

## **8 Planning an intervention—theories and models used in healthy eating interventions**

Interventions that are based on a theoretical position tend to be more successful than those that are not based on a theory. A theory is merely a model containing the most important influences on a behaviour or set of behaviours like fruit eating. If you know what might influence eating, you can design an intervention to overcome any barriers and to foster positive influences.

The problem for designers of healthy eating interventions is that there many theories on which to base interventions. Some theories are broad and include many social, economic and

political influences, while others are much more focused (for example, those including only sensory factors). Most theories are derived from social psychology and the social sciences. They were developed to explain a variety of behaviours but relatively few of them have been developed to explain eating behaviours. Theories are practical necessities because they provide a checklist of influences on which the intervention can focus. They facilitate the selection of intervention goals and provide the basis for evaluating the intervention.

An influential review of the dietary behaviour literature by Baranowski, Weber, Cullen and Baranowski (1999) shows:

- 1 that interventions based on current socio-psychological theories tend to be more effective than interventions which are not theory based, but
- 2 that the effectiveness of interventions based on the different theories does not differ substantially and accounts for no more than 30 per cent of dietary change. The current models used in public health nutrition programs are preliminary and largely inadequate.

### **Which theories of dietary behaviour might be employed?**

To some extent, the practitioners' choice of theory depends on their aims and the context in which the intervention is to be conducted (for example, with individual children in a classroom or across the broad community. Some of the most common individual oriented models are outlined below. A number of these and other theoretical approaches to health promotion are described in Nutbeam and Harris (1999).

#### ***The theory of planned behaviour (Ajzen 1991)***

This theory assumes that people's behaviours are largely determined by their *attitudes* towards the behaviour—that is, whether they like or dislike undertaking the behaviour. It is not so much about whether a person likes fruit, but whether they like *eating* fruit that matters.

In turn, a person's attitudes are products of their beliefs about the behaviour. What would be the consequences of eating fruit for people? How likely it is that eating fruit would reduce their risk of bowel cancer, give them smoother skin and leave a nasty taste in their mouth? These are *likelihood* or *expectancy* estimations. People usually evaluate the consequences of a behaviour in terms of how good or bad it would be for them: an adult eating fruit might perceive the behaviour as likely to reduce the risk of bowel cancer, whereas a teenager probably would not consider that consequence to have any value because he or she does not think about bowel cancer.

In their minds, people process information about the likely consequences of their behaviours and the value of those consequences for themselves. They integrate these beliefs into a single attitude about the particular behaviour—for example, 'I do not like eating fruit'. This

theory is thus an example of an expectancy value theory. Such theories are based on the old maxim that people will maximise the benefits of their actions and minimise the drawbacks.

The theory of planned behaviour categorises attitudes and beliefs into two streams: the non-social consequences (for example, the unfamiliar taste of a fruit, disease risk reduction) and social consequences (called subjective norms—for example, ‘if I eat fruit, my friends will tease me’). It thus recognises the importance of the social environment for behaviours. It also acknowledges that people may have positive attitudes towards certain behaviours but may be unable to perform those behaviours (‘I like fruit but I can’t buy any to eat’). This is called *self-efficacy*.

This simple theory relates to the final stages in the decision making process. It assumes that people are conscious of the factors that influence their behaviours and that people make reasoned decisions. Many food behaviours, however, are influenced by factors that are not in people’s consciousness. They may be habitual (and ‘not on my mind’) or influenced by biochemical processes (for example, a liking for fruit being influenced by its sugar concentration). Nevertheless, attitudes and beliefs about healthy eating are important factors that need to be assessed when planning healthy eating interventions

***Social cognitive theory (social learning theory) (Bandura 1986)***

This theory is one of the most widely used models in health promotion. It underpins many of the US healthy eating programs (for example, CATCH—box 12). It is an expectancy value theory that focuses on the interaction between the individual and the environment, particularly how the reinforcers in the environment can shape an individual’s behaviour. In this regard, recent healthy eating programs such as ‘Food Dudes’ are similar to aspects of social learning theory, although they trace their roots to mid-20th century learning psychology.

