

Population Health: Creating a Culture of Wellness, Third Edition

ISBN 9781284188462

Chapter 8 Health Promotion and Health Behavior



© chomplearn/Shutterstock

CHAPTER 8

Health Promotion and Health Behavior

Amy Leader

Preethi Selvan

157

EXECUTIVE SUMMARY

The field of health promotion focuses on changing health behaviors for the better. This typically involves planned, organized, and structured activities that, over time, help individuals make informed decisions about their health. The activities can be applicable to individuals in various settings and at any point in the natural history of an illness or problem but are typically designed to work with a priority population that is experiencing a higher than expected burden of risk or disease. The most successful health promotion programs are created with a theoretical model of behavior as its foundation, which not only provides a framework for implementing activities but a mechanism for evaluating their effectiveness. Initially, theoretical models focused on changing behavior of the individual, but newer theories focus on the interacting nature of factors on behavior at multiple levels of influence. As technology advances, health promotion programs are seeking to capitalize over the ability to collect real-time health behavior data. In the future, health promotion programs will continue to evolve and adapt as health populations and problems change with the times.

LEARNING OBJECTIVES

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

1. Understand how unhealthy behaviors contribute to the burden of disease in the United States.
2. Understand how health promotion programs can overcome the burden of disease in the United States by facilitating positive behavior change among individuals, communities, and society.
3. Describe prominent health behavior theories and their key concepts.
4. Appreciate the importance of rigorously evaluating health promotion programs by using evidence-based evaluation frameworks.

KEY TERMS

Behavior intervention

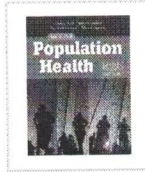
Health behaviors

Health behavior theory

Health promotion

Program evaluation

Program planning



Population Health: Creating a Culture of Wellness, Third Edition

ISBN 9781284188462

Chapter 8 Health Promotion and Health Behavior

Introduction

► Introduction

Health promotion has been defined as “the process of enabling people to increase control over their health and its determinants, and thereby improve their health.”¹

Health promotion programs are comprised of two levels of action: providing health education and environmental actions to support the conditions for healthy living. Health education often involves facilitating new knowledge, adjusting attitudes, and acquiring new skills that could change one’s behavior and ultimately one’s health status. Educational strategies are typically delivered through individual or group instruction, although newer health promotion programs are using technology to deliver the messages. Mass communication through advertisements, campaigns, and other forms of media are also commonly used to deliver health education to the public. Environmental actions may include altering the physical, social, economic, or political environment around the individual to promote behavior change. This may include actions such as advocacy and legislation, resource development, social support, financial support, or organizational and community development. Working in tandem, health education and environmental actions can create opportunities for individuals to live healthy and long lives.

While smoking rates in the United States continue to decline, cigarette smoking remains the leading cause of preventable disease and death in the United States, accounting for more than 480,000 deaths every year, or about 1 in 5 deaths.³ In 2017, more than 14 of every 100 U.S. adults age 18 years or older (14%) currently smoked cigarettes, translating to an estimated 34.3 million adults in the United States.³

Smoking rates are highest among males, those with only a high school education, those of lower socioeconomic status, those with a disability or a diagnosed mental health condition, those who identify as a sexual or gender minority, and American Indian/Alaskan Natives. Current smoking rates are nearly identical for African American and Caucasian adults. Of concern to public health and medical professionals are the large number of adolescents who are trying e-cigarettes, which are a known gateway to traditional cigarette smoking, for the first time.⁴

159

Diet and Nutrition

Poor diet quality is a leading risk factor associated with death and disability in the United States.⁵ Eating a diet rich in fruits and vegetables as part of an overall healthy diet can help protect against a number of serious and costly chronic diseases, including heart disease, type 2 diabetes, some cancers, and obesity. Fruits and vegetables also provide important vitamins and minerals that help the human body work as it should and fight off illness and disease. The 2015–2020 Dietary Guidelines for Americans recommends that adults consume 1.5–2 cups of fruits and 2–3 cups of vegetables per day.⁶ Despite these recommendations, recent data show low consumption, with only 1 in 10 U.S. adults eating the recommended amount of fruits or vegetables.⁷ Income-related disparities exist as well, with 7% of adults who live at or below the poverty level meeting the daily vegetable recommendation, compared to 11.4% of adults with the highest household incomes.⁷ Research shows that residents of low-income, minority, and rural neighborhoods have less access to stores that sell healthy foods, including a variety of fruits and vegetables, at affordable prices.⁸ Other initiatives, such as reducing sugar consumption, increasing water intake, breastfeeding infant children, and ensuring adequate micronutrient levels aim to improve dietary and nutrition status in the United States.

Physical Activity

The evidence is clear—physical activity fosters normal growth and development, can reduce the risk of various chronic diseases, and can make people feel, function, and sleep better. Some health benefits start immediately after activity, and even short bouts of physical activity are beneficial. Guidelines vary by age: children and adolescents ages 6 through 17 years should aim for 60 minutes of moderate to vigorous physical activity daily, while adults should aim for at least 150–300 minutes of moderate-intensity activity each week.⁹ Guidelines also exist for older adults, women who are pregnant, adults with chronic health conditions, and those with disabilities.⁹ Currently, only 26% of men, 19% of women, and 20% of adolescents report sufficient

160

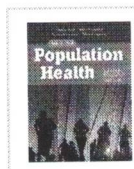
activity to meet the relevant aerobic and muscle-strengthening guidelines.¹⁰ Sedentary behavior has received an increasing amount of attention as a public health problem because it appears to have health risks, and it is a highly prevalent behavior in the U.S. population. Data collected as part of the U.S. National Health and Nutrition Examination Survey (NHANES) indicate that children and adults spend approximately 7.7 hours per day (55% of their monitored waking time) being sedentary.¹¹ Thus, the potential population health impact of sedentary behavior is substantial.

Alcohol Consumption

Drinking too much alcohol can lead to numerous health and social conditions, such as high blood pressure, heart disease, stroke, liver disease, some cancers, lost productivity, family problems, and unemployment.¹² Excessive alcohol use led to approximately 88,000 deaths and 2.5 million years of potential life lost (YPLL) each year in the United States from 2006–2010, shortening the lives of those who died by an average of 30 years.¹³ Further, excessive drinking was responsible for one in 10 deaths among working-age adults ages 20–64 years. In the United States, a standard drink contains 0.6 ounces of pure alcohol.¹⁴ Generally, this equates to 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of liquor. Approximately 58% of adult men report drinking alcohol in the past 30 days, compared to 46% of adult women in the United States.¹⁵ Approximately 23% of adult men report binge drinking five times a month, averaging eight drinks per binge, while approximately 12% of adult women report binge drinking three times a month, averaging five drinks per binge.¹⁶ Most people who report binge drinking are not alcoholics or alcohol dependent. Alcohol is the most commonly used and abused drug among youth in the United States.¹⁷

The Growth of Data on Health Behaviors

Contributing to the increased attention toward health behaviors in health promotion and disease prevention work is the ease in which health behavior data have become available over the past few decades. Health behavior data are collected in national, state, and local surveys. In 1984, the Centers for Disease Control and Prevention (CDC) implemented the first state-based surveillance system for health behaviors and preventive services, the Behavioral Risk Factor Surveillance System.¹⁸ Other surveys followed in the years to come, including the Youth Risk Behavior Surveillance System,¹⁹ the National



Population Health: Creating a Culture of Wellness, Third Edition
 ISBN 9781284188462
 Chapter 8 Health Promotion and Health Behavior
 The Role of Behavior in Morbidity and Mortality

► The Role of Behavior in Morbidity and Mortality

Health, in general, is caused by factors in five domains—genetics, social circumstances, environmental exposures, behavioral patterns, and health care.² When it comes to reducing deaths, health care has a relatively minor role. The greatest opportunity to improve health and reduce premature mortality lies in personal behavior. It is thought that behavioral causes account for nearly 40% of all deaths in the United States (FIGURE 8-1).² In the United States, there are four health behaviors that account for the majority of premature death. Collectively, public health professionals refer to them as “The Big Four.” They are smoking, poor diet, physical inactivity, and alcohol consumption.

