

LEARNING OBJECTIVES

Upon completion of this chapter, you will be able to:

1. Define theory and concept.
2. Discuss the relationship between theory and concept.
3. Differentiate between a grand theory and a midrange theory.
4. Describe a model and its relationship to theory and concepts.
5. Define a schematic model.
6. Discuss the role of theories in health promotion and disease prevention.
7. Explain the development of the health belief model.
8. Reiterate the beliefs needed to promote health.
9. Define self-efficacy.
10. List three key variables of the expanded health belief model.
11. Provide three assumptions of the health promotion model.
12. Discuss the role theoretical propositions play in the health promotion model.
13. Explain the use of the PRECEDE-PROCEED framework.
14. Show the relationships between the propositions of the PRECEDE-PROCEED framework.
15. Discuss the various phases of the PRECEDE-PROCEED framework.

KEY TERMS



Bio-psycho-social-spiritual model
Clark wellness model
Concept
Conceptual model
Expanded health belief model
Grand theories
Health belief model
Health education model
Health promotion model
Hypothesis
Midrange theories
Model
Orem self-care model
PRECEDE-PROCEED framework
Schematic model
Self-determination theory
Self-efficacy
Stages of change theory
Theory
Theory of reasoned action
Value expectancy theory
Variables



CHAPTER 2

Concepts, Models, and Theories

- Introduction
- What Are Theories, Concepts, and Models?
- Nursing Theory
- Summary

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Introduction

In your nursing practice, you will use a set of ideas that explains what needs to be accomplished and how to best meet these goals. These ideas are expressed through concepts, theories, and models; we will begin by defining each of those terms before outlining key examples of each of these in health promotion.

Different sources define basic theoretical terminology in various ways, so this chapter will discuss the distinctions between these definitions. The goal of this chapter is to provide the theoretical foundation for health promotion concepts, theories, and models, and ways to apply them to research and practice.

What Are Theories, Concepts, and Models?

The word *theory* is misused and misunderstood. It is used colloquially to mean “an idea or explanation that someone has made up but has not proven.” In nursing and other scientific fields, such an unsupported explanation for a phenomenon is called a hypothesis or a proposition, not a theory.

In scientific terminology, an idea that explains or describes a phenomenon (an observable fact or event), is called a **concept**. Some sources describe a set of interrelated ideas as a concept. Concepts can be concrete (that is, able to be described or measured directly, using the five senses) or abstract (described using mental or theoretical constructs that do not exist in physical reality).

An excellent example of an abstract concept is “health,” which is complex and ever changing, and relates as much to the world of ideas and beliefs as it does to physical reality. Conversely, “table” is an example of a concrete concept; while tables can differ in size, shape, and materials, they are generally alike in function and overall appearance. An abstract idea is broader and less specific than a concrete idea. When discussing or developing concepts, be as specific as possible. Concepts are the building blocks of theory, because to develop a theory, you must test the validity of interrelated concepts. To test a concept, raise a question about the concept and then form a hypothesis or hunch about what the answer to that question might be. A **hypothesis** predicts the relationship of variables; the prediction is sometimes found to be true, false, or true, but not statistically significant. A **variable** is an attribute of the relationship between phenomena; for example, sunshine can be an attribute of depression. A hypothesis predicts how those variables interact with one another. When you test a hypothesis, you are trying to determine if the prediction is correct. If it is, then the study’s outcome supports a story about how certain variables behave

in relation to one another—and that story is the beginning of the theory. If the prediction is not correct, then you will need to develop a different theory, one that explains why the variables behave as they do, rather than as you expected.

For example, suppose you are working with a group of older adults in a nursing home. You observe that some of them like to spend a lot of time in the sun, while others prefer to stay indoors most of the time. You then observe that those who spend time in the sun seem happier and less depressed than those who do not. So you form a concept: exposure to sunlight improves mood in older adults. To test this concept, you develop a hypothesis that spending more time in the sun will make a positive change to their mood, and you ask the people who stay indoors to start going outside for a half hour to an hour each day to see if this occurs. After regular exposure to sunlight for a few weeks, you assess their mood. Do they seem happier, more cheerful? If the answer to that question is yes, then you have evidence that supports your hypothesis. If the answer to that question is no, then there are two possibilities: either something other than sunlight is making the difference in mood between the two groups, or the amount of sunlight exposure you have given the indoor group is not enough to make a difference. You could then go back and ask the indoor group to increase their time in the sun to see if that makes a change to their mood, and reassess again later.

But even if you get positive results to these tests, you still do not have a theory—yet. A concept supported by one piece of evidence isn't enough to make a theory. You need multiple tests, all of them successful, to show that your concept is valid, and you need to look further to identify other concepts that connect logically to your concept. You can either continue to do research into the effects of sunlight on older adults, or you can analyze research findings by others to see if their work also supports your hypothesis. This action will help you to determine if they have well-supported concepts that help to explain why your observations occur.

When you can connect a set of concepts that are well supported by evidence and observations, and hold up in the face of testing and challenges, *then* you have a theory. In this case, you have a theory about the benefits of sunlight for the mental health of older adults, as shown by not one, but numerous observations of the relationship between mood and light exposure.

As new observations are generated by continued research, they can be tested against the theory to see if they support it or not. If they do not, new theoretical constructs must be developed to explain how everything fits together. But even if they do, the development of the theory is not the end of the road; it becomes instead a starting point for generating new hypotheses about how the relationship you have observed came about, why and how it works, and how it may be used to improve the health and well-being of people other than those involved in the research.

A **theory**, then, is a way to organize a set of ideas or concepts, explain complex sets of research findings, and assist in developing and testing new hypotheses.

Identifying and Controlling for Variability: The Importance of Variables

If there are too many uncontrolled or unidentified variables affecting the relationship you are investigating, then the potential alternative explanations also weaken your theory.

□ How Variables Affect Hypotheses: An Example

Your research question sought to explain the relationship between mood (variable *A*) and sunlight exposure (variable *B*). Your hypothesis proposes that variable *A* has a relationship with variable *B* that can be described this way: *B* acts upon *A* and alters it in a positive direction. Put another way, you are suggesting that if you add more of variable *B* (sunlight) to the people in your study population, you will see an improvement or positive increase in variable *A* (mood). Here, variable *B* is the independent variable because it is the variable you change, while variable *A* is the dependent variable because what you observe about that variable depends on what changes you apply.

There are other independent variables beyond sunlight exposure that could be affecting the dependent variable, and you need to take them into account before you can focus on the proposed relationship between *B* and *A*. Your study population consisted of older adults living in an assisted living facility. Right there, you have identified two specific attributes, or variables, that could affect the relationship you're concerned about: (1) the general age of the individuals under study (variable *C*), and (2) the circumstances in which the study participants live (variable *D*).

Age is a key health-related variable because the human body and mind change dramatically over time. You would not expect a group of 5-year-old children to behave, whether physically, mentally, emotionally, or spiritually, in the same ways as a group of 80-year-olds, simply because they are at different developmental and life stages. You would expect variation between these two groups simply because of differences in age—and that is why age is such an important variable in health promotion studies. One reason age is an important attribute in this population is that the skin's ability to absorb sunlight often decreases with age. It is important to make sure that all participants are within the same age/developmental stage of life, older adulthood. You might want to further refine this variable by grouping the subjects by decade, so that you would compare people aged 50–59, 60–69, 70–79, and 80+ to one

another, instead of assuming that individuals ranging in age across 40 years were all alike.

The circumstances (or environment) in which the study group lives is an important variable, too. You might not expect people who live in different households, different communities, or different regions to behave in similar ways, but those who live in the same or similar settings—such as an assisted living facility—might be expected to have more in common with one another than those who do not. For example, you would expect all of the people living in this facility to eat similar foods, go to bed at the same time, and participate in similar activities. A certain amount of variation is possible among the residents of this facility. A 75-year-old man with rheumatoid arthritis and diabetes may differ in many respects from a 99-year-old woman whose health is good, but who lives in the facility because she lacks social support to help her care for herself on a day-to-day basis. But overall, by virtue of the fact that they share living circumstances, you could reasonably assume that these two people do not have major differences in lifestyle unless one has chronic insomnia and the other has relatives who sneak food into the facility.

Why is that important? Because of the apples-to-oranges rule. Simply put, when you are conducting a study to identify a relationship between two variables, you want to limit the number of other variables that could be affecting the relationship by ensuring that the subjects in your study are as similar as possible. In other words, you want to compare apples to apples and oranges to oranges, but you do *not* want to compare apples to oranges, because such major differences between subjects introduces another key variable that could alter the observed outcome of your comparison. If the 75-year-old man and 99-year-old woman did not live in the same environment, they could have very different lifestyles, so they would be less appropriate for comparison.

Considering these two individuals brings up another point. There are both men and women in this facility. Could the gender of the participants matter in how sunlight affects mood? Well, yes, it could; men and women have different neurological and psychological profiles, and women in general have a higher rate of depression than men. A study in Australia suggests this difference may diminish with age (Pachana, McLaughlin, Leung, Byrne, & Dobson, 2012), but it is unclear whether this applies to the U.S. population as well. So it would probably be best to assume that gender is a variable, *E*, that might affect the outcome of the study. You can eliminate its effects very simply by analyzing the study participants separately according to gender—comparing men to men and women to women—to see whether you find differences in the results based on gender. Taking such steps to make study participants more similar to one another is called controlling for variability. If you cannot select subjects that are all similar, you can use statistical analyses to find out whether their differences truly matter when it comes to the problem you are studying.

Here's another example of how that works. Let us say that this facility houses about 200 people, who come from all races and ethnic backgrounds—Asian Americans, African Americans, Latinos, Caucasians, Native Americans, people of mixed race, and so forth. Is race a variable to consider? Well, it could be. Different races absorb sunlight into skin at different rates because of the amount of melanin (protective skin pigment) in their skin cells. Very dark-skinned people are known, from vitamin D studies, to require as much as an hour in sunlight to generate the same amount of vitamin D synthesis as Caucasians—and vitamin D synthesis is a possible explanation for the proposed effect of sunlight upon mood. If your population of 200 is very diverse, with no more than two-thirds belonging to any one ethnic group, you may also want to come up with a way of categorizing your subjects by skin pigmentation as a way of controlling for variation in skin color (variable F) for your study.

On the other hand, if you have a population of 200 people, and 190 of them are White, then you would probably do better to lump everyone together without considering skin color because the number of participants whose skin color could be a mitigating factor is fairly small—less than 1% of the group—so skin color is unlikely to be a significant cause of variation in this group.

