7.10

Benefiting from Models of Behaviour Change

Health, defined in its broadest conceptualization, is a dynamic state of complete physical, psychological, social and spiritual well-being wherein physiological, psychological, regard for societal roles and norms, and the transcendent purpose of existence are incorporated.[166] The maintenance of such a state is dependent on adopting behaviours that would not compromise health resulting in pain, disease or death; they should also foster social, psychological and spiritual well-being. Thus, the outcomes of high-risk behaviours such as experimenting with smoking, alcohol, drugs or unsafe sex, which may appear at first instance to be socially deviant behaviours, later develop into physical problems. Influencing behaviours to change them in a manner that reduces risks would thus seem to be a necessary step to promote health.

The Ottawa Charter for Health Promotion states that peace, shelter, education, food, income, equity and justice are fundamental conditions for health promotion, which would be fostered by healthy public policies, supportive environments, community action and personal skills. Health behaviour change thus needs to be seen in the larger comprehensive context of health promotion.[167]

Health behaviour change is a complex process and is guided by various empirical constructs and theories. The change needs to be made at the community, society (interpersonal) and individual (intrapersonal) levels. Contemporary health promotion includes not only educational activities but also advocacy, organizational change efforts, policy development, economic support, environmental change, and multi-method programmes highlighting the importance of approaching public health problems at multiple levels, and stressing the interaction and integration of factors within and across various levels. This approach has been referred to as an ecological perspective. Two key ideas—'multiple levels of influence' and 'reciprocal causation'—between individuals and their environments help direct the identification of personal and environmental leverage points for health promotion interventions.[168]

This section outlines (i) some of the theoretical constructs guiding health-related behaviours and the processes of changing behaviours, and community and environmental factors that influence behaviour; (ii) the two prominent approaches to the development of a framework in which the theories of behaviour change can be operational; and (iii) some of the relevant theories and examples of behaviour change interventions based on this theoretical framework.

Planning systems/frameworks

Once health communication planners identify a health problem, they need a planning system that can help identify the social science theories most appropriate for understanding the problem or situation. Two influential methods are: social marketing and Precede–Proceed. The use of planning systems such as social marketing and precede–proceed increases the probability of programme success by examining health and behaviour at multiple levels.

Social marketing

Social marketing is not a theory. It does not tell us how to change a person's behaviour. Rather, it is an approach to thinking about and structuring a social change programme to one that is consumer-driven. Within this framework, a number of social and behavioural theories can be drawn upon to develop a strategic course of action.

Kotler (1975) defines social marketing as 'the design, implementation, and control of programmes seeking to increase the acceptability of a social idea or practice in a target group(s).

It utilizes concepts of market segmentation, consumer research, idea configuration, communication, facilitation, incentives, and exchange theory to maximize target group response.'[169] Andreasen (1995) defines social marketing as 'the application of commercial marketing technologies to the analysis, planning, execution, and evaluation of programmes designed to influence the voluntary behaviour of target audiences in order to improve their personal welfare and that of their society'.[170]

The common features of social marketing are:

1. The label is applied to causes judged by persons in positions of power and authority to be beneficial to both individuals and society.
2. Unlike commercial marketing, the agent of change does not profit financially from a campaign's success.
3. The ultimate goal is to change behaviours believed to place the individual at risk and not simply increase awareness or alter attitudes.
4. The optimal social marketing campaign is tailored to the unique perspective, needs and experiences of the target audience, hopefully with inputs from representative members of this group.
5. Social marketing strives to create conditions in the social structure, which facilitate the behavioural changes promoted.
6. Social marketing relies on the concepts of commercial marketing.

It has been said that 'there is poetic justice in using the very marketing concepts employed by such "disease peddlers" as the tobacco and fast food industries to combat their negative influences'.[171]

Social marketing practices are based on commercial marketing practices that make the consumer the central focus for planning and conducting a programme. One of the pathways to information campaigns based on social marketing is the 5P approach, which addresses the following components. [171]

Price: What the consumer must give up to receive the programme's benefits (these costs may be intangible, e.g. changes in beliefs or habits, or tangibles such as money, time or travel);

Product: What the programme is trying to change within the intended audience and what the audience stands to gain;

Promotion: How the exchange is communicated (e.g. appeals used);

Place: What channels the programme uses to reach the intended audience (e.g. mass media, community or interpersonal); and

Positioning: This is a psychological construct that involves the location of the product relative to other products and activities with which it competes. For instance, physical activity could be repositioned as a form of relaxation, not exercise.

Lessons learned from social marketing stress the importance of understanding the target audience and designing strategies based on their wants and needs rather than what good health practices direct them to do.

The Precede–Proceed framework

The Precede model is a framework for the process of systematic development and evaluation of health education programmes.[172] An underlying premise of this model is that health education is dependent on voluntary cooperation and participation of the client in a process that allows personal determination of behavioural practices; and that the degree of change in knowledge and health practice is directly related to the degree of active participation of the client. Therefore, in this model, appropriate health education is considered to be the intervention (treatment) for a properly diagnosed problem in a target population.