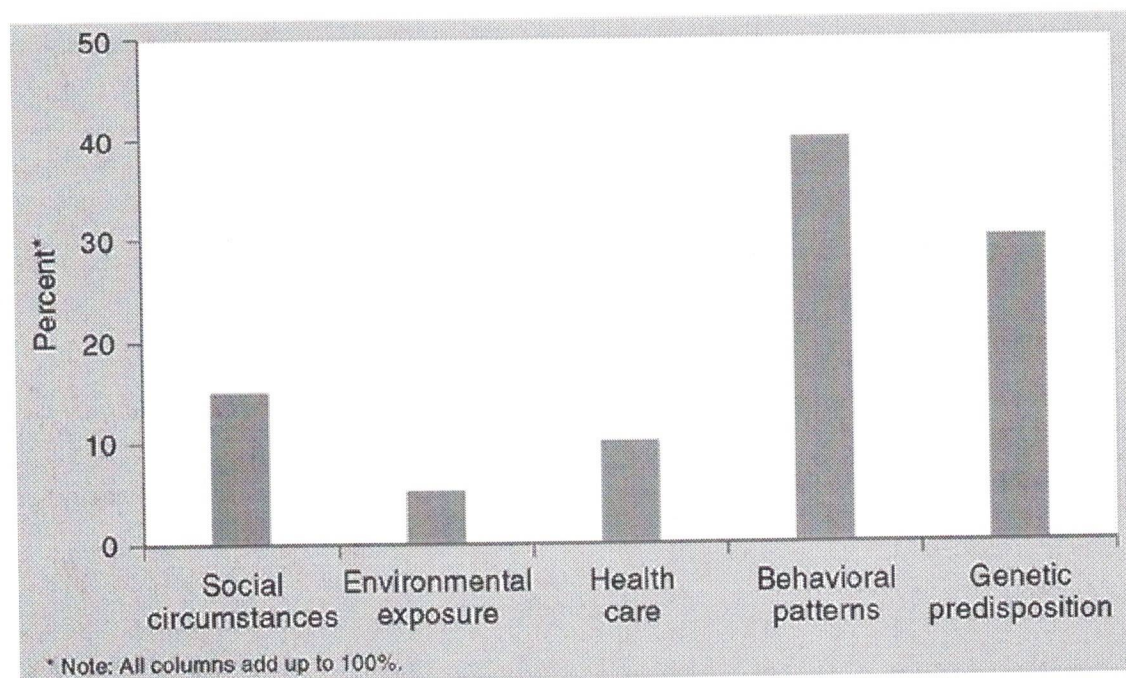
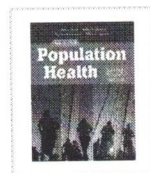


FIGURE 8-1 Determinants of Health and Their Contribution to Premature Death.

Data from Schroeder SA. We can do better: Improving the health of the American people. *New England Journal of Medicine* 2007; 357: 1221-1228. FIGURE 1 “Determinants of Health and Their Contribution to Premature Death.” <https://www.nejm.org/doi/full/10.1056/nejmsa073350>

Smoking



Population Health: Creating a Culture of Wellness, Third Edition

ISBN 9781284188462

Chapter 8 Health Promotion and Health Behavior

The Role of Behavior in Morbidity and Mortality

161

Survey on Drug Use and Health,²⁰ and the Pregnancy Risk Assessment Monitoring System.²¹ Some surveys, such as Philadelphia's Southeastern PA Household Health Survey, measure health behaviors at a local level.²² A list of national surveys that measure health behavior is in **TABLE 8-1**.

TABLE 8-1 Major US Surveys That Measure Health Behaviors

Acronym	Name	Sponsoring Agency
ACS	American Community Survey	US Census Bureau
BRFSS	Behavioral Risk Factor Surveillance System	CDC
CPS	Current Population Survey	US Census Bureau
CSFII	Continuing Survey of Food Intakes by Individuals	US Department of Agriculture
CSHCN	National Survey of Children with Special Health Care Needs	CDC
IFPS	Infant Feeding Practice Study II	CDC
IHIS	Integrated Health Interview Series	NCHS-NHIS
HRS	Institute for Social Research Health and Retirement Study	University of Michigan, Institute for Social Research
LSOAs	Longitudinal Studies of Aging	CDC-NCHS
MEPS	Medical Expenditure Panel Survey	AHRQ
NAMCS	National Ambulatory Medical Care Survey	CDC
NAS	National Asthma Survey	CDC
NCS	National Children's Study	NIH

Abbreviations: CDC, Centers for Disease Control and Prevention; NCHS, National Center for Health Statistics; NHIS, National Health Interview Survey; AHRQ, Agency for Healthcare Research and Quality; NIH, National Institutes of Health; ICPSR, Inter-University Consortium for Political and Social Research; SAMHSA, Substance Abuse and Mental Health Services Administration.

Mokdad A, Remington P. Measuring health behaviors in populations. *Preventing Chronic Disease* 2010; 7(4): A75. Table 2: Major US Surveys that Measure Health Behaviors. Accessible at:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2901573/>

TABLE 8-1 Major US Surveys That Measure Health Behaviors

NCS-1	National Comorbidity Survey Replication	ICPSR
NEHIS	National Employer Health Insurance Survey	CDC
NHAMCS	National Hospital Ambulatory Medical Care Survey	CDC
NHANES	National Health and Nutrition Examination Survey	CDC
NHCS	National Health Care Surveys	CDC
NHDS	National Hospital Discharge Survey	CDC
NHHCS	National Home and Hospice Care Survey	CDC
NHIS	National Health Interview Survey	CDC
NIS	National Immunization Survey	CDC
NLAAS	National Latino and Asian American Study	ICPSR
NLTCS	National Long Term Care Survey	Duke University
NMFS	National Mortality Followback Survey	CDC
NMIHS	National Maternal and Infant Health Survey	CDC
NNHS	National Nursing Home Survey	CDC
NOES	National Occupational Exposure Survey	CDC
NSAS	National Survey of Ambulatory Surgery	CDC
NSCH	National Survey of Children's Health	CDC
NSDUH	National Survey on Drug Use and Health	SAMHSA, US Census Bureau
NSECH	National Survey of Early Childhood Health	CDC
NSFG	National Survey of Family Growth	CDC
PedNSS	Pediatric Nutrition Surveillance System	CDC
PNSS	Pregnancy Surveillance System	CDC
YRBSS	Youth Risk Behavior Surveillance System	CDC

Abbreviations: CDC, Centers for Disease Control and Prevention; NCHS, National Center for Health Statistics; NHIS, National Health Interview Survey; AHRQ, Agency for Healthcare Research and Quality; NIH, National Institutes of Health; ICPSR, Inter-University Consortium for Political and Social Research; SAMHSA, Substance Abuse and Mental Health Services Administration.