You could find other differences and distinctions in the study population that you could name as variables G through Z and beyond—but that would not be helpful to the purpose of the study. Ideally, you would want to identify only those key variables that had the potential to strongly affect the study outcome, categorize the participants so that the differences between and among them are diminished, and then perform your tests. The tests themselves would be set up to reduce the chance of variation; for example, you would ask all of your participants who were going out into the sunlight to do so for the same amount of time, at the same time of day, during the same season, to avoid variation in the amount and intensity of sunlight to which the participants are exposed.

□ Statistics and Evidence: Not All Hypotheses Are Created Equal

A theory is only as strong as the evidence that supports it, and the evidence, in turn, is only as strong as the hypotheses and data collection that formed it. You can see from the previous example that developing hypotheses about phenomena may seem simple, but actually testing the hypothesis in order to develop or support a theory can be complicated.

Develop a solid understanding of statistics and statistical methods to identify for yourself what qualifies as solid (versus questionable) evidence. Whether conducting your own research or reviewing someone else's, always look at what variables the study or studies took into account, focusing on these two important questions: (1) how were key variables identified, and (2) what was done to reduce the effects of, or control for, these variables?

At minimum, study participants should be similar in age, gender, and ethnicity; other common variables that are often taken into account include education, socioeconomic status, and the presence or absence of specific diseases or physiologic conditions or states (for example, whether a woman has given birth or has passed through menopause). On the other hand, very large studies, which tend to include a broader cross-section of the population, should include some type of analysis differentiating groups along these lines as part of the study.

We discuss this later in the text, but one great resource is a collection of articles from the *New England Journal of Medicine's* archives, published under the title *Medical Uses of Statistics* (Bailar & Hoaglin, 2009), which offers a clear explanation of many different aspects of study design and statistical methods.

When Is a Theory Not a Theory? When It Is Theory

Looking at variables when you are talking about theories is sort of like considering the molecular structure of an object: It tells you what that object is composed of, but it does not tell you what that object is. Examining the object itself—the specific theory—does not really give you a sense of its place in the universe.

For that, turn to generalized theory. Our earlier definition of a theory as a set of concepts that have been tested and are supported by evidence is a concrete concept. It should not be confused with the idea of general theory, which itself is an abstract concept based upon generalization about the nature of theories. As an abstract concept, theory can be defined a number of ways:

- Theory is systematically organized knowledge applicable in a relatively wide variety of circumstances devised to analyze, predict, or otherwise explain the nature of behavior of a specified set of phenomena that could be used as the basis for action (vanRyn & Heaney, 1992).
- Theory is a systematic collection of concepts and relationships, also known as propositions; they form a set of statements about how some part of the world works (Powers & Knapp, 1995).
- Theory is a set of interrelated propositions, including concepts that describe, explain, or predict a phenomenon (Glanz, Rimer, & Lewis, 1997).

From these definitions, you can conclude the following:

1. *Theory is complex.* Each definition emphasizes the presence of multiple ideas, concepts, or propositions.
2. *Theory is systematic.* The nature of theory as an organizing principle is underscored in each description.
3. *Theory describes relationships between components.* Simply listing ideas or concepts does not establish theory; development of a theoretical construct is a creative process that describes how the parts work together

to form a working whole—one that consistently fits with observed phenomena.

In the concrete sense, theories are used in any discipline to organize its body of knowledge in a scientific manner and to help establish an empirical (observation- or experience-based) background about a specific phenomenon. So the image or idea is a concept, and the connections between concepts describe a theory. The traditional definition of theory that has been used in education is actually the interweaving of at least two concepts per theory, to provide that image or example.

In the abstract sense, theory is what links practice to research. As a nurse, you will make decisions about how to work with a client depending on the theory that informs your practice. For example, if you are a proponent of Dossey's (2008) theory of integral nursing, you support the idea that there are four factors that define an individual's integral self (interior self, exterior self, self in relation to others, and self in relation to systems). As such, you would work in the context of that theory's core concepts, both by maintaining awareness and promoting care of the client's integral self.

You may also make use of one or more concrete theories to help make decisions about what activities to undertake in helping the client's specific problem. For example, if the client has an addiction problem, you may call upon the 12-step process originally developed by Alcoholics Anonymous (Krentzman et al., 2010), and adapted by other treatment methods, to guide the client toward better health. You may also make use of activities grounded in other theories that have proven helpful in treating addictions, such as the stages of change theory (described later in this chapter).

Why offer the client alternatives based in a variety of theories? This is important because integral nursing theory promotes addressing *all* aspects of the client's self in treatment.

INFORMATION BOX 2-1

» [HTTP://www.nurses.info/nursing_theory.htm](http://www.nurses.info/nursing_theory.htm)

This site has a compilation of worldwide information on nursing theories, models, research resources, and links to other nursing theory websites. It is a useful site for finding just that right theory or model.

Nursing Theory

Much of modern nursing theory was developed in the 1980s and 1990s and correlates with the increase in PhD and EdD programs in nursing. Most of

nursing theory focuses on explaining phenomena related to clinical practice, but while specific theories can spring from observations made in the clinical setting, they cannot be applied to clinical practice until they have been tested via research.

Nursing theory has two traditional types: grand and middle range (mid-range). **Grand theories** are all-inclusive, conceptual structures that describe and explain large segments of the human experience. Grand theories are very abstract and tend to form the core of a knowledge base. Some examples of grand theories are Dossey's (2008) theory of integral nursing (described previously), Roy's (1999; Roy & Andrews, 1991) adaptation theory, and Leininger and McFarland's (1996) cultural care and diversity and universality theory. Conversely, **midrange theories** are less abstract, more focused, and lead to a narrow explanation of a specific phenomenon. Many times, midrange theories are more attractive for a researcher because they are very specific and concrete, making them ideal to be used as a theoretical framework (see the next section) to guide a study. Midrange theories include resilience theory and the theory of uncertainty in illness.

What Is a Theoretical Framework?

If you are a researcher who wishes to test or develop a hypothesis or theory, you need to create a logical set of actions and analyses that will allow you to gather data from your research subjects, analyze the data to ascertain the relationships between and among these subjects, and draw meaningful conclusions about these relationships. These conclusions will become evidence in support of (or refuting of) your hypothesis or theory. The theoretical framework is a representation of all of the factors that determine what this set of actions and analyses can be. It consists of the following:

1. The question or problem you wish to investigate
2. Concepts that underlie the theory or hypothesis that you plan to test
3. Findings from prior research on your subject or on related subjects (scientific literature)
4. The set of variables you have identified as affecting your problem or question
5. The relationships between/among variables and concepts that you or other researchers have already identified
6. Assumptions and biases that you identify in yourself as a researcher, or that you are aware your data set might contain

The point of creating the theoretical framework is to clearly delineate exactly what you as the researcher are attempting to describe or measure, so that the limits or parameters of the research problem are laid out and made clear. The theoretical framework outlines or encompasses the problem you are seeking to address.

□ The Theoretical Framework Structure: A Fictional Case

Suppose that 15 years ago, eminent scientist C. Georgiana Monquey, RN, PhD, discovered a previously unknown enzyme, found in bananas, that she has named platanoase. Dr. Monquey has done many years of research studies consisting of repeated series of in vitro experiments (that is, experiments done in test tubes and petri dishes) and in vivo experiments (experiments done on living creatures) in mice to determine what platanoase does in the human body. Her findings suggest that this enzyme appears to have a key role in activating killer T cells, the immune cells that eliminate viral infections.

Dr. Monquey now wants to find out if platanoase works in people the way it works in test tubes and lab mice. She proposes that if schoolchildren, who are notoriously susceptible to viruses, eat more bananas, they will have more platanoase available in their bodies, and that this will result in stronger immune protection against viruses. She intends to test this hypothesis by randomly feeding or withholding bananas from a group of school children at Yellowhat School and keeping track on how often members of either group of children get sick.

Dr. Monquey's theoretical framework is built upon the following factors:

1. The concept that many childhood illnesses are caused by viral infections
2. Research findings that show that platanoase affects killer T cell functioning in vitro and in vivo
3. The proposition (assumption) that a response seen in a test tube and in a mouse will also be seen in a human child
4. The concept of the ability to alter bodily system functioning via nutritional inputs
5. The proposition (theory) that there is a cause-and-effect relationship between what the children eat and how their immune system responds to viruses
6. The proposition (hypothesis) that eating a specific food (bananas) will result in a specific change to the immune response (improved resistance to viruses)

Some of Dr. Monquey's framework factors are clear-cut: It is well known that many childhood illnesses are caused by viral infections, for example. Her own work on how platanoase affects killer T cell function might be strong or weak, depending on how often she ran the experiments and how carefully she obtained and analyzed this data. For the sake of this example, let us imagine that her work in this area has held up to scrutiny and received wide acceptance. So we can include this scientific knowledge of the actions of platanoase as a more solid piece of this framework.

Less solid are the remaining four contributing factors. It is often the case that relationships found in vitro and in experiments on lab animals *do* translate to the same response in humans, but it is equally common that they do not, or

that the response is present but weaker or stronger in humans. Dr. Monquey may need to present evidence supporting the idea that it is likely that the children will show the same response to platanoase as the mice did. Also, while there is some evidence that diet determines the capacity of bodily systems to function well, the idea that specific nutrient inputs have direct effects is open for debate. Yet, evidence gathered from randomized trials supports a valid association of a Mediterranean dietary pattern with CHD (Mente, deKoning, Shannon & Anand, 2009).

Dr. Monquey will need to argue the case based on research evidence she uncovers in the scientific literature if she wishes to use this idea in support of her study of platanoase. Dr. Monquey's research methods should take into account the fact that her theoretical framework contains a few debatable factors and potential variables that need to be addressed.

In the course of designing and implementing her study, she may find that there are variables she hasn't considered. For example, what if she randomly assigns some students to the no bananas group and others to the bananas group, only to discover that half of the no bananas group loves bananas and eats them at home when they are not at school participating in the study? If she's right that bananas have a powerful effect on immunity, the fact that non-banana-eating study participants are actually eating bananas could skew (alter) the study results. Or, what if one teacher, Mrs. Jones, is a germaphobe who makes her students wash their hands six times a day, while another, Mrs. Smith, is so disorganized, it is a miracle if any of her students wash their hands even once during the day? Frequent hand washing is known to help protect against virus transmission, so this factor might also skew the study results. If Dr. Monquey creates her framework by taking these variables into consideration, she may anticipate such biases and take steps to eliminate them.

