.</td>
</tr>
<tr>
<td>• To help both mother and father achieve the knowledge and capacity to provide for the physical, emotional, and social needs of the baby.</td>
</tr>
<tr>
<td>• To establish immunity against specified infectious diseases.</td>
</tr>
<tr>
<td>• To detect and prevent certain other diseases and problems before irreparable damage occurs.</td>
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<table>
<thead>
<tr>
<th>Health Goals of Childhood and Adolescence</th>
</tr>
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<tbody>
<tr>
<td>• To facilitate the child’s optimal physical, emotional, and social growth and development.</td>
</tr>
<tr>
<td>• To establish healthy behavioral patterns (in children) for nutrition, exercise, study, recreation, and family life, as a foundation for a healthy lifetime lifestyle.</td>
</tr>
<tr>
<td>• To reinforce healthy behavior patterns (in adolescents), and discourage negative ones, in physical fitness, nutrition, exercise, study, work, recreation, sex, individual relations, driving, smoking, alcohol, and drugs.</td>
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<tr>
<th>Health Goals of Adulthood</th>
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<tbody>
<tr>
<td>• To prolong the period of maximum physical energy and to develop full mental, emotional, and social potential.</td>
</tr>
<tr>
<td>• To anticipate and guard against the onset of chronic disease through good health habits and early detection and treatment where effective.</td>
</tr>
<tr>
<td>• To detect as early as possible any of the major chronic diseases, including hypertension, heart disease, diabetes, and cancer, as well as vision, hearing, and dental impairments.</td>
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<thead>
<tr>
<th>Health Goals in Old Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To minimize handicapping and discomfort from the onset of chronic conditions.</td>
</tr>
<tr>
<td>• To prepare in advance for retirement.</td>
</tr>
<tr>
<td>• To prolong the period of effective activity and ability to live independently, and avoid institutionalization so far as possible.</td>
</tr>
<tr>
<td>• When illness is terminal, to assure as little physical and mental stress as possible and to provide emotional support to patient and family.</td>
</tr>
</tbody>
</table>

Source: Based on Breslow & Somers, 1977.

Third, various substances the mother uses may enter her bloodstream and harm the baby (LaBarba, 1984; Tortora & Derrickson, 2009). Babies exposed prenatally to addictive drugs, such as cocaine, are far more likely than others to die in infancy or be born with very low weights or malformations, such as of the heart (Lindenberg et al., 1991). Also, cigarette smoke exposure from the mother’s smoking or from her environment—for instance, if the father smokes—is associated with low birth weight and other health problems in babies (DiFranza & Lew, 1995; Martinez et al., 1994; Tortora & Derrickson, 2009). And the mother’s drinking alcohol, especially heavy drinking, can cause fetal alcohol syndrome, which has several symptoms: (1) slow growth before and after birth, (2) subnormal intelligence, and (3) certain facial characteristics, such as small eye openings (NIAAA, 1993; Tortora & Derrickson, 2009). Ideally, expectant mothers should use none of these substances. Health education for pregnant women can help, such as by getting those who drink or smoke to abstain or reduce their use (Stade et al., 2009; Windsor et al., 1993).

Table 6.7 gives the percentages of newborns with low birth weight and the rates of infant mortality for selected nations around the world. The rate of infant mortality in some developing countries is extremely high, greater than 100 per 1,000 live births for the first year of life (WHO, 2009). In early infancy, the baby’s immunity to disease depends largely on the white blood cells and antibodies passed on by the mother prenatally and in her milk if she breast-feeds (Tortora & Derrickson, 2009).

Table 6.7  Percentage of Newborns with Low Birth Weight and Infant Mortality Rate (Number per 1,000 Live Births Who Die in the First Year of Life) in Selected Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Percent Low Birth Weight</th>
<th>Infant Mortality (per 1,000 births)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Brazil</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Canada</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>China</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Germany</td>
<td>7a</td>
<td>4</td>
</tr>
<tr>
<td>India</td>
<td>30a</td>
<td>54</td>
</tr>
<tr>
<td>Italy</td>
<td>6a</td>
<td>3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>NA</td>
<td>4</td>
</tr>
<tr>
<td>Singapore</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>South Africa</td>
<td>15a</td>
<td>46</td>
</tr>
<tr>
<td>Sweden</td>
<td>4a</td>
<td>2</td>
</tr>
<tr>
<td>Turkey</td>
<td>16a</td>
<td>21</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>United States</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

Note: NA = data not available.
Because of the immunity it gives to the baby, breast milk is sometimes called “nature’s vaccine.” Parents should arrange for the baby to begin a vaccination program early in infancy for such diseases as diphtheria, whooping cough, and polio.

**Childhood and Adolescence**

In the second year of life, toddlers are walking and beginning to “get into everything,” with the risk for injury, such as while swimming or from sharp objects and chemicals around the house. In the United States, accidental injury is the leading cause of death during childhood and adolescence (USBC, 2010). Parents, teachers, and other caregivers can reduce the likelihood of injury by teaching children safety behaviors, supervising them when possible, and decreasing their access to dangerous situations, such as by keeping chemicals out of reach. The role of cognitive processes in the practice of health-related behavior has important implications here, since cognitive abilities are immature in early childhood and become more sophisticated as children get older (Burchbach & Peterson, 1986; Murphy & Bennett, 2004). With these advances, children are more able to make decisions and assume responsibility for promoting their own health and safety.

Adolescence is a very critical time in the development of preventive behavior. Although teenagers have the cognitive ability to make the logical decisions leading to healthful behavior, they face many temptations and forces—especially peer pressure—that lead them in other directions (La Greca & Stone, 1985; Leffert & Petersen, 1998). This is the time when they stand the greatest chance of starting to smoke, drink, use drugs, and having sexual relations. These risky behaviors are interrelated: teens who smoke and drink are more likely to use marijuana and have unsafe sex (Duncan, Strycker, & Duncan, 1999). Teens also learn to drive, and too often combine this new skill with drinking and using drugs. Most teenage deaths in developed countries result from accidents. In the United States, death rates for accidents rise sharply during the teenage years and are several times as high for 15- to 24-year-olds as for younger age groups (USBC, 2010). All these newly acquired behaviors involve substantial health risks, which teenagers are highly susceptible to taking.

**Adulthood and Aging**

When people reach adulthood, they become less likely than they were in adolescence to adopt new behavioral risks to their health. In general, older adults are more likely than younger ones to practice various health behaviors, such as eating healthful diets and getting medical checkups, even though they have similar beliefs about the value of these behaviors in preventing serious illnesses, such as heart attack and cancer (Bello & Breslow, 1972; Leventhal, Prohaska, & Hirschman, 1985). One likely reason for this age difference is that older adults perceive themselves as more vulnerable to these illnesses than younger adults, and engage in preventive acts for that reason.