Social learning theory emphasises the influence of other people on individual’s behaviours (the situation). If the majority of children like broccoli or zucchini, for example, then each child will feel pressured to conform to the majority’s behaviours. Bandura (1986) coined the term *reciprocal determinism* to highlight the continuing interaction between an individual and the social group, something that Tapper, Horne and Lowe (2003) and Birch (1999) have used in their studies of the shaping of young children’s eating.

Several cognitive factors also influence behaviour. These include *observational learning* (or learning by observing others), so ‘Food Dudes’ demonstrates how people should eat. This can change people’s expectations about the values of certain behaviours: if a child sees another child being praised by his or her mother for eating fruit, he or she is more likely to eat fruit because doing so may earn praise. Finally, the model emphasises the role of *self-efficacy*—that is, the belief in your own ability to successfully perform a behaviour. Both

observational learning and participatory learning (practising the behaviour) are likely to increase self-efficacy and thus bring about changes in behaviours. Closely associated with these notions are the principles of feedback and goal setting, which enable learners to plan to change their behaviours.

The social cognitive theory links individual factors with environmental influences, so it is useful for children's health eating promotion.

***The transtheoretical theory (stage of change model) (Prochaska and Di Clemente 1984)***

This is one of the few models that has been designed to explain behavioural change. It is starting to become used in healthy eating promotion campaigns (Horwath 1999) although its individual orientation makes it less applicable to broad community approaches. For any behaviour, such as eating fruit, it proposes that people can be in any of a sequence of several stages of change:

- 1 *Precontemplation*—the person is not even thinking of changing their behaviour. This suggests the need for awareness raising (for example, 'if you cut your fat intake, you may lose weight').
- 2 *Contemplation*—the person is considering change. Typically, people do not change because they perceive barriers to making the change. The health promoter thus needs to emphasise the benefits of the proposed change.
- 3 *Determination or preparation*—the person makes a serious decision to change. The health promoter needs to help find ways in which to minimise the barriers to change.
- 4 *Action*—the person initiates the behaviour change. The health promoter needs to help the person develop a program of change.
- 5 *Maintenance*—the person is maintaining the change but may relapse from time to time, which may cause him or her to cease to perform the new behaviours. The health promoter needs to provide strategies to overcome relapses.

This model has been developed in clinical environments, such as in tobacco smoking cessation clinics in which there was a lot of psychological support for patients. In children's healthy eating programs, it is difficult to perceive how such intense support can be provided. However, anticipation of the stages through which a person may progress can be anticipated and built into healthy eating programs. Recent studies suggest the value of using the model to tailor nutrition communication messages to individuals in the population. The messages can be built from surveys of individual's characteristics suggested by the model (Ling and Horwath 2002).

**Table 2: General practitioners' use of the transtheoretical model to promote weight control among patients**

Stages of change	Issue	Action by general practitioner
Precontemplation	Awareness raising	Discusses with the patient the health problems of being overweight
Contemplation	Recognition of the benefits of change	Discusses with the patient the potential benefits of the proposed change
Determination or preparation	Identification of barriers	Assists patient in identifying potential barriers that he or she may face, and how these could be addressed
Action	Program of change	With the patient, works out a plan for weight loss and exercise, and monitors closely
Maintenance	Follow-up	Organises for routine follow-up and discusses with the patient the likelihood of relapse

Source: Nutbeam and Harris (1999)

**Social marketing (a communication model)** (Andreassen 1995; Miaback, Rothschild and Novelli 2002)

Social marketing uses the same methods used by commercial marketing, but it aims to benefit the population or community rather than the marketer. It uses techniques such as the targeting of market segments with advertising but instead of promoting products for profit it attempts to persuade people to adopt healthy behaviours such as healthy food choices.

