CHAPTER 2

How Theory Informs Health Promotion and Public Health Practice

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If vegetables tasted as good as bacon we would have an outbreak of good health.

—**Gary Larson**

PREVIEW

Health behaviors are diverse and sometimes complex, therefore fostering their adoption is a challenging process. The challenge often begins by understanding the multiple influences on any given health behavior. This understanding is facilitated by the use of theory, thus making theory an indispensable tool in public health and health promotion.

OBJECTIVES

1. Understand that health behaviors are diverse.
2. Understand proximal and distal influences on health behavior.
3. Describe the importance of theory in health promotion and understand how theory informs health-promotion practice and research.
4. Describe how challenges in health-promotion practice can be understood through the use of theory.
5. Understand and appreciate the use of theory in multilevel prevention approaches.

Introduction

In the past few decades, behavioral and social science theories have been used to advance our ability to achieve the public health objectives of the nation. Theory has become an indispensable tool for the development, implementation, and evaluation of public health initiatives because it enables researchers to better understand and change health behavior. Key documents, such as *Healthy People 2020*, inform health-promotion efforts in the United States and globally advocate for the application of theory. Theory can be used in diverse ways to achieve meaningful changes in behavior that translate into reduced morbidity and mortality at the population level. This chapter provides the contextual background needed to understand how public health—and specifically, health promotion—programs can be designed to change a broad range of health behaviors. Next, the chapter provides a framework for understanding how theory can most effectively be used to inform and guide interventions designed to reduce health risk behaviors associated with morbidity and mortality. Of note, in our experience, students learning about the use of theory in public health practice often feel "stuck" in a sea of terminology, but terms are simply a way to represent concepts. Thus, we suggest that the best way to feel confident about terminology is to have a firm grasp of the concepts behind the terms. Approach this chapter with great care as it prepares you for much of what follows in the rest of the text.

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Key Concepts

Health Behaviors Are Diverse

Based on what you learned in Chapter 1, you now understand that health behaviors are extremely complex and diverse. This diversity necessitates that an equally diverse range of theories be available for application in health-promotion practice and research. Indeed, students learning about theories used in health promotion typically ask, "Why do we need so many different theories?" The answer to this question becomes apparent upon considering the broad spectrum of differences among health behaviors. To represent this spectrum, we have identified three dimensions to health behavior: complexity, frequency, and volitionality. These three dimensions can be applied to illustrate the variation in health behaviors.

The first dimension is **complexity**. Behaviors may be highly complex, meaning they involve higher levels of knowledge, skill, or resources to perform than simple behaviors. Consider, for example, eating a low-sodium diet. Sodium is in many foods and at varying levels, so one challenge is to become educated on which foods are high in sodium and should be avoided. Another challenge to think about is how to know which foods are low in sodium and also good-tasting. Another example of a complex health behavior is using male condoms. The correct use of male condoms involves at least 10 steps. Multiple studies indicate that very few people perform all 10 steps correctly.

Not all behaviors are complex; some, such as getting vaccinated against influenza, brushing teeth, or wearing sunscreen, are less complex. The key lies in understanding that these behaviors are relatively easy to perform and may be viewed as less demanding in terms of necessary knowledge, skills, or resources.

A critical point here is that the dimension of complexity is not always inherent in the behavior, which may be counterintuitive. Complexity is

also a function of the environment. For example, boiling drinking water is not a complex behavior in a nation like the United States; however, in a resource-poor nation, boiling water could be considered complex given an absence of a reliable heat source or pots. Similarly, getting the flu vaccine may not be complex for a middle-class American, whereas the same behavior may be cost-prohibitive and logistically problematic for a person living in isolated, rural poverty. To make this picture complete, it is also vital to understand that complexity may vary as a function of the population. For example, the complexity of having a first mammogram for a woman who just turned 50 years of age is likely to be quite different compared to a woman having "just another mammogram" at age 65. Further, one 50-year-old woman may have ready access to preventive health care, while another may have no such access, thereby greatly magnifying the complexity level of this first mammogram.

In addition to the dimension of complexity, there is the second dimension of **frequency**. Health behaviors can be frequent and repetitive (diet and exercise), one time only (screening for radon), or periodic (obtaining a mammogram or having a flu shot). As you can observe, this second dimension greatly complicates things as a health behavior may be highly complex but require only infrequent repetition (being screened for colorectal cancer), or a behavior could be highly complex and require daily repetition (consuming a low-fat diet).

The concept of **volitionality** is yet another important dimension that can be used to differentiate between various health behaviors. Volitionality represents the degree of personal control over the behavior; specifically, a highly volitional behavior is one in which the person has complete control in performing the behavior—the behavior does not require external resources, assistance, or support. Conversely, behaviors that are low in volitionality require (to some extent) a reliance on external resources, assistance, or support. It is easy to imagine that many health behaviors fall into the latter category. An example of low volitionality may be consuming fresh fruits and vegetables, because performing this behavior requires having access to fresh fruit and vegetables, which are not always affordable or even available. Examples of highly volitional behaviors include flossing, using seat belts, and performing moderate indoor exercises.

Like the dimension of complexity, volitionality is very much tied to the environment. For example, the use of contraceptives for women can vary in terms of volitionality depending on the environment. In many cultures, the use of contraception may not be highly volitional for women because it is their male partners who have control over sexual behaviors and contraceptive-related decisions.