Old age is not what it used to be. Older people in industrialized countries live longer and are in better financial and physical condition than in the past (Horn & Meer, 1987). One health behavior that generally declines as adults get older is regular vigorous exercise (Leventhal, Prohaska, & Hirschman, 1985). Many elderly people avoid physical exercise because they tend to exaggerate the danger that exertion poses to their health, underestimate their physical capabilities, and feel embarrassed by their performance of these activities (Woods & Birren, 1984).

**GENDER AND HEALTH**

In almost all countries of the world, an average female’s expected life span at birth is at least a few years longer than a male’s (WHO, 2009). The gap in life expectancy is about 4 to 6 years in Europe, 5 years in the United States, and usually somewhat smaller in developing countries. For people in the United States who survive to 65 years of age, the remaining life expectancy of women is about 3 years longer than men’s (USBC, 2010). Why do women live longer? The answer involves both biological and behavioral factors (Murphy & Bennett, 2004; Reddy, Fleming, & Adesso, 1992; Williams, 2003). Some of these factors are:

- Physiological reactivity, such as blood pressure and stress hormones, when under stress is greater in men than women, which may make men more likely to develop cardiovascular disease.
- The female sex hormone estrogen appears to delay heart disease by reducing blood cholesterol levels and platelet clotting.
- Men smoke and drink more than women do, thereby making men more susceptible to cardiovascular and respiratory diseases, some forms of cancer, and cirrhosis of the liver.
- Males have higher levels of drug use, unhealthy diets, and risky driving and sexual activity.
- Males are less likely than females to consult a physician when they feel ill.
- Work environments of males are more hazardous than those of females; men account for the large majority of fatalities on the job.
One of the few behavioral advantages men have is that they get more strenuous exercise than women do. The practice of many other health-related behaviors is similar for men and women.

Women’s longer lives do not mean that they have fewer health problems than men. Actually, the opposite may be true (USBC, 2010; Reddy, Fleming, & Adesso, 1992; Williams, 2003). For example, American women have much higher rates than men of acute illnesses, such as respiratory and digestive ailments, and nonfatal chronic diseases, such as varicose veins, arthritis, anemia, and headache. They also use medical drugs and services much more than men, even when pregnancy and other reproductive conditions are not counted.

**Sociocultural Factors and Health**

“Did a doctor ever tell you that you had [medical condition]?” Researchers asked this question of thousands of late-middle-age American and British people, inserting eight serious medical conditions (Banks et al., 2006). The surveys for this age group revealed that Americans had far higher prevalence rates for all of the illnesses—for example, the respective rates for Americans and British were 12.5% and 6.1% for diabetes, 15.1% and 9.6% for heart disease, and 9.5% and 5.5% for cancer. Do differences in health behaviors account for these results? Probably not: the British people smoked somewhat more and drank heavily much more than the Americans, but the Americans had much higher rates of obesity—and when obesity was equated statistically, the British were still healthier. These results point out that health differs across nations.

Another aspect of the study on American and British health is that the researchers surveyed only non-Hispanic White people. Why? Cultural differences also exist within nations, and the United States has larger percentages of Hispanic and Black people. A national survey of American adults of all ages and backgrounds found that fewer than 13% claimed to be in only “fair” to “poor” health (NCHS, 2009b). But this was not uniform across segments of the population. Compared with the population as a whole, people were much more likely to rate their health as “fair” or “poor” if they were over 45 years of age, or from the lower social classes, or of African American or American Indian background. As it turns out, these lower assessments reflect real health problems of the individuals these groups comprise.

**Social Class and Minority Group Background**

Did you know that when the Titanic sank, passengers did not all have an equal chance of surviving? Mortality was far higher for passengers who were from third class cabins than from first class (Rugules, Aust, & Syme, 2004). Similarly, the devastation of hurricane Katrina was greater for poor than for richer people. Social class and health are linked.

The concept of social class, or socioeconomic status, describes differences in people’s resources, prestige, and power within a society (Adler, 2004; Elo, 2009). These differences are reflected in three main characteristics: income, occupational prestige, and education. The lowest social classes in industrialized societies contain people who live in poverty or are homeless. By almost any gauge of wellness, health correlates with social class (Adler, 2004; Anderson & Armstead, 1995; Banks et al., 2006; Gruenewald et al., 2009; Lantz et al., 2005; Lemelin et al., 2009). For example, individuals from lower classes are more likely than those from higher classes to:

- Be born with very low birth weight
- Die in infancy or in childhood
- Develop early signs of cardiovascular disease, such as atherosclerosis
- Have poorer overall health and develop a longstanding illness in adulthood
- Experience major stressors, followed in later years by poorer health and greater limitations in everyday functioning

Not coincidentally, individuals from the lower classes have poorer health habits and attitudes than those from higher classes. For instance, they smoke more, participate less in vigorous exercise and have poorer diets and less knowledge about risk factors for disease (Adler, 2004; Murphy & Bennett, 2004; Myers, 2009). And they are less likely than individuals from upper classes to get health information from the mass media (Ribisl et al., 1998). You probably realize that members of minority groups usually are disproportionately represented in the lower social classes.

Minority group background is an important risk factor for poor health. Today a baby born in Cuba stands a better chance of reaching the age of one than the average African American newborn in the United States (USBC, 2010; WHO, 2009). The rate of infant mortality in America is twice as high for Blacks as it is for Whites. Among babies who survive the first year, the life expectancy for an African American baby is about 4½ years shorter than that for a White baby in America (USBC, 2010). Moreover, the death rates in the United States for the three most deadly diseases are far higher for Blacks than Whites, as Figure 6-4 shows. Although American racial differences in health were much larger decades ago, they are still substantial and remain a national disgrace.
Three minority groups in the United States have high levels of health problems: Native Americans, Black people, and Hispanics. In a national survey of adults, self-ratings of fair or poor health were given by 21.6% of Native Americans, 18.4% of Blacks, and 17.4% of Hispanics (compared with 12.2% of Whites, NCHS, 2009b). Many individuals in these minority groups live in environments that do not encourage the practice of health behavior (Johnson et al., 1995; Whitfield et al., 2002). African Americans and Hispanics also share a vulnerability to four health-related problems: stress from discrimination, substance abuse, AIDS, and injury or death from violence (Myers, 2009; Whitfield et al., 2002). These individuals are more likely than whites to smoke, use drugs, and practice unsafe sex. And African Americans and Hispanics—especially young males—are several times more likely than their White counterparts to become victims of homicide. These problems are disturbing, and correcting them will take a great deal of time, effort, and social change.

