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**MODULE PREPARED**

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# 1.Introduction and definition

Behavioral change is about altering habits and behaviors for the long term. The majority of research around health-related behaviors (Davis, Campbell, Hildon, Hobbs, & Michie, 2015) indicates that small changes can lead to enormous improvements in people's health and life expectancy. These changes can have knock-on effects on the health of others (Swann et al., 2010).

Examples include: Smoking cessation, Reducing alcohol intake, Eating healthily, Exercising regularly, Practicing safe sex and Driving safely.

Other behaviors that are the target of change interventions are those affecting the environment, for example: Littering, Leaving lights on, and Not recycling.

Some behavior changes may be related to improving wellbeing, such as; Reducing procrastination, Incorporating regular [self-care activities](https://positivepsychology.com/self-care-activities-groups/), Being more [assertive at work](https://positivepsychology.com/assertiveness-in-leadership/), Going to bed earlier, and Practicing mindfulness.

These are just a few examples of behavior changes that many have tried at some time in their lives. Some changes may be easy, but others prove quite challenging.

We recognize that behavior change is not a simplistic process but requires an understanding of dimensions like frequency, complexity and cultural congruity. Such behavioral analysis is strengthened through the use of a toolkit of theoretical models and practical frameworks.

To be effective in these endeavors, health practitioners must know how to apply the basic principles, theories, research findings, and methods of the social and behavioral sciences to inform their efforts.   A thorough understanding of theories used in health, which are mainly derived from the social and behavioral sciences, allow practitioners to:

* Assess the fundamental causes of health problem, and
* Develop interventions to address those problems.

# 2.MODULE CONTENT

This module focuses on the primary theme of modifying/changing behaviour through application of models and principles of behaviour change to impact on health and well-being.

Students will be taught how to recognise the signs of non-adherence and how to select the most appropriate behaviour change model/principles to suit particular population groups (inactive, obese, elderly).

Students will be encouraged to access current research and with the teaching components, will be able to apply the knowledge and skills gained to their own practice.

This module will be suitable for a range of health care and exercise professionals whose role involves improving and maintaining the health and well-being of service users.

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# 3.Learning Objectives

**After successfully reviewing these modules, students will be able to***:*

* List and describe the key constructs of the Health Belief Model and the theory of planned behavior and explain how they might be applied to develop effective public health interventions
* List and describe the elements of "perceived behavioral control"
* Describe the underlying theory and basic elements of Social Norms Theory and marketing campaigns
* List and describe the key constructs of Social Cognitive Theory and explain how they might be applied to develop effective public health interventions
* Summarize the criticisms that have been made regarding the major traditional models of health behavior change and why these models do not seem adequate to account for observed health behaviors
* Outline the major steps in the Transtheoretical Model
* List the characteristics of each step of the Transtheoretical Model
* Describe Diffusion of Innovation Theory and how it can be applied in health promotion
* Outline the basic structures of the Theory of Gender and Power and its application to Health
* Explain the constructs of the Sexual Health Model and its application to health

# 4.Psychology Theories About Health Changing Behavior

There are many theories about behavior and behavior change.

In a literature review by Davis et al. (2015), researchers identified 82 theories of behavior change applicable to individuals. We will discuss the most frequently occurring theories and models in this article.

## 4.1.The theory of planned behavior/reasoned action

Fishbein and Ajzen developed the theory of reasoned action in the 1970s. This theory posits that behaviors occur because of intention, and intention is influenced by personal attitude and the perceived social norm (Madden, Ellen, & Ajzen, 1992).

This means that the more positive a person’s attitude toward changing their behavior and the more others are doing the desired behavior or supporting the behavior change, the stronger the person’s intention to change their behavior will be and the more likely they are to successfully change it.

In the 1980s, Ajzen extended this model to incorporate perceived behavioral control as an influencer of intention and sometimes as a direct influence on behavior (Madden et al., 1992).

Perceived behavioral control is a person’s confidence in their capability to perform the behavior and whether they believe they can overcome barriers and challenges. This extended model is known as the theory of planned behavior and accounts for more variation in behavior change than the theory of reasoned action (Madden et al., 1992).

## 4.2.Social cognitive theory

The social cognitive theory, proposed by [Bandura](https://positivepsychology.com/bandura-self-efficacy/) in 1986, is an expansion of his earlier social learning theory, in which he states that many behaviors are learned by observing others in our social environment (Bandura, 1999).

For us to adopt a behavior, we have to pay attention to the behavior being modeled, remember it, and reproduce it. We may be rewarded for this, which reinforces the behavior, or punished, which reduces the likelihood we will do it again. However, Bandura acknowledged that there is more to adopting a behavior than this.

He expanded his theory to include personal factors of the individual: cognitive, affective, and biological. This includes an individual’s personal resources and abilities, their perceived [self-efficacy](https://positivepsychology.com/self-efficacy/) (capability of performing the behavior), their expectations of the costs and benefits of changing their behavior, and the perceived barriers and opportunities that may help or hinder them.

Bandura emphasizes that we are the agents of our own development and change, and our perceived self-efficacy and outcome expectations play an important role in [determining our actions](https://positivepsychology.com/self-determination-theory/). Our social surroundings can aid or inhibit our goals by providing opportunities or imposing restrictions, which in turn can affect our perceived self-efficacy and outcome expectations for next time (Bandura, 1999).

A model of this theory is shown below, highlighting a bidirectional relationship between an individual’s personal factors, the environment, and their behavior, with each factor influencing the others.

## 4.3 .Scientific Models and Frameworks Explained

Theories can be used to build models and frameworks that have more practical applications and can be used to develop interventions. Three frequently occurring models are explained below.

# 

# 5. The Transtheoretical Model (Stages of Change)

The Transtheoretical Model (also called the Stages of Change Model), developed by Prochaska and DiClemente in the late 1970s, evolved through studies examining the experiences of smokers who quit on their own with those requiring further treatment to understand why some people were capable of quitting on their own. It was determined that people quit smoking if they were ready to do so. Thus, the Transtheoretical Model (TTM) focuses on the decision-making of the individual and is a model of intentional change. The TTM operates on the assumption that people do not change behaviors quickly and decisively. Rather, change in behavior, especially habitual behavior, occurs continuously through a cyclical process. The TTM is not a theory but a model; different behavioral theories and constructs can be applied to various stages of the model where they may be most effective.

The TTM posits that individuals move through six stages of change: precontemplation, contemplation, preparation, action, maintenance, and termination. Termination was not part of the original model and is less often used in application of stages of change for health-related behaviors. For each stage of change, different intervention strategies are most effective at moving the person to the next stage of change and subsequently through the model to maintenance, the ideal stage of behavior.

# The 6 Stages of Behavior Change

## Stage 1: Precontemplation

Characteristics

* Denial
* Ignorance of the problem

Strategies

* Rethink your behavior
* Analyze yourself and your actions
* Assess risks of current behavior

The earliest stage of change is known as precontemplation. During the precontemplation stage, people are not considering a change. People in this stage are often described as "in denial," because they claim that their behavior is not a problem. In some cases, people in this stage do not understand that their behavior is damaging, or they are under-informed about the consequences of their actions.

If you are in this stage, you may feel resigned to your current state or believe that you have no control over your behavior.

If you are in this stage, begin by asking yourself some questions. Have you ever tried to change this behavior in the past? How do you recognize that you have a problem? What would have to happen for you to consider your behavior a problem.