Useful guides for social marketing are:

- Donovan, RJ and Henley, N 2003, *Social marketing: principles and practices*, IP Publishing, East Hawthorn, Victoria.
- [foundation.novartis.com/social\\_marketing.htm](http://foundation.novartis.com/social_marketing.htm)
- [oc.nci.nih.gov/services/HCPW/home.htm](http://oc.nci.nih.gov/services/HCPW/home.htm)
- [www.social-marketing.com/book.html](http://www.social-marketing.com/book.html).

Marketing methods are complex but effective (as the high sales of fast foods demonstrate). They are concerned with placing the right product before a selected population. This involves

determining the wants and needs of the target population, developing and selecting products that meet these needs and wants, communicating the benefits of the product, identifying the best points of access to that population (distribution channels), appropriately pricing the product, and determining the product's placement in relation to competing products.

Some school canteen managers have a sound grasp of social marketing. They name their foods in ways that appeal to children; they do not preach health (which is largely an adult concern), but instead promote product features that children desire (for example, 'coolness', taste and colour). They place their healthy products prominently before children and relegate less healthy products to less prominent positions. Another example is the FoodCent\$ scheme, which does not promote nutrition but instead promotes the dietary pyramid as a way of saving money—something that is highly valued by its target audience. Donovan, Egger and Francis (1999) wrote a useful paper on the use of marketing methods in health promotion.

***The precede–proceed model (Green and Kreuter 1991)***

This model arose out the health belief model's failure to account for environmental influences on behaviour. It proposes three sets of influences on people's behaviours: predisposing factors, enabling factors and reinforcing factors. Predisposing factors include attitudes, beliefs and values (guiding principles in people's lives, such as egalitarianism, achievement motivation, tradition and security). Enabling factors include developing skills (for example, can the person cook?), availability ( is fruit available at school?), accessibility ( is the fruit affordable and visible?) . Reinforcing factors include support from family, peers, teachers, employers and health providers, among other sources.