FIGURE 2-1 displays the three dimensions (complexity, frequency, and volitionality) with specific examples of behaviors that vary across these dimensions. In viewing this figure, it becomes clear that health behaviors are quite diverse. Thus, theories applied to the process of understanding and changing health behavior must also be equally diverse. The next section highlights the various dimensions to theory.

Theory Is Relevant at Multiple Levels

Much like health behaviors, theories are also diverse. Although a vast number of theories relevant to health behavior exist, each is somewhat unique in its approach to understanding and changing health behavior. An important paradigm for understanding this range of potential theories is based on the concept that theories can be applied at several "levels" within the environment. Environmental levels represent different influences on individual behavior. The concept of environmental levels is drawn from a classic model of an ecological approach to health promotion as popularized by Bronfenbrenner (1979). **FIGURE 2-2** displays this model.

The model suggests that outer levels influence inner levels all the way down to the individual ("I" in the innermost circle). Although the "I" is often construed as the "target" of all intervention efforts, it is important to note that making changes at any of the levels can

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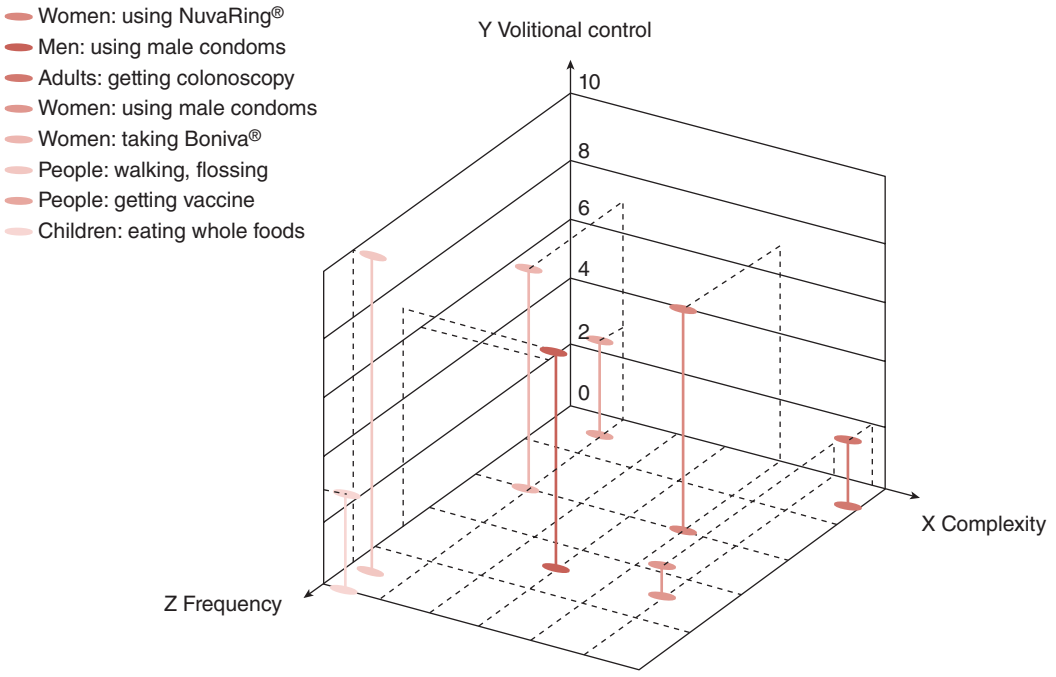

FIGURE 2-1 Three dimensions of health behavior

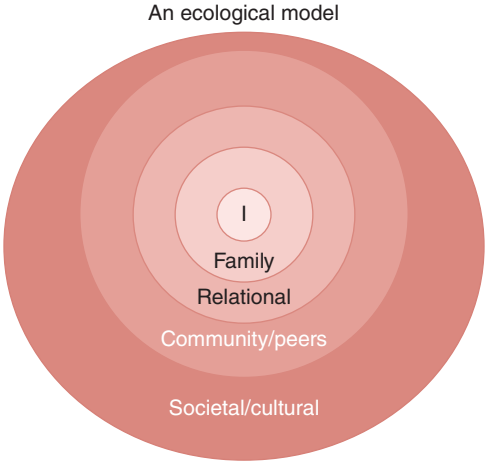

FIGURE 2-2 Socioecological model

influence individual health behavior. In essence, the model suggests that the outermost level influences all other levels and that the next outermost level influences all remaining levels, and so forth. The ultimate implication of this model is that interventions targeting multiple levels represent an ecological approach. Ecological approaches are widely believed to be more effective compared to single-level approaches and are representative of the new public health. A synonymous term is "multi-level approach," meaning that two or more levels of ecological influence are the targets of the planned health-promotion program.

An applied example will illustrate the principle of an ecological approach to understanding and changing health behavior. Consider the long-standing public health challenge of childhood obesity. Gittelsohon and colleagues (2014) designed and implemented an ecological (i.e., multi-level approach) intervention designed to prevent childhood obesity in the city of Baltimore, MD (USA). The intervention used four levels of influence: individual, household, institutional, and city policy. At the individual-level the targets of the intervention included knowledge, motivation, and skill relative to food selection. At the household-level the intervention sought to teach parents food preparation skills, and portion control measures, that would lead to healthier eating for their children. At the institutional-level targets included a variety of food outlets, including large and small grocery stores,

carryout food outlets, recreation centers that serve food, and even wholesale food distributors. Intensive efforts were made at the policy-level to create regulations designed to make healthy food options accessible and affordable.