Mokdad A, Remington P. Measuring health behaviors in populations. *Preventing Chronic Disease* 2010; 7(4): A75. Table 2: Major US Surveys that Measure Health Behaviors. Accessible at:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2901573/>

Despite strong evidence of the influence of social and behavioral factors on health, these factors are not often addressed in clinical care. Efforts are under way to include standardized measures of key social and behavioral determinants in electronic health records (EHRs) and make the data available to the appropriate professionals. In 2014, the National Academies of Science released a report entitled *Capturing Social and Behavioral Domains and Measures in Electronic Health Records*.²³ The National Academy of Medicine convened a committee to, among other things, identify core social and behavioral domains to be included in all EHRs and obstacles to adding these domains to health system EHRs. They assessed the strength of the evidence for each domain and how each one should be measured. Recommendations from the Committee are summarized in **TABLE 8-2**. The Committee acknowledged that there are several limitations to achieving this goal, including infrastructure capacities, providers' willingness to collect these data from patients, and privacy and security concerns. Nonetheless, increasing access to social and behavioral data in EHRs can lead to more effective treatment of individual patients in health care, more effective population management for healthcare systems and public health agencies, and the discovery of the pathways that link social and behavioral factors to functioning, disease processes, and mortality.

TABLE 8-2 Summary of Selected and Non-Selected Domains

Candidate Set of Domains for Consideration for the Inclusion in All Electronic Health Records (Chapter3)	Domains Reviewed But Not Selected (Appendix A)
--	--

Sociodemographic Domains

- | | |
|---|---|
| <ul style="list-style-type: none"> ■ Sexual orientation ■ Race/ethnicity ■ Country of origin/U.S. born or non- U.S. born ■ Education ■ Employment ■ Financial resource strain (Food and housing insecurity) | <ul style="list-style-type: none"> ■ Gender identity |
|---|---|

Republished with permission of National Academies of Science, from *Capturing Social and Behavioral Data Domains and Measures in Electronic Health Records*; permission conveyed through Copyright Clearance Center, Inc.

TABLE 8-2 Summary of Selected and Non-Selected Domains*Psychological Domains*

- Health literacy
- Stress
- Negative mood and affect (Depression, anxiety)
- Psychological assets (Conscientiousness, patient engagement/activation, optimism, self-efficacy)
- Negative mood and affect (Hostility and anger, hopelessness)
- Cognitive function in late life
- Psychological assets (Coping, positive affect, life satisfaction)

Behavioral Domains

- Dietary patterns
- Physical activity
- Tobacco use and exposure
- Alcohol use
- Abuse of other substances
- Sexual practices
- Exposure to firearms
- Risk-taking behaviors (Distractive driving and helmet use)

Individual-Level Social Relationships and Living Conditions Domains

- Social connections and social isolation
- Exposure to violence
- Social support (Emotional, instrumental, and other)
- Work conditions
- History of incarceration
- Military service
- Community and cultural norms (Health decision making)

Neighborhood and Community Domains

Republished with permission of National Academies of Science, from *Capturing Social and Behavioral Data Domains and Measures in Electronic Health Records*; permission conveyed through Copyright Clearance Center, Inc.

TABLE 8-2 Summary of Selected and Non-Selected Domains

- | | |
|--|--|
| <ul style="list-style-type: none"> ■ Neighborhood and community compositional characteristics (Socioeconomic and racial/ethnic characteristics) | <ul style="list-style-type: none"> ■ Neighborhood and community contextual characteristics (Air pollution, allergens, other hazardous exposures, nutritious food options, transportation, parks, open spaces, health care and social services, educational and job opportunities) |
|--|--|

Republished with permission of National Academies of Science, from Capturing Social and Behavioral Data Domains and Measures in Electronic Health Records; permission conveyed through Copyright Clearance Center, Inc.

Lastly, wearable technology—electronic devices that people wear on the body to collect different types of personal biometric data (e.g., monitoring of nutrition, activity, heart rate, even blood glucose levels)—is undergoing explosive growth. According to one estimate, U.S. adults used nearly 77 million wearable devices in 2017.²⁴ These “wearables” are user-friendly and unobtrusive, since they are often worn as accessories. The love of wearables is driven largely by consumers wanting to eat healthier, exercise smarter, and have easier access to health care. The typical wearable device is a fitness tracker or some other smart electronic device that can be worn on the body. However, there is a wide range of types of these devices, including implantable devices and the first FDA-approved pill that can track a patient’s adherence. The FDA approved the smart pill, which is an atypical antipsychotic medication used to treat schizophrenia and bipolar disorder, in 2017.²⁵ It represents a potential huge advance in the treatment of mental health disorders and other diseases where medication adherence has been a challenge. Future wearables focus on embedding of wearables in skin patches and clothing, such as socks that measure skin temperature in patients with diabetes to prevent foot ulcers.²⁶ However, this avalanche of patient data is not without a downside: an *MIT Technology Review* reports that 99.5% of newly created digital data remain unanalyzed.²⁷

How Theory Informs Health Promotion and Disease Prevention

Effective public health, health promotion, and chronic disease management programs



Population Health: Creating a Culture of Wellness, Third Edition

ISBN 9781284188462

Chapter 8 Health Promotion and Health Behavior

The Role of Behavior in Morbidity and Mortality

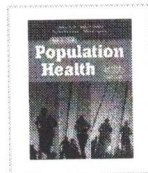
are built on the premise of helping people make voluntary decisions about reducing their risk of illness or injury and improving their health. Interventions can improve the well-being and self-sufficiency of individuals, families, organizations, and communities. Not all health programs and initiatives are equally successful, however. Those most likely to achieve desired outcomes are based on a clear understanding of targeted health behaviors, and the environmental and social context in which they occur. Practitioners use strategic planning models to develop and manage these programs, and continually improve them through meaningful evaluation. **Health behavior theory** can play a critical role throughout the **program planning** process.

164

What Is a Theory?

A theory presents a systematic way of understanding events or situations.²⁸ A theory is a set of concepts that explain or predict these events or situations by illustrating the relationships among variables. Theories are generalizable and must be applicable to a broad variety of situations.^{29,30} They are, by nature, abstract, and do not have a specified content or topic area. They are the infrastructure that supports the activities of a novel intervention

165



Population Health: Creating a Culture of Wellness, Third Edition
 ISBN 9781284188462
 Chapter 8 Health Promotion and Health Behavior
 The Role of Behavior in Morbidity and Mortality

166

or program. Most health behavior and health promotion theories were adapted from the social and behavioral sciences but draw upon various disciplines such as psychology, sociology, anthropology, consumer behavior, and marketing.³¹

Why Use Theory in Health Promotion Practice?