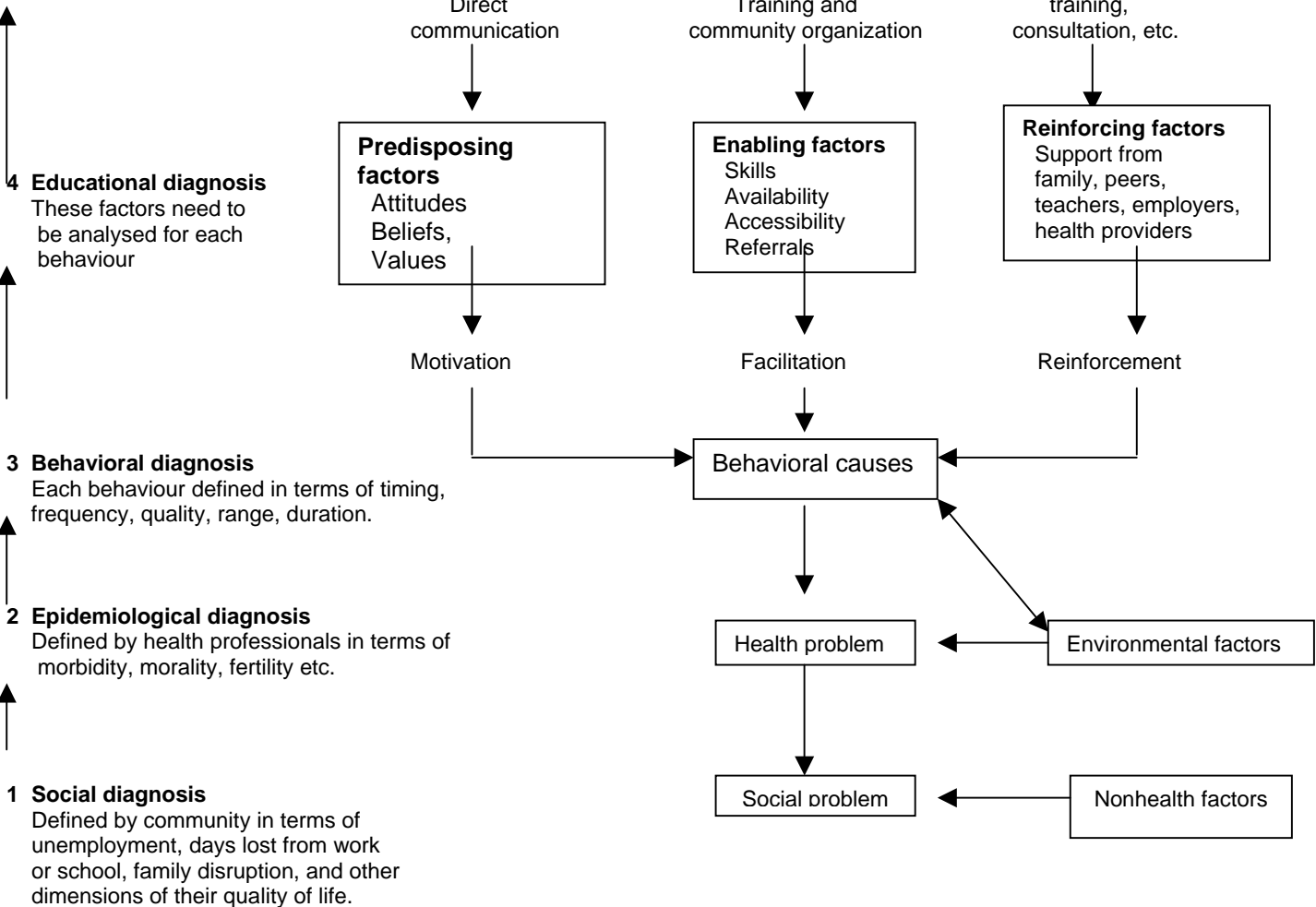
The model proposes that health program planning needs to occur through a series of levels or stages, each of which deals with aspects of the health promotion program (such as the administrative diagnosis, the educational diagnosis, the behavioural diagnosis, the epidemiological diagnosis and the social diagnosis). The model has been widely used but rarely in children's healthy eating programs. In many ways, it combines aspects of individualistic theories (such as the theory of planned behaviour) with broader community-based approaches. It provides a useful checklist of issues that any health promotion program needs to consider. In Australia, the Tooty Fruity program perhaps comes closest to this model in practice.

**Figure 6: The Precede–Proceed Model**

The Precede-Proceed Model for health education planning and evaluation begins at the end of the causal chain (bottom left) with the social diagnosis. Subsequent steps correspond to the casual relationships among factors linking health education to ultimate health and social goals. (Source: Adapted from Green LW: Prevention and health education. In Wallace RB, editor: *Public health and preventive medicine*, ed 14, Norwalk, Conn. 1998, Appleton-Century-Crofts.)

**5 Administrative diagnosis**

Interventions are matched with educational and behavioural objectives from steps 3 and 4, budgeted, sequenced, and coordinated.



Source: Green and Kreuter (1991)

### **The food-related lifestyle model** (Grunert, Brunso and Bisp 1993)

This model was designed by a group of consumer food behaviour and marketing specialists in Denmark. It was specifically designed to explain food consumption. It provides a useful checklist of influences on food consumption, which may be useful for practitioners working with children and their families.