## 

## Stage 2: Contemplation

Characteristics

* Ambivalence
* Conflicted emotions

Strategies

* Weigh pros and cons of behaviour change
* Confirm readiness and ability to change
* Identify barriers to change

During this stage, people become more and more aware of the potential benefits of making a change, but the costs tend to stand out even more. This conflict creates a strong sense of ambivalence about changing. Because of this uncertainty, the contemplation stage of change can last months or even years.

Many people never take it past the contemplation phase.

You may view change as a process of giving something up rather than a means of gaining emotional, mental, or physical benefits. If you are contemplating a behaviour change, there are some important questions to ask yourself: Why do you want to change? Is there anything preventing you from changing? What are some things that could help you make this change?

## Stage 3: Preparation

Characteristics

* Experimenting with small changes
* Collecting information about change

Strategies

* Write down your goals
* Prepare a plan of action
* Make a list of motivating statements

During the preparation stage, you might begin making small changes to prepare for a larger life change. For example, if losing weight is your goal, you might switch to lower-fat foods. If your goal is to [quit smoking](https://www.verywellmind.com/how-to-quit-smoking-4157296), you might switch brands or smoke less each day. You might also take some sort of direct action such as consulting a therapist, joining a health club,

If you are in the preparation stage, there are some steps you can take to improve your chances of successfully making a lasting life change. Gather as much information as you can about ways to change your behavior. Prepare a list of motivating statements. Write down your goals. Find resources such as support groups, counselors, or friends who can offer advice and encouragement.

## Stage 4: Action

Characteristics

* Direct action toward a goal

Strategies

* Reward your successes
* Seek out social support

During the fourth stage of change, people begin taking direct action in order to [accomplish their goals](https://www.verywellmind.com/simple-tips-for-achieving-goals-3145003). Oftentimes, resolutions fail because the previous steps have not been given enough thought or time.

For example, many people make a New Year's resolution to lose weight and immediately start a new exercise regimen, embark on a healthier diet, and cut back on snacks. These definitive steps are vital to success, but these efforts are often abandoned in a matter of weeks because the previous steps have been overlooked.

If you are currently taking action towards achieving a goal, congratulate and reward yourself for any positive steps you take. [Reinforcement](https://www.verywellmind.com/what-is-positive-reinforcement-2795412) and support are extremely important in helping maintain positive steps toward change.

Take the time to periodically review your [motivations](https://www.verywellmind.com/what-is-motivation-2795378), resources, and progress in order to refresh your commitment and belief in your abilities.

## Stage 5: Maintenance

Characteristics

* Maintenance of the new behavior
* Avoiding temptation

Strategies

* Develop coping strategies for temptation
* Remember to reward yourself

The maintenance phase of the Stages of Change model involves successfully avoiding former behaviors and keeping up new behaviors. If you are trying to maintain a new behavior, look for ways to avoid temptation. Try replacing old habits with more positive actions. Reward yourself when you are able to successfully avoid a relapse.

If you do falter, don’t be too hard on yourself or give up. Instead, remind yourself that it was just a minor setback. As you will learn in the next stage, relapses are common and are a part of the process of making a lifelong change.

During this stage, people become more assured that they will be able to continue their change.

## Stage 6: Relapse

Characteristics

* Disappointment
* Frustration
* Feelings of failure

Strategies

* Identify triggers that lead to relapse
* Recognize barriers to success
* Reaffirm your goal and commitment to change

In any behavior change, relapses are a common occurrence.When you go through a relapse, you might experience feelings of [failure](https://www.verywellmind.com/healthy-ways-to-cope-with-failure-4163968), disappointment, and frustration.

The key to success is to not let these setbacks undermine your self-confidence. If you lapse back to an old behavior, take a hard look at why it happened. What triggered the relapse? What can you do to avoid these triggers in the future?

While relapses can be difficult, the best solution is to start again with the preparation, action, or maintenance stages of behavior change.

You might want to reassess your resources and techniques. Reaffirm your motivation, plan of action, and commitment to your goals. Also, make plans for how you will deal with any future temptations.

Resolutions fail when the proper preparation and actions are not taken. By approaching a goal with an understanding of how to best prepare, act, and maintain a new behavior, you will be more likely to succeed.

To progress through the stages of change, people apply cognitive, affective, and evaluative processes. Ten processes of change have been identified with some processes being more relevant to a specific stage of change than other processes. These processes result in strategies that help people make and maintain change.

1. **Consciousness Raising** - Increasing awareness about the healthy behavior.
2. **Dramatic Relief** - Emotional arousal about the health behavior, whether positive or negative arousal.
3. **Self-Reevaluation** - Self reappraisal to realize the healthy behavior is part of who they want to be.
4. **Environmental Reevaluation** - Social reappraisal to realize how their unhealthy behavior affects others.
5. **Social Liberation** - Environmental opportunities that exist to show society is supportive of the healthy behavior.
6. **Self-Liberation** - Commitment to change behavior based on the belief that achievement of the healthy behavior is possible.
7. **Helping Relationships** - Finding supportive relationships that encourage the desired change.
8. **Counter-Conditioning** - Substituting healthy behaviors and thoughts for unhealthy behaviors and thoughts.
9. **Reinforcement Management** - Rewarding the positive behavior and reducing the rewards that come from negative behavior.
10. **Stimulus Control** - Re-engineering the environment to have reminders and cues that support and encourage the healthy behavior and remove those that encourage the unhealthy behavior.

## 5.1.Limitations of the Transtheoretical Model

There are several limitations of TTM, which should be considered when using this theory in public health. Limitations of the model include the following:

* The theory ignores the social context in which change occurs, such as SES and income.
* The lines between the stages can be arbitrary with no set criteria of how to determine a person's stage of change. The questionnaires that have been developed to assign a person to a stage of change are not always standardized or validated.
* There is no clear sense for how much time is needed for each stage, or how long a person can remain in a stage.
* The model assumes that individuals make coherent and logical plans in their decision-making process when this is not always true.

The Transtheoretical Model provides suggested strategies for public health interventions to address people at various stages of the decision-making process. This can result in interventions that are tailored (i.e., a message or program component has been specifically created for a target population's level of knowledge and motivation) and effective. The TTM encourages an assessment of an individual's current stage of change and accounts for relapse in people's decision-making proces

# 6.Behavioral Change is Difficult

The process of change can seem daunting, and many people find it difficult. It is important to remember that change is a process and not a one-off event. It can be difficult to make large changes in one step, but breaking up a large goal into smaller parts takes planning and commitment.

It’s challenging to stay motivated if the reward for behavior change seems far off in the future or is vague; for example, exercising more to reduce risk of heart disease in older age.

If there are no immediate rewards for changing a behavior, or if there are immediate costs, such as nicotine cravings when quitting smoking, this can make it difficult to stay motivated. This is why it is helpful to identify these issues in advance and create plans for when they occur.

As described in the theories and models above, there are many elements at play that determine how successful a behavior change will be. Having the intention does not necessarily translate into the behavior (Gollwitzer, 1999). A meta-analysis by Webb and Sheeran (2006) found that a medium-to-large change in intention leads to a small-to-medium change in behavior, known as the intention–behavior gap.

Factors that help with behavior change include the following (Gollwitzer, 1999):

1. Goals should be as specific as possible, not vague.
2. The goal should be in the immediate rather than the distant future.
3. The reason for a behavior change should be for positive gain rather than the loss of a negative.
4. The reason for behavior change should be for learning rather than for performance/achievement.

## 7. How to Elicit Behaviour Change:

## 3 Techniques

Although models provide a useful, evidence-based background for behavioral interventions, it is helpful to have [behavior change techniques](https://positivepsychology.com/behavior-change-techniques/) to apply these ideas.