Theory gives planners tools for moving beyond intuition or a “gut feeling” to designing and evaluating health promotion interventions based on understanding of behavior. Using theory as a foundation for program planning and development is consistent with the current emphasis on using evidence-based interventions in public health, behavioral medicine, and medicine. Theory provides a road map for studying problems, developing appropriate interventions, and evaluating their successes. It can inform one’s thinking during all of these stages, offering insights that translate into stronger programs. Theory can also help to explain the dynamics of health behaviors, including processes for changing them, and the influences of the many forces that affect health behaviors, including social and physical environments. Most health behavior theories can be applied to diverse cultural and ethnic groups, but health practitioners must understand the characteristics of target populations (e.g., ethnicity, socioeconomic status, gender, age, and geographical location) to employ these theories correctly.

Theory can also help planners identify the most suitable target audiences, methods for fostering change, and outcomes for evaluation. Researchers and practitioners use theory to investigate answers to the questions of “why,” “what,” and “how” health problems should be addressed. By seeking answers to these questions, they clarify the nature of targeted health behaviors. That is, theory guides the search for reasons why people do or do not engage in certain health behaviors; it helps pinpoint what planners need to know before they develop public health programs; and it suggests how to devise program strategies that reach target audiences and have an impact.^{32,33} Theory also helps to identify which indicators should be monitored and measured during **program evaluation**. For these reasons, program planning, implementation, and monitoring processes based in theory are more likely to succeed than those developed without the benefit of a theoretical perspective.

Designing Theoretically Grounded Interventions (PRECEDE-PROCEED Model)

The PRECEDE-PROCEED model is a planning model developed by Lawrence Green in the 1970s that can help health program planners design and evaluate health

programs.³⁴ It provides a comprehensive structure for engaging stakeholders, assessing health and quality-of-life needs, and for designing, implementing, and evaluating health promotion and other public health programs. It guides planners through a process that starts with desired outcomes and then works backward in the causal chain to identify a mix of strategies for achieving those objectives. In this framework, health behavior is regarded as being influenced by both individual and environmental factors, and hence has two distinct parts. First is an “educational diagnosis”—that is, PRECEDE, an acronym for Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation. Second is an “ecological diagnosis”—PROCEED, for Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development. The model consists of four planning phases, one implementation phase and three evaluation phases. A diagram of the model is in **FIGURE 8-2**. The model is multidimensional and is founded in the social/behavioral sciences, epidemiology, administration, and education.

167

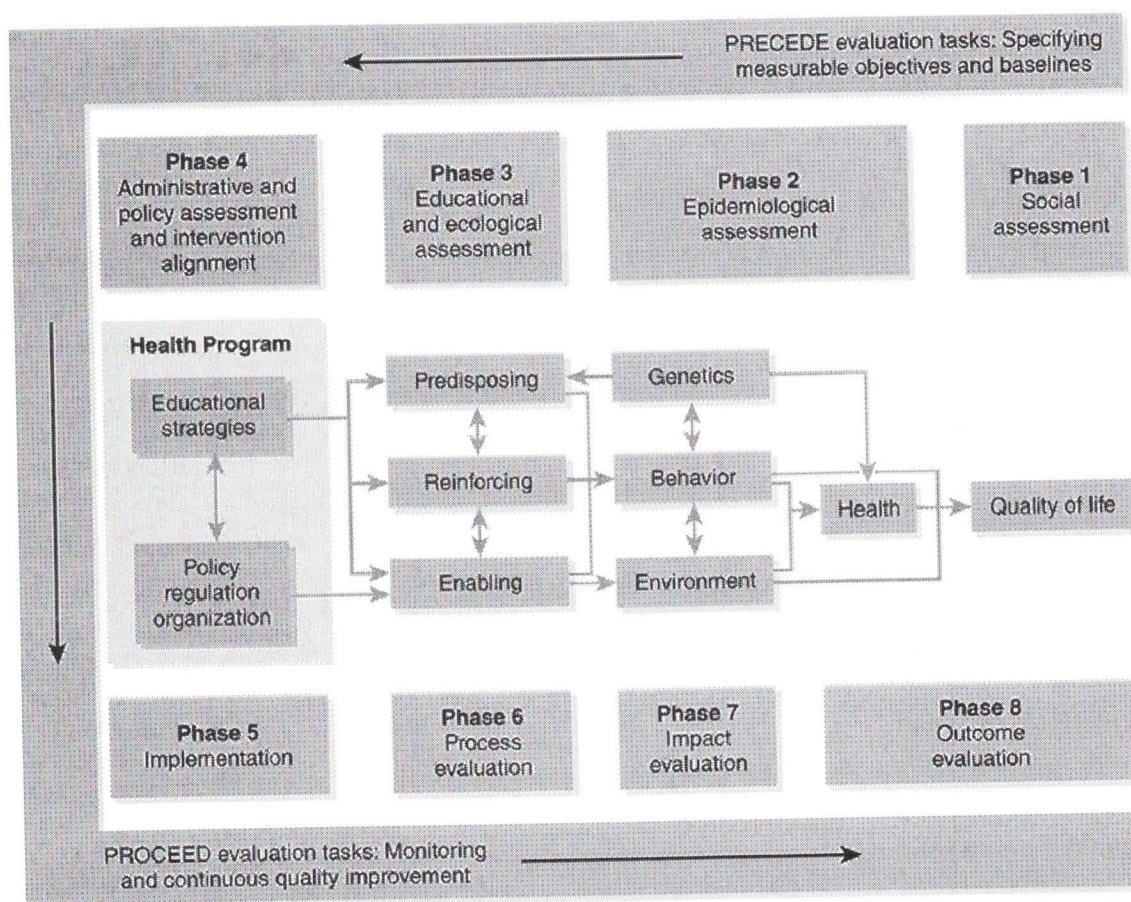
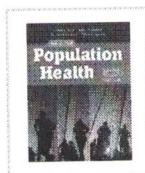


FIGURE 8-2 PRECEDE-PROCEED Model.

Reproduced from Lawrence Green, Marshall Kreuter, *Health Program Planning: An Educational and Ecological Approach*, Volumes 1-2, McGraw-Hill Education, 2005.

During the first stage, *the social diagnosis*, program planners aim to gain an understanding of the social problems that affect the quality of life of the community

and its members—their strengths, weaknesses, and resources, as well as their readiness to change. This is done through various activities such as developing a planning committee, holding community forums, and conducting focus groups, surveys, and/or interviews. The second stage, *the epidemiological, behavioral, and environmental diagnosis*, focuses on the assessment through data collection and analysis of the underlying social, behavioral and environmental factors linked to a particular health issue. From here, program planners can work to identify the modifiable factors that could be the focus of an intervention in the *educational and ecological diagnosis*. The fourth phase, *the administrative and*



Population Health: Creating a Culture of Wellness, Third Edition

ISBN 9781284188462

Chapter 8 Health Promotion and Health Behavior

The Role of Behavior in Morbidity and Mortality

168

policy assessment, focuses on the administrative and organizational concerns that must be addressed prior to program implementation. After completing the comprehensive assessment, planners can move to the next phase, *implementation*, where they conduct the activities of the intervention. The final three phases—process, impact, and outcome evaluation—focus on assessing the short-, medium-, and long-term impacts of the intervention. To date, there are more than 1,000 publications using the PRECEDE-PROCEED framework for program planning and evaluation purposes.