□ Theoretical Frameworks and Evidence-Based Practice

All of this matters because when you develop programs for health promotion of individuals, families, and communities they must be based partly upon the theories about how clients function, learn, and change, and partly upon the research findings and experiences of those who have been in practice before and alongside them. It is vital for you to assess the validity of existing methods of addressing and promoting health.

Evidence-based practice means doing exactly that—reviewing the evidence found in research and clinical experience and using it as the basis of deciding how to help clients. We will discuss the nature of healthcare evidence later in this text, but here, the important message is that theory is not the be-all and end-all of nursing and health promotion—theory and evidence-based practice must go hand in hand for you to be effective.

Health Promotion Theory

Theories are used in health promotion to understand, guide, and explain health promotion at the individual, family, and community level. Theories are used and applied in multiple ways in health promotion. The theories can help researchers in understanding with whom they may be working, in guiding the selection and development of the appropriate health-promotion strategy, and in explaining the factors promoting and inhibiting change in the sample being studied.

Health promotion theories come from a multitude of disciplines, primarily behavioral and social sciences, specifically from psychology, sociology, management, and political science. This diverse group reflects that health promotion is not only concerned with just a specific individual's health behavior, but also with the organization of society and the role of policy and organizational and community structures in promoting health. These approaches are theories in that they are continually being tested empirically.

What Is the Difference Between a Theory and a Model?

A model for a building lays out all of the structural components under construction. A **model** for health promotion similarly outlines the structural components of a health phenomenon. If theory's goal is to determine how and why phenomena occur, then the goal of modeling is to identify the structure or composition of the phenomenon under investigation.

Types of Models

Modeling can also be used to organize concepts that do not have formal relationships established—that is, that are not held within the structure of a theory. A **conceptual model** is a less formal way of organizing ideas or concepts than the theories themselves. Conceptual modeling of this kind might be considered a pretheory in that it is used to help develop the hypotheses that, once tested, can support the formulation of theories. Conceptual models deal with concepts that are placed together because of their relevance to a common theme.

Conceptual models are not readily observable in the empirical world. In our fictional example of Dr. Monquey's banana enzymes, her idea of testing the effects of platanoase on immunity by feeding it to children is based on the conceptual model of animal testing. Not until she tried out her ideas with animals did she consider using a human sample because developing a research strategy without doing the preliminary step first might prove to be a waste of time and research dollars. Conceptual models are very important in helping to formulate a hypothesis for research, and they can help refine the direction in which research goes.

A **schematic model** is a visual representation that uses concepts as building blocks but models the relationships between them using a minimal number of words. All types of research use schematic models. A list of concepts using boxes, arrows, or symbols to define the linkages is an example. Schematic models are also referred to as conceptual maps or conceptual frameworks. In nursing, there are multiple theoretical approaches, so the terms conceptual models, conceptual frameworks, and schematic models are used interchangeably.

FIGURE 2-1 is an example of a schematic model of factors affecting successful weight loss. In this model, a number of factors that affect an individual's ability to lose weight are depicted as boxes, and their relationships with one another are shown by means of arrows. Does the model encompass all factors? Probably not—but it outlines the interaction of a number of important, inter-related factors so that it becomes easier to think about them and consider how they work in the real world. The model itself does not offer any practical tips

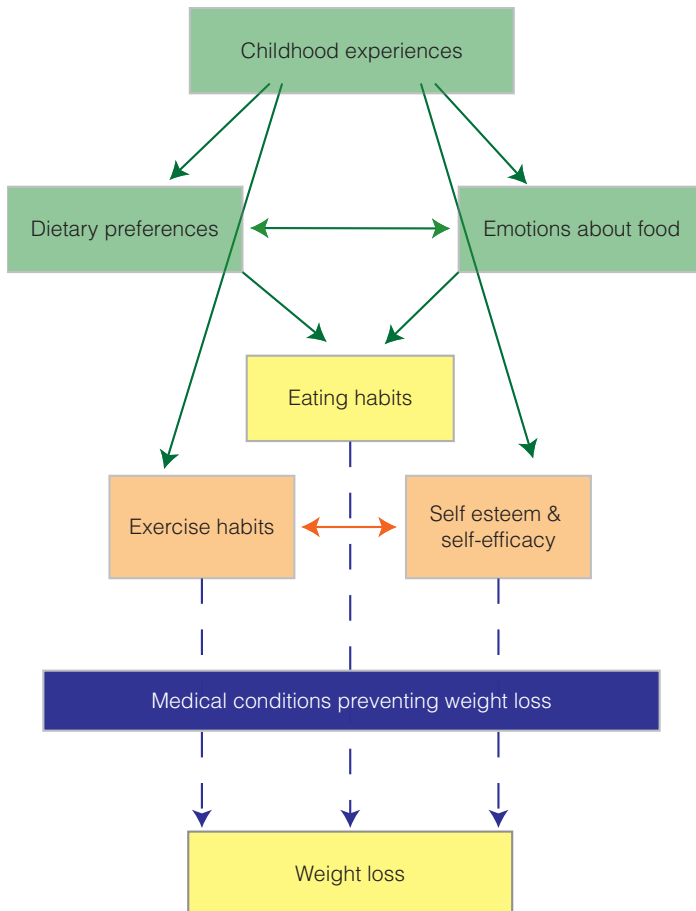


FIGURE 2-1 An example of a schematic model of factors affecting successful weight loss.

for how to work with a specific client, but it does provide suggestions as to what factors may need to be considered, discussed, and addressed.

RESEARCH BOX 2-1 Research Example: Health Promotion for Kidney Stones

- » **STUDY PURPOSE:** Lack of fluid intake is an important factor in the development of kidney stones, but many factors can interfere with this health promotion action.
- » **POPULATION:** Clients with kidney stones from an academic and a community practice were recruited for key informant interviews and focus groups.
- » **CONCEPTUAL FRAMEWORK:** Groups were guided based on the framework of the health belief model. Content analysis was done on transcriptions using qualitative data analysis software.
- » **PROCEDURE:** Key informant interviews were completed with 16 patients and with a total of 29 subjects in 5 focus groups. Content analysis revealed that all participants were highly motivated to prevent stones.
- » **FINDINGS:** An important strategy to increase fluid intake was insuring fluid availability by providing containers. Participants were more consistently confident in the ability to increase fluid, in contrast to ingesting medicine or changing the diet. While barriers to increasing fluid were multifactorial among individuals, the barriers aligned into three progressive stages that were associated with distinct patient characteristics. Stage 1 barriers included not knowing the benefits of fluid or not remembering to drink. Stage 2 barriers included disliking the taste of water, lack of thirst, and lack of availability. Stage 3 barriers included the need to void frequently and related workplace disruptions.
- » **CONCLUSIONS:** Clients with kidney stones are highly motivated to prevent recurrence and were more amenable to fluid intake change than to another dietary or pharmaceutical intervention. Barriers preventing fluid intake success aligned into three progressive stages. Tailoring fluid intake and counseling based on patient stage may improve fluid intake behavior.

Source: McCauley, L. R., Dyer, A. J., Stern, K., Hicks, T., & Nguyen, M. M. (2012). Factors influencing fluid intake behavior among kidney stone formers. *Journal of Urology*, 187(4), 1282–1286.

HEALTH PROMOTION CHALLENGE



How could you use the information from this study to tailor your work with clients who are at risk for kidney stones? What could you do to make water more palatable? What kind of information would you give these clients?

Theories and Models Used in Nursing and Health Promotion

There are entire books devoted to nursing theory and models, so we cannot hope to provide a comprehensive description of the full body of nursing theory available. Instead, we will briefly touch upon those theories and models that are important components of health promotion practice, because familiarity with their concepts will help to support the discussions in later chapters. Note that the theories described here are midrange theories that focus on how human behavior can be changed and influenced—so an understanding of these theories has direct consequences for how you approach health promotion. Grand theories are beyond the scope of this chapter, and for the most part lack direct utility for health promotion practice.

Self-Determination Theory

Self-determination theory suggests that every person has three basic psychological needs that must be satisfied to foster well-being and health (Baumeister & Leary, 1995; Deci & Vansteenkiste, 2004). These are:

1. Competence, defined as a feeling of being effective in dealing with the environment or situation
2. Relatedness, defined as the wish to interact with, be connected to, or experience caring for and by others
3. Autonomy, defined as the universal urge to be the principal actors in our own life and act in ways that harmonize with our integrated self—that is, according to our values, morals, and cultural norms

Self-determination theory makes distinctions between different types of motivation and the consequences of actions that spring from them. Extrinsic motivation comes from external sources—for example, the desire for a good grade or payment can motivate individuals to do work they otherwise would have no interest in doing. The work itself is not the source of the reward or motivating factor. Intrinsic motivation, on the other hand, is motivation that comes from within. Intrinsic motivating factors include the pleasures felt upon doing something one enjoys as well as the natural, inherent drive to seek out challenges and new possibilities that are associated with cognitive and social development.

In this theory, motivation is a key determinant of behavior, so it is also a major factor in health promotion activities. You may want clients to engage in specific behaviors, but they may feel no motivation to do so—even if they understand why the behavior will benefit health. The promise of an extrinsic factor—“You’ll be able to return to hiking and playing tennis after you complete 10 weeks of physical therapy.”—may seem too remote or unreal in comparison to the challenge or obstacle presented by the desired behavior.

Deci and colleagues found that providing an emotionally meaningful reason for engaging in otherwise uninteresting behavior, along with support for a sense of autonomy and relatedness, can lead to internalization of the motivating factors and result in positive, integrated behaviors (Deci & Vansteenkiste, 2004; Jang, 2008). To help the client in the example to engage in health behaviors that are uninteresting or challenging, provide a more meaningful reason to undertake the challenge, such as, “I know how frustrating it is to be unable to hike or play tennis [expression of empathy]. But I’ll help you every step of the way [support to build relatedness] through your 10 weeks of physical therapy. If you make a commitment to this therapy [autonomy], in the end, you’ll have the freedom to do everything you enjoy [reward = autonomy and emotional satisfaction].”

The nature of self-determination predicts that the subject of health promotion activities *must be actively involved* for the activities to be effective. Each of the three factors of self-determination theory may be intertwined with the others. For example, giving positive feedback on a task increases intrinsic motivation to complete the task because it fulfills the need for competence, reinforcing to clients they’re capable (Weiss, Amorose, & Wilko, 2009). Negative feedback has the opposite effect because it decreases the sense of competence (Berger, Steckelberg, Meyer, Kasper, & Mühlhauser, 2010).