## 7.1.Implementation intentions

An implementation intention links a particular behavior to a specific situation: “If X happens, then I will do Y.” This means that if a specific situation occurs, the thinking process automatically reminds a person of the particular behavior they intended to apply.

It is a way to create new habits and has been effective in a multitude of situations (Gollwitzer, 1999). An example might be telling yourself, “If I see the lights on in an empty room, I will switch them off.” This means you are more likely to notice this situation and do something about it when it arises.

## 7.2.Motivational interviewing

[Motivational interviewing](https://positivepsychology.com/motivational-interviewing/) helps individuals gain clarity in their thoughts and motivations for change, and identifies barriers to change so that solutions can be considered. This is known as change talk.

Motivational interviewing is a process of guiding rather than directing, helping a client to identify their strengths and goals, and improving their sense of self-efficacy and autonomy.

This approach is particularly useful in those who are reluctant or ambivalent about changing their behavior and outperforms traditional advice giving in helping clients to change their behavior (Rubak, Sandboek, Lauritzen, & Christensen, 2005).

## 7.3.Get inspired by TED talks

There are many fantastic TED talks on behavior change. Here are two examples.

In this wonderful talk, behavioral neuroscientist Tali Sharot explains why the common method used to promote behavior change – threatening people with the risks of continuing as they are – does not work: “Fear induces inaction, whereas the thrill of a gain induces action.”

**three key factors** are important in changing our behavior:

1. Social incentives
2. Immediate reward
3. Progress monitoring

In this nine-minute talk, American psychiatrist, neuroscientist, and author Judson Brewer suggests that mindfulness can be a useful method in behavior change. He invites us to notice our urge toward a certain behavior, be curious about why we have the urge, and decide whether the behavior is truly rewarding or whether we can let it go.

1. Notice the urge.
2. Get curious.
3. Feel the joy in letting go.
4. Repeat.

# 8.The Health Belief Model

The Health Belief Model (HBM) was developed in the early 1950s by social scientists at the U.S. Public Health Service in order to understand the failure of people to adopt disease prevention strategies or screening tests for the early detection of disease. Later uses of HBM were for patients' responses to symptoms and compliance with medical treatments. The HBM suggests that a person's belief in a personal threat of an illness or disease together with a person's belief in the effectiveness of the recommended health behavior or action will predict the likelihood the person will adopt the behavior.

The HBM derives from psychological and behavioral theory with the foundation that the two components of health-related behavior are:

1) the desire to avoid illness, or conversely get well if already ill; and,

2) the belief that a specific health action will prevent, or cure, illness. Ultimately, an individual's course of action often depends on the person's perceptions of the benefits and barriers related to health behavior. There are six constructs of the HBM. The first four constructs were developed as the original tenets of the HBM. The last two were added as research about the HBM evolved**.**

1. **Perceived susceptibility** - This refers to a person's subjective perception of the risk of acquiring an illness or disease. There is wide variation in a person's feelings of personal vulnerability to an illness or disease.
2. **Perceived severity** - This refers to a person's feelings on the seriousness of contracting an illness or disease (or leaving the illness or disease untreated). There is wide variation in a person's feelings of severity, and often a person considers the medical consequences (e.g., death, disability) and social consequences (e.g., family life, social relationships) when evaluating the severity.
3. **Perceived benefits** - This refers to a person's perception of the effectiveness of various actions available to reduce the threat of illness or disease (or to cure illness or disease). The course of action a person takes in preventing (or curing) illness or disease relies on consideration and evaluation of both perceived susceptibility and perceived benefit, such that the person would accept the recommended health action if it was perceived as beneficial.
4. **Perceived barriers** - This refers to a person's feelings on the obstacles to performing a recommended health action. There is wide variation in a person's feelings of barriers, or impediments, which lead to a cost/benefit analysis. The person weighs the effectiveness of the actions against the perceptions that it may be expensive, dangerous (e.g., side effects), unpleasant (e.g., painful), time-consuming, or inconvenient.
5. **Cue to action** - This is the stimulus needed to trigger the decision-making process to accept a recommended health action. These cues can be internal (e.g., chest pains, wheezing, etc.) or external (e.g., advice from others, illness of family member, newspaper article, etc.).
6. **Self-efficacy** - This refers to the level of a person's confidence in his or her ability to successfully perform a behavior. This construct was added to the model most recently in mid-1980. Self-efficacy is a construct in many behavioral theories as it directly relates to whether a person performs the desired behavior.

## 8.1. Limitations of Health Belief Model

There are several limitations of the HBM which limit its utility in public health. Limitations of the model include the following:

* It does not account for a person's attitudes, beliefs, or other individual determinants that dictate a person's acceptance of a health behavior.
* It does not take into account behaviors that are habitual and thus may inform the decision-making process to accept a recommended action (e.g., smoking).
* It does not take into account behaviors that are performed for non-health related reasons such as social acceptability.
* It does not account for environmental or economic factors that may prohibit or promote the recommended action.
* It assumes that everyone has access to equal amounts of information on the illness or disease.
* It assumes that cues to action are widely prevalent in encouraging people to act and that "health" actions are the main goal in the decision-making process.

The HBM is more descriptive than explanatory, and does not suggest a strategy for changing health-related actions. In preventive health behaviors, early studies showed that perceived susceptibility, benefits, and barriers were consistently associated with the desired health behavior; perceived severity was less often associated with the desired health behavior. The individual constructs are useful, depending on the health outcome of interest, but for the most effective use of the model it should be integrated with other models that account for the environmental context and suggest strategies for change.

# 9.The Theory of Planned Behavior

The Theory of Planned Behavior (TPB) started as the Theory of Reasoned Action in 1980 to predict an individual's intention to engage in a behavior at a specific time and place. The theory was intended to explain all behaviors over which people have the ability to exert self-control. The key component to this model is behavioral intent; behavioral intentions are influenced by the attitude about the likelihood that the behavior will have the expected outcome and the subjective evaluation of the risks and benefits of that outcome.

The TPB has been used successfully to predict and explain a wide range of health behaviors and intentions including smoking, drinking, health services utilization, breastfeeding, and substance use, among others. The TPB states that behavioral achievement depends on both motivation (intention) and ability (behavioral control). It distinguishes between three types of beliefs - behavioral, normative, and control. The TPB is comprised of six constructs that collectively represent a person's actual control over the behavior.

1. Attitudes - This refers to the degree to which a person has a favorable or unfavorable evaluation of the behavior of interest. It entails a consideration of the outcomes of performing the behavior.
2. Behavioral intention - This refers to the motivational factors that influence a given behavior where the stronger the intention to perform the behavior, the more likely the behavior will be performed.
3. Subjective norms - This refers to the belief about whether most people approve or disapprove of the behavior. It relates to a person's beliefs about whether peers and people of importance to the person think he or she should engage in the behavior.
4. Social norms - This refers to the customary codes of behavior in a group or people or larger cultural context. Social norms are considered normative, or standard, in a group of people.
5. Perceived power - This refers to the perceived presence of factors that may facilitate or impede performance of a behavior. Perceived power contributes to a person's perceived behavioral control over each of those factors.
6. Perceived behavioral control - This refers to a person's perception of the ease or difficulty of performing the behavior of interest. Perceived behavioral control varies across situations and actions, which results in a person having varying perceptions of behavioral control depending on the situation. This construct of the theory was added later, and created the shift from the Theory of Reasoned Action to the Theory of Planned Behavior.