Major Theories in Public Health and Interventions in Practice

Much like the Socio Ecological Model (SEM), theories have applications at various levels of influence. Some theories that operate at the individual level aim to change individual characteristics that influence behavior, such as knowledge, attitudes, beliefs, and personality traits. Theories that operate at the interpersonal level aim to influence interpersonal processes and primary groups, including family, friends, and peers. Some theories operate at the community level, aiming to influence institutional factors, community factors, or public policies. An overview of the levels of influence of theories can be found in **TABLE 8-3**.

TABLE 8-3 LEVEL OF INFLUENCE OF THEORIES

TABLE 8-3 LEVEL OF INFLUENCE OF THEORIES

Change Strategies	Examples of Strategies	Ecological Level	Useful Theories
 Change People's Behavior Change the Environment	■ Educational sessions ■ Interactive kiosks ■ Social marketing campaigns	Individual	■ Stages of Change/ Transtheoretical Model⁴⁰ ■ Precaution Adoption Process ■ Health Belief Model³⁶ ■ Theory of Planned Behavior³⁸
	■ Mentoring programs ■ Lay health advising	Interpersonal	■ Social Cognitive Theory⁴²
	■ Media advocacy campaigns ■ Advocating changes to company policy	Community	■ Communication Theory ■ Diffusion of Innovations ■ Community Organizing

Glanz, K. & Rimer, B.K. (2005). Theory at a glance: A guide for health promotion practice. National Cancer Institute. National Institutes of Health. US Department of Health and Human Services. NIH Pub. No. 05-3896. Washington, DC: NIH.

Health Belief Model

The Health Belief Model (HBM) was one of the first theories of health behavior and remains one of the most widely recognized in the field. Initially developed to identify determinants of being screened for tuberculosis in the 1950s,³⁵ it has been used to address a wide range of topics related to prevention such as cancer screening tests, HIV testing, vaccination, and injury prevention.³² The HBM theorizes that people's beliefs about whether they are at risk for a problem and their perceptions of the benefits and barriers to taking action influence their readiness to take action.^{28,32,36}

Core constructs of the HBM are perceived susceptibility (the degree in which one feels vulnerable to a situation or health problem); perceived severity (the degree to which one thinks that the situation or health problem has serious consequences); perceived benefits (the positive outcomes a person believes will result from the action); perceived barriers (the negative outcomes a person believes will result from the action); self-efficacy (a person's belief in his or her ability to take action); and cues to action (an external event that motivates a person to act). A conceptual model of the HBM is displayed in **FIGURE 8-3**.

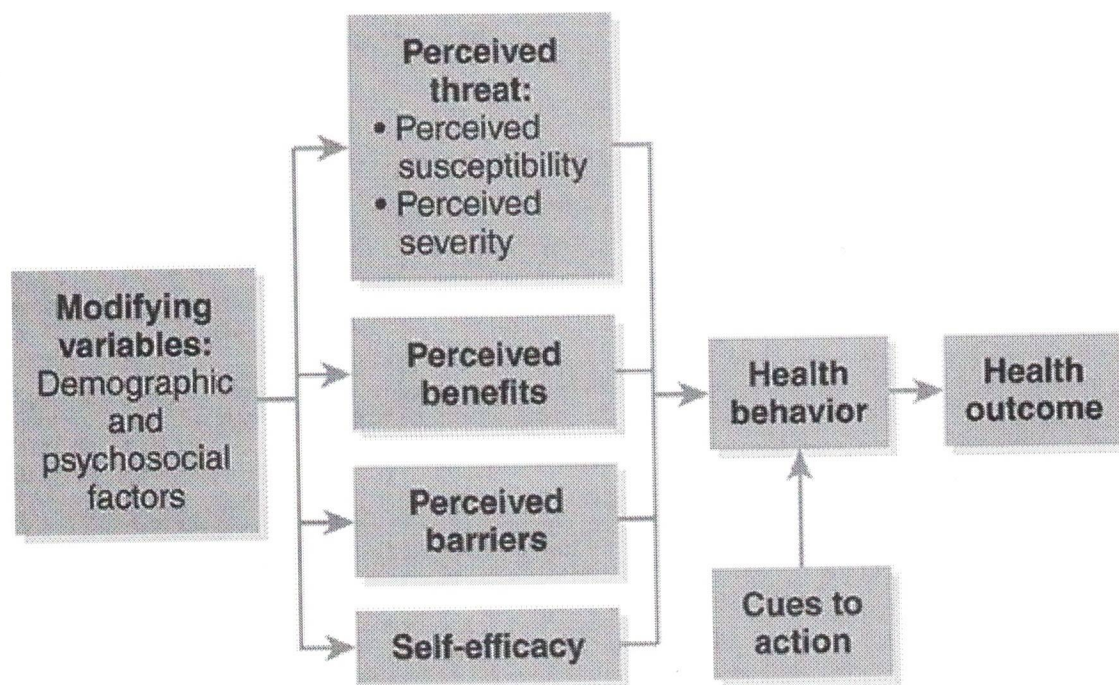
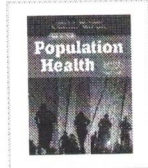


FIGURE 8-3 Health Belief Model.

Modified from Becker MH and Maiman, LA. Sociobehavioral determinants of compliance with health and medical care recommendations. *Medical Care* 1975; 134(1): 10–24. Figure 1, p. 12.

The Health Belief Model in Action

The HBM has been used widely in practice for more than 40 years. Numerous strengths to the theory exist, including its easy-to-understand framework and its applicability to a broad range of preventive health behaviors. However, critics of the theory often mention its oversimplification of a complex issue and its lack of including factors beyond the individual in considering or predicting behavior change. Noting the strengths and weaknesses, it is not surprising that the HBM has had successes and challenges when used in everyday practice. A systematic review of the HBM used to explore factors influencing cervical cancer screening among immigrant and ethnic minorities included 55 studies in its analysis.³⁷ The researchers found both common and unique factors that were held across the Asian, Hispanic, Middle Eastern, African American, and Native American populations. For example, a lack of knowledge about cervical cancer was contributing to a deficit in perceived susceptibility among all five populations, but issues of embarrassment as a barrier to screening were only evident among the Asian and Hispanic populations. Understanding nuances in beliefs about a particular health topic will



Population Health: Creating a Culture of Wellness, Third Edition
 ISBN 9781284188462
 Chapter 8 Health Promotion and Health Behavior
 The Role of Behavior in Morbidity and Mortality

allow public health professionals to create culturally tailored, theoretically grounded interventions using the HBM.

170

The Theory of Reasoned Action/Planned Behavior

The Theory of Planned Behavior (TPB) and its predecessor, the Theory of Reasoned Action (TRA), explore the relationship between behavior and beliefs, attitudes, and intentions.³⁸ Both the TPB and the TRA assume behavioral intention is the most important determinant of behavior. According to the TRA, behavioral intention is influenced by a person's *attitude* toward performing a behavior and by beliefs about whether individuals who are important to the person approve or disapprove of the behavior (*subjective norm*). The subjective norm is a combination of a person's beliefs about what other people in his or her social group will think about the behavior, combined with his or her motivation to comply with those individuals. The TPB is a reformulated version of the TRA and includes the construct *perceived behavioral control*, to account for times when a person has strong intentions to perform a behavior but the act of doing so is outside of their control. A conceptual model of the TRA/TPB is displayed in **FIGURE 8-4**.