This model is multidimensional, founded in the

social/behavioural sciences, epidemiology, administration and education. As such, it recognizes that health and health behaviours have multiple causations, which must be evaluated to assure appropriate intervention. The comprehensive nature of 'Precede' allows for application in a variety of settings, such as school health education, patient education, community health education and direct patient care settings.[172]

'Proceed' was added to the framework in recognition of the emergence of and the need for health promotion interventions that go beyond traditional educational approaches to change unhealthy behaviours.[173] The administrative diagnosis is the final planning step to 'precede' implementation. From there, 'proceed' to promote the plan or policy, regulate the environment, and organize the resources and services, as required by the plan or policy. Figure 7.11 illustrates the Precede–Proceed model.

The Precede–Proceed model directs initial attention to outcomes rather than inputs. Hence, planners focus on planning from the outcome point of view. The model rests on two principles:

1. The 'principle of participation', which states that success in achieving change is enhanced by the active participation of members of the target audience in defining their high-priority problems and goals, and in developing and implementing solutions. This principle is derived from the community development root theories and the empowerment education model.
2. The important role of 'environmental factors', such as the media, industry, politics and social inequities, as determinants of health and health behaviours.

The Precede step of the model ends with the administrative and policy diagnosis and the Proceed step then begins with implementation and evaluation. This model has been applied, tested, studied, extended and verified in hundreds of published studies and thousands of unpublished projects in community, school,

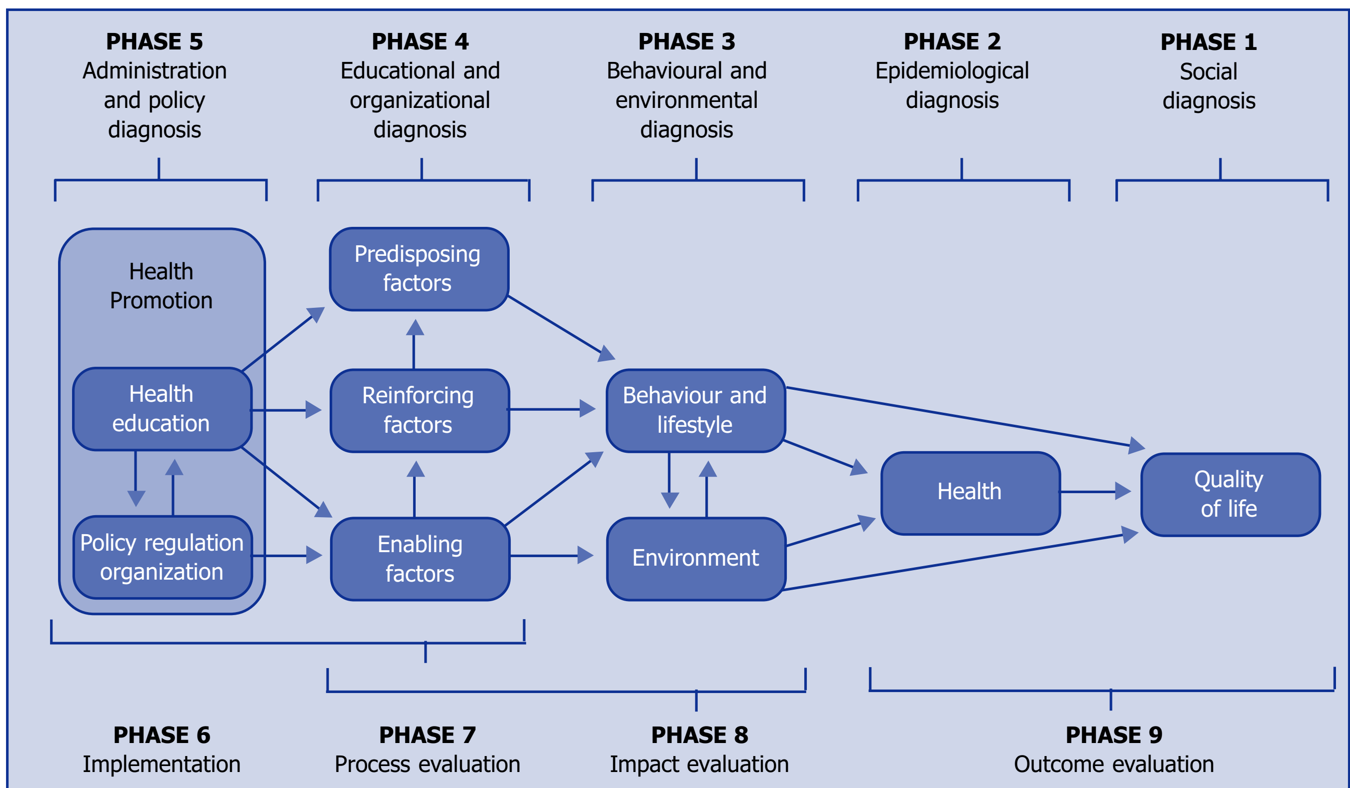

Fig. 7.11 The Precede–Proceed model

clinical and workplace settings over the past decade.[173,174] To provide technical guidance and assistance to those involved in the complex process of planning and implementing community-level cancer prevention and control interventions, the EMPOWER (Enabling Methods of Planning and Organizing Within Everyone's Reach) software was created.[173,174]