In both instances, the feedback given has a similar effect on the client’s sense of autonomy—a client who is given an experience of competence feels supported in his or her sense of autonomy, while a client who receives a message of incompetence will feel his or her autonomy is reduced. At the same time, providing positive feedback can fulfill the need for relatedness, while negative feedback leaves that need unfilled. When relatedness needs are not fulfilled, clients may have lower intrinsic motivation to engage in healthy behaviors. A simple, supportive act such as telling a client, “good job,” will enhance relatedness, competence, and autonomy, which increases motivation—while negative behaviors such as scowling or pressuring the client will decrease each factor and reduce motivation. These responses have profound implications for health promotion; they suggest that it is important for nurses to be warm and caring, not cold and distant, if they hope to enhance healthy behaviors in clients.

According to self-determination theory, it is important that the three psychological needs be considered when developing motivational tools for a client. For example, offering extrinsic rewards (money, prizes, etc.) undermines behavior that is intrinsically motivated, because the client grows less interested in complying if the reward offered is not seen as equal in worth to the loss or reduction of autonomy. Other external factors like deadlines, which restrict and control, also decrease intrinsic motivation (Murayama, Matsumoto, Izuma, & Matsumoto, 2010). In contrast, situations that increase autonomy, as opposed to reducing it, support intrinsic motivation. Studies examining the effects of

choice have found that increasing participant options and choices (increasing autonomy) increases intrinsic motivation to engage in the activities offered as options (Serneels et al., 2010).

The utility of the self-determination theory is demonstrated by the findings of a study published in the *Journal of the American Dietetic Association* that used a model founded upon this theory to study whether adolescents could be motivated to reduce obesity risk behaviors when offered opportunities to meet each of the three psychological needs. Middle-school students in low-income New York City schools were given a curriculum that stressed individual scientific inquiry and personal autonomy in decision making around food choices, exercise, and decisions about portion size. The outcome of the study was that those students who were offered the curriculum “showed substantial increases in positive outcome expectations about the behaviors, self-efficacy, goal intentions, competence, and autonomy” (Contento, Koch, Lee, & Calabrese-Barton, 2010 , p. 1830).



RESEARCH BOX 2-2 provides information about a computerized intervention to promote leisure-time physical activity and uses a self-determination theory model.

HEALTH PROMOTION CHALLENGE



Use self-determination theory to explain Charles's behavior.

RESEARCH BOX 2-2

- » **OBJECTIVES:** To provide a methodological overview of a computerized intervention to promote leisure-time physical activity (PA) and to apply self-determination theory (SDT) to PA initiation to better understand the psychological mechanisms underlying PA frequency, intensity, and duration in previously sedentary individuals.
- » **DESIGN:** Based on SDT, two computerized personal trainers were developed for use with sedentary young adults. One personal trainer was designed to be supportive, empathic, and structured while the other was designed to be more controlling, evaluative, and judgmental.
- » **METHOD:** Participants were randomly assigned to work with either the need-supportive or controlling computerized personal trainer. They completed a series of seven weekly training sessions. In between training sessions, participants completed daily records of PA behaviors and experiences including autonomous self-regulation and perceived competence for PA and PA frequency, intensity, and duration.
- » **POTENTIAL CONTRIBUTIONS:** The design of this intervention and its theoretical basis have important implications for advancing the field of exercise science specifically and health behavior change more broadly. Computerized interventions have the benefit of standardizing intervention content as well as reducing clinical contact burden for practitioners. Daily recording procedures reduce the likelihood of retrospection bias and allow for the modeling of (1) daily fluctuations in PA behavior and (2) the psychological mechanisms believed to be involved in PA behavior (e.g., autonomous self-regulation). Finally, as a broad theory of human motivation, SDT is uniquely positioned to offer explanations for the conditions that are likely to promote both the initiation and maintenance of health behavior change.

Source: Patrick, H., & Canevello, A. (2011). Methodological overview of a self-determination theory-based computerized intervention to promote leisure-time physical activity. *Psychology of Sport and Exercise, 12*(1), 13–19.

Social Cognitive Theory

Social cognitive theory is a learning theory based on the idea that we learn by watching what others do, and that human thought processes are central to understanding personality. This theory is most widely associated with the writings of Canadian psychologist Albert Bandura, who suggested that people who observed others behaving in a certain way adopted the behavior as their own. Bandura (1962, 1977) argued that promoting desired behaviors could best be done by modeling those behaviors to the individuals who needed to adopt them,

CASE STUDY



Charles, a 28-year-old man, started smoking an occasional cigarette while in high school. After he graduated, he attended a community college where his friends also smoked. His own parents had smoked for years, and he grew up in a household exposed to secondhand smoke. Currently, Charles has two jobs: During the daytime he works at a local mall as a cell phone salesman, and in the evenings and on weekends he is a musician, playing keyboards with a local band, which requires traveling to gigs and late hours. The late hours he works as a musician, the atmosphere of the venues he often plays (bars, clubs, and restaurants), and the fact that many of his friends and acquaintances smoke makes it difficult for him to avoid smokers.

Although Charles does not consider himself a real smoker, as he smokes less than a pack per day, he always thought he could just quit at anytime. Last year, however, his live-in girlfriend (a nonsmoker), asked him to quit. He found that quitting was not as easy as he expected, and while he stopped smoking in their apartment, he continued smoking cigarettes when he was around others who smoke, mostly during or after gigs. Charles says that he probably would have continued this way indefinitely, but his father was diagnosed with Stage IV lung cancer only a few weeks ago. “My mother is devastated,” he says. “It’s a real wake-up call. She’s quitting because of it, and she wants me to quit, too. And I know she’s right—if I don’t quit, this could happen to me.” Nevertheless, despite feeling a more urgent desire to quit smoking now, Charles says his behavior hasn’t changed. “I will bum a cigarette even knowing that it’s the last thing I should do, and I’ll think about my Dad and feel guilty—but I’ll still smoke it and even bum another one,” he comments. “I just can’t seem to stop.”

and by encouraging the expectation of success by showing those persons that they, or individuals like them, were capable of mastering the new behaviors.

A key concept in social cognitive theory is that of **self-efficacy**. Bandura defined self-efficacy as “the belief in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (1992; 1995, p. 2). Self-efficacy beliefs function as important determinants of human motivation, affect, and action. Clients who believe they can perform a certain behavior are more apt to do so (Bandura, 2006). Client perception of capability may be different from actual capability. A goal for utilizing this theory in practice is to take action to increase self-efficacy in the client. Self-efficacy can be developed through a variety of methods. Information about past performances, accomplishments, vicarious experiences, social and verbal persuasion, physical or emotional arousal, and even imagery all can be offered in support of a client’s self-efficacy (Bandura, 2006).

Benight and Bandura (2004) reviewed a number of studies that looked at the generalized role of perceived coping self-efficacy in individuals’ ability

to recover from different types of traumatic experiences. These experiences include natural disasters, technological catastrophes, terrorist attacks, military combat, and sexual and criminal assaults. In these analyses, perceived coping self-efficacy emerges as a key player in posttraumatic recovery. The fact that self-efficacy could be shown to contribute to posttraumatic recovery across a wide range of traumas supports the idea that promoting belief in a person's capability to exercise some measure of control over traumatic adversity is an important factor in healing from trauma.

Social cognitive theory is applied today in many different arenas. Mass media, public health, and education are just a very few. To ensure the success of a health promotion program, choose a model of the proper gender, age, and ethnicity so that participants can identify with a recognizable peer. Models can be those of an interpersonal imitation or media sources. Effective modeling teaches general rules and strategies for dealing with different situations (Bandura, 1988).

A study by Poddar and colleagues (Poddar, Hosig, Anderson, Nickols-Richardson, & Duncan, 2010) examined the use of a web-based nutrition education intervention to improve self-efficacy and self-regulation related to increased dairy intake in college students. They found that the intervention was effective in modifying some social cognitive theory constructs; strategies that positively impact outcome expectations and social support through online interventions require further development.

HEALTH PROMOTION CHALLENGE



Devise a way to use social cognitive theory to positively impact a group of clients. Share your ideas with at least two of your classmates and ask for feedback and suggestions.

Stages of Change Theory

Stages of change theory was originally developed in the context of smoking cessation, and later expanded to look at other efforts to change behavior. It draws upon other motivation theories to argue that any effort to change behavior passes through a set of specific stages before the behavior becomes permanent or ongoing (Prochaska & DiClemente, 1986). These stages are:

- Precontemplation—an individual has a behavioral problem in need of resolution (via behavioral change), but does not yet recognize the existence of that problem
- Contemplation—an individual recognizes the presence of a problem and is giving consideration to changing behavior
- Preparation—an individual recognizes a problem and makes an intention to change behavior within a set period of time



- Action—an individual actively and consistently undertakes the desired new behavior for at least 6 months
- Maintenance—an individual practices the behavior for longer 6 months or more

Clients do not necessarily progress from one stage to the next in a linear (or even forward-moving) fashion. A person who wants to exercise more, for instance, may stay in the contemplation stage for many years, occasionally make preparations to change and begin to take action, but lack the consistency that the action phase requires. This person may lapse back into contemplation for a time before moving, again, into preparation. Or, that same person, perhaps motivated by a health-related revelation (e.g., learning that he or she is has dangerously high blood pressure and is at risk of a stroke), may skip from precontemplation straight into action, bypassing the contemplation and preparation stages.

□ Transitioning from Precontemplation: A Case Example

Jean, a nurse who is also a clinical diabetes educator, has a new client, Cathy, who has just been referred to her for diabetes education after being diagnosed with type 2 diabetes. Cathy's hemoglobin A_{1c} value is 8.3, showing that her average blood glucose levels are well above normal (a normal HbA_{1c} value is ~6.0), so the referring physician wants Cathy to learn to take her blood glucose in the morning and evening, eat a lower carbohydrate diet, lose some weight, and exercise more in an effort to bring her blood glucose levels down to a normal range.

Cathy is overweight but not obese, and when asked about activity levels, she states that she walks her dog every day—10 minutes before breakfast in the morning, and 20 minutes before she goes to bed, usually between 11 p.m. and midnight. She complains that she rarely gets more than 5 hours of sleep.

She describes her exercise level on these walks as “between a brisk walk and a stroll, depending on my mood.” Cathy does not eat junk food or sugar, but her diet is fairly high in simple carbohydrates in the form of breads and potatoes.