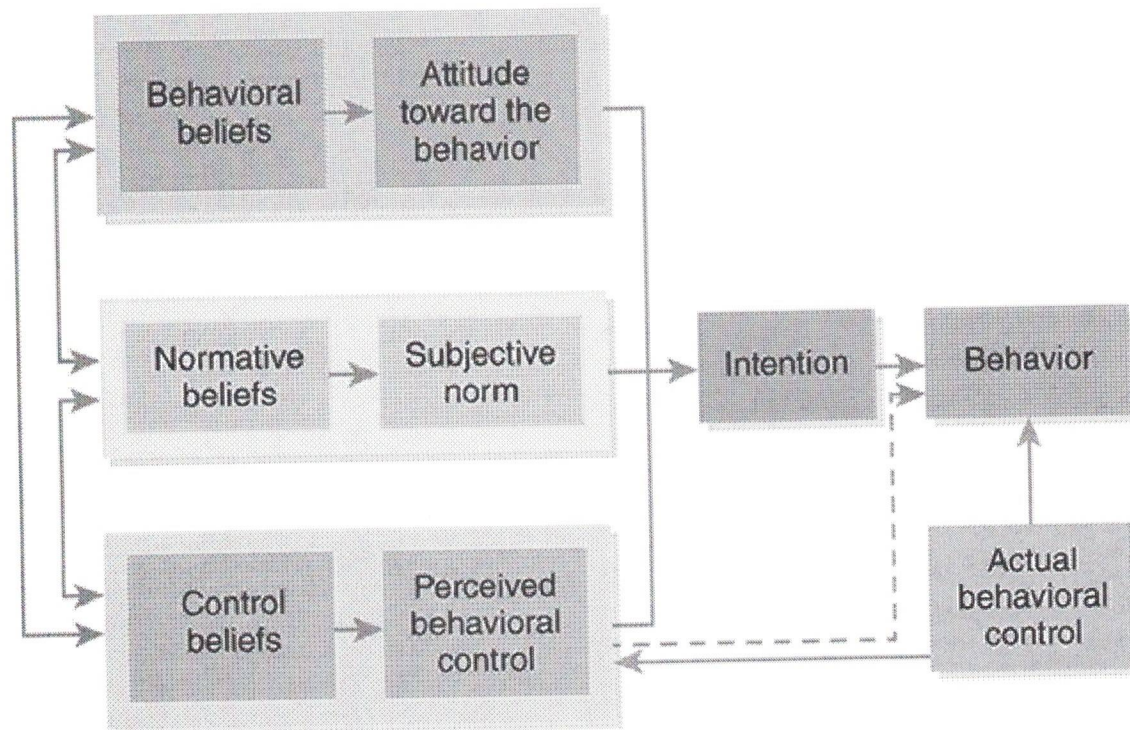


FIGURE 8-4 Theory of Reasoned Action/Theory of Planned Behavior.

© Icek Aisen, 2002.

The Theory of Planned Behavior in Action

Both the TRA and the TPB have strengths and weaknesses to their approach. The hallmark of both theories is that attitudes are the strongest predictors of behavior, which has largely been seen in the literature. However, the theories assume that behavior is the result of a linear, rational thinking process that does not account for all of the decisions that people base on “gut reaction” or emotional appeals. The theories also assume that intentions lead to behavior, which may not always be the case. A systematic review of dietary interventions for adolescents based on the TRA or TPB analyzed 11 interventions for their effectiveness, approach, and measurement.³⁹ Nine of the 11 interventions resulted in positive dietary behavior change, usually measured as an increase in fruit and vegetable consumption. All of the interventions occurred in school-based settings. The interventions were conducted in countries all around the world, a testament to the reach of the theories in health promotion research and practice.

171

Transtheoretical Model

Both the HBM and the TRA/TPB can be considered “point in time” theories—predicting a behavior that happens once, like being vaccinated or tested for HIV. But many behaviors, particularly lifestyle behaviors, occur daily or because of a more complex process in decision making. Consider the behavior of beginning a new exercise routine, such as training for a marathon. A person may initially be completely unprepared and unsure of how to train for such an endeavor, and progress to buying new training clothes and sneakers, to finding a group of friends to train with, to running routinely each week, to successfully completing the marathon. This is more of a process of decisions and actions than a single action. The Transtheoretical Model (TTM) best accounts for changing behaviors where multiple steps are involved, such that a person can move forward or regress in his or her behavior change over time.⁴⁰ According to the TTM, there are six stages to describe the overall process of behavior change: Precontemplation (Stage 1, a person does not intend to take action); Contemplation (Stage 2, a person is thinking about taking action sometime in the near future); Preparation (Stage 3, a person is ready to take action); Action (Stage 4, a person has recently taken action toward change); Maintenance (Stage 5, a person who has been taking action for quite some time); and Termination (Stage 6, a person has completed the process of behavior change). A conceptual model of the TTM is displayed in **FIGURE 8-5**. Helping people move from one stage to the next are processes of change, which are guidelines for how to approach a behavior change recommendation. The underlying premise of the TTM is that people in different stages of readiness to adopt a new behavior will need different types of support (processes

of change); hence, interventions using TTM are somewhat tailored to each stage of readiness.

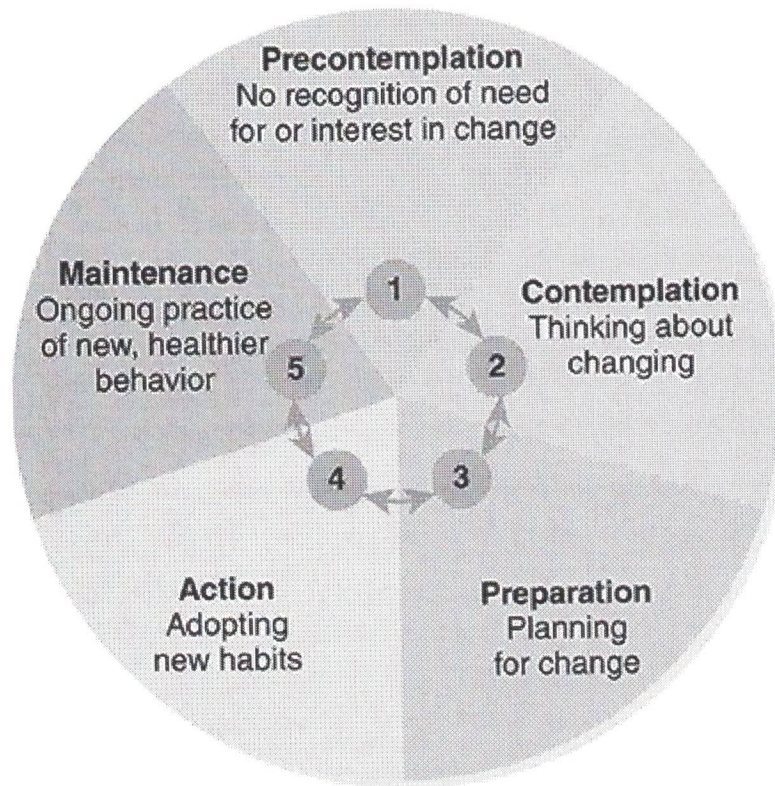
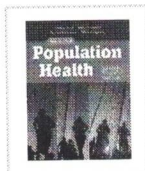


FIGURE 8-5 Transtheoretical Model.