## 9.1.Limitations of the Theory of Planned Behavior

There are several limitations of the TPB, which include the following:

* It assumes the person has acquired the opportunities and resources to be successful in performing the desired behavior, regardless of the intention.
* It does not account for other variables that factor into behavioral intention and motivation, such as fear, threat, mood, or past experience.
* While it does consider normative influences, it still does not take into account environmental or economic factors that may influence a person's intention to perform a behavior.
* It assumes that behavior is the result of a linear decision-making process, and does not consider that it can change over time.
* While the added construct of perceived behavioral control was an important addition to the theory, it doesn't say anything about actual control over behavior.
* The time frame between "intent" and "behavioral action" is not addressed by the theory.

The TPB has shown more utility in public health than the Health Belief Model, but it is still limiting in its inability to consider environmental and economic influences. Over the past several years, researchers have used some constructs of the TPB and added other components from behavioral theory to make it a more integrated model. This has been in response to some of the limitations of the TPB in addressing public health problems.

# 10. Diffusion of Innovation Theory

Diffusion of Innovation (DOI) Theory, developed by E.M. Rogers in 1962, is one of the oldest social science theories. It originated in communication to explain how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system. The end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product.   Adoption means that a person does something differently than what they had previously (i.e., purchase or use a new product, acquire and perform a new behavior, etc.). The key to adoption is that the person must perceive the idea, behavior, or product as new or innovative. It is through this that diffusion is possible.

Adoption of a new idea, behavior, or product (i.e., "innovation") does not happen simultaneously in a social system; rather it is a process whereby some people are more apt to adopt the innovation than others.   Researchers have found that people who adopt an innovation early have different characteristics than people who adopt an innovation later. When promoting an innovation to a target population, it is important to understand the characteristics of the target population that will help or hinder adoption of the innovation. There are **five established adopter categories**, and while the majority of the general population tends to fall in the middle categories, it is still necessary to understand the characteristics of the target population. When promoting an innovation, there are different strategies used to appeal to the different adopter categories.

1. Innovators - These are people who want to be the first to try the innovation. They are venturesome and interested in new ideas. These people are very willing to take risks, and are often the first to develop new ideas. Very little, if anything, needs to be done to appeal to this population.
2. Early Adopters - These are people who represent opinion leaders. They enjoy leadership roles, and embrace change opportunities. They are already aware of the need to change and so are very comfortable adopting new ideas. Strategies to appeal to this population include how-to manuals and information sheets on implementation. They do not need information to convince them to change.
3. Early Majority - These people are rarely leaders, but they do adopt new ideas before the average person. That said, they typically need to see evidence that the innovation works before they are willing to adopt it. Strategies to appeal to this population include success stories and evidence of the innovation's effectiveness.
4. Late Majority - These people are skeptical of change, and will only adopt an innovation after it has been tried by the majority. Strategies to appeal to this population include information on how many other people have tried the innovation and have adopted it successfully.
5. Laggards - These people are bound by tradition and very conservative. They are very skeptical of change and are the hardest group to bring on board. Strategies to appeal to this population include statistics, fear appeals, and pressure from people in the other adopter groups.

The stages by which a person adopts an innovation, and whereby diffusion is accomplished, include awareness of the need for an innovation, decision to adopt (or reject) the innovation, initial use of the innovation to test it, and continued use of the innovation.

There are **five main factors that influence adoption of an innovation**, and each of these factors is at play to a different extent in the five adopter categories.

1. Relative Advantage - The degree to which an innovation is seen as better than the idea, program, or product it replaces.
2. Compatibility - How consistent the innovation is with the values, experiences, and needs of the potential adopters.
3. Complexity - How difficult the innovation is to understand and/or use.
4. Triability - The extent to which the innovation can be tested or experimented with before a commitment to adopt is made.
5. Observability - The extent to which the innovation provides tangible results.

## 10.1.Limitations of Diffusion of Innovation Theory

There are several limitations of Diffusion of Innovation Theory, which include the following:

* Much of the evidence for this theory, including the adopter categories, did not originate in public health and it was not developed to explicitly apply to adoption of new behaviors or health innovations.
* It does not foster a participatory approach to adoption of a public health program.
* It works better with adoption of behaviors rather than cessation or prevention of behaviors.
* It doesn't take into account an individual's resources or social support to adopt the new behavior (or innovation).

This theory has been used successfully in many fields including communication, agriculture, public health, criminal justice, social work, and marketing. In public health, Diffusion of Innovation Theory is used to accelerate the adoption of important public health programs that typically aim to change the behavior of a social system. For example, an intervention to address a public health problem is developed, and the intervention is promoted to people in a social system with the goal of adoption (based on Diffusion of Innovation Theory). The most successful adoption of a public health program results from understanding the target population and the factors influencing their rate of adoption.

For more on diffusion of innovation theory see "On the Diffusion of Innovations: How New Ideas Spread" by Leif Singer.

# 11.The Social Cognitive Theory

Social Cognitive Theory (SCT) started as the Social Learning Theory (SLT) in the 1960s by Albert Bandura. It developed into the SCT in 1986 and posits that learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behavior. The unique feature of SCT is the emphasis on social influence and its emphasis on external and internal social reinforcement.   SCT considers the unique way in which individuals acquire and maintain behavior, while also considering the social environment in which individuals perform the behavior. The theory takes into account a person's past experiences, which factor into whether behavioral action will occur. These past experiences influences reinforcements, expectations, and expectancies, all of which shape whether a person will engage in a specific behavior and the reasons why a person engages in that behavior.

Many theories of behavior used in health promotion do not consider maintenance of behavior, but rather focus on initiating behavior. This is unfortunate as maintenance of behavior, and not just initiation of behavior, is the true goal in public health. The goal of SCT is to explain how people regulate their behavior through control and reinforcement to achieve goal-directed behavior that can be maintained over time. The first five constructs were developed as part of the SLT; the construct of self-efficacy was added when the theory evolved into SCT.

1. Reciprocal Determinism - This is the central concept of SCT. This refers to the dynamic and reciprocal interaction of person (individual with a set of learned experiences), environment (external social context), and behavior (responses to stimuli to achieve goals).
2. Behavioral Capability - This refers to a person's actual ability to perform a behavior through essential knowledge and skills. In order to successfully perform a behavior, a person must know what to do and how to do it. People learn from the consequences of their behavior, which also affects the environment in which they live.
3. Observational Learning - This asserts that people can witness and observe a behavior conducted by others, and then reproduce those actions. This is often exhibited through "modeling" of behaviors.   If individuals see successful demonstration of a behavior, they can also complete the behavior successfully.
4. Reinforcements - This refers to the internal or external responses to a person's behavior that affect the likelihood of continuing or discontinuing the behavior. Reinforcements can be self-initiated or in the environment, and reinforcements can be positive or negative. This is the construct of SCT that most closely ties to the reciprocal relationship between behavior and environment.
5. Expectations - This refers to the anticipated consequences of a person's behavior. Outcome expectations can be health-related or not health-related. People anticipate the consequences of their actions before engaging in the behavior, and these anticipated consequences can influence successful completion of the behavior. Expectations derive largely from previous experience.   While expectancies also derive from previous experience, expectancies focus on the value that is placed on the outcome and are subjective to the individual.
6. Self-efficacy - This refers to the level of a person's confidence in his or her ability to successfully perform a behavior. Self-efficacy is unique to SCT although other theories have added this construct at later dates, such as the Theory of Planned Behavior. Self-efficacy is influenced by a person's specific capabilities and other individual factors, as well as by environmental factors (barriers and facilitators).