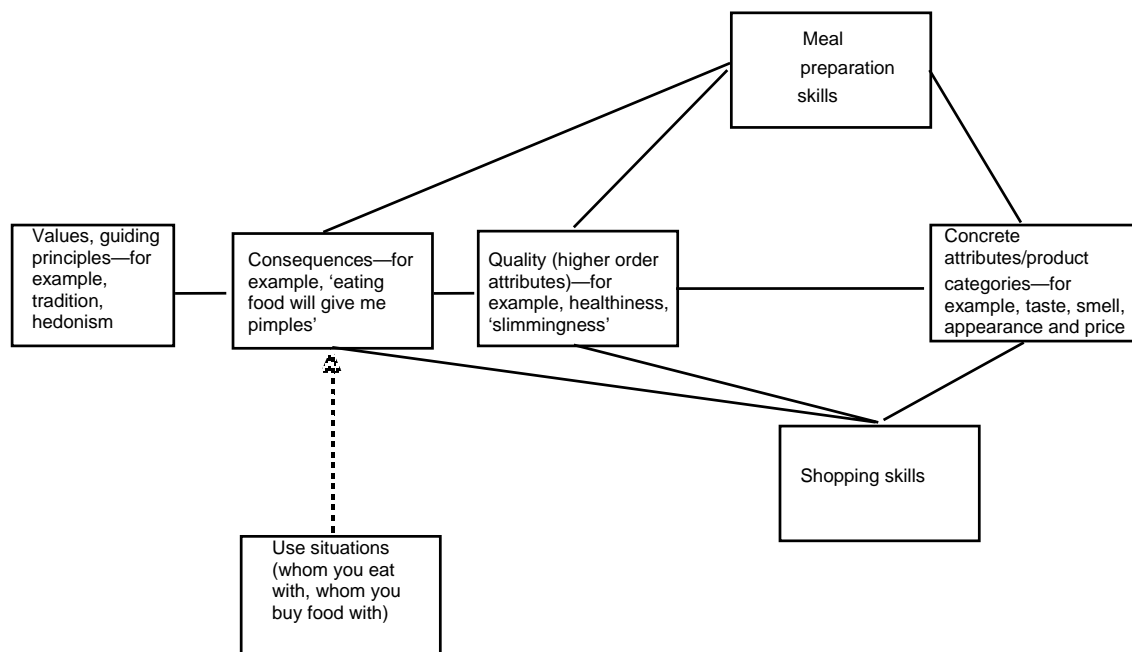
The components of the food lifestyle model include the following:

- *Use situations* are the social situations in which we eat and buy foods. These are major influences over children's eating behaviours—for example, children may eat different food at home compared with their eating at preschool.
- *Concrete attributes* include the taste, smell, texture and appearance of food, as well as its price. The more exposed children are to the characteristics of a food, the more familiar they become with the food and the more likely they are to eat it.
- *Quality considerations (higher order attributes)* include abstract perceptions such as healthiness, 'slimmingness', naturalness and trendiness. Often, practitioners, parents and children have quite different perceptions of foods, and they value foods differently. Many adolescent females, for example, perceive meat as 'cruel and male' and dislike it accordingly. Parents (and other adults) often assume that their higher order views of food are commonsense and shared by everyone. Views such as 'sugar is poison' are often mistaken for nutrition knowledge and can interfere with successful healthy eating promotion.
- *Shopping and meal preparation scripts or skills* are the procedural knowledge (the 'how to' knowledge) that enables people to buy and make enjoyable foods. Scripts that incorporate healthy eating principles are likely to enable children (and adults) to eat more healthily. The attainment of optimal scripts is one aim of nutrition education. It includes the ability to decode food labels and advertising. The education process can reasonably be expected to affect and develop these influences on healthy eating.
- *(Perceived) consequences* are the consequences that children and adults expect after consuming foods—for example, the expectation that they will feel full after eating a certain meal, or bloated or fat after eating bread, or that their friends will laugh at them if they eat fruit. The more likely a consequence is perceived to be, the more the consequence will influence the eating of a food. Many people may feel that eating has no important consequences, or they may fixate on only one possible consequence, such as becoming overweight. It is important to identify these perceived consequences or lack of them.