Modified from Prochaska, JO & Di Clemente CC Transtheoretical therapy: toward a more integrative model of change. *Psychotherapy: Theory, Research and Practice*, 1975; 19(3): 276–288. Figure 2, p. 283.

Transtheoretical Model in Action

The TTM is often praised for its ability to recognize that not all people are ready to change their behavior at the same time and that people's readiness to change



Population Health: Creating a Culture of Wellness, Third Edition

ISBN 9781284188462

Chapter 8 Health Promotion and Health Behavior

The Role of Behavior in Morbidity and Mortality

172

often occurs as a process over time. Furthermore, the TTM rightfully accounts for people's ability to go forward and backward in behavior change. Behavior change is rarely a straight line forward, and the TTM nicely incorporates that aspect into its theoretical foundation. On the flip side, some critics have noted that the theory can be burdensome to use in practice. In order to design an intervention that meets someone's level of readiness, one has to know (i.e., assess) where that individual is on the continuum of readiness. A Cochrane Review examination of stage-based interventions for smoking cessation included 41 randomized controlled trials covering more than 33,000 smokers.⁴¹ The review found that providing intervention support to people who wanted to quit smoking, whether in a stage-based format or non-stage-based format, was an effective method for cessation. However, in the four studies that directly compared whether providing the intervention in a stage-based format was superior to a non-staged-based format, there was no difference in effectiveness. The review concluded that the value of providing a smoking cessation intervention in a stage-based format was unclear.

Social Cognitive Theory

Social Cognitive Theory (SCT) is one of the most common behavior theories that exists at the interpersonal level. It explores the reciprocal interactions of people, health behaviors, and their environments⁴²—namely, that people's behavior is a reflection of the environment they are in and the social cues around them. It is based on the foundation of operant conditioning—that people learn from the positive or negative experiences resulting from a behavior. A child learns to not touch a hot stove after burning her hand while previously touching the hot stove. The original formulation of the theory, named Social Learning Theory, introduced the new idea of vicarious learning—that people learn merely from watching others. A child learns to not touch a hot stove because she saw her brother get burned when he touched the stove. It was renamed Social Cognitive Theory in the 1980s to better reflect situations when individuals consciously behave within their environment. According to SCT, changing one's behavior is a function of the following factors: individual characteristics, such as a person's self-efficacy that he or she can perform a behavior or the extent to which he or she can deal with the emotions involved in behavior change, and environmental factors, such as the ability for someone to directly observe the behavior change in question or the positive or negative feedback that someone gets from others for changing a behavior. Many argue that the concept of self-efficacy is the pivotal construct in SCT. A conceptual model of SCT is in **FIGURE 8-6**.

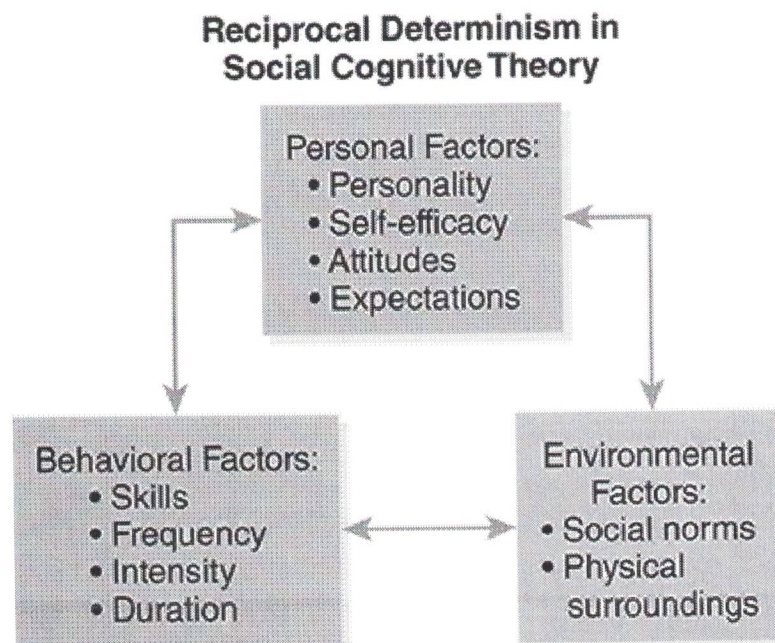


FIGURE 8-6 Social Cognitive Theory.

Social Cognitive Theory in Action

SCT has seen many successes in the literature but is not without its critics. Successes include the development of many concepts we use across the behavioral science and health promotion field: vicarious learning, self-efficacy, and outcome expectations. Self-efficacy has received far more attention than the other constructs, such that some interventions claim to be grounded in SCT when, in fact, they are merely grounded in self-efficacy. Critiques include the complex nature of the theory and the lack of cohesiveness between the constructs. A meta-analysis of 44 interventions (with 55 distinct tests of SCT models) to increase physical activity in the general population revealed that only 22 of the 55 models used all of the major SCT constructs; the remaining models were combinations of constructs.⁴³ Overall, SCT explained almost one-third of the variance in physical activity, which is a moderate effect size for a theory to explain a behavior. Of the major constructs in SCT, self-efficacy and goal setting were the most likely to be associated with changes in physical activity. However, the authors noted that intervention quality—accurately using the theory as it was intended—was quite low across the studies, limiting the generalizability of the findings.

173

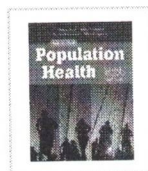
Which Theory to Use?

No single theory dominates health education and promotion, nor should it; the problems, behaviors, populations, cultures, and contexts of public health practice are broad and varied. Some theories focus on individuals as the unit of change. Others examine change within families, institutions, communities, or cultures. Adequately addressing an issue may require more than one theory, and no single theory is suitable for all cases. Choosing a theory that will be the most successful at improving

the population at risk should not involve selecting the most common theory, the theory mentioned in a recent journal article, or the one you are most comfortable using. Instead, the process should start with a firm understanding of the situation: the population of interest, the topic of concern, and the type of behavior to be addressed. Because different theoretical frameworks are appropriate and practical for different situations, selecting a theory that “fits” should be a careful, deliberate process.