In their initial meeting, Jean learns that Cathy has no overt symptoms and is having a hard time believing that her condition is real. Although she understands what diabetes means in terms of her long-term health, the need to use a blood glucose meter and take the actions her doctor recommends to address her blood sugar levels do not resonate with Cathy. “I don’t feel sick,” she tells Jean, “and I don’t understand why he wants me to change what I’m doing. I get half an hour of exercise every day, and I don’t really eat a lot of sugar—isn’t that enough?”

Despite having a definitive diagnosis with evidence (in the form of a high HbA_{1c} value) of a significant health problem, Cathy does not yet accept the reality that a problem exists. She is in the precontemplation stage when it comes to changing her diet and exercise habits.

Jean’s task will be to help Cathy reach acceptance that her situation is real and must be addressed right away, and to get her started on making lifestyle changes that will help her manage her blood glucose levels. This may not be an easy task given the lack of overt symptoms. One way Jean might help Cathy reach acceptance is by doing a simple test of Cathy’s blood glucose values—and a demonstration. Their conversation might go as follows:

Jean: “OK, Cathy, let’s do a little math. Can you tell me when you last ate something, and what you ate?”

Cathy: “Well, I had lunch about 2 hours ago. I had a peanut butter and jelly sandwich with a glass of milk and a handful of potato chips, and a small orange for dessert.”

Jean: “That’s not so bad in terms of nutrition, but I wonder if you know how many grams of carbohydrates that contains—here, let’s look at this chart. Was the bread in your sandwich white or whole wheat?”

Cathy: “Whole wheat. I only eat white bread now and then.”

Jean: “Good, good. Whole wheat is a better choice nutritionally. But even whole wheat bread is pretty high in carbohydrates—each slice has about 20 grams. The peanut butter isn’t bad—only 3 grams for one tablespoon—but the jelly has 14 grams for a single tablespoon, which is a lot. Your orange probably had less than the jelly did—we’ll say about 12 grams. The potato chips, hmm. . . let’s assume you had about an ounce of chips. That would be maybe another 10 grams of carbohydrates. And your glass of milk adds another 12 grams. Altogether, your lunch included 91 total grams of carbohydrate.”

Cathy: “Is . . . that a lot?”

Jean: “Well, that depends on what you eat at your other meals. Most adults who don’t have diabetes need between 180 and 230 grams per day, and if you eat this much at every meal, you’d be taking in about 270 grams, which means you’re going to exceed the max by almost 40 grams. And since you do have diabetes, you would probably find your blood sugar would be lower if you ate less than that 180-gram lower level. But that’s not what I want to focus on right now. Can we test your blood sugar so we can see how that lunch has affected it? It’s been 2 hours, so you should have digested most of it, and all of those carbs will have raised your blood glucose substantially. So it’s a good time for us to take a look at what is going on in your blood.”

Cathy: “Well, sure, I guess that’s a smart thing to do. Will it hurt?”

Jean: “Just a little pinprick. Tell you what, I’ll take mine too and we can compare them. I had lunch just about an hour and a half ago too.”

Upon testing Cathy’s blood glucose, they find it to be at 290 mg/dl, which is considerably higher than the 180 mg/dl maximum recommended for postmeal levels. Jean’s blood glucose is 150 mg/dl.

Cathy: “Gosh. I’m 140 points higher than you are.”

Jean: “Yes. That’s part of what it means to have diabetes. You don’t metabolize the glucose very well at this stage, so a lot of it stays in your bloodstream instead of going into your cells. Your body has to do something with it, so it’s going to either store it as fat or pass it out through the urine—but that means potentially damaging your kidneys and causing all kinds of other problems down the line. Fortunately, there’s an easy way to address it. C’mon, Cathy, let’s get your blood sugar down right now!”

Cathy: “Huh? How?”

Jean: “We’re going to walk it off.”

Jean takes Cathy for a brisk, 20-minute walk around the office building, jogging up and down several flights of stairs and keeping a pace that has them both breathing harder, but still able to talk. When they return to Jean’s office, Cathy’s heart rate is noticeably higher and she’s flushed, but energized. They take Cathy’s blood glucose again, and Cathy is amazed to find that it has dropped by almost 50 mg/dl. It is still too high, but the message has been demonstrated very clearly—vigorous exercise is one key to bringing Cathy’s diabetes under control. Jean can also start to talk to Cathy about ways to limit her carbohydrate intake. For instance, instead of peanut butter and jelly, Cathy can have turkey with lettuce and tomato—reducing her intake by about 15 to 18 grams of carbohydrate, and more if she buys a low-carb wheat bread rather than regular wheat bread. If she has a salad with lemon juice and olive oil in place of the potato chips, and water or unsweetened iced tea instead of milk, that brings her total intake down by another 15 to 18 grams—and she may

even be eating *more* food, not less! She can still have her orange, but perhaps she will only eat half and save the rest for later, or choose a smaller mandarin orange, tangerine, or clementine instead, so she gets half as many grams of carbohydrate. Simply by changing her food choices to lower carbohydrate, lower glycemic options, Cathy can reduce her carbohydrate intake by 45% or more, which will help prevent blood sugar spikes. Increasing her exercise will also help her to maintain lower blood glucose. Jean talks to Cathy about the benefit of walking her dog for half an hour instead of 10 minutes before breakfast, and suggests she take the dog for its second walk about an hour after dinner, instead of before bedtime, so she can increase the impact these walks have on her blood glucose values. She might even consider adding another walk after lunch. Jean also suggests that she buy a pedometer and use it as a way of making sure her walks are briskly paced enough to bring her heart rate up, so she will burn off more glucose.

When Cathy understands that the changes Jean is asking her to make are not huge alterations to her lifestyle, she is more likely to contemplate making them—and having seen how her blood sugar responded directly to exercise, she is also more likely to accept that the changes are needed. In future meetings, Jean can reinforce the benefits of changing her behavior by addressing her sleep issues, which also will help her blood glucose levels.

□ Using Stages of Change Effectively

While the stages of change theory does not address motivation, it does give concrete guidance as to how nurses can work to promote changes in behavior. Identifying where a client is in the process can be highly useful in determining how to proceed in promoting health. A client who engages in a risky behavior without knowledge of the potential consequences, for example, is unlikely to even be at a contemplation stage related to reducing or eliminating the risk by changing behavior. Explaining the risk is therefore a step the nurse can take toward bringing that client from precontemplation to contemplation. Offering a set of specific actions and sources of support for behavior change can help move the client from contemplation to preparation and subsequent action. Continued support can help the client make the final transition into maintenance. Reaching the maintenance stage does not mean that the behavior is set in stone; individuals who have reached that stage can, and often do, return to earlier stages. Even if regression occurs, returning to the maintenance stage is generally easier once the client has previously established the desired behavior.

The Centers for Disease Control and Prevention successfully incorporated the stages of change theory into a study of HIV/AIDS counseling at clinics treating individuals for sexually transmitted diseases during the 1990s (Coury-Doniger, Levenkron, Knox, Cowell, & Urban, 1999). A review by the World Health Organization (King, 1999) found that while this theory offered guide-

lines for interventions with diverse populations, it overlooked the role that environment, culture, gender, and other social factors have on the decision-making and implementation process.

HEALTH PROMOTION CHALLENGE



Most smokers are well aware of the risks of smoking. Even smokers who contemplate quitting take no actions toward it because they find the side effects of quitting to be too great a challenge. What strategies can be employed to help a smoker in the contemplation stage of quitting move to preparation and action?

Theory of Reasoned Action

The **theory of reasoned action**, developed by Martin Fishbein and expanded by Fishbein and Icek Ajzen (1975), is founded upon two basic assumptions: first, that human beings are rational and make systematic use of information available to them, and second, that people consider the implications of their actions before they decide to engage or not engage in certain behaviors. The theory proposes that individuals are more likely to decide to behave in certain ways (behavioral intention) if their attitudes and normative beliefs are pointing toward that behavior, but this decision is mitigated by perceived behavioral control, or the degree to which they feel capable of executing the behavior. Attitude is the degree to which a person feels positively or negatively about a behavior; one important aspect of attitude is the beliefs that the individual has about how valuable the behavior might be (behavioral beliefs). Normative beliefs are the individual's understanding of, and willingness to conform to, societal opinions or pressure surrounding the behavior in question. So, simply put, the theory of reasoned action suggests that a person who has a positive attitude, who feels social pressures or influences toward a behavior, and who has a greater degree of perceived behavioral control, is likely to set an intention to adopt the behavior.

There are certain problems with the theory. Its focus on the individual, as with the stages of change theory, does not allow for the influence of outside environmental or social factors on decision making and execution of behavioral change. It also does not address factors outside of the rational sphere—emotional, physiologic, and psychological factors that influence the individual away from the behavior that they may have made a conscious intention to adopt.

Health Belief Model

Turning from theories to models, one of the first models we will discuss is the **health belief model** (FIGURE 2-2). The health belief model is among the most widely used models for explaining change and maintenance of health

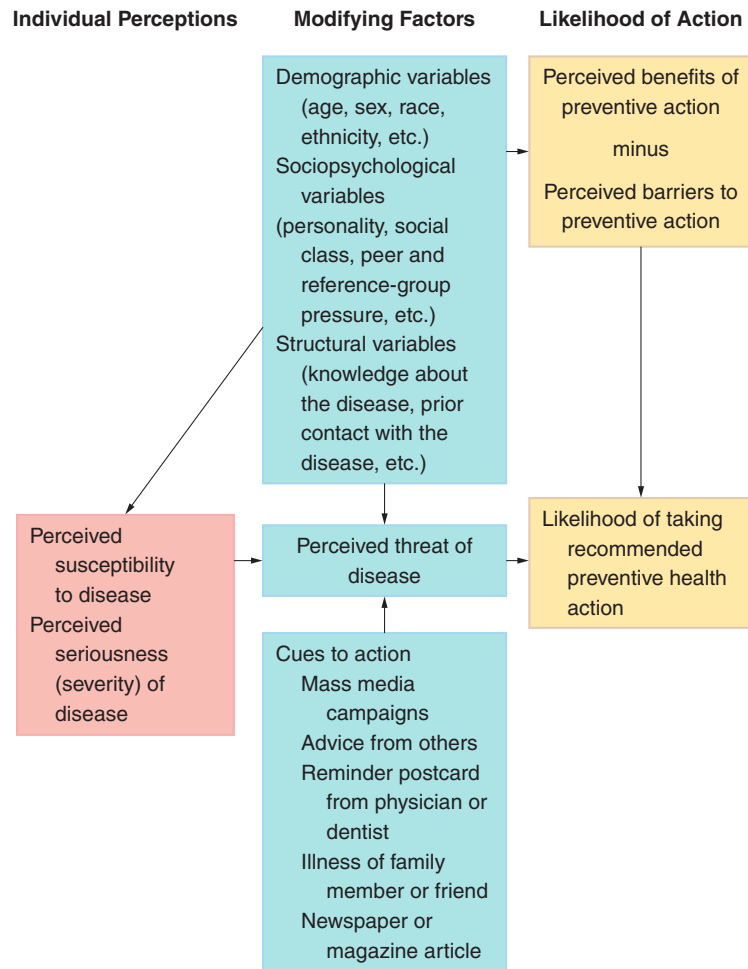


FIGURE 2-2 The Health Belief Model

Source: Strecher, V., & Rosenstock, I. (1977). The health belief model. *Health Behavior and Health Education, Theory, Research, and Practice* (pp. 41–58). San Francisco, California: Jossey-Bass.

behavior, as well as for developing health behavior interventions (Strecher & Rosenstock, 1997). The original health belief model was developed in the 1950s by a group of social psychologists who were all part of the United States Public Health Service (Hochbaum, 1958; Rosenstock, 1960; Rosenstock, 1966). The purpose of the model was to aid in explaining the widespread failure of people to participate in health promotion/prevention programs. The original concern that led to the development of the model was the spread of infectious diseases, specifically tuberculosis. At the time, the model was being tested to see if it could successfully predict whether people would participate with preventive measures, and if not, what interventions would encourage them to engage in preventive behaviors.