## 11.1Limitation of Social Cognitive Theory

There are several limitations of SCT, which should be considered when using this theory in public health. Limitations of the model include the following:

* The theory assumes that changes in the environment will automatically lead to changes in the person, when this may not always be true.
* The theory is loosely organized, based solely on the dynamic interplay between person, behavior, and environment. It is unclear the extent to which each of these factors into actual behavior and if one is more influential than another.
* The theory heavily focuses on processes of learning and in doing so disregards biological and hormonal predispositions that may influence behaviors, regardless of past experience and expectations.
* The theory does not focus on emotion or motivation, other than through reference to past experience. There is minimal attention on these factors.
* The theory can be broad-reaching, so can be difficult to operationalize in entirety.

Social Cognitive Theory considers many levels of the social ecological model in addressing behavior change of individuals. SCT has been widely used in health promotion given the emphasis on the individual and the environment, the latter of which has become a major point of focus in recent years for health promotion activities. As with other theories, applicability of all the constructs of SCT to one public health problem may be difficult especially in developing focused public health programs.

# 12.Social Norms Theory

The Social Norms Theory was first used by Perkins and Berkowitz in 1986 to address student alcohol use patterns. As a result, the theory, and subsequently the social norms approach, is best known for its effectiveness in reducing alcohol consumption and alcohol-related injury in college students. The approach has also been used to address a wide range of public health topics including tobacco use, driving under the influence prevention, seat belt use, and more recently sexual assault prevention. The target population for social norms approaches tends to be college students, but has recently been used with younger student populations (i.e., high school).

This theory aims to understand the environment and interpersonal influences (such as peers) in order to change behavior, which can be more effective than a focus on the individual to change behavior. Peer influence, and the role it plays in individual decision-making around behaviors, is the primary focus of Social Norms Theory. Peer influences and normative beliefs are especially important when addressing behaviors in youth. Peer influences are affected more by **perceived norms** (what we view as typical or standard in a group) rather than on the **actual norm** (the real beliefs and actions of the group). The gap between perceived and actual is a **misperception**, and this forms the foundation for the social norms approach.

The Social Norms Theory posits that our behavior is influenced by misperceptions of how our peers think and act. Overestimations of problem behavior in our peers will cause us to increase our own problem behaviors; underestimations of problem behavior in our peers will discourage us from engaging in the problematic behavior. Accordingly, the theory states that correcting misperceptions of **perceived** **norms** will most likely result in a decrease in the problem behavior or an increase in the desired behavior.

Social norms interventions aim to present correct information about peer group norms in an effort to correct misperceptions of norms. In particular, many social norms interventions are **social norms media campaigns** where misperceptions are addressed through community-wide electronic and print media that promote accurate and healthy norms about the health behavior. The phases of a social norms media campaign include:

* Assessment or collection of data to inform the message
* Selection of the normative message that will be distributed
* Testing the message with the target group to ensure it is well-received
* Selection of the mode in which the message will be delivered
* Amount, or dosage, of the message that will be delivered
* Evaluation of the effectiveness of the message

Social norms media campaigns are currently being funded by many federal agencies, state agencies, foundation grants, and non-profit organizations.   Sometimes social norms media campaigns are funded by industry. There has been a good deal of evaluations conducted on social norms campaigns.   Case studies of effective social norms campaigns can be found here:   http://www.socialnorm.org/index.php.

There are several limitations of Social Norms Theory that need to be considered prior to using the theory. Limitations of the theory include the following:

* Participants of an intervention focused on social norms are likely to question the initial message being presented to them due to misperceptions they hold. Information must be presented in a reliable way to correct those misperceptions.
* Poor data collection in the initial stages can lead to unreliable data and poor choice of normative message. This can undermine the campaign and reinforce misperceptions.
* Unreliable sources, or sources that are not credible to the target population, can result in an unappealing message that undermines the campaign, even if the message is correctly chosen.
* The dose, or amount, of the message received by the target population must be enough to make an impact, but not too much that it becomes commonplace.

Although these limitations exist, when used correctly Social Norms Theory can be very effective in changing individual behavior by focusing on changing misperceptions at the group level. Social norms interventions can be used alone or in conjunction with other types of intervention strategies. The most effective social norms interventions are those that have messages targeted to the at-risk population that are correct and influential. To target messages, a substantial amount of research and data collection has to be invested to understand the norms that exist in the group of interest. Social norms interventions are also most effective when presented in interactive formats that actively engage the target audience

# 13.The Elements of Change

To succeed, you need to understand the three most important elements in changing a behavior:

* **Readiness to change**: Do you have the resources and knowledge to make a lasting change successfully?
* **Barriers to change**: Is there anything preventing you from changing?
* **Likelihood of relapse**: What might trigger a return to a former behavior?

# 14. A Word From Verywell

It's not easy to make a major change and make it stick. You may be more successful in keeping your resolutions by using these steps. Many clinical programs for behavior change use these steps, from smoking cessation to addiction recovery. If you decide you need a structured program to support your change, you may recognize these steps being used.

# 15.Behaviour Change Models and Strategies

Behaviour, the product of individual or collective action, is a key determinant of people’s health. Lifestyle risk factors are now recognised as leading contributors to morbidity and mortality in Europe. The most prevalent chronic health conditions in Europe, including cancer, cardiovascular diseases, obstructive lung diseases and diabetes, are strongly linked with lifestyle. Smoking, lack of physical exercise, high calorie intake and excessive alcohol consumption leading to obesity, high cholesterol levels and high blood pressure are precursors of these diseases.1 There is convincing evidence that a healthy lifestyle including regular exercise, a balanced diet, blood pressure control and smoking abstinence is associated with a longer and healthier life span.

However, the behaviours that can cause these diseases are common and changing them may mean changing long standing habits. Many people are involved in supporting and encouraging changes in the behaviour of others and of course many seek to change their own behaviours and may seek the support of others in doing so. It is thus important to identify effective approaches and strategies that motivate change and sustain newly-adopted healthy behaviours.2

This review presents approaches to behaviour change and highlights evidence of their effectiveness. It refers to the development of theories about the processes that shape behaviour, to empirical studies that test these theories, and to applied research. The latter particularly relates to how behaviour can be changed in everyday settings and situations.

## 15.1. An ecological approach to behaviour change

There is a wide range of personal, social, and environmental factors that influence behaviour. Most can be assigned to three levels:

* Personal or individual: beliefs, knowledge, attitudes, skills, genetics
* Social: interaction with other people including friends, family and the community
* Environmental: the area in which an individual lives, e.g. school, work place, local shops and facilities, and wider factors including the economy (such as prices) and technology.

A complex web of societal and biological factors must be considered when one aims to tackle obesity-related behaviour. Behaviour change is generally best served by a mix of interventions, delivered over a long period of time and modified in response to measured impact. Interventions that only address factors at the individual level, and do not take into account the social and environmental influences mentioned above, are unlikely to work. An ecological approach “that identifies and addresses the factors influencing behaviour at all three levels is likely to be most effective at bringing about behaviour change”. This approach also appears to be the most cost-effective.

## 15.2. Information and advice are not enough

The traditional approach, still sometimes used in health consultations and media campaigns, relies on providing direct advice and information. While information is important for education and informing consumers, it is rarely sufficient to change behaviour. It is based on the assumptions that people lack knowledge (of what they should be doing) and that improving knowledge changes attitude, creating the desire to change. It does not take account of the many complex influences on behaviour. This approach prescribes changes for the client in a style that may be perceived as being “told what to do”. The health practitioner may place emphasis on the benefits of change, without fully addressing the personal implications for the individual, which may result in resistance to change. The same is true of many education programmes and campaigns aimed at raising awareness. The provision of information is likely to appeal to those who want to know how to change their behaviour. In turn, information provision approach may worsen health inequalities, disadvantaging those whose behaviour is more immediately shaped by their environment, and who may have less access to, or desire for, information.