This is an interesting study in that it provides a clear example of how a health behavior (food consumption) can be understood at multiple levels of causation. From an individual perspective, the behavior is highly resistant to long-term change; however, this multi-level perspective provides ample support structures that optimize the odds of changing the eating behaviors of children over time, and across large populations thereby providing a strong potential for actually lowering the prevalence of childhood obesity. Indeed, the dominant paradigm in health promotion is the use of as many levels as is feasible within a multi-level framework. Thus, theory selection is predicated upon the composition of the applicable levels that best describe a given health behavior.

Proximal Versus Distal Influences on Health Behavior

Many theories exist to understand and change factors found in the inner levels of Bronfenbrenner's ecological model that influence health behavior, whereas a markedly smaller number of theories exist to understand and change those factors located in the outer levels. Inner-level factors are called **proximal influences** because these influences are in close proximity to the individual ("I" level). Conversely, factors located in the outer levels are called **distal influences** because these influences do not always directly or immediately affect the individual due to their location in the model. For example, taxes on cigarettes and tobacco smoking regulations, as well as marketing regulations, are considered distal influences on the behavior of tobacco use. These influences have a broad impact that ultimately can affect tobacco use at the individual level.

The concept of outer levels influencing the inner levels is a key point here. For instance, taxes on tobacco (distal influence) may work through other variables, such as affecting a person's evaluation of the desirability of cigarettes. When a person begins to perceive that the cost of purchasing cigarettes outweighs the benefits, then he or she may decide to reduce smoking or even quit entirely. The distal influence may have led to the opinion that the "cost of cigarettes is too high." Because proximal influences demonstrate an immediate influence on the health behavior, the perception that the "cost is too high" would be considered a proximal influence on smoking reduction. Please note, however, that this proximal influence was the result of the distal influence of a tax increase. **BOX 2-1** displays several other examples that will help you gain a better understanding of the difference between proximal and distal influences on health behaviors.

To streamline health-promotion efforts, programs need to be designed so that the critical constructs (proximal and distal) are identified and the corresponding intervention methods and strategies for modifying these constructs can be implemented. This process can be overwhelming without the availability of a guide; therefore, the concept of theory-derived intervention activities has been widely embraced in health promotion. Theory keeps us from randomly attempting to change behavior. Indeed, theory helps us to develop an organized, systematic, and efficient approach to investigating health behaviors. Once these investigations produce satisfactory results and are replicated the findings can be used to inform the design of theory-based intervention programs.

Getting Started: An Inductive Approach to Defining the Problem

An inductive approach to defining the problem comprises three informal steps. The first is your own hunch about the nature of the health behavior in question and its underlying causes. The second is to think about the health behavior from a theoretical perspective. The third is to conduct an empirical evaluation (often relying on published literature) that suggests underlying causes of risk behavior

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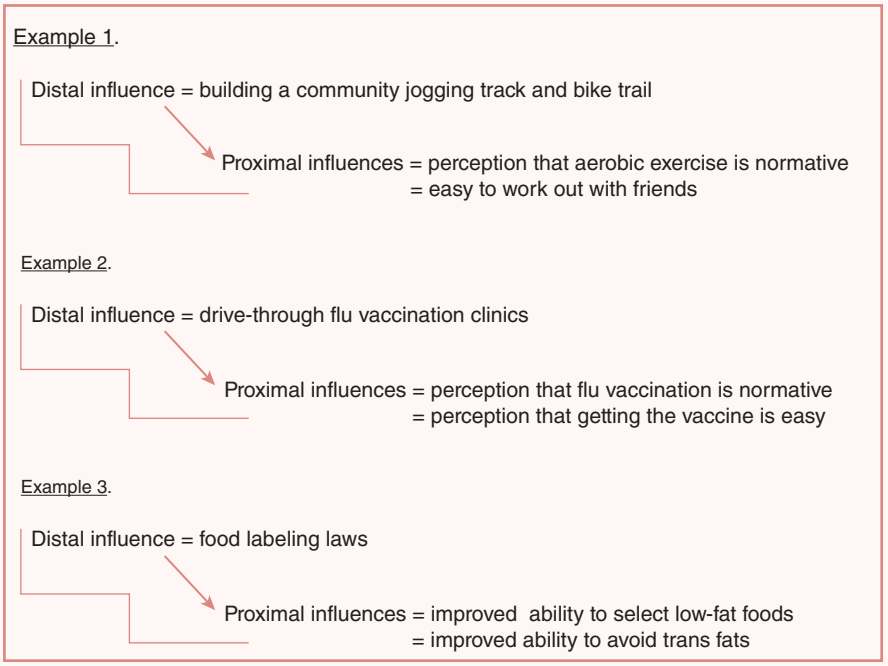
BOX 2-1 Examples of Distal and Proximal Influences



and potential antecedents to the adoption of health-protective behaviors. Collectively, the three steps serve the central and initial goal: to identify the determinants of the specific health behavior. Simply stated, **determinants** influence the health behavior; they are the levels of influence shown in Bronfenbrenner's ecological model. Therefore, the identification of determinants can greatly enhance our understanding of those factors that influence health behavior. Determinants should be targeted to affect behavior change; thus, it is the determinants that programs seek to change, not the behavior, per se. Although fostering health behavior change is the ultimate goal, that goal is achieved through planned strategies designed to change multiple determinants. By changing multiple determinants, the goal of lasting behavior change may indeed become a reality. As you will learn when reading Chapter 13 (a chapter that introduces the concept of intervention mapping), theory guides the process of identifying the determinants most likely to alter and support the long-term adoption of health-protective behaviors.