**Promoting Health with Diverse Populations**

Immigrants tend to adopt the health behaviors of their new culture through the process of acculturation (Corral & Landrine, 2008). How can societies help their diverse populations lead healthy lives? Long-term approaches involve reducing poverty, increasing literacy, and providing illness prevention services. A more immediate approach would be to present health information at low literacy levels (Pignone et al., 2005). And because communities contain people of different ages, genders, and sociocultural backgrounds, professionals who are trying to prevent and treat illness need to take a biopsychosocial perspective (Flack et al., 1995; Johnson et al., 1995; Landrine & Klonoff, 2001). You can see what this means in Table 6.8, which presents three factors professionals can address to make health-promotion services culturally sensitive. Ideally, programs to promote minority health would use a grassroots, culturally relevant approach with trained health leaders from the community (Castro, Cota, & Vega, 1999). An example program, called Por La Vida, increased breast and cervical cancer testing in Hispanic women by identifying and training respected women of their community to provide weekly educational sessions on cancer prevention (Navarro et al., 1998). The remainder of this chapter focuses on techniques and program designs for enhancing health and preventing illness.

**PROGRAMS FOR HEALTH PROMOTION**

Hoping to save money on the costs of health care and lost productivity, some employers have begun offering incentives for healthy behavior—for example, for meeting

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**Table 6.8 Cultural Diversity Issues for Professionals in Promoting Health**

- **Biological factors**: Sociocultural groups can differ in their physiological processes, as reflected in African Americans’ high risk of developing the genetic blood disease of sickle-cell anemia. For instance, we saw in Chapter 4 that Black people show relatively high reactivity to stress, which may result from heredity or environmental factors, such as living under relatively high stress.
- **Cognitive and linguistic factors**: People of different sociocultural groups seem to have different ideas about the causes of illness, give different degrees of attention to their body sensations, such as pain, and interpret symptoms differently. For example, Hispanic Americans often believe in using “folk healing” practices, such as actions to drive away evil spirits. Professionals who try to refute these beliefs may drive their patients away. Language differences between professionals and the people they serve impair their ability to communicate with each other.
- **Social and emotional factors**: Sociocultural groups differ in the amount of stress they experience, their physiological reactivity to it, and the ways they cope with it. They also differ in their amount and use of social support.

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weight loss goals, workers can earn a cash bonus, or days
off work, or even a tropical vacation. Other creative
approaches to promote health have been used to change
other behaviors in other situations. Often programs
for health promotion address several behaviors, which
is efficient: people achieve more changes when more
behaviors are addressed (Young et al., 2009). Let’s look
at some methods these efforts can use.

METHODS FOR PROMOTING HEALTH

Interventions to promote health can encourage the
practice of healthful behavior with dozens of methods
(Abraham & Michie, 2008, Sarafino, 2011). These inter-
ventions usually start by teaching individuals what these
behaviors are and how to perform them, and by persuad-
ing people to change unhealthful habits. An important
step in this effort is motivating individuals to want to
change, and this often requires modifying their health
beliefs and attitudes. What methods do these programs
use to encourage health behavior?

Providing Information

People who want to lead healthful lives need
information—they need to know what to do and when,
where, and how to do it. In reducing dietary cholesterol,
people need to know what cholesterol is and that it can
clog blood vessels, leading to heart disease. They also
need to know where they can have their blood tested
for cholesterol level, what levels are high, how much
cholesterol is in the foods they currently eat, which
foods might be good substitutes for ones they should
extend from their diets, and how best to prepare
these foods. There are several sources for information to
promote health.

One source for health information is the mass media:
TV, radio, newspapers, and magazines can promote
health by presenting warnings and information, such
as advice to help people avoid or stop smoking. For
instance, the mass media sometimes presents in public
service advertisements information about the negative
consequences of an activity, such as smoking. This approach
has had limited success in changing behavior (Flay, 1987;
Maes & Boersma, 2004). One reason for the limited
success may be that many people just don’t want
to change the behavior at issue: a noted newspaper
columnist who did not want to change his diet railed
against warnings, writing,

Cholesterol, sholesterol! … Almost everything
[experts] say is good for you will turn out bad for
you if you hang around long enough, and almost
everything they say is bad for you will turn out not to
matter. (Baker, 1989, p. A31; note that this quote is a
good example of motivated reasoning!)

But when people already want to change an unhealthful
habit, programs conducted on TV can be more effective,
especially if they are combined with other methods
(Freels et al., 1999; Maes & Boersma, 2004). For example,
a program on TV, called Cable Quit, was successful in
helping people stop smoking by showing them how to
prepare to quit, helping them through the day they quit,
describing ways to maintain their success, and giving
them opportunities to call for advice (Valois, Adams, &
Kammermann, 1996). Of those who started the program,
17% continued to abstain from smoking a year later.

Another source of health promotion information
is the computer, particularly via the Internet. People
anywhere in the world who are already interested in
promoting their health and have access to the Internet
can contact a wide variety of websites. Some are huge
databases with information on all aspects of health
promotion, while others provide detailed information
on specific illnesses, such as cancer and arthritis, or
support groups for health problems. People can learn
how to avoid health problems and, if they become ill,
what the illness is and how it can be treated.

A third source of health promotion information is
medical settings, particularly physicians’ offices, which offer
some advantages and disadvantages. Two advantages
are that many individuals visit a physician at least once
a year, and they respect health care workers as experts.
Three disadvantages are that medical personnel have
tight schedules, feel a lack of expertise to help, and
worry that they may be intruding in patients’ personal
lives (Schroeder, 2005). For reasons like these, medical
staff don’t provide enough health promotion advice.
A study found that American physicians checked the
smoking status in a bit more than two-thirds of adult
patients and counseled only about one-fifth of smokers
on ways to quit (Thorndike, Regan, & Rigotti, 2007).
Because of the problem of tight schedules, researchers
have developed 5- to 10-minute counseling programs
that medical staff can be trained to give in person or
by telephone, having a system that cues the staff to
give the program increases its delivery (Adams et al.,
1998). These programs enhance many types of health
behaviors, such as eating low-fat diets, curbing alcohol
intake, and getting cancer screening (Ockene et al., 1999;
Ockene, Reed, & Reiff-Hekking, 2009; Rimer, 1998). Just
asking patients if they smoke, advising them to quit,
and suggesting that they contact a telephone “quit line”
takes less than a minute and can help (Schroeder, 2005).