## 15.3.behaviour change techniques a most effective

It is not completely clear which techniques are effective under which conditions. Self-monitoring and other self-regulatory techniques (goal-setting, prompting, self-monitoring, providing feedback on performance, goal review) are consistently reported as effective behaviour change tools. A medium-to-low quality evidence suggests that dietary change is best supported by:

* instruction provision (teaching the behaviour),
* self-monitoring (recording behaviour, e.g. writing a food diary), and
* relapse prevention (problem solving and identifying coping strategies),

while physical activity is best supported by:

* prompting (to stimulate behaviour, e.g. telephone reminder),
* self-monitoring (recording behaviour, e.g. writing an activity diary),
* personalised messages (tailored to stage of change, resources and context),
* goal-setting (e.g. step-goals monitored with pedometer).

Dietary and physical activity interventions appear to be more effective in weight management when targeted simultaneously. There is also good evidence to encourage engagement of social support (usually from family members).

It is challenging to maintain behaviour change in the long-term. Evidence suggests that time management techniques (e.g., how to fit activity into a daily or weekly schedule) can help maintain physical activity levels. Encouraging self-talk (i.e. talk to yourself before and during planned behaviours) is another useful technique in facilitating physical activity and healthy eating.

## 15.4. Self-determination theory

Combining skill development with underlying, intrinsic motivation and reason, is believed essential for lasting change. Intrinsic motivation does not rely on external pressure, like rewards/approval or punishment/disapproval from peers or health professionals. It exists within the individual, and is driven by interest or enjoyment in the task itself. This is the basis of the self-determination theory. Contrary to rewards and incentives, self-driven motivation is believed to be stable and enduring.The individual must believe the behaviour is enjoyable or compatible with their ‘sense of self’, values and life goals. This is supported by probing why one should persist, or in what ways the new behaviour would relate to wider goals. People need to feel a sense of choice and responsibility for their actions, to feel capable of achieving the goal and also understood, cared for, and valued by others.

The self-determination theory was the basis of a one-year weight-control programme involving nearly 250 individuals who had obesity or overweight. The programme used self-regulatory techniques and education about energy balance and body image. Participants were given options to reduce energy intake and to increase energy expenditure. They were encouraged to try different activities to find those they enjoy. By the end of the trial, autonomous motivation for physical activity was higher in the intervention group. In turn, physical activity levels increased by year-two and weight control at year-three. Furthermore, at year-three, women who had received the intervention reported almost 90 minutes more of moderate-to-vigorous physical activity per week than the control group. The intervention was also reported to have positively influenced eating behaviours.

There are many parallels between the self-determination theory and motivational interviewing.

## 15.5. Motivational interviewing

Motivational interviewing is a counselling approach which uses a combination of behaviour change techniques, and has been shown to be significantly more effective than traditional advice-giving. It is a directive, client-centred method for enhancing intrinsic motivation by exploring and resolving ambivalence and barriers to behaviour change. This approach views lecturing or confrontation as unhelpful. The main principles underpinning motivational interviewing are:

* Express empathy (through reflective listening)
* Develop discrepancy (between the individual’s goals and their current behaviour) Avoid argumentation
* Roll with resistance (acknowledge and explore the individual’s resistance to change, rather than opposing it)
* Support self-efficacy

To gain a better understanding of the factors which impact its success, further research combining motivational interviewing with the self-determination theory has been recommended.

Motivational interviewing is particularly effective in combination with **Cognitive Behavioural Therapy (CBT)**. CBT is a treatment for emotional and behavioural problems that aims to help individuals identify and modify dysfunctional thoughts, assumptions and patterns of behaviour. It explores the range of factors that influence one’s behaviour, both external (e.g. environmental stimuli and reinforcement) and internal (e.g. thoughts). CBT also uses several techniques such as goal-setting and self-monitoring, and is based on the belief that all behaviour is learned and can be unlearned. The systematic literature review by Spahn et al. suggests that the use of an intensive course of CBT (for 6 to 12 months) may help to prevent and delay the onset of type 2 diabetes and hypertension. The potential of this intervention has also been demonstrated in treatment of childhood and adolescent obesity (30% reduction in overweight vs. 9% reduction without CBT).

It is worth noting that these counselling approaches rely on the individual to engage in self-regulation.

## 15.5. The role of social marketing

Social marketing draws on some of the principles of commercial marketing and uses behaviour change theory to influence behaviour for ‘social good’.The benefit is for society, not for the organisation doing the marketing. Segmentation of the relevant market allows for interventions to be targeted.

A major example of a social marketing campaign is Change4life, launched in the UK in 2009. It involved the government, media, industry and retailers to create a societal movement to promote healthier behaviours, making new behaviours appear fun and achievable. Ongoing support was provided to families via post and online social media (e.g. Facebook). In addition, 200,000 at-risk families received support packs, and 44,833 of these families were still interacting six months later. Over one million mothers who joined the campaign said they had made changes to their children’s behaviour.Another evaluation (cluster-randomised control trial) of the Change4Life campaign, revealed that while the campaign materials increased awareness of the campaign, they had little impact on the attitudes or behaviour of the study participants.It concluded that, in the area of childhood obesity, campaigns should be more targeted to a smaller range of behaviours and groups of people, use behaviour change theory, and use formal pilot testing.

Social marketing as an approach to changing behaviour has been criticised, as it is hard to promote the immediate benefits of healthy lifestyle choices. Behaviour (e.g. physical activity) is not the same as a product (like running shoes), and in social marketing a consumable item is not exchanged between a producer and consumer. Therefore social marketing interventions should not be regarded as the sole means of changing behaviour.

## 15.6. Nudging

An approach commonly known as ‘nudging’, primarily drawn from behavioural economics, has attracted interest in recent years. It aims to ‘nudge’ people’s choices, not by removing the less healthy ones, but by making the healthier option easier. Making salad the default side dish, or making the stairs a more attractive choice than taking the lift are examples. An individual may also be ‘nudged’ by being made aware of social norms, by receiving feedback on their behaviour compared to other people.

The reformulation of products, when recipes are modified to improve their nutritional content, is also an example. This approach has been effective in reducing salt intakes. Governments may also consider fiscal policies that attempt to influence food prices ‘in ways that encourage healthy eating’. However, policies may be perceived as a ‘shove’, rather than a nudge, when people are pushed to behave in ways against their will.

Unsurprisingly, there has been a lot of debate about how ethical it is to nudge people in ways that they do not notice, and whether it is effective. A recent influential report in the UK concluded that nudging ideally needs to be combined with other types of intervention.

## 15.7.Using technology to change behaviour

The age of technology widens the possibilities for changing behaviour. E-health interventions, delivered using the internet, are increasingly common. They are often cited as being cost-effective, but there is a lack of data to assess this. The most effective internet-based interventions at changing behaviour appear to be more extensively based on theory (particularly the theory of planned behaviour) and use a number of techniques. The use of additional communication methods, particularly SMS (short message service) or text messaging to send motivational messages e.g. reminders of the benefits of exercise, facilitates behaviour change. For example a weight loss intervention study proved more effective for people who also received 2-5 personalised SMS per day, including tips and questions on different topics (and a monthly telephone call from a trained health counsellor). They lost more weight (1.97 kg) than the group who only received printed materials about weight control.