Determinants can be identified through an exercise that is best described by the phrase "determining the theory of the problem." Please note that the word "theory" is used in the generic sense here. Three methods constitute a theory-of-the-problem analysis: (1) literature reviews relevant to the behavior and the population, (2) formal needs assessments, including assessments at the community level and policy level, and (3) empirical investigations using theory as a guide. The last method is the crux of defining and understanding any given health behavior. Stated differently, an initial step is to understand the health behavior from the perspective of the target population and within the context of the relevant environmental factors. Many different theories can facilitate the identification of determinants of behavior. For example, the health belief model hypothesizes that perceived susceptibility to a health-related outcome (e.g., influenza) is one potential determinant of the health-related behavior (e.g., getting vaccinated). Theories of health behavior that identify determinants of risk or protective behaviors that are

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amenable to change can be very useful in providing program planners with a starting point for producing behavior change.

Determinants of health behavior may range from individual characteristics, such as knowledge, attitudes, and beliefs, to environmental factors such as family, friends, community, culture, and society. As such, an important question becomes, "Where do you start in finding those factors that are related to the health behavior?" A fundamental starting point in any health-promotion effort is to identify the relevant determinants by revealing the answers to questions such as:

- Do people perceive their current behavior as being risky or problematic and, if so, what are their perceptions?
- Are people sufficiently convinced that taking the recommended protective actions will truly be effective?
- What are the reinforcements for engaging in the current risk behaviors?
- What aspects of the immediate social, economic, physical, and legal environments detract from the ability to adopt protective behaviors?
- What aspects of the immediate social, economic, physical, and legal environments support the adoption of protective behaviors?
- What forms of self-confidence (self-efficacy) and actual skill are needed to attempt to perform the behavior in question?

Fortunately, the process of finding answers to these questions is streamlined by the use of theory. If, for example, preliminary investigations suggest that teen pregnancy often results from deliberate attempts to conceive rather than failed attempts at contraception, then a theory should be selected to help enrich this understanding. For instance, a rather popular theory known as social cognitive theory (SCT, see Chapter 8) has often been applied to the prevention of teen pregnancy. As applied to guiding an investigation of the preceding questions, SCT would dictate that a theoretical construct known as **self-efficacy** be examined. In this example, self-efficacy can be viewed as perceptions that teens hold about their ability to successfully manage pregnancy, childbearing, and parenthood in the context of modern society. Self-efficacy can also be investigated to advance our understanding relative to teens' acquisition and use of contraceptives, condoms, or even their self-control to abstain from sex. Further, an SCT-guided investigation would assess other factors (e.g., response efficacy, the expectation that condoms confer protection against pregnancy and sexually transmitted diseases, peer norms surrounding condom use) that reinforce both risk and protective behaviors among the target population of teens. Environmental factors such as access to contraception and condoms would also be assessed. In essence, the theory would direct the questions asked as part of the research process, and thus indirectly influence the identification of determinants. A word of caution, however, is warranted at this juncture in that the concept of "personal agency" that is implicit is the vast majority of theories used in health behavior may have very limited applicability in societies and cultures characterized by collectivism rather than individualism (DiClemente, Crosby, & Kegler, 2009).

Program Planning

A useful way for developing effective programs with theory is to consider several questions. These questions are characterized by a simple string of statements involving what, who, how, why, and when (see **TABLE 2-1**). Please be aware that Table 2-1 is only a starting point in the learning process.

Once the health behavior in question has been thoroughly analyzed regarding its cause, the next and final step is analyze how it can be changed to promote health. In this process the practitioner determines what has worked in the past to change identified determinants and identifies possible approaches or specific theories that could be applied in the pending program. As previously noted, mastery of multiple theories available in health promotion will optimize your ability

TABLE 2-1 Core Questions Addressed When Theory Is Used to Identify Program Objectives

Elements	Core Question and Meaning
What?	What are the most important socioecological changes that must occur to optimize the odds of program success? The use of any ecological approach requires that supportive structural changes be implemented as part of the planned program.
Who?	Who will be in direct contact with the target population? In essence, this element addresses the heart of the intervention—the actual change agent is the key to success and various theories posit differing agents.
How?	How will community support be gained and maintained? Various theories, models, and approaches exist to achieve the goal of initial and ongoing participation from key people (often referred to as "stakeholders").
Why?	Why might the program fail? The reality is that multiple factors may be immutable to short-term change and thus limit the odds of program success. This is particularly true with social capital, as well as economic and legal factors.
When?	When can the first and subsequent signs of program success be observed? Program planning theories and models provide insight regarding structured milestones that lead to the eventual achievement of a final goal. These milestones are connected to that maintenance of community support.