The Future of Health Promotion Interventions

Recently, interventionists have suggested that theoretical integration may be a viable way to improve our understanding of how to change behavior. Many of the theories described in this chapter have overlapping constructs that we may be able to reduce complexity through streamlining theories and reducing redundant constructs. For example, self-efficacy in SCT shares considerable overlap with perceived behavioral control in TPB; outcome expectations in SCT is similar to one of the processes of change in TTM. If feasible, an integrative model of behavior change could reduce some confusion in the field about which theory is most applicable to a given public health problem. A second idea for streamlining health promotion interventions is to bundle certain behaviors together, in multiple behavior change interventions. Recognizing that many chronic conditions have similar health



Population Health: Creating a Culture of Wellness, Third Edition

ISBN 9781284188462

Chapter 8 Health Promotion and Health Behavior

The Role of Behavior in Morbidity and Mortality

174

risk behaviors, an intervention to reduce cardiovascular disease could incorporate elements of dietary change, physical activity, and smoking cessation. However, there is a balance between aggregating similar behaviors while not overburdening participants with too many changes at one time. Future research in this field seeks to determine the optimal number of behaviors, the timing of the behavior changes, and the most appropriate theoretical model to accommodate multiple health behavior interventions.

Evaluating Theory-Based Programs in Public Health Practice

Health promotion programs aim to prevent or control disease, injury, disability, and death. Over time, as this task has become more complex, interventions have become more complex. Increasingly, public health programs address large problems, the solutions to which must engage large numbers of community members and organizations. In addition, the context in which public health programs operate is very important. Programs that work well in some settings work poorly in others because of changes in fiscal, socioeconomic, demographic, interpersonal, and interorganizational factors. At the same time, demands for accountability and success from policymakers and other stakeholders have increased the pressure of interventionists to do well. Understanding program effectiveness means paying attention to documenting and measuring the implementation of the program and its success in achieving intended outcomes and using such information to be accountable to key stakeholders. Next, we describe two prominent mechanisms for evaluating the impact of a program or intervention.

The CDC Framework for Program Evaluation

The Centers for Disease Control and Prevention developed a framework that is widely used among health promotion professionals.⁴⁴ The six steps, connected and interdependent, are ordered in how one might approach an evaluation (**FIGURE 8-7**). The first step is to *engage stakeholders*: those would be people involved in operating the program, those being served by the program, and those who will be end users of the evaluation. Stakeholders must be engaged in the inquiry to ensure that their perspectives are understood. The next step is to *describe the program*: a description should include the rationale for the program, its expected outcomes, the activities involved, resources utilized, and the environment surrounding the program. The third step is to *focus the evaluation design*: this includes deciding on appropriate research questions, the evaluation design, the methods and procedures for collecting data, and

175

roles and responsibilities for all those involved. The fourth step is to *gather credible evidence*: this focuses on the quality, quantity, and logistics of collecting data for the evaluation. The fifth step is to *justify conclusions*: Stakeholders must agree that conclusions are justified before they will use the evaluation results with confidence. The final step is to *ensure use and share lessons learned*: Deliberate effort is needed to ensure that the evaluation processes and findings are used and disseminated appropriately. This includes creating and adhering to a dissemination plan that reaches all stakeholders and allowing feedback from stakeholders about the findings of the evaluation.

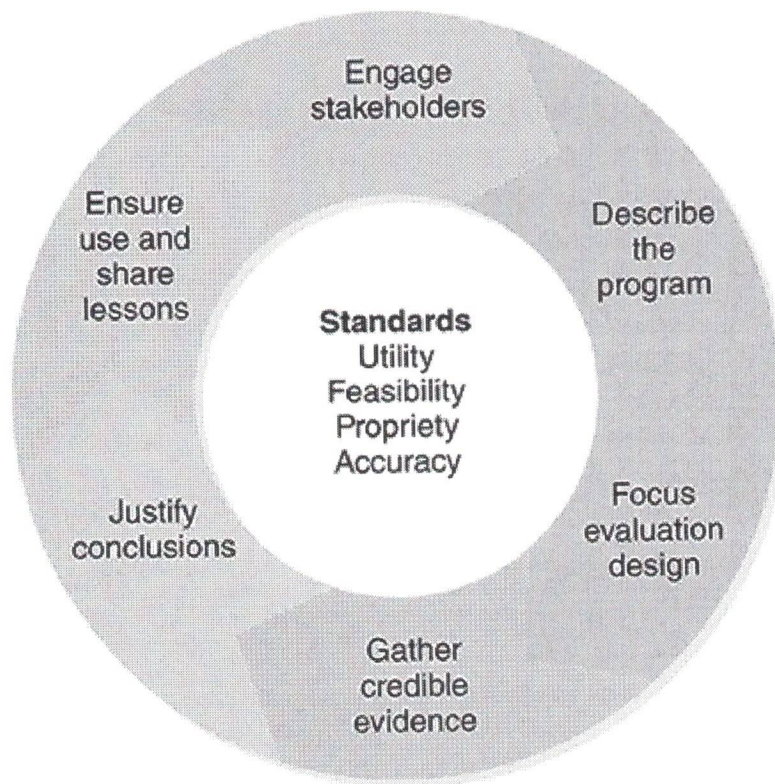


FIGURE 8-7 CDC's Framework for Evaluation.

Centers for Disease Control and Prevention. Framework for program evaluation in public health. MMWR 1999;48 (No. RR-11).

The RE-AIM Model

The RE-AIM tool, introduced in the late 1990s, is a valuable tool for implementation scientists, health promotion professionals, and practitioners.⁴⁵ It can be applied to assist with the translation of research to practice and to estimate the public health impact of programs and interventions. RE-AIM is an acronym for five aspects of an evaluation: Reach, Effectiveness, Adoption, Implementation, and Maintenance. The tool has been used to address topics such as aging, cancer screening, dietary change, physical activity, medication adherence, health policy, environmental change, chronic illness self-management, well-child care, eHealth, worksite health promotion, women's

health, smoking cessation, quality improvement, weight loss, diabetes prevention, childhood obesity, and practice-based research. An overview of the RE-AIM tool is in **TABLE 8-4.**

TABLE 8-4 A DESCRIPTION OF THE RE-AIM MODEL

Dimension	
Reach	Number, percentage, and representativeness of eligible patients who participated in the intervention ■ Is the intervention reaching the target population? ■ Is the intervention reaching those most in need?
Effectiveness	Intervention’s effects on targeted outcomes ■ Does the intervention accomplish its goals?
Adoption	Number, percentage, and representativeness of participating settings and providers ■ To what extent are those targeted to deliver the intervention participating?
Implementation	The extent to which the intervention was consistently implemented by staff members
Maintenance	The extent to which the intervention becomes part of routine organizational practices and maintains effectiveness

Kessler RS, Purcell EP, Glasgow RE, Klesges LM, Benkeser RM, Peek CJ., What does it mean to “employ” the RE-AIM model? Evaluation and the Health Professions 2013;36(1):44-66 by SAGE Publications Inc.Reprinted by Permission of SAGE Publications, Inc.

Reach is the absolute number, proportion, and representativeness of individuals who are willing to participate in a given initiative. Effectiveness is the impact of an intervention on outcomes, including potential negative effects, quality of life, and economic outcomes. Adoption is the absolute number, proportion, and representativeness of settings and intervention agents who are willing to initiate a program. Implementation refers to the intervention agents’ fidelity to the various elements of an intervention’s protocol. This includes consistency of delivery as intended and the time and cost of the intervention. Maintenance is the extent to which a program or policy becomes institutionalized or part of the routine organizational practices and policies. Maintenance also has referents at the individual level. At the individual level, it is defined as the long-term effects of a program on outcomes six or more months after the most recent intervention contact.