Medical professionals now have another avenue for
providing health promotion information. They can offer
individuals who are at risk for inherited illnesses, such as some forms of cancer, estimates of their chances of getting the disease and opportunities to undergo tests, such as periodic examinations and genetic testing. But even when genetic testing is offered at no cost, less than half of individuals request the testing and results (Lerman et al., 1996; Lerman, Hughes et al., 1999). Are there psychological risks for people who receive this advice and undergo the tests? Making the decision to have genetic testing can be agonizing because of the possibility that it will reveal a genetic risk and conflicts that arise among family members who do and do not want the information. In breast and ovarian cancer testing, for example, women who learn that they are carriers of the gene experience some distress in the subsequent weeks that declines markedly in the next few months (Hamilton, Lobel, & Moyer, 2009). (Go to .)

Features of Information to Enhance Motivation

Individuals do not necessarily follow advice and warnings on ways to promote their health. How can the information they receive enhance their motivation to adopt health behaviors?

One approach to enhance people’s motivation to follow health promotion advice is to use tailored content—that is, the advice delivered in person, in print, or on the telephone is designed for a specific individual, based on characteristics of that person. For example, the message would refer to the person by name and might include personal or behavioral details, such as the person’s age or smoking history, and a message geared to the person’s readiness to adopt the proposed health behavior, such as stopping smoking, scheduling a mammogram, or losing weight. Tailoring the content appears to enhance the success of health promotion information (Noar, Benac, & Harris, 2007; Skinner et al., 1999).

Another approach to enhance motivation is based on a concept called message framing, which refers to whether the information emphasizes the benefits (gains) or costs (losses) associated with a behavior or decision. For a health behavior, a gain-framed message would focus on attaining desirable consequences or avoiding negative ones, it might state, for example, “If you exercise, you will become more fit and less likely to develop heart disease.” A loss-framed message would focus on getting
Motivational Interviewing

A one-on-one technique called motivational interviewing, a counseling style designed to help individuals explore and resolve their ambivalence in changing a behavior, was originally developed to help people overcome addictions, such as to alcohol and drugs (Miller & Rollnick, 1991; Miller & Rose, 2009). The counselor uses a style that leads the client, rather than the counselor, to voice arguments for behavior change. Two important features of the process are decisional balance and personalized feedback. In decisional balance, clients list their reasons for and against changing their behavior so that these can be discussed and weighed. In personalized feedback, clients receive information on their pattern of the problem behavior, comparisons to national norms for the behavior, and risk factors and other consequences of the behavior.

Motivational interviewing has been extended for use in health care settings to promote healthful behavior, such as to help a girl named Latisha to get her boyfriend to use condoms when they had sex. The following exchange ensued after she pointed out that he had used condoms in the past—"when he got 'em."

INTERVIEWER: So if you had them around, would you be able to use them with him?

LATISHA: If I really wanted him to. He'd probably use it.

INTERVIEWER: All you'd have to do is ask him to use a condom, and he'd do it?

LATISHA: Well, I'd have to be nice about it, so he doesn't think I'm sayin' he's dirty or go around anymore. I'd have to be nice.

INTERVIEWER: It sounds like you know what he would be sensitive about. What could you say to make it sound nice? (Brown & Lourie, 2001, P. 262)

An interview like this one would then discuss the things she could say, the problems that could arise, and how she would deal with them.

The course of motivational interviewing can take one session or several and typically leads the client to identify many of the elements of theories we've previously discussed, such as the benefits and barriers (decisional balance) to the behavior change. They then work through identified problems that have made the behavior hard to change in the past. Research has revealed promising outcomes of motivational interviewing, such as in helping patients follow the medication directions their physician prescribed and getting sexually active people to use condoms (Resnicow et al., 2002). Decisional balance and feedback are critical components of the process, particularly in helping college students reduce heavy drinking (LaBrie et al., 2006; Walters et al., 2009).

Behavioral and Cognitive Methods

Behavioral methods focus directly on enhancing people's performance of the preventive act by managing its antecedents and consequences. The antecedents for health-related behavior can be managed in many ways, such as by using calendars to indicate when to perform infrequent preventive actions and reminders not to eat high-calorie foods or drink too much.

The consequences for health-related behavior can be managed by providing reinforcers when the person practices healthful behaviors, such as flossing teeth or...
not smoking. But the effectiveness of reinforcement depends on the types of reward used and the age of the individual (Sarafino, 2001). People differ in their reward preferences; one person might like to receive a CD of rock music, but someone else might prefer classical. The consequences need to be matched to the person, which can be done by having the person fill out a questionnaire (Sarafino & Graham, 2006). Some evidence suggests that reward preferences change with age: kindergarten children tend to prefer material rewards (a charm, money, candy) over social rewards such as praise, but this preference seems to reverse by third grade (Witryol, 1971). For adults, monetary rewards seem to be very effective in encouraging health behaviors, such as stopping smoking in pregnancy and breast self-examination (Lumley et al., 2009; Solomon et al., 1998).

Cognitive methods can be applied to change people’s thought processes, such as to enhance their self-efficacy for quitting smoking. Therapists often teach behavioral and cognitive methods to clients so they can apply them themselves—an approach called self-management (Sarafino, 2011). Although each behavioral and cognitive method helps in changing a behavior, such as eating more healthfully, they appear to be most effective when combined and used together, particularly when the individuals monitor their own behavior and keep records of it (Michie et al., 2009).

Maintaining Healthy Behaviors

When people change a long-standing behavior, their success usually has some setbacks, or lapses (Sarafino, 2001). A lapse is an instance of backsliding—for instance, a person who quits smoking might have an occasional cigarette. Lapses should be expected; they do not indicate failure. A more serious setback is a relapse, or falling back to one’s original pattern of the undesirable behavior. Relapses are very common when people try to change long-term habits, such as their eating and smoking behaviors.

Psychologists G. Alan Marlatt and Judith Gordon (1980) have proposed that for many individuals who quit a behavior, such as smoking, experiencing a lapse can destroy their confidence in remaining abstinent and precipitate a full relapse. This is called the abstinence-violation effect. Because these people are committed to total abstinence, they tend to see a lapse as a sign of a personal failure. They might think, for instance, “I don’t have any willpower at all and I cannot change.” Programs to change behavior can reduce relapses by training individuals to cope with lapses and maintain self-efficacy about the behavior and by providing ‘booster’ sessions or contacts (Curry & McBride, 1994; Irvin et al., 1999). Contacts, even by phone, can reduce relapses substantially by providing counseling on dealing with difficult situations that could lead to lapses (Zhu et al., 1996).