to affect meaningful behavior change. In essence, your task is to become well-versed in the application of the many "tools" that can be applied to your trade. Like any skilled craftsperson, a quality health-promotion program is built through the use of multiple and diverse tools. Thus, possessing a large repertoire of theory tools is imperative to effective practice. For example, a program may screen injection drug users for hepatitis C and then provide prevention case management to people testing positive. The theory-based needs of such a program may be quite modest compared to a health-promotion effort designed to reduce tobacco consumption. In the former scenario, the challenge is to prevent someone from transmitting the hepatitis C virus to others; this goal will most likely be achieved by conveying to the person a norm of safety relative to protecting others and providing him/her with a set of skills and resources designed to foster harm-reduction practices. Conversely, the latter scenario necessitates not only changing people, but also changing their environment; for example, increases in tobacco tax have been demonstrated to lower tobacco consumption and smoke-free ordinances have been shown to foster smoking cessation. In sum, the application of theory may be as discreet as individual counseling (as in the hepatitis C example) or as broad-based as changing policy and laws (as in the tobacco example). That theory exists across this broad spectrum is a vital point to remember in health-promotion practice.

Because health-promotion practice is vital to public health, the use of theory at multiple levels (see Chapter 13) is a task well-worth the time and resources. As a rule, an ecological approach (see Figure 2-2) should always be considered when program planning occurs. The concept of using the multiple levels within an ecological model

That theory exists across this broad spectrum is a vital point to remember in health-promotion practice.

implies the constant use of the individual level and varying degrees of other levels such as families, peer groups, entire communities, and even social structures such as culture and law. At this juncture, it may suddenly become very easy to get lost in a quagmire of seemingly similar terms such as multilevel, individual level, or environmental level. The picture becomes a bit more complicated by the common use of the term "ecological approach"; as such, please take a moment to carefully think about what you have learned so far by slowly reviewing the following text, as well as examining how the term "ecological approach" can now be fitted into this larger vision of health promotion. The term "multilevel" implies that at least two of the following levels of causation have been examined: individual, familial, relational, peer, community, societal, or policy/legal. When each of these levels is explored, relative to a single health behavior, a more complete understanding of the behavior is obtained. Furthermore, when interactions between the levels are examined, an even greater understanding of the health behavior occurs, thereby magnifying the odds that program planning and subsequent implementation of interventions will be successful. This concept of exploring all applicable levels and their interrelationships constitutes a true ecological approach to understanding health behavior. It is useful, if possible, to intervene at every level of the ecological model. For example, altering policy/legal (e.g., safety belt or child protective seat laws) may facilitate behavior change, although additional educational, persuasion, enforcement, and other actions may be needed to achieve optimal levels of change. Typically, policy/legal, built environments, and related actions can lead to significant changes in the environmental context of a given behavior and, as such, they are sometimes referred to as structural or environmental. Notably then, structural or environmental actions need to be fully explored and undertaken when feasible, as part of an ecological approach.

Theories provide program planners with a range of theory-derived hypothesized mediators that will become the targets of intervention efforts.

Hypothesized Mediators

The use of theory to identify determinants of health behaviors is critical to the success of a program. Stated more formally, theories provide program planners with a range of theory-derived hypothesized mediators that will become the targets of intervention efforts. The term "**mediator**" in this context represents the determinant targeted by the intervention and its association with the health behavior. If the determinant is theory-derived, it is correctly referred to as a **hypothesized mediator**. The hypothesized mediator "comes between" the intervention and the behavioral outcome. In essence, a change in health behavior is achieved by changing the hypothesized mediator associated with that specific behavior. **FIGURE 2-3** provides an example of this point.

After examining Figure 2-3, imagine that you next determine that perceived barriers to influenza vaccination are also important in determining vaccination. Thus, a second hypothesized mediator would be perceived barriers to vaccination. Out-of-pocket cost, for example, may be a common perceived barrier, with the program implication being that making the vaccine available at

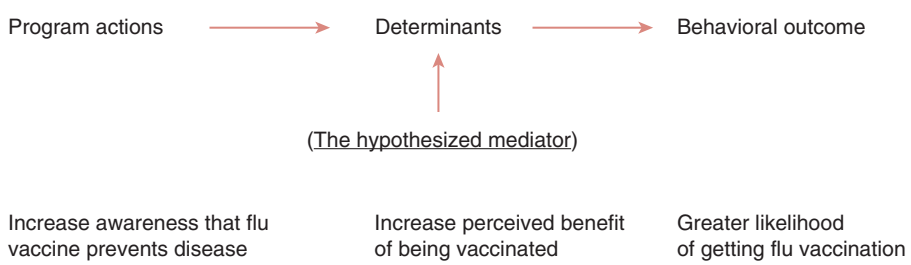

FIGURE 2-3 A simplified planning model for influencing vaccine acceptance

little or no cost to the person may be an effective strategy in enhancing the likelihood of vaccination. Other barriers may include access to vaccination sites. Program implications then become centered on enhancing access to vaccination by perhaps providing highly visible and convenient locations where people may receive vaccination (e.g., banks, supermarkets, public parks). These multiple actions would all be designed to reduce the number and magnitude of perceived barriers to influenza vaccination among people in the target community. Again, the expected behavioral action that would stem from a positive change in this hypothesized mediator would be greater likelihood of influenza vaccination among community members. Common hypothesized mediators in health-promotion practice include:

- Belief that the behaviors will produce the desired results
- The resources and ability to perform the behavior, possibly on a daily basis
- Social norms that provide reinforcement for the behavior
- The presence of structural factors that promote access needed to preform behaviors

Moving from Hypothesized Mediators to Objectives

Once the hypothesized mediators are identified, how are they used as a starting point for changing health behaviors? These hypothesized mediators are the platform for developing intervention objectives. An **objective** is a quantifiable action that, when achieved, will contribute to achieving behavior change. For example, consider the health behavior (especially important in developing countries) of breastfeeding. Suppose that a key hypothesized mediator of breastfeeding among first-time mothers is having the social support of women who have successfully breastfed their infants. The goal is to increase breastfeeding; thus, the intervention objective of enhancing the level of social support for this practice, especially among first-time mothers, becomes the guide to intervention planning. In this case, the objective would be to provide first-time mothers with social support (in various forms) and education in the process of breastfeeding their newborn infants. Some hypothesized mediators can be quite challenging to change, particularly if they involve health policy or laws. Yet even in these instances, guidance may be available based on insights from theory.

A second question then becomes, "Does theory also apply to this process?" The answer is yes. Theory is used very often in health promotion to guide the process of identifying and developing methods for changing hypothesized mediators. For instance, one theory that may be useful for creating a social support network is the Natural Helper model as described by Eng and Parker (2002). This model provides guidance in the process of using natural helpers (an informal network of people who already serve in this capacity and who are uniquely qualified to work with a specific population) to achieve a defined objective. In this example, the objective would be to increase social support, which theoretically would lead to the behavior change (e.g., adopting the practice of breastfeeding). Utilizing natural helpers would be the intervention to achieve the objective.

A second example to consider is the control of waterborne illness. In this case, one important health-protective behavior might be drinking bottled water rather than tap water. A likely hypothesized mediator might be the theoretical construct of **social norms**. Normative influences have a profound influence on all types of behavior, not just health behavior. In some places in the United States, the norm is to drink from the tap (faucet) and in other places drinking filtered or bottled water is the norm (although bottled water is falling out of favor because of the impact of plastic bottles on the environment). So, what if an outbreak of waterborne illness such as cryptosporidiosis or cholera (see **BOX 2-2**) necessitated that community residents accustomed to drinking tap water had to give up this practice or risk infection? The public health challenge would be to foster the use of filters, boiling water, or bottled water for drinking, cooking, and even brushing teeth. Although large segments of any given population may be receptive to this change, other segments may not be. Simply stated, the alternative may be contrary to the norms of their

BOX 2-2 *Cryptosporidium* and Cholera

Cryptosporidiosis is a gastrointestinal illness caused by parasitic protozoa of the genus *Cryptosporidium* and can produce watery diarrhea lasting 1–3 weeks; one or two cases per 100,000 population are reported annually in the United States. Fecal–oral transmission of *Cryptosporidium* oocysts occurs through ingestion of contaminated drinking or recreational water, consumption of contaminated food, and contact with infected persons or animals (e.g., cattle or sheep). Unlike bacterial pathogens, *Cryptosporidium* oocysts are resistant to chlorine disinfection and can survive for days in treated recreational water venues (e.g., public and residential swimming pools and community and commercial water parks). In 2006, a total of 18 cryptosporidiosis outbreaks were reported to the CDC.

Centers for Disease Control and Prevention. (2006). Cryptosporidiosis outbreaks associated with recreational water use—Five states, 2006. *Morbidity and Mortality Weekly Report, 56,* 729–732.

The cholera epidemic in Africa has lasted more than 30 years. In areas with inadequate sanitation, a cholera epidemic cannot be stopped immediately, and, although far fewer cases have been reported from Latin America and Asia in recent years, there are no signs that the global cholera pandemic will end soon. Major improvements in sewage and water treatment systems are needed in many countries to prevent future epidemic cholera.

The risk for cholera is very low for U.S. travelers visiting areas with epidemic cholera. When simple precautions are observed, contracting the disease is unlikely. All travelers to areas where cholera has occurred should observe the following recommendations:

- Drink only water that you have boiled or treated with chlorine or iodine. Other safe beverages include tea and coffee made with boiled water and carbonated, bottled beverages with no ice.
- Eat only foods that have been thoroughly cooked and are still hot, or fruit that you have peeled yourself.
- Avoid undercooked or raw fish or shellfish, including ceviche.
- Make sure all vegetables are cooked; avoid salads.
- Avoid foods and beverages from street vendors.
- Do not bring perishable seafood back to the United States.

A simple rule of thumb is "Boil it, cook it, peel it, or forget it."

Centers for Disease Control and Prevention. (2005). Cholera. Retrieved from http://www.cdc.gov/ncidod/dbmd/.cdc.gov/ncidod/dbmd/diseaseinfo/cholera_g.htm

community, network, group, or family, or not within their economic means.

At this point it is vital to understand that theory guides the identification of objectives that, if achieved, will lead to changes in the behavior. In this example, one theory-derived objective might be to foster the adoption of drinking bottled water among highly respected and visible community members who will model the new behaviors for others. This modeling effect may, in turn, foster a new social norm, consequently changing the behavior through the hypothesized mediator. Thus, theory gives direction to channel intervention efforts toward change in hypothesized mediators. **FIGURE 2-4** illustrates this point.