ASK YOURSELF



You are planning to study a population of clients who have high cholesterol levels, with the goal of developing a prevention program. You have decided to use the health belief model as your framework. What areas might you explore?

The model originated as a **value expectancy theory** that relied on the assumptions that an individual has the desire to avoid illness or to get well (value) and a belief that a specific health action by that person would prevent illness (expectancy). Therefore, the theory is based on an individual's idea and appraisal of perceived benefits compared to perceived barriers.

CULTURAL RESEARCH STUDY



A review of: Hispanic Chronic Disease Self-Management: A Randomized Community-Based Outcome Trial

This study, which was based on self-efficacy theory, applied the results of a successful English chronic disease self-management program to a Spanish-speaking population by using Spanish speakers and focus groups to validate the materials. Patient education courses were conducted in Spanish and included content related to healthy eating, exercise, problem solving, action planning, breathing problems, relaxation techniques, medications, and family relationships. At 4 months, the participants, compared with control subjects, had more improved health status and behaviors, more improved self-efficacy, and fewer emergency room visits. At 1 year, improvements were maintained.

Source: Lorig, K. R., Ritter, P. L., & Gonzáles, V. M. (2003). Hispanic chronic disease self-management: A randomized community-based outcome trial. *Nursing Research*, 52(6), 361–369.

Over the 40 years of the development of this model, numerous investigations have expanded and clarified the model and have extended its use to preventive actions as well as illness and sick-role behaviors (Becker & Maimam, 1980; Janz & Becker, 1984; Kirscht, 1974; Rosenstock, 1974). Rosenstock, Strecher, and Becker (1988) determined that, in general, individuals will take action to ward off, screen for, or control an ill-health condition if:

1. They regard themselves as susceptible to the condition (perceived susceptibility)
2. The condition will have potentially serious consequences (perceived severity)
3. A course of action available to them would be beneficial in reducing either their susceptibility or the severity of the condition (perceived benefits)

4. The anticipated barriers to or costs of taking the action are outweighed by its benefits (perceived barriers)
5. There are good reasons to believe that action is needed (cues to action)

Self-efficacy was eventually added to the model to increase explanatory power, and thus the term **expanded health belief model**. Self-efficacy, the belief or conviction that a person can successfully execute a behavior required to produce a desired outcome, is viewed as a key factor in determining the presence or absence of action. If self-efficacy is lacking, then a barrier is added to taking a recommended health action—even if all of the other five belief requirements are satisfied. To put it simply, “I can’t do this” is a phrase that can outweigh all of the arguments in favor of performing the health-promoting act.

HOT TOPICS



Here are some topics to explore:

- Bandura’s self-efficacy theory
- Value-expectancy theories
- HR3200 (healthcare bill)
- Health insurance and health promotion
- Theory of planned behavior
- Theory of reasoned action

The key variables of the expanded health belief model now include perceived susceptibility, perceived severity, perceived benefits, perceived barriers, self-efficacy, and cues to action ([TABLE 2-1](#)). In general, modifying factors include demographic, sociopsychological, and structural variables.

Bio-Psycho-Social-Spiritual Model

The **bio-psycho-social-spiritual model** is considered the most comprehensive for holistic health promotion. The model suggests that all disease has a psychosomatic component—that is to say, the client’s state of mind, attitude, intellectual capacity, and belief systems all have influence on the disease course. The model emphasizes that the human spirit must be incorporated as a major healing force in reversing, stabilizing, and producing remission in diseases and illnesses. The spiritual aspect of this model incorporates individual values, meaning, and purpose in living (Dossey, 1999).

Hunter and Mann (2010) used a bio-psycho-social-spiritual framework to examine hot flashes and night sweats commonly experienced by mid-aged women during the menopause transition. These symptoms affect approximately 70% of women, but are regarded as particularly problematic for 15–20% largely due to physical discomfort, distress, social embarrassment, and sleep disturbance. The authors described a cognitive model of menopausal hot flashes that

Table 2-1 Key Concepts and Definitions of the Expanded Health Belief Model

Concept	Definition	Application
Perceived susceptibility	One's opinion of chance of getting a condition	Define population at risk
Perceived severity	One's opinion of how serious a condition is	Specify consequences of risk
Perceived benefits	One's opinion of the efficacy of the advised action	Define action to take
Perceived barriers	One's opinion of the tangible and psychological costs of the advised action	Identify barriers and help to reduce them
Cues to action	Strategies to activate one's readiness	Promote awareness
Self-efficacy	One's confidence in one's ability to take action	Demonstrate desired behavior
Modifying factors	One's demographic, sociopsychological, and structural variables	Education, age, and race

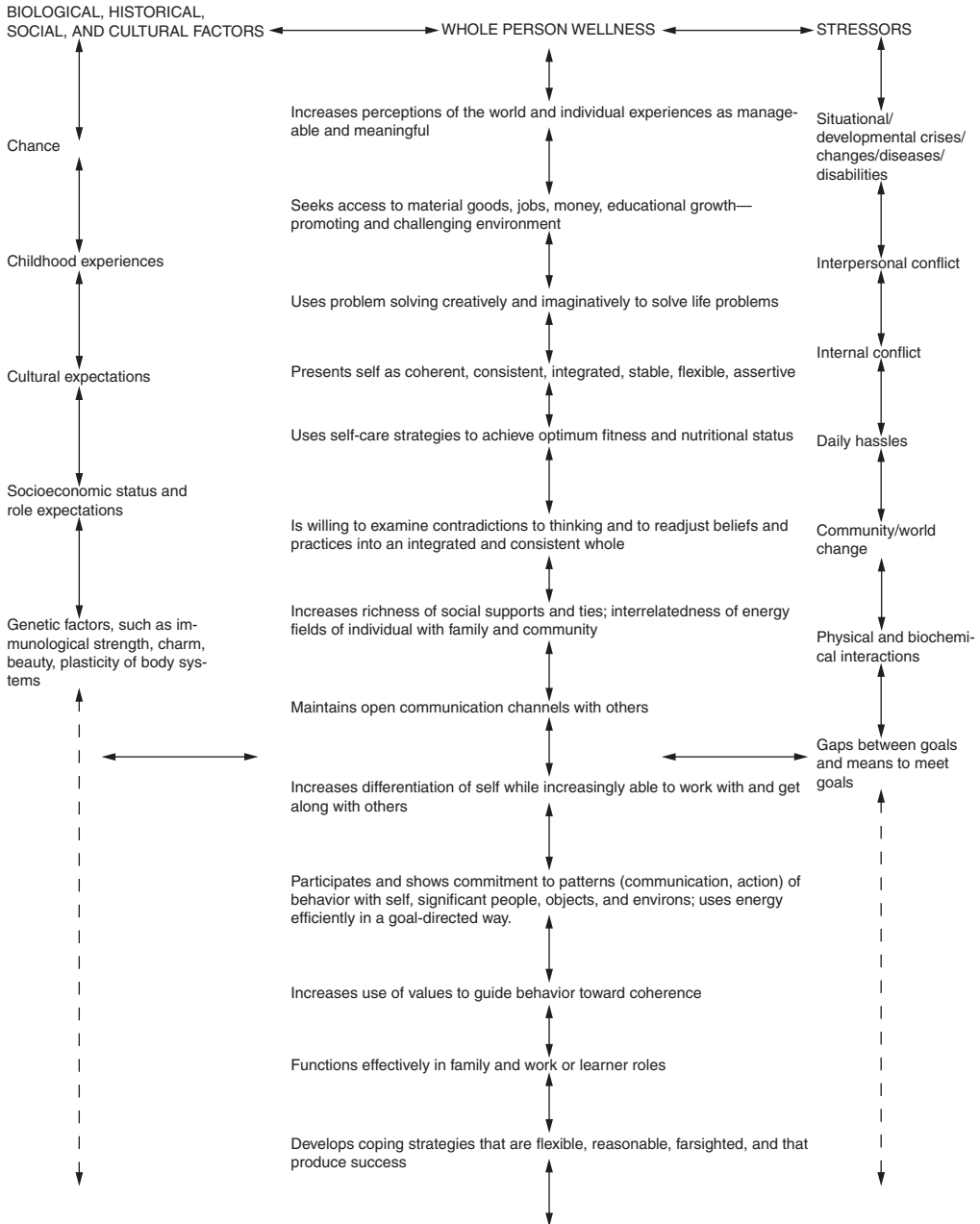
Source: Strecher and Rosenstock, 1997.

can explain symptom perception, cognitive appraisal, and behavioral reactions to symptoms. As part of Phase II intervention development, they described a cognitive behavioral treatment that links the bio-psycho-social-spiritual processes specified in the model to components of the intervention.

Clark Wellness Model

While the bio-psycho-social-spiritual model focuses on psychosomatic processes, the **Clark wellness model** (Clark, 1996) (FIGURE 2-3) exemplifies nurse-client interactions from a wellness perspective. It combines elements within systems theory. In this model, both nurse and client are complete systems that interact within themselves (that is, each has inputs, throughputs—activities within the system—and outputs), and interact with each other (intersystems) across interfaces to jointly plan and achieve goals and feelings of well-being. Your own wellness is an important facet of this theory, and you serve as a wellness role model for the client to emulate.