Interventions to promote health have been carried out in many settings and with a variety of goals, methods, and populations. We will examine different types of programs, beginning with health education efforts in schools and religious organizations.

PROMOTING HEALTH IN SCHOOLS AND RELIGIOUS ORGANIZATIONS

Schools and religious organizations have unique opportunities to promote health for two reasons. First, they have access to virtually all children and adolescents in developed nations during the years that are probably most critical in the development of health-related behaviors. Second, they can reach many minority and immigrant adults who are at high risk of serious illnesses, such as heart disease and cancer.

Are health promotion programs in schools and religious organizations effective? Many have been (Campbell et al., 2007; Katz, 2009). Some programs in schools have been designed to promote a broad range of health
behaviors—for example, nutrition, exercise, tobacco and alcohol use, and sexual activity—which improved the children’s health behavior and physical condition (Katz, 2009; Maes & Boersma, 2004). The most effective programs for promoting health in schools are comprehensive and involve the children’s family and community over a long period.

WORKSITE AND COMMUNITY-BASED WELLNESS PROGRAMS

Wellness programs are spreading rapidly in workplaces in industrialized countries. A national survey of American worksites with 50 or more employees found that over 90% offered some form of promotion activity, such as for fitness or diet (USDHHS, 2004). One-third of small worksites and 50% of large worksites offered comprehensive programs, which focus on lifestyle change and screen employees for health promotion needs. Workers with poor health habits in the United States cost employers substantially more in health benefits and other costs of absenteeism than those with good habits. These savings offset and often exceed the expense of running a wellness program (Goetzel & Ozminkowski, 2008). Psychologists who study or administer such programs are called occupational health psychologists (Quick, 1999).

Worksite wellness programs vary in their aims, but often apply self-management methods and address some or all of several risk factors: hypertension, cigarette smoking, unhealthful diets and overweight, poor physical fitness, alcohol abuse, and high levels of stress. These risk factors do not seem to be equally changeable. For example, although self-management can be sufficient for dietary and exercise behaviors, smoking often requires counseling and pharmacological treatment to overcome nicotine dependence, too (Cahill, Moher, & Lancaster, 2008, Emmons et al., 1999). Housing these interventions in workplaces has several advantages. Worksite programs are convenient to attend, are fairly inexpensive for employees, can provide participants with reinforcement from the employer and coworkers, and can structure the environment to encourage healthful behavior, such as by making healthy food available in the cafeteria (Cohen, 1985). Although the number of employees who participate in worksite programs is not as high as one would hope, over 60% of American workers do (USDHHS, 2004). And the number of workers who participate and stick with the programs increases markedly if the employer actively recruits them (Linnan et al., 2002).

Let’s look at a model worksite intervention. Johnson & Johnson, America’s largest producer of health care products, began the Live for Life program in 1978. The program covers thousands of employees and is highly effective (Maes & Boersma, 2004, Nathan, 1984). The program is designed to improve employees’ health knowledge, stress management, and efforts to exercise, stop smoking, and control their weight. For each participating employee, Live for Life provides a health screen—a detailed assessment of the person’s current health and health-related behavior, which is shared with the person later—and professionally led action groups for specific areas of improvement, such as quitting smoking or controlling weight, focusing on how people can alter their lifestyle and maintain improvements permanently. Follow-up contacts are made with each participant during the subsequent year. The company also provides a work environment that supports and encourages healthful behavior; it has designated no-smoking areas, established exercise facilities, and made nutritious foods available in the cafeteria, for example.

Community-based programs for health promotion are designed to reach large numbers of people and improve their knowledge and performance of preventive behavior (Thompson et al., 2003). These interventions may address a set of behaviors or just one and use any of the methods we have considered. They may, for instance, use the media and social organizations to provide information and advice regarding the risks factors for cancer, the dangers of drinking and driving, or the availability of free blood pressure testing or vaccinations. Community-based programs may also provide incentives for performing a health behavior or reaching a goal, such as losing a certain amount of weight. An early example of a community-based program is the Three Community Study, which was carried out in California to spur people to change their behavior and reduce their risk of cardiovascular disease (Farquhar et al., 1977; Meyer et al., 1980). The program delivered an extensive 2-year mass-media campaign, consisting of warnings and information concerning diet, exercise, and smoking. Research has revealed that the long-term success of the program was greatest with older people and least with individuals who were much younger, had little education, and were from the lower socioeconomic classes (Winkleby, Flora, & Kraemer, 1994). Although the success of this program and similar ones was modest—for instance, reducing blood pressure by a few points—small changes across thousands of people can affect disease greatly (Thompson et al., 2003).

ELECTRONIC INTERVENTIONS FOR HEALTH PROMOTION

Electronically-delivered psychosocial interventions are being developed to promote health. Internet-based programs use the World Wide Web to deliver interventions, and
computer-based programs use software that is loaded on individual computers (Tate, 2008). Table 6.9 presents some examples of electronic interventions with evidence of success in changing several health-related behaviors. Internet-based programs are particularly useful because they are easily accessed by enormous numbers of people around the world, but nearly 50% of people who begin using them drop out (Bennett & Glasgow, 2009). Providing personal contact and incentives and reminders to use the programs can reduce drop out rates. (Go to 🌐)

**PREVENTION WITH SPECIFIC TARGETS: FOCUSING ON AIDS**

Sometimes prevention programs focus on reducing people’s risk of developing a specific health problem and center these efforts on specific segments of the population. One example of this approach is the Multiple Risk Factor Intervention Trial (MRFIT), a project that recruited and provided health promotion programs for thousands of men across the United States who were at substantial risk for heart disease (Caggiula et al., 1981). Another example involves efforts to reduce the spread of infection with the human immunodeficiency virus (HIV), which causes acquired immune deficiency syndrome (AIDS). We’ll focus on efforts to reduce HIV infection.

### HIV Infection

The magnitude of the AIDS threat is astounding (UNAIDS, 2009): tens of millions of its victims have died around the world, over 33 million people are currently infected with HIV, and millions are newly infected each year. Over 160 countries have reported cases of AIDS, but the infection is unevenly distributed worldwide. The largest concentration of infections continues to be in sub-Saharan Africa, which has two-thirds of all people currently living with HIV/AIDS. Although the incidence of infection is high in Asian and Latin American regions, it has declined worldwide since the mid-1990s. New medical treatments can extend the lives of victims, are widely used in industrialized nations, and are being used increasingly in developing nations (UNAIDS, 2009). There is no vaccine against HIV, and complications from AIDS kill most people who develop it.