Theory guides the identification of objectives that, if achieved, will lead to changes in the behavior.

Once the program objectives are firmly in place, the intervention activities that will compose the health-promotion program can be created. Intervention activities may be classified as:

- Strategies
- Methods
- Tactics
- Technology-based tactics

These types of activities will be described in more detail in Chapter 13. For now, the critical concept is to understand that selecting and applying intervention activities is an art rather than a science. Wise use of intervention methods and

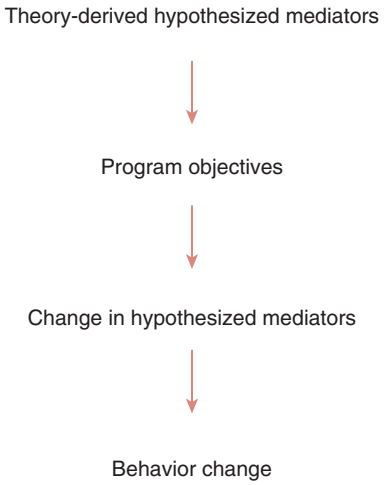

FIGURE 2-4 Sequence of events leading to behavior change

The ultimate success of a health-promotion program is in the hands of the practitioner, with the researcher playing a far less prominent role.

strategies is based on a thorough understanding of the target population and a learned sense of how to effectively communicate with members of that population. In essence, the ultimate success of a health-promotion program is in the hands of the practitioner, with the researcher playing a far less prominent role.

Key questions that may be answered through the use of theory, pertaining to the wise use of intervention activities, are:

- Who will actually conduct the intervention with members of the target population? Will these interveners be paid employees or volunteers?
- What structural-level supports should exist to optimize the odds that members of the target population will adopt the desired protective behaviors? What plans exist for sustaining these changes, and who is ultimately responsible for gaining the political and community support needed to make these changes?
- How will "buy in" from key community stakeholders be achieved and maintained throughout the intervention period? How will the program be institutionalized so that it evolves and continues within the target community after initial resources have been depleted?
- What are the short-term goals, intermediate goals, and long-term goals of the program, and how will progress toward these endpoints be monitored and achieved?
- What assets and liabilities exist, within the community, that are relevant to the overall success of the program as well as its short-term and intermediate goals?

Theories Have Differences and Similarities to Each Other

Any one theory described in this text can be said to possess unique properties that make it distinct from other theories. Various theories share common goals, but they typically employ differing approaches and use different constructs. Thus, theories are indeed as diverse as the range of potential challenges to changing health behavior. All too often students and professionals in public health become confused about theory, and their subsequent response is to learn one or two theories well and only apply these theories, irrespective of the health behaviors targeted or the hypothesized mediators identified, throughout their career. This is unfortunate because learning about theory need not be a complicated process at all. At their core, theories that identify hypothesized mediators of health behavior may share relatively similar constructs—understanding the similarities and differences form the basis for a much more efficient understanding and effective use of theories.

TABLE 2-2 provides a list of common theoretical constructs found in many of the theories often used to identify hypothesized mediators of health behavior. For example, many of these theories posit that people adopt a given health behavior, in part, based on a feeling of perceived threat. Threat is generally viewed by most theories to lead people to a contemplative stage that may involve a

TABLE 2-2 Common Theoretical Constructs

Elements	Meaning
Perceived threat*	This is the theoretical basis for all voluntary behavior change. When people can freely choose to reject unhealthy behaviors and adopt healthy behaviors, this shift must be motivated by some internal (cognitive) sense of impending trouble.
Self-efficacy	Adapted from social cognitive theory, this element simply represents a person's perceived ability to perform a health-protective behavior and/or to avoid a given risk behavior. This is not a generic trait of people; instead, self-efficacy is specific to the behavior under consideration.
Outcome expectations	Also adapted from social cognitive theory, the concept is simply described as the perceptions that people hold regarding personal gain if a given health-protective behavior is adopted or a given risk behavior is avoided. Gains can be physical, emotional, relational, social, or economic. Gains can also be short-term or longer-term.
Barriers to change	This concept of "cost" represents any and all disadvantages to adopting a health-protective behavior or avoiding a risk behavior. In the former scenario, these costs may be physical, emotional, relational, social, or economic; in the latter scenario, these costs typically comprise the perceived loss of a feeling or social connection that is highly valued.
Facilitators of change	These are the structural supports that enable change. They may involve access issues, social support, time, practical constraints, economic constraints, and even legal issues that preclude change.
Support to maintain change	These structural supports are specific to the ongoing practice of health-protective behaviors. For behaviors that require repetition, a host of social, economic, and legal supports are necessary to prevent relapse.

*Generally speaking, perceived threat is considered to be a combination of perceived severity (e.g., how bad is the disease or condition?) and perceived susceptibility (e.g., can "it" happen to me?).

personal assessment of self-efficacy to adopt the advocated health behavior(s). This contemplation is also hypothesized to involve a personal estimation of whether the anticipated positive outcomes of the recommended health behavior are likely to occur. The adoption of health behaviors becomes complex when several barriers that may preclude the behavior are identified. Although the barriers may be personal (e.g., lack of requisite skills), they are also quite likely to be structural (e.g., issues related to access, support, and economics). We urge you, however, to bear in mind that Table 2-2 is merely a starting point in the learning process—it provides a basis for an expanded understanding of theory that will result when considering the specific definitions, propositions, and application potentials of the theories described in this text.