Trudeau and colleagues (Trudeau, Ainscough, Pujol, & Charity, 2010) used a wellness model to develop an online self-management program for arthritis pain sufferers. They reviewed both practitioners' and clients' views and published the differences they found. This information can help you gain insight into how to interact more effectively with clients. For example, suppose a nurse who is overweight is working with a client who has arthritis and is also overweight.



Source: This figure suggested by the work of Ahmed and Coelho (*Toward a New Definition of Health*, New York, NY: Plenum, 1979); Antonovsky (*Health, Stress and Coping*, San Francisco, CA: Jossey-Bass, 1979); and Dunn (*High Level Wellness*, Arlington, VA: R.W. Beatty, 1961.)

FIGURE 2-3 The Clark Wellness Model

© Carolyn Chambers Clark

Although their reasons for being overweight may differ, if the nurse puts pressure on the client to lose weight as a way of relieving his osteoarthritis symptoms, the client will not take the advice seriously—“After all,” the client may think, “how can she expect me to do something she isn’t doing herself?” But the nurse may have better success if she makes herself a role model instead. “I understand just how hard it is to lose weight,” she could say. “I have a thyroid problem myself, and boy, I fight just to stay where I am, never mind losing weight. But I also know that if I don’t persevere, I could end up with the same difficulties you have—pain, pain, and more pain. So it’s worth it to keep trying even when progress is slow.”

See **RESEARCH BOX 2-3** for information about Trudeau and colleagues’ study.

RESEARCH BOX 2-3

- » **OBJECTIVE:** Self-management of pain is a critical component of arthritis care; but, limited mobility can restrict access to resources. Although the Internet has become a primary source of health information, few studies address what patients want and need from a self-management website.
- » **METHODS:** Thirty-two people diagnosed with arthritis and 12 practitioners (1) participated in individual 1-hour interviews and (2) sorted and rated a list of 88 unique statements that were derived from the interviews. Qualitative data were analyzed using concept mapping procedures.
- » **RESULTS:** The six-cluster map provided the best discrimination between statements. Follow-up analyses suggested that although clients with arthritis and practitioners generally agree on the categories of content on a self-management website about arthritis, they appear to disagree on the importance of each category. The conceptual map the researchers developed included: 1. Tools to manage pain, 2. Latest research findings on arthritis pain, 3. How to stop arthritis from getting worse, 4. Physical activity and diet needed to maintain strength to support joints, 5. Daily living things that could affect pain, and 6. How to e-mail questions to practitioners and obtain answers and support.
- » **CONCLUSIONS:** These findings about client- and provider-desired content can be used by nurses to develop a curriculum for health education of clients with arthritis pain.

Source: Trudeau, K.J., Ainscough, J., Pujol, L.A., & Charity, S. (2010). What arthritis pain practitioners and patients want in an online self-management program. *Musculoskeletal Care* 8(4), 189-196.

Health Education Model

While the Clark wellness model focuses on the interaction between client and nurse, in the **health education model**, clients must have awareness, knowledge, skills, positive attitudes, appropriate or supportive cultural norms, requisite opportunities, and/or motivation to change to healthier behavior. These attributes are defined as follows:

- Awareness includes alerting a target group or individual to a danger or a positive factor
- Knowledge is awareness with understanding.

- Skills include the ability to problem solve, take advantage of an opportunity, or otherwise develop tools improve a health situation.
- An individual who believes that performing a certain behavior will lead to positive outcomes will tend to hold a favorable attitude toward that behavior. The converse is also true.
- Cultural norms and opportunity to participate in related health activities or services will expand or limit the effectiveness of any health education program.
- Motivation is an internalized construct of self-reinforcement—that is, a force within the individual’s own thought processes that influences him or her to take action in a certain direction.

According to this model, motivation is necessary before an individual can take responsible actions. If motivation toward a healthy behavior is not present or is weak, the person’s health beliefs and attitudes must be influenced or strengthened before a person becomes motivated to change a behavior in the direction of better health. If an individual is made aware, given relevant knowledge and skills, and has the opportunity to make necessary changes in attitude and participate in related health services, it is possible that motivation toward healthy behaviors will improve simply on the basis of having the needed tools. Motivation is also assumed to be a process that involves stages of change, which can be targeted with specific educational methods. Without motivation, the rest of the elements of health education will not be effective in changing health behaviors (Patterson & Campbell, 1995).

All these factors are interrelated; for example, awareness of the effect of diet on weight can stimulate curiosity and lead to an increase in knowledge or motivation to change the diet in order to lose weight, if attitude and cultural norms support weight loss.

RESEARCH BOX 2-4 describes a study that uses a health education model.

RESEARCH BOX 2-4

- » **BACKGROUND:** Patient education is an important intervention for the management of heart failure, but in practice patient education varies considerably.
- » **AIM:** To systematically review educational interventions that have been implemented for heart failure patients and assess their effectiveness.
- » **METHODS:** Randomized controlled trials from 1998 to 2008 in CINAHL, MEDLINE, PsychInfo, EMBASE, and Cochrane were reviewed using the following search terms in combination with “heart failure” patient education, education, educational intervention, and self-care. There were 1,515 abstracts reviewed independently by 2 reviewers.

- » **RESULTS:** A total of 2,686 patients were included in the 19 studies that met the inclusion criteria. Commonly, the initial educational intervention was a one-on-one didactic session conducted by nurses and supplemented with written materials and multimedia approaches. Seven studies referred to a theoretical model as a framework for their educational intervention. Studies used a variety of outcome measures to evaluate their effectiveness. Of the studies reviewed, 15 demonstrated a significant effect from their intervention in at least one of their outcome measures.
- » **CONCLUSION:** Due to the heterogeneity of the studies included in this review, it was difficult to establish the most effective educational strategy as the educational interventions varied considerably in delivery methods and duration as well as the outcome measures that were used for the evaluation. A client-centered approach to education based on educational theory and evaluated appropriately may assist to develop an evidence base for client education.

Source: Boyde, M., Turner, C., Thompson, D. R., & Stewart, S. (2010). Educational interventions for patients with heart failure: A systematic review of randomized controlled trials. *Journal of Cardiovascular Nursing*, 26(4), E27–E35.

Orem Self-Care Model of Nursing

Unlike the health education model, which assumes clients will change once they have the knowledge to do so, or the Clark wellness model, which assumes the nurse is a role model for client behavior, Orem based her theory, the **Orem self-care model**, on the philosophy that all “patients wish to care for themselves” (Orem, 2001). According to this concept, individuals can recover more quickly and holistically if they are allowed to perform their own self-care to the best of their ability.

Self-care requisites are groups of needs or requirements that Orem placed in one of three categories:

1. Universal self-care requisites are those needs that all people have, including air, water, food, elimination, activity and rest, solitude, and social interaction, among others.
2. Developmental self-care requisites are needs that are either maturational (that is, needs dependent upon or important to life transitions from infancy to childhood to adolescence to adulthood) or situational (that is, needs that arise because of particular circumstances in life, such as transitioning through a divorce or coping with the death of a loved one).
3. Health deviation requisites include needs that arise as a result of a patient’s condition (for example, the need for medication to treat an

illness, or the need for physical therapy to restore mobility after an accident).

When individuals are unable to meet their own self-care requisites, a self-care deficit occurs. From a health promotion standpoint, a deficit occurs when the individual lacks information or needs to be taught certain skills in order to perform self-care tasks. In contrast to the Clark wellness model, where client input is crucial, in the Orem model, the nurse determines these deficits and defines a support modality by rating dependencies for each of the self-care deficits from total compensation, to partial compensation, to educative/supportive.

Klainin and Ounnapiruk (2010) performed a meta-analysis of self-care behavior research on elders in Thailand. They used 20 studies undertaken from 1990 to 2008. Most studies were unpublished master's theses guided by Orem's self-care deficit theory. Data were collected in these studies by face-to-face interviews. Variables with the greatest effects on self-care encompassed self-concept, social support, and self-efficacy. Those with moderate effects included family relationships, overall health beliefs, internal locus of control, health status, and external locus of control.

Pender's Health Promotion Model

Unlike the other models, Pender's **health promotion model** is directed at increasing a client's level of well-being, with special focus on helping clients to associate positive feelings with health-promoting actions (Pender, Murdaugh, & Parsons, 2010).

The model is based on the following ideas:

1. Prior behavior and inherited and acquired characteristics influence beliefs, affect, and enactment of health-promoting behavior.
2. Persons commit to engaging in behaviors from which they anticipate deriving personally valued benefits.
3. Perceived barriers can constrain commitment to action, which can be a mediator of behavior as well as actual behavior.
4. Perceived competence (self-efficacy) to execute a given behavior increases the likelihood of commitment to action and actual performance of the behavior.
5. Greater perceived self-efficacy results in fewer perceived barriers to a specific health behavior.
6. Positive affect toward a behavior results in greater perceived self-efficacy, which can, in turn, result in increased positive affect.
7. When positive emotions or affect are associated with a behavior, the probability of commitment and action is increased.
8. Persons are more likely to commit to and engage in health-promoting behaviors when significant others model the behavior, expect the

behavior to occur, and provide assistance and support to enable the behavior.

9. Families, peers, and healthcare providers are important sources of interpersonal influence who can increase or decrease commitment to and engagement in health-promoting behavior.
10. Factors in the external environment can increase or decrease commitment to or participation in health-promoting behavior.
11. The greater the commitments to a specific plan of action, the more likely health-promoting behaviors are to be maintained over time.
12. Commitment to a plan of action is less likely to result in the desired behavior when competing demands over which persons have little control require immediate attention.
13. Commitment to a plan of action is less likely to result in the desired behavior when other actions are more attractive and thus preferred over the target behavior.
14. Clients or nurses can modify cognitions, affect, and the interpersonal and physical environment to create incentives for health actions.

A study used Pender's health promotion model to examine clients' diabetes self-management behaviors (Ho, Berggren, & Dahlborg-Lyckhage, 2010). Realizing that diabetes self-management is a challenge for both clients and nurses, and that empowerment plays a vital role in helping clients achieve successful self-management, Ho and colleagues adopted a metaethnographic approach. They synthesized the results of nine qualitative studies to identify what clients perceive as being important in an effective empowerment strategy for diabetes self-management. Four central metaphors that influenced empowerment were identified: trust in nurses' competence and awareness, striving for control, a desire to share experiences, and nurses' attitudes and ability to personalize. The lines-of-argument synthesis suggested the need for an evaluation system to appraise clients' diabetes knowledge, health beliefs, and negative emotions, as well as the outcome of interventions.