HIV spreads to an uninfected person only through contact of his or her body fluids with those of an infected person, generally either through sexual practices

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**Table 6.9 Examples of Electronic Health Promotion Interventions with Research Evidence of Success**

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Population and Program Description (Reference)</th>
<th>Related Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease drinking</td>
<td>Heavy drinkers. Motivational interview methods to help them commit to change; and if they do, negotiate goals and plan for change (Squires &amp; Hester, 2004).</td>
<td>Carey et al., 2009</td>
</tr>
<tr>
<td>Decrease smoking</td>
<td>Smokers who purchased a nicotine patch. Cognitive-behavioral program, including methods to manage antecedents and enhance self-efficacy and coping. (Strecher, Shiffman, &amp; West, 2005).</td>
<td>Myung et al., 2009; Seidman et al., 2010; Shahab &amp; McEwen, 2009</td>
</tr>
<tr>
<td>Decrease chronic pain</td>
<td>Headache sufferers. Stress management, including relaxation training and some biofeedback (Devineni &amp; Blanchard, 2009).</td>
<td>Bennett &amp; Glasgow, 2009</td>
</tr>
<tr>
<td>Decrease insomnia</td>
<td>Adults with insomnia. Cognitive-behavioral methods, such as going to bed only when sleepy and changing counterproductive beliefs (Ritterband et al., 2009).</td>
<td></td>
</tr>
<tr>
<td>Reduce risk of eating disorder</td>
<td>Females at high risk of eating disorders. Cognitive–behavioral program to change beliefs about their bodies and societal standards that put them at risk (Taylor et al., 2006).</td>
<td>Hustad et al., 2010; Norman et al., 2008</td>
</tr>
<tr>
<td>Reduce risk of substance use</td>
<td>Girls, 11 to 13 years old, and their mothers. Each pair worked together on a computerized program, which taught them ways to manage their moods and stress, to reduce the girls’ risk of using tobacco, alcohol, and illicit drugs (Schinke, Fang, &amp; Cole, 2009).</td>
<td>Winett et al., 2007</td>
</tr>
<tr>
<td>Reduce dietary fat; increase exercise</td>
<td>Adults in general population. An Internet intervention had participants provide information about their fat intake and physical activity. Tailored feedback and suggestions were given on the healthfulness of their behaviors and ways to improve them (Oenema et al., 2008).</td>
<td></td>
</tr>
</tbody>
</table>

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ASSESS YOURSELF

Your Knowledge about AIDS

Answer the following true-false items by circling the T or F for each one.

T F 1. Most people who develop AIDS die from its complications.
T F 2. Blood tests can usually tell within a week after infection whether someone has received the AIDS virus.
T F 3. People do not get AIDS from using swimming pools or rest rooms after someone with AIDS does.
T F 4. Some people have contracted AIDS from insects, such as mosquitoes, that have previously bitten someone with AIDS.
T F 5. AIDS can now be prevented with a vaccine and cured if treated early.
T F 6. People who have the AIDS virus can look and feel well.
T F 7. Gay women (lesbians) get AIDS much more often than heterosexual women, but not as often as gay men.
T F 8. Health workers have a high risk of getting AIDS from or spreading the virus to their patients.
T F 9. Kissing or touching someone who has AIDS can give you the disease.
T F 10. AIDS is less contagious than measles.

Check your answers against the key below that is printed upside down—a score of 8 items correct is good, 9 is very good, and 10 is excellent. (Carey, Morrison-Beedy, & Johnson, 1998; DiClemente, Zorn, & Temoshok, 1987; Vener & Krupa, 1990).

Answers:

T F 7. Gay women (lesbians) get AIDS much more often than heterosexual women, but not as often as gay men.
T F 8. Health workers have a high risk of getting AIDS from or spreading the virus to their patients.
T F 9. Kissing or touching someone who has AIDS can give you the disease.
T F 10. AIDS is less contagious than measles.

or when intravenous drug users share needles. The likelihood of infection increases if the person has wounds or inflammation from other sexually transmitted diseases, such as syphilis or herpes, and from rough sex (Klimas, Koneru, & Fletcher, 2008). Infected mothers sometimes transmit the virus to their babies during gestation, delivery, and later during breast-feeding (Carey & Vanable, 2004; Klimas, Koneru, & Fletcher, 2008).

Who is at high risk of HIV infection? Table 6.10 shows that the modes of exposure to HIV for people newly infected vary greatly across areas of the world. In the United States, unprotected male-to-male anal intercourse is still a major mode of exposure, but the rate of infection from male-to-male sex was much higher in the early 1980s and declined sharply in the next several years (Catania et al., 1991; Coates, 1990). And the risk of infection has increased among American low-income and minority groups over the years. In other parts of the world, the main exposure modes are injection drug use (sharing needles) and unprotected heterosexual vaginal intercourse, often with paid sex workers. And the percentage of people living with HIV who are female has increased worldwide—today 50% are female (UNAIDS, 2009). Men who are circumcised have a much lower risk of infection from vaginal sex than uncircumcised men (Klimas, Koneru, & Fletcher, 2008). But unsafe behavior is still the main risk, and global prevention efforts have concentrated on using fear arousing warnings and providing information to promote safer-sex behavior.

These efforts also try to correct misconceptions about HIV transmission—for instance, that AIDS can only happen to homosexuals and drug users, that all gay men are infected, that mosquitoes can spread the virus, or that the virus can be transmitted through casual contact, such as by touching or hugging infected individuals or by sharing office equipment they have used (DiClemente, Zorn, & Temoshok, 1987). Many people also believe that health care personnel are usually at high risk of becoming infected when working with AIDS patients, but research has disconfirmed this. It is rare for health care workers to become infected, even when they are accidentally stuck with a needle that had been used on an AIDS patient (Clever & LeGuyader, 1995; Klimas, Koneru, & Fletcher, 2008).

Why do people continue to engage in unsafe sex? Although ignorance and a lack of availability of protection are the main reasons in many developing countries, other factors are more influential in other cultures. Let’s look at some of these factors:

- People are much more likely to have unsafe sex if they are promiscuous or have sex while under the influence of alcohol or drugs (Lowry et al., 1994; Norris et al., 2009; O’Hare, 2005). In men, intoxication seems to increase negative attitudes and decrease self-efficacy about using condoms and to increase the willingness to have unsafe sex when they are sexually aroused (Gordon & Carey, 1996; MacDonald et al., 2000). Women
are less likely to request condom use when they’ve been drinking (Norris et al., 2009).