Moving Toward an Ecological Approach

The primary function of an ecological approach is the use of every available means that has a reasonably strong potential to ultimately contribute to lasting behavior change. Although intervening with individuals, families, and even entire communities may seem to be standard-fare in health

promotion practice, the concept of changing key aspects of the environment is increasingly valuable paradigm. In many cases, changes to the environment can become powerful influences on health behavior; as such, one increasingly important role taken on by the health-promotion practitioner is to become an advocate for changes in policy, regulation, and legislation that enhance people's long-term adoption of health-protective behaviors. Past examples of policy-level changes that greatly influenced public health include the widespread fortification of table salt with iodine to prevent goiter (a thyroid disorder) or the addition of fluoride to water supplies to prevent tooth decay. Note that in each case the concept of changing a hypothesized mediator is moot because the behavior is not chosen (i.e., people do not consume salt with the intent to avoid goiter and they do not drink water with the intent to prevent tooth decay).

Ecological approaches may be most appropriate to the health behaviors that are complex, require frequent repetition, and require external resources, such as the challenging scenario of changing lifestyle behaviors such as those leading to obesity and diabetes. Consider the case of over eating. While identifying hypothesized mediators such as depression that may lead to overeating is an important individual-level strategy, other determinants may relate to poverty and access to healthy foods. The question, however, becomes whether these determinants can truly be classified as hypothesized mediators given that they may not be immediately amenable to change. This juncture is exactly where an ecological approach (including changes at the environmental-level) comes into play. Although it is beyond the scope of public health to eliminate poverty, it may well be possible to subsidize the cost of healthy (low-calorie) foods such as vegetables, and to advocate for policy that helps assure widespread access to these foods. The determinants may then be appropriately conceived of as hypothesized mediators.

The mediators, however, are not changed through the traditional route of individual-level intervention. Instead, the mediators are changed through means such as coalition-based advocacy. Thus, intervention activities that target the environment (broadly defined) may be quite useful. Some intervention activities may limit access to empty-calorie foods as has been the case in many school systems throughout the United States (Molnar & Garcia, 2006; Suarez-Balcazar et al., 2007; Wojcicki & Heyman, 2006). Another intervention activity may be providing extra taxes on "junk foods," thereby limiting access. Other approaches to averting the twin epidemics of diabetes and obesity involve promoting exercise behaviors. Various communities have recognized the value of an ecological approach to promote exercise and have invested substantial resources, both fiscal and human, in changing the physical environment to promote walking as part of daily life (Ashe et al., 2007; French, Story, & Jeffery, 2001; Lopez-Zetina, Lee, & Friis, 2006), use of stairs rather than elevators (Eves & Webb, 2006; Hultquist, Albright, & Thompson, 2005; Lang & Froelicher, 2005), and vigorous physical activity through the provisions of public tracks and recreation facilities. Again, the environmental change should be viewed as one aspect of a larger approach designed to encourage exercise on a daily basis.

Just as individuals are constrained by their economic reality, so too are public health professionals. Unfortunately, some of the most powerful approaches to health promotion may be far too expensive for use by public health professionals. Advertising, for example, may be tremendously efficacious in promoting high-calorie foods such as cheeseburgers (indeed, advertising may be directly responsible for making cheeseburgers a part of American culture). Clearly, media promotion of low-calorie food and drink is equally plausible, but funding for such a campaign would be meager in contrast to the money spent by the fast food industry to promote their high-calorie products. Other examples include policy changes such as federal subsidies for grocery stores to make fresh vegetables easily available to consumers (Kuchler, Abebayehu, & Harris, 2005; Seymour, 2004) and laws that regulate the physical location of fast food restaurants (Ashe, Jernigan, Kline, & Galaz, 2003; Hayne, Moran, & Ford, 2004).

A rapidly emerging solution to the public health issues that are ultimately caused by poverty and the corresponding inequities is the use of micro-finance programs. Globally, microfinance programs are being used to provide impoverished women with an economic starting point to open small businesses, thereby helping them to find a long-term solution to inequities. Because these inequities may be mediators of risky behaviors such as engaging in commercial sex work, the environmental-level solution of microfinancing provides a potentially powerful form of intervention.

In sum, theory is clearly a vital tool in health-promotion practice and research. Theory selection and use is best thought of as one essential part of program planning that guides intervention development. Theory should be thought of being objective-specific. In essence, "one size" (i.e., one theory) does not fit all needs. Because program objectives are inherently different from one another, a diverse selection of theories may be quite useful. Indeed, theory selection and application may become the backbone of the planning process.

Take Home Messages

- Health behavior is complex and three-dimensional.
- Because theory is always a tool and never an end product, health-promotion programs should begin with the essential question, "What theories are most likely to be most valuable in guiding the promotion effort?"
- The selected theories can be used in the process of mediator identification and then to guide efforts to change the identified mediators.
- Theory can be used to develop programs designed to promote relatively complex health behaviors that entail frequent repetition or, at the other extreme, those behaviors that are relatively infrequent.
- In addition, theory can be used to identify, and expand upon, opportunities where simple but meaningful changes can result in a favorable impact on health behavior.

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