Mobile phones are good candidates for the delivery of behavioural interventions. The advancement of mobile technology to include internal sensors of user location, movement, emotion, and social engagement, raises the prospect of continuous and automated tracking of health-related behaviours. This supports self-regulatory techniques (e.g. goal-setting and monitoring). Such interventions may be cheaper, more convenient, or less stigmatising (due to private participation). Also, connectivity allows the sharing of behavioural and health data among health professionals or peers, which may facilitate behaviour change. There is rapid development and interest in Smartphone Apps, however research on their evaluation is still immature. The challenge will be maintaining long term use and effective behaviour change.

Video games are another platform that engages the audience. This entertaining and interactive technology has demonstrated the ability to positively influence health-related behaviour. For example, a small study found that combining stationary cycling with interactive video games increased attendance and improvements in health-related physical fitness, compared to traditional cycle exercise training.Another study showed increased attendance with listening to music, a less expensive option. Controlled studies (in the laboratory) show that ‘active video games’ (which encourage physical interactivity by using body movements) result in light-to-moderate intensity physical activity, but few show significant increases. Video games are also an attractive platform for changing dietary behaviours, particularly to children. Research is in the early stages of understanding how such games are designed for maximum effects.

An innovative approach for one-to-one consultations is telephone-counselling, which can provide access to remote clients. In Canada there are dedicated tele-health dietitian services, with limited evaluations (Dial-A-Dietitian, EatRight Ontario). Early evaluations suggest that this approach holds promise though more evidence is needed before standards of practice and guidelines can be developed.

Researchers are starting to explore how online technologies can be designed to make them maximally effective.Given the high reach and low cost they have promise in enabling wide access.

## 15.8.Behavioural theory in practice

Numerous frameworks aim to encourage and support the integration of behaviour change theory into the design of interventions. An example of such a framework is shown in the box below.

|  |
| --- |
| The cyclical ‘Nine Principles framework’: |
| 1. Identify the audience groups and the target behaviour. If faced with a complex behaviour, break it down into its component behaviours and/or adopt a systems thinking approach. 2. Identify relevant behavioural models (use both individual- and societal-level models). Draw up a shortlist of influencing factors. 3. Select the key influencing factors to work on. Use these to design objectives in a draft strategy for the intervention. 4. Identify effective intervention techniques which have worked in the past for the influencing factors selected. 5. Engage the target audience for the intervention in order to understand the target behaviour and the factors influencing it from their perspective. 6. Develop a prototype intervention based on the learning from working with the actors. Cross-check this against appropriate policy frameworks and assessment tools. 7. Pilot the intervention and monitor continuously. 8. Evaluate impacts and processes. 9. Feedback learning from the evaluation. |
| The process is iterative; learning from one principle could require revisiting an earlier assumption. |

The differential effects on different population groups should be considered in the design and monitoring of interventions and requires a thorough understanding of the behaviour and the audience. Interventions should be targeted, based on relevant audience characteristics. Engaging the audience, so that they are partners in the process of change, seems effective at bringing about lasting change. ‘Learning through doing’ is considered to play a fundamental part in the process of change.

It should be remembered that models tend to focus on personal and social factors influencing change. Additional work may be needed to identify influencing factors at the environmental level.

The process of designing a behaviour change intervention first involves understanding the target behaviour and selecting a broad approach, and then designing the specific behaviour change techniques to be used. The ‘behaviour change wheel’ has been developed as a guide for selecting appropriate interventions and an 'intervention design tool' is currently under development.

Finally, some scholars suggest focusing on social practices (patterns of action which bring together different ways of 'doing and saying').For example snacking may be related to the social practice of eating while watching TV. Looking at practices moves the focus away from an individual’s attitudes, behaviour and choices, and highlights how particular ways of life are sustained, including the role of governments and institutions. For example, this type of analysis would draw attention to ‘obesogenic environments’ and would consider the way in which patterns of diet and exercise are ‘socially, institutionally and infrastructurally configured’.

## 15.9.Evaluating behaviour change interventions

Despite the recognised importance of behaviour change and the extensive research surrounding this subject, there is no consensus on how certain behaviours are best supported. Models and theories need to be used and reported in more coordinated ways to facilitate evaluation.To make further progress in understanding the effectiveness of behaviour change interventions, the WHO has called for all initiatives to be fully evaluated.

Ideally, theory and evaluation will be built in from the outset of planning an intervention. Behaviour change takes time, and evaluation needs to be sufficiently long-term to demonstrate that an intervention has resulted in and maintained behaviour change. This requires the allocation of adequate funding.Controlled trials or other high quality methodologies should be used wherever possible. The randomised controlled trial is considered the gold standard for such evaluations, but is not always possible. Another approach is a ‘natural experiment’, where the investigator does not control who receives a treatment, but uses natural variation in exposure to the event, intervention or policy (e.g. change in nutritional requirements of school meals).Furthermore, evaluations will ideally have measures of behaviour as the outcome - not just measures of whether participants liked the intervention, and not just measures of the health changes (that are intended to be a consequence of targeted behaviour).12It is critical that these measures are consistent between studies, and the details of an intervention are reported precisely.

Evaluations will help to establish whether the interventions are working and, ideally, why they are working. They will also inform decisions as to how the intervention can be improved. They should also assess the cost effectiveness of the intervention and thus discern whether or not they represent value for money.35It is important for evidence of effectiveness to be shared between researchers, policy makers and practitioners, to avoid duplication of research and reduce costs.

# 16.Five Strategies for Positive Behavior Change

**STRATEGY 1: SET SPECIFIC, SHORT-TERM GOALS**

The first component of an action plan is a specific, short-term goal. The goal should be quantifiable, as opposed to a “do your best” goal, and the recommended timeframe for realizing it is between one and two weeks . Specific, short-term goals help individuals build self-confidence about the ability to execute a new behavior (such as exercising). These kinds of goals embody a clear distinction between success and failure, in contrast to a non-specific, “do your best” goal, which relies on the individual to judge whether she performed satisfactorily. Realizing a specific goal, even if it is not very challenging, builds self-confidence and encourages continued effort to realize more challenging goals . Interactive applications that make use of goals to facilitate healthy behavior change should encourage users to set short-term goals—one or two weeks into the future. The goals should be specific, such as a concrete number of steps to walk, a specific reduction in the amount of calories consumed daily, etc. If an application allows broader or more abstract goals to be set, they should be split into short-term, specific components that can be achieved individually.

**STRATEGY 2: SET ACTIONABLE GOALS**

The second component of an effective action plan in health self-management programs is an emphasis on actionable goals. An actionable goal is one tied to a behavior over which the individual has direct control . Examples of actionable goals include reducing the amount of sodium in one’s diet or engaging in exercise. In contrast, goals that are not actionable include those related to body weight, blood pressure or other physiological measures. While managing these

non-actionable factors is frequently the ultimate objective of healthy behavior change, this outcome is best viewed as the result of specific, direct actions . Setting a specific, but not actionable, goal creates an opening for failure and loss of self-confidence. Failing to achieve such a goal does not provide an individual with feedback as to what went wrong. Thus, interactive applications that support healthy behavior change should promote actionable goals. If a user is allowed to set a non-actionable goal, such as a body weight target, it should be paired with related, actionable goals such as minutes of exercise or daily calorie intake. The metric underlying the non-actionable goal can then be used as a reference for whether achieving the actionable goals is having the intended effect.