- Young adults are much more likely to engage in risky sex if their parents reject them for their sexual orientation (Ryan et al., 2009).

- Unmarried partners are less likely to use condoms if they perceive their relationship to be close or serious (Cooper & Orcutt, 2000; Misovich, Fisher, & Fisher, 1997).

- Decision making in sexual situations is often subject to nonrational processes, such as denial or wishful thinking (Blanton & Gerrard, 1997; Gold, Skinner, & Hinchy, 1999; Thompson et al., 1999). Sexual arousal and having an attractive partner decrease rationality in sexual decisions (Shuper & Fisher, 2008).

- Many individuals have maladaptive beliefs about their own low self-efficacy to use condoms and the effect that doing so would have on sexual pleasure and spontaneity (Kelly et al., 1991, 1995; Wulfert, Wan, & Backus, 1996).

- Many people, especially young women, are embarrassed to buy condoms and make errors putting them on a penis, such as not leaving a space at the tip and squeezing air out (Brackett, 2004; Grimley et al., 2005).

- The advent of medical treatments that lower viral load and prolong life has led to over-optimism in many individuals, leading them to think that protection is not so necessary anymore (Kalichman et al., 2007; Lightfoot et al., 2005).

People’s maladaptive beliefs are often clear when they recognize their behavior contradicts what experts say, so they add qualifiers, such as, “I know that’s what they say but …” or, “but in my case …” (Maticka-Tyndale, 1991).

### Basic Messages to Prevent HIV Infection

Major efforts have been introduced in most countries around the world to prevent HIV infection by having the mass media and health organizations provide information about several basic behaviors (Carey, 1999; Kalichman, 1998). First, people should avoid or reduce having sex outside of long-term monogamous relationships or, otherwise, to use “safer sex” practices with new partners. Safer sex involves selecting partners carefully, avoiding practices that may injure body tissues, and using condoms in vaginal and anal intercourse. Second, not all people who have the virus know they do, and not all of those who know they do tell their sexual partners (Ciccarone et al., 2003; Simoni et al., 1995). Third, drug users should not share a needle or syringe; if they do, they should be sure it is sterile. Fourth, women who could have been exposed to the virus should have their blood tested for the HIV antibody before becoming pregnant and, if the test is positive, avoid pregnancy. Much of this information has been designed to arouse fear, and it has in many people.

Do informational efforts change people’s HIV knowledge and behavior? In the United States, public health programs have been directed toward adolescents and young adults in the general population, intravenous drug users and their sexual partners, and gays and bisexuals. Although providing information to youth in the general population increases their knowledge about HIV (Yankah & Aggleton, 2008), most sexually experienced teenagers and young adults do not seem follow recommended precautions (Leigh et al., 1994). Other approaches try to convince teenagers to abstain from sex until marriage—often having them take “virginity

### Table 6.10 Percent of New HIV Infections by Exposure Mode for the United States and Some Regions of the World Where the Incidence Is High

<table>
<thead>
<tr>
<th>Exposure Mode</th>
<th>United States (56,300)</th>
<th>Eastern Europe and Central Asia (110,000)</th>
<th>Latin America (170,000)</th>
<th>South and South-East Asia (280,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male-to-male sex</td>
<td>41.7%</td>
<td>4%</td>
<td>26%</td>
<td>5%</td>
</tr>
<tr>
<td>Injection drug use</td>
<td>21.6%</td>
<td>67%</td>
<td>19%</td>
<td>22%</td>
</tr>
<tr>
<td>Heterosexual sex</td>
<td>30.9%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Sex workers/clients</td>
<td>NA</td>
<td>5%/7%</td>
<td>4%/13%</td>
<td>8%/41%</td>
</tr>
<tr>
<td>Other (see note)</td>
<td>5.9%</td>
<td>17%</td>
<td>38%</td>
<td>24%</td>
</tr>
</tbody>
</table>

*Data on exposure modes were available from the sources (below) only in 2006 reports and only for the country and regions included in the table. Regions for which exposure data were not available include sub-Saharan Africa, which at 1.9 million new cases has the highest incidence, but exposure there is mainly via heterosexual sex.

*Data for India were included in the number of new cases, but not exposure mode, which is mainly heterosexual sex, including with commercial sex workers.

Notes: NA = data not available; cases for this mode are included in one or more other exposure categories; “other” includes cases with more than one mode, making the actual exposure unclear, and cases of exposure at or soon after birth and via blood transfusion.

pledges”—or just reduce sexual risk, but these approaches are not effective in reducing sexual activity or risk (Rosenbaum, 2009. Underhill, Montgomery, & Operario, 2008). Although programs that focus on getting adolescents to abstain from or reduce their sexual activity can help for some people, efforts to promote condom use are more effective for teens who are sexually experienced (Jemmott, Jemmott, & Fong, 1999). A study found that men who had received school-based condom education in adolescence were less likely to contract sexually transmitted diseases (Dodge, Reece, & Herbenick, 2009).

Providing information about HIV has been more effective in reducing risky behaviors of intravenous drug users and gay men. Drug users have learned that sharing needles can transmit HIV and that there are ways to protect themselves (Des Jarlais & Semaan, 2008). In the United States, most of these people have begun to use sterile needles, reduce their drug use, or use drugs in other ways, such as by inhaling. The risk of HIV infection among drug users decreases if they can buy needles legally or exchange used needles for new ones (Des Jarlais & Semaan, 2008; Ksobiech, 2003). Although drug users’ caution may not extend readily to their sexual behavior, interventions that have addressed both issues have reduced their injection and sexual risk behaviors (Meader et al., 2010). Most drug users are heterosexual men, and their sexual partners often are women who know about the risks but feel powerless and are willing to go along with having unprotected sex (Logan, Cole, & Leukefeld, 2002).

Perhaps the best-organized efforts to change sexual practices have been directed at gay men, particularly in gay communities in large cities. This is partly because many gay social, political, and religious organizations existed before the AIDS epidemic began, and these groups became actively involved in public health campaigns to prevent the spread of the disease. These efforts have had a substantial impact. AIDS education and prevention campaigns with gay and bisexual men have reduced their sexual risk behavior markedly (Johnson et al., 2008), producing “the most profound modifications of personal health-related behaviors ever recorded” (Stall, Coates, & Hoff, 1988, p. 878).