Healthy eating promotion programs can do much to explain the realistic consequences of eating particular foods. There is a danger that health practitioners will concentrate only on consequences in which they are interested (for example, the danger of obesity) and ignore the consequences that matter to children and parents (for example, 'chips fill me up', 'chocolate makes me feel better'—both of which may be true and immediate).

- *Values* are the guiding principles, which children soon acquire, usually from their parents. Values tell us what is 'good'. They certainly affect our food behaviours, but different children (and their parents) often hold quite different values. Health conscious people, for example, often place a high premium on security (for example, personal and family safety), whereas many teenagers tend to value stimulation and excitement far more highly, so they may not care much about warnings about the dangers of over consuming fast foods and soft-drinks because they are more interested in the sensory and image ('sociability') qualities of these foods and drinks.

**Figure 7: The food-related lifestyle model**



### Community models

In contrast to the individual focused theories, some models have a broader, community orientation. The Review of Children's Healthy Eating Interventions found few community-based approaches that specifically focused on children, yet the sheer pervasiveness of food and eating throughout the community suggests broad, multi-strategy, community-based

approaches to healthy eating are likely to be effective. The approaches taken by Eat Well Australia (and Eat Well South Australia, Queensland and Tasmania) generally follow the strategies outlined in the Ottawa Charter (described below).

Useful resources include:

Eat Well Tasmania: [www.eatwelltas.com.au](http://www.eatwelltas.com.au)

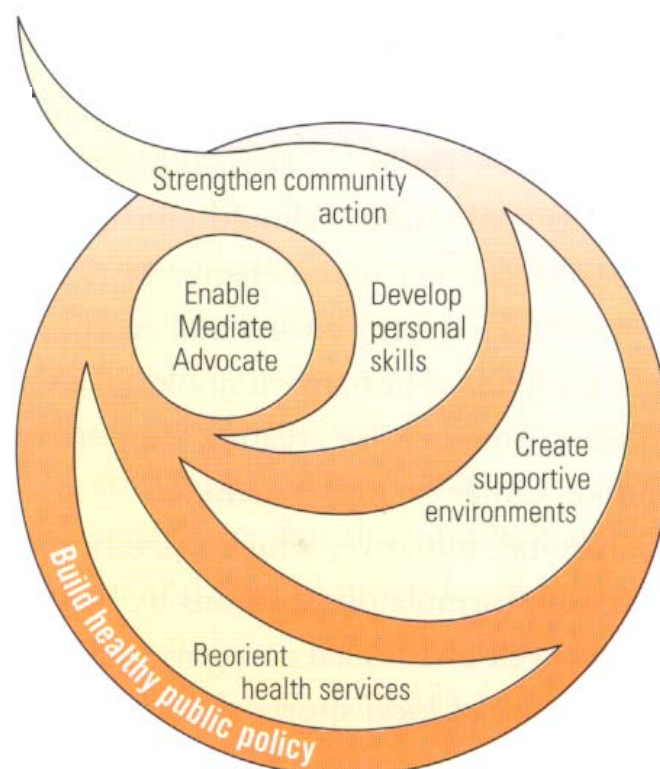
Eat Well South Australia, Eating well for Young People: [www.healthinsite.gov.au](http://www.healthinsite.gov.au)

Eat Well Australia: [mphp.gov.au/publications/signal/eatwell2.pdf](http://mphp.gov.au/publications/signal/eatwell2.pdf)

Eat Well Queensland: [www.health.qld.gov.au/QPHF/Documebts/EWQ\\_SmartEating.pdf](http://www.health.qld.gov.au/QPHF/Documebts/EWQ_SmartEating.pdf).

The Ottawa Charter is a useful guide to the types of action that can be followed in any community, such as a school or a local council area. It does not deal with specific content issues; instead, it provides a set of broad action strategies and allows individual communities to develop programs that suit their specific needs. It is broad enough to allow the incorporation of a number of theoretical approaches.

**Figure 8: The Ottawa Charter**



Source: Carey et al. (2003)