**STRATEGY 3: SET GOALS THE USER IS CONFIDENT SHE CAN ATTAIN**

The third behavior change strategy embodied in action plans is that an individual should only set goals that she is confident she can realize. Realizing such a goal raises the individual’s self-confidence about her ability to successfully perform the behaviors needed for this goal (or even a more challenging one) in the future . In some health self-management interventions, this requirement is operationalized by asking participants to rate their confidence of realizing a goal . If the individual’s confidence is below , the goal should be revised so that the individual more strongly feels that she can perform successfully. To leverage this strategy, interactive applications should gauge the user’s expectations of success before allowing her to set a goal. This can be done via a simple interface that asks the user to rate her perceived likelihood of success using the method described above. Additionally, an application can utilize this strategy to encourage the user to challenge herself by progressively adjusting the goal target. By allowing the user to rate her likelihood of success at each increment, it is possible to ensure that the goal is adjusted at a reasonable pace. This can allow designers to create applications that challenge users, but also mitigate the chance that excessively difficult goals will lead to failure, and thus potentially decrease the user’s self-confidence or engagement with the system.

**STRATEGY 4: USE CUES-TO-ACTION TO TRIGGER BEHAVIORS** The basis for the fourth strategy is cues-to-action, a component of the Health Beliefs Model. “Cues to action…can be thought of as including any event or stimulus that triggers patients to perform the targeted behaviors” . They are used broadly in HSM interventions, and may be as simple as sending participants reminders to take part in some activity. However, cues can also be internal to an individual, such as experiencing pain or measuring an abnormal physiological measurement like elevated blood glucose. HSM interventions can help individuals reinterpret these internal cues to trigger positive target behaviors. Over time, this supports the user in developing a feeling of control over these internal cues, rather than ignoring or fearing them . Monitoring applications are best suited to leverage cues-to-action. A system that monitors a user’s physiological metrics can use abnormal readings as cues to encourage target actions that the individual is using to mitigate the problem. This may be an in-themoment action, such as a reminder to take medication, or a broader behavior, such as offering to guide the user through a set of physical exercises or stretch

**STRATEGY 5: ALLOW USERS TO INCREASE THEIR SELFUNDERSTANDING THROUGH SMALL-SCALE EXPERIMENTS**

The final strategy we highlight is the use of small-scale experiments to increase self-understanding. This strategy is a key component of the Blood Glucose Awareness Training (BGAT) program, a health selfmanagement intervention that has been shown to be effective in improving the health outcomes of individuals with diabetes . The BGAT program encourages individuals to conduct small-scale experiments to directly observe the effect of stimuli (e.g. 30 minutes of exercise) on blood glucose levels. Through these experiments, individuals are able to more thoroughly understand their health condition and how it is affected by different actions and events. An individual with diabetes who has a better understanding of her body’s responses to diet and exercise is able to anticipate blood sugar level fluctuations . The ability to run small-scale experiments can be integrated into applications that help individuals take steps toward healthy behavior change. In addition to the diabetes management example above, systems that support users in increasing physical activity through step count goals can allow users to investigate the number of steps involved in common activities— taking the stairs, walking around the block, etc. By helping the user build a better model of how different activities contribute to her goal, the user may be able to more effectively structure her day to include the desired behaviors

# 17.Barriers to behaviour change

## 17.1. Lack of Feedback

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Is lack of visible feedback a problem for handwashing? Absolutely. Bacteria are frequently invisible, so hands look clean even when they are not. If healthcare professionals have visibly dirty hands, or if their hands turned blue when they had bacteria on them, handwashing rates would probably be much closer to 100 percent. It’s not that they don’t know handwashing is important, but in high-pressure situations with competing priorities, it’s natural that (in the absence of visual reminders) dealing with a distressed patient might take precedence over washing their hands for the 37th time that day.

## 17.2.Lack of Immediate Consequences

Handwashing also does not often have immediate, tangible consequences. For example, if one of the catering staff has cold germs on his hands, he may never see the direct consequence of that, even if some patients do get sick.

I will frequently look at the level at which consequences become visible. Can you see them at the individual, group, or system level? For example, if I indulge in high-calorie foods while on vacation, that individual behavior will have a consequence at the individual level (which will be reflected when I step on a scale). But the consequences of inadequate handwashing will almost never be visible at the individual level. If one of your patients gets sick, you don’t know if the bacteria was passed on by you, another staff person, or a visiting family member. You may know how many patients on a particular ward get infections (group level), and the hospital is almost certainly tracking infection rates (system level), but it can be very difficult to match that to individual behaviors.

## 17.3.Lack of Environment or Process Support

Sometimes the difficulty is due not to lack of motivation in the learner but lack of support in the environment. Frequently, making the behavior easier is a better answer than trying to make the learner more motivated. In one study, making an alcohol-based hand rub readily available almost doubled the level of compliance with hand hygiene guidelines (Bischoff 2000).

## 17.4.Social Proof

Social proof is possibly a factor. We look at others to see how to behave, and if, for example, junior staff see senior staff skipping some of the handwashing, that will almost certainly influence their behavior. Most medical personnel are probably convinced of the utility of handwashing, but having sufficient time and resources is probably a challenge. Most medical staff have far more to do than they have time to do it in, which means that corners do get cut.

## Lack of Autonomy or Ownership

Lack of autonomy and ownership probably depends on the particular workplace. In his book Better: A Surgeon’s Notes on Performance, Atul Gawande recounts a case study on the topic of handwashing in which the only really successful intervention was to group the entire staff into small teams and have each team work on how to solve the problem. Even though teams came up with similar solutions, the fact that each person was actively participating meant they took ownership of the process and succeeded in dramatically lowering the

eans solutions should focus on improving feedback mechanisms, or making the consequences more visible and immediate (for example, several handwashing curricula use light boxes to make the bacteria visible for participants). If a particular problem is more related to social proof, then the focus should be on solutions such as gathering testimonials, enlisting opinion leaders, and modeling behaviors.

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Problems related to lack of autonomy or ownership and lack of environment or process support suggest that training isn’t going to be the primary solution, but providing time in training programs for people to brainstorm solutions or think about how to improve their environment can be constructive contributions. infection rates in the hospital.

## 17.5.Identifying Solutions

In the past, solutions for behavior change problems often took the form of telling people again and again why they should do a particular thing. But if the problem isn’t due to a knowledge deficit, then more telling probably isn’t going to change the behavior.

Identifying the likely causes for the issue make it possible to be much more specific about solutions. If the problem is lack of visible feedback or consequences, that m

This list addresses only a few of the reasons behavior change challenges can occur. When it comes to difficult behavior change problems, we need to make sure that we understand why the problem is happening so we can make sure we are solving problems that really exist, and target those problems with the best possible solution.

# 18.Conclusion

Knowledge of what is successful in the field of health behaviour change is crucial for achieving improvements in health and preventing disease. In recent years, there has been growing recognition of this and a lot of work has been undertaken to examine the best approach. There is considerable evidence that the use of theory in designing and implementing health promotion programmes improves their effectiveness. However, there is less evidence concerning which techniques to use. In addition to targeting behaviours directly, interventions must help create communities and environments that enable change. Full evaluation of such interventions is essential to advance understanding of health behaviour change.

Training and continuing professional development (CPD) should reflect the shift in focus, away from simple advice-giving, towards the complexity of behaviour and the relationship between health professional and client. Developing the self-confidence of professionals to use behaviour change techniques is essential. Health professionals are advised to seek out formal training opportunities to study the principles of effective behaviour change and practise the core techniques.

THANK YOU ALL

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