**Focusing on Sociocultural Groups and Women**

Although more needs to be done to reduce HIV risk in urban gay men and intravenous drug users around the world, efforts must be intensified among heterosexual women and disadvantaged sociocultural groups (Alvarez et al., 2009. Logan, Cole, & Leukefeld, 2002. Raj, Amaro, & Reed, 2001). For minority groups in the United States, particularly African Americans and Hispanics, there can be added problems of lesser knowledge about risky behavior and suspicions concerning information from health care systems they believe have treated them badly (Boulware et al., 2003; Raj, Amaro, & Reed, 2001). Women are often vulnerable to HIV infection when they are with a male partner who resists using condoms, are socially or economically dependent on the man, and have less power in their relationships (Sikkema, 1998). A woman’s ability to protect herself from infection by asking for condom use under these circumstances is especially difficult if she lacks self-efficacy and the man interprets such requests negatively—for example, that she doesn’t care about him or thinks he’s been unfaithful (Neighbors, O’Leary, & Labouvie, 1999; O’Leary, Jemmott, & Jemmott, 2008).

Interventions have been tested with large numbers of Hispanic and African American women who met in small group sessions to enhance their motivation.
and interpersonal skills for adopting safer sex practices. Comparisons with women in control groups were made during subsequent months. Women who received the interventions were more likely to report using safer sex practices and to use coupons to redeem free condoms (Carey et al., 2000; Sikkema, Kelly et al., 2000); they were also less likely to develop STDs (chlamydia or gonorrhea) over the next year (Shain et al., 1999).

Making HIV Prevention More Effective

Many interventions provide individual counseling, such as motivational interviewing, to prevent HIV infection (Carey, 1999; Kelly & Kalichman, 2002). Although these methods are moderately effective in decreasing risky behavior, their success is mainly with men and women who are already infected (Weinhardt et al., 1999). Uninfected people who should reduce their risky sexual behavior often do not, and the reasons they don’t seem to be similar for homosexual and heterosexual individuals. We need to keep in mind that the vast majority of today’s new infections worldwide are in individuals who are neither gay nor intravenous drug users (UNAIDS, 2009).

How can programs to reduce the spread of HIV infection be made more effective? Prevention programs must provide information about HIV transmission and prevention, use techniques to increase people’s motivation to avoid unsafe sex, and teach behavioral and cognitive skills needed to perform preventive acts (Albarracín et al., 2005; Carey & Vanable, 2004). Some ways to enhance these features include:

- Tailoring the program to meet the needs of the sociocultural group being addressed (Raj, Amaro, & Reed, 2001).
- Involving the person’s family in the intervention (Dilorio et al., 2007; Prado et al., 2007).
- Giving strong emphasis to training in the actual skills individuals will need to resist having unsafe sex (Fisher et al., 1996; Kalichman, Rompa, & Coley, 1996; St. Lawrence et al., 2002).
- Using methods to reduce behaviors, such as alcohol and drug use, that increase the risk of unsafe sex (Morgenstern et al., 2009; Naar-King et al., 2006; Patrick & Maggs, 2009).
- Making sure the training is geared toward bolstering self-efficacy and advancing the individuals through the stages of change (Galavotti et al., 1995).
- Making use of experts who are like the program recipients—such as in ethnicity and gender—and respected or popular individuals as leaders to endorse the program and promote its acceptance by the recipients (Durantini et al., 2006; Kelly et al., 1997).
- Encouraging infected individuals to disclose their HIV status to prospective sexual partners (Kalichman & Nachimson, 1999).
- Using techniques to reduce nonrational influences in sexual decisions. For example, having people give advice publicly that contradicts their own behavior can reduce their future use of denial (Eitel & Friend, 1999).

SUMMARY

People’s behavior has an important impact on their health. Mortality from today’s leading causes of death could be markedly reduced if people would adopt a few health behaviors, such as not smoking, not drinking excessively, eating healthy diets, and exercising regularly. Although some individuals are fairly consistent in their practice of health-related behaviors, these behaviors can be quite changeable over time. Health-related behaviors that become well established often become habitual.

Health problems can be averted through three levels of prevention and can involve efforts by the individual and by his or her social network, physician, and other health professionals. Primary prevention consists of actions taken to avoid illness or injury. It can include public service announcements, genetic counseling, and a variety of health behaviors, such as using seat belts and performing breast or testicular self-examinations. Secondary prevention involves actions taken to identify and stop or reverse a health problem. It includes tests and treatments health professionals may conduct, as well as people’s visiting a physician when ill and taking medication as prescribed. Tertiary prevention consists of actions taken to contain or retard damage from a serious injury or advanced disease, prevent disability, and rehabilitate the patient.

People acquire health-related behaviors through modeling and through operant conditioning, whereby behavior changes because of its consequences: reinforcement, extinction, and punishment. Other determinants of these behaviors include genetic, social, emotional, and cognitive factors. Errors in symptom perception and ideas people have about illnesses can lead to health problems. People’s thinking about health and illness is not always logical—it often includes motivated reasoning, unrealistic optimism, and false hopes about their health. Unhealthful behaviors are not always planned and often depend on the person’s willingness to be drawn into an attractive situation.
Some theories focus on the role of health beliefs to account for people’s health-related behavior. The health belief model proposes that people take preventive action on the basis of their assessments of the threat of a health problem and the pros and cons of taking the action. Threat perceptions are based mainly on the person’s perceived seriousness of and susceptibility to the health problem. Assessing the pros and cons of the action involves weighing its perceived benefits and barriers. These assessments combine to determine the likelihood of preventive action. The theory of planned behavior proposes that health-related behaviors are determined by people’s intentions, which are a function of their attitudes regarding the behaviors, subjective norms, and self-efficacy. The stages of change model focuses on people’s readiness to modify their behavior, conflict theory focuses on the role of stress in decisions.

People’s age, sex, and sociocultural background also affect health-related behavior and need to be considered in programs for health promotion. Efforts to promote healthy behavior use information, fear appeals, motivational interviewing, and behavioral and cognitive methods, which can be applied with self-management procedures. But changes in behavior can be temporary; relapses can occur, partly via the abstinence-violation effect. Programs for health promotion can be effective in the schools and in worksites. Community-based wellness programs are designed to reach large numbers of people and improve their knowledge and practice of preventive behavior. The Three Community Study demonstrated that media campaigns can promote health, and subsequent research has also integrated extensive efforts by community organizations toward improving people’s preventive actions, such as in stemming the spread of AIDS.

**KEY TERMS**

- health behavior
- primary prevention
- secondary prevention
- tertiary prevention
- reinforcement
- extinction
- punishment
- health belief model
- theory of planned behavior
- stages of change model
- motivation reasoning
- false hopes
- willingness
- conflict theory
- motivational interviewing
- self-management
- relapse
- abstinence-violation effect