Based on Pender's health promotion model, this study emphasizes the fact that healthcare professionals need to understand and address modifiable behavior-specific variables. The study suggests that an effective empowerment strategy would be to use activity-related affect, as well as interpersonal and situational influences, as a means of facilitating and enhancing clients' health-promoting behaviors.

PRECEDE-PROCEED Framework

Another model used in health promotion is the **PRECEDE-PROCEED framework** (Green & Kreuter, 2005). PRECEDE stands for *p*redisposing, *r*einforcing, and *e*nabling constructs in *e*ducational/ecological *d*iagnosis and *e*valuation.

The acronym PROCEED stands for *p*olicy, *r*egulatory, and *o*rganizational constructs in *e*ducational and *e*nvironmental *d*evelopment. The purpose of health promotion within this model is not to do interventions for a person, but rather to empower him to do them himself.

The PRECEDE-PROCEED framework (FIGURE 2-4) acts as a systematic planning process that has the primary goal of empowering individuals and communities to understand and engage in efforts to improve their quality of life. The framework entails different phases that can easily be linked to different levels of theory for a health behavior change. The model was designed as a guide for planning and developing health education programs, by identifying the most appropriate intervention. The underlying assumption of the PRECEDE phase is that an educational diagnosis needs to be made prior to initiating an intervention plan. The second phase, PROCEED, was added to account for the contribution of environmental variables, or things that are outside of the individual, to health. The two propositions of the model are (1) health and health risks have multiple determinants, and (2) efforts to change the behavioral, physical, and social environment must be multidimensional and participatory.

The original planning process of the model included the following nine steps:

1. Social assessment/community assessment
2. Epidemiologic assessment
3. Behavioral/environmental assessment

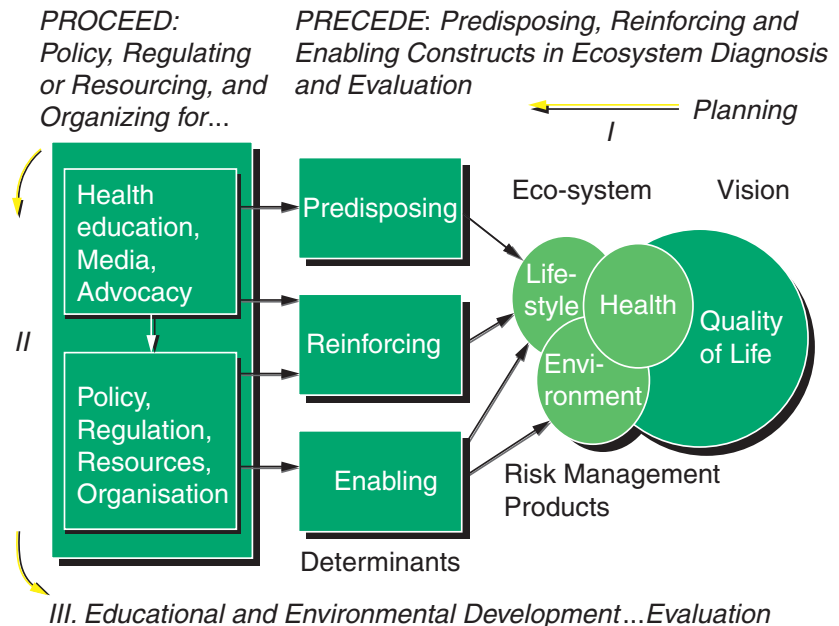


FIGURE 2-4 The PRECEDE-PROCEED framework

4. Educational and ecological assessment
5. Administration and policy assessment
6. Implementation of the planned intervention
- 7–9. Process and outcome evaluations

The model was condensed in 2004, merging the steps into the following six phases:

Phase one: Social assessment and situational analysis (formerly step 1)

Phase two: Epidemiological assessment and behavioral and environmental assessments (formerly steps 2 and 3)

Phase three: Educational and ecological assessment (formerly step 4)

Phases four, five, and six: Intervention, alignment, administrative and policy assessment, and evaluation (formerly steps 5–9)

Despite the efforts to compress it, the model is very time intensive, and enacting it drains human and financial resources. The authors of the model have a website of published papers with applications of the model, which can be found at <http://www.lgreen.net/precede.htm>

HEALTH PROMOTION CHALLENGE



Make a list of at least three ways you can influence clients to associate positive emotions with health promotion behavior. More advanced students can pick one of Pender's ideas upon which her model is based and develop a research design to test it.

Summary

Theories, Concepts, and Models

A theory is a set of interrelated ideas that represent an orderly way to describe a phenomenon. Theory links practice to research. A concept is a set of interrelated ideas that are the building blocks of a theory. A model focuses on a structure or composition of a phenomenon; it is a symbolic representation of concepts.

Theories need to be tested through research before being applied to clinical practice. There are two traditional types of theory: grand theories and mid-range theories. Grand theories are all-inclusive, conceptual structures that describe and explain large segments of the human experience; they are very abstract and are used to establish a knowledge base. Midrange theories are more focused, less abstract, and have a narrower scope than grand theories. They can be used as a framework to guide a study. Midrange theories often

referenced in health-promotion research studies include self-determination theory, social cognitive theory, stages of change theory, and the theory of reasoned action.

A conceptual model is less formal than a theory and is composed of concepts that have been placed together because of a common theme; they are more loosely structured than theories and may assist in the development of hypotheses in research. A schematic model is a visual representation that uses concepts as building blocks and minimizes the use of words. In nursing, the terms conceptual model, conceptual framework, and schematic model are often used interchangeably.

The health belief model was originally developed in the 1950s to aid in explaining the widespread failure of people to participate in health promotion/prevention programs. This model originated as a value expectancy theory, incorporating the assumptions that one has both the desire to avoid illness or get well (value) and a belief that a specific health action to oneself would prevent illness (expectancy). The expanded health belief model includes the addition of self-efficacy, a belief or conviction of expected success held by the client that health promotion behavior can be produced. The key concepts of the expanded health belief model are perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, self-efficacy, and modifying factors.

The bio-psycho-social-spiritual model incorporates the understanding that mental constructs of varying types influence the progression of disease and healing. The Clark wellness model suggests that the nurse has an active role to play in promoting wellness; in contrast, the health education model suggests that the prime mover of health promotion is the client's level of understanding and acceptance of information, so that the nurse's role becomes more instructional and less interactive.

In the Orem self-care model, the nurse's role is to identify areas in which individuals lack needed requisites to perform self-care. The health promotion model developed by Pender contains seven assumptions that reflect nursing and behavioral science perspectives and 14 statements/propositions that provide a basis for investigative work on health behaviors. The PRECEDE-PROCEED framework developed by Green and Kreuter in 2005 is a systematic planning process with the primary goal of empowering individuals and communities to understand and engage in efforts to improve the quality of their lives. The process involves social, community, epidemiologic, behavioral, environmental, educational, ecologic, administration, and policy assessments, followed by implementation of the planned intervention and process and outcome evaluations. The two propositions of the model are that (1) health and health risks have multiple determinants, and (2) efforts to change the behavioral, physical, and social environment must be multidisciplinary and participatory.

REVIEW QUESTIONS



1. A value expectancy theory
 - a. Incorporates the idea that one has the desire to get well and a belief that a specific health action would prevent illness.
 - b. Is a theory that helps define health for an individual.
 - c. Explains a belief by an individual that there are too many barriers to successfully achieving disease prevention.
2. The PRECEDE-PROCEED framework
 - a. Was developed by Pender.
 - b. Includes the defining concept of self-efficacy.
 - c. Includes assessments of environment, ecology, and education of a community/ individual.
3. The health promotion model includes the following assumption:
 - a. Perceived benefits and barriers to achievement of health behaviors regulate health seeking activities.
 - b. Individuals seek to actively regulate their own behavior.
 - c. Health and health risks have multiple determinants.
4. Self-efficacy theory is
 - a. A belief or conviction by the individual that he or she is able to successfully execute the behavior needed for producing the desired outcome.
 - b. A systematic planning process with the primary goal of empowering individuals and communities to understand and engage in efforts to improve the quality of their lives.
 - c. A theory that incorporates the assumptions that one has the desire to avoid illness or get well and a belief that a specific health action by that person would prevent illness.
5. The expanded health belief model includes
 - a. The self-efficacy concept.
 - b. Epidemiologic assessment.
 - c. The proposition that when positive emotions or affect are associated with a behavior, the probability of commitment and action is increased.
6. A theory
 - a. Links practice to theory.
 - b. Is a set of interrelated ideas that represent a way to describe a phenomenon.
 - c. Is a systematic collection of concepts and propositions.
 - d. Is all of the above.
7. The relationship between a concept and a theory is
 - a. Concepts are constructed from multiple theories.
 - b. Theories are extensively tested before they generate concepts.
 - c. Concepts put together will make a theory.
 - d. Concepts are more abstract than theories.

8. A grand theory
 - a. Is more concrete than a midrange theory.
 - b. Explains large segments of the human experience.
 - c. Contains no concepts.
 - d. Has a narrower scope than a midrange theory.
9. A midrange theory
 - a. Is more concrete than a grand theory.
 - b. Explains large segments of the human experience.
 - c. Contains no concepts.
 - d. Has a wider scope than a grand theory.
10. A model
 - a. Is used to illustrate the relationship between a proposition and a schematic model.
 - b. Is the connection between theories and concepts with symbolic representations.
 - c. Is used for illustration of disease frequency.
 - d. Is used in primary prevention trials but not secondary prevention trials.
11. A conceptual model is also known as
 - a. A conceptual framework.
 - b. A schematic model.
 - c. A proposition.
 - d. A theory.
12. The purpose of a hypothesis is
 - a. To explain the relationship between the model and the theory.
 - b. To guide the direction of the study through prediction.
 - c. To explain the utility of a concept.
 - d. To help in selecting the theory to support.

EXERCISES



1. Find research in your area of interest that uses the expanded health belief model as its framework. Discuss the incorporation of the model's key concepts and definitions into the study.
2. Apply the PRECEDE-PROCEED framework to a community health problem you are interested in. Outline the various activities and assessments you would complete related to this problem and devise a plan of action and evaluation based on your supposed findings.
3. Search the literature for information on self-efficacy theory. Prepare a short summary of two studies that you found to be particularly interesting.
4. Find two studies that used the health promotion model for their framework. Identify the assumptions and propositions the studies were based on.

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