Models/theories of change

There are a number of influential models that have been proposed and evaluated. Some of these are as follows:[176]

I. The individual (intrapersonal) models are:

1. Health belief model
2. Transtheoretical model
3. Consumer information-processing model

II. The interpersonal models include:

1. Social learning or cognitive theory

III. Community/organizational network models include:

1. Organizational change theory
2. Community organization theory
3. Diffusion of innovations theory

I. Individual (intrapersonal) models

Health belief model

Developed around the 1950s by Hochbaum, Kegels and Rosenstock, the Health belief model (HBM) of influencing behaviours is useful in analysing asymptomatic yet considerably diseased persons (e.g. those with hypertension, diabetes, etc.). It is characterized by inaction regarding illness or non-compliance to intervention and remains one of the most widely recognized conceptual frameworks of health behaviour.[177]

The focus of this model was on increasing the use of preventive services, such as conducting a chest X-ray examination to screen for tuberculosis, and immunization such as influenza vaccines. It was assumed that people feared diseases and that health actions were motivated in relation to the degree of fear, i.e. perceived threat and the expected fear-reduction potential of actions, as long as the potential outweighed practical and psychological obstacles to taking action, i.e. net benefits.

Fear (threat) of the consequences of inaction (e.g. tobacco cessation) are weighed against the benefits of the action (remaining free of cancer or other tobacco-related diseases).

Four basic constructs representing the perceived threat and net benefits in the HBM are:

— Perceived susceptibility, i.e. one's opinion of the chances of acquiring a condition;
— Perceived severity, i.e. how serious a condition and its sequelae are;
— Perceived benefits, i.e. efficacy of the advised action to reduce the risk or seriousness of impact; and
— Perceived barriers, i.e. tangible and psychological costs of the advised action.

These are related to 'readiness to act' which, coupled with 'cues to act' (including strategies to activate readiness), will lead to a change in the behaviour (Fig. 7.12).

Rosenstock[178] added self-efficacy, or one's confidence in the ability to successfully perform an action to better fit the challenges of changing habitual unhealthy behaviours, such as being sedentary, smoking or overeating.

The application of HBM has been primarily in

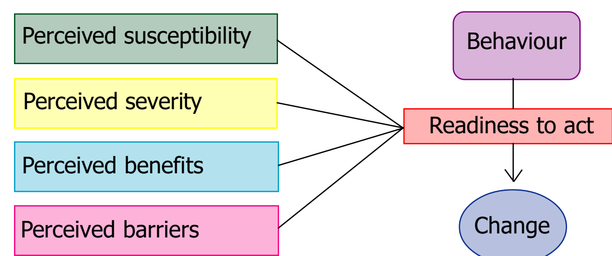

Fig. 7.12 Health belief model

explaining health-related behaviours but it could also be a useful framework for designing change strategies. The most promising application of the HBM is in helping to develop messages that can be delivered in the print or electronic media to persuade individuals to make healthy decisions.

In applying the HBM to a smoker, it would seem that the messages best suited for health education would include (i) I can have lung cancer (susceptible) based on the epidemiology of the disease, (ii) lung cancer can kill me (the severity is great), (iii) quitting can reduce the chances (how much; benefits), (iv) quitting will be associated with loss of contacts and perceived 'pleasure' of smoking (costs/barriers), and (v) a strategy to improve self-efficacy in the case of repeated relapses should be put in place.

The model is particularly useful when the condition evokes health motivation as well as social or economic motivation.

Transtheoretical stage of change model

The Transtheoretical stage of change model developed by Prochaska and DiClemente[179,180] evolved from work with smoking cessation and the treatment of drug and alcohol addiction, and has recently been applied to a variety of other health behaviours including substance use or lifestyle behaviour. The basic premise is that behaviour change is a 'process' and not an event, and that individuals are at varying levels of motivation, or 'readiness' to change. People at different points in the process of change can benefit from different interventions, matched to their stage at that time.

The four stages in this circular model—pre-contemplation, contemplation, action and maintenance—are depicted in Fig. 7.13. The subjects may enter and exit at any stage and go through the cycle in both directions. They often go from maintenance back to contemplation through relapse and onward to action. Sometimes subjects can go back to contemplation from action. It seems, however, that the stages may have a different meaning for different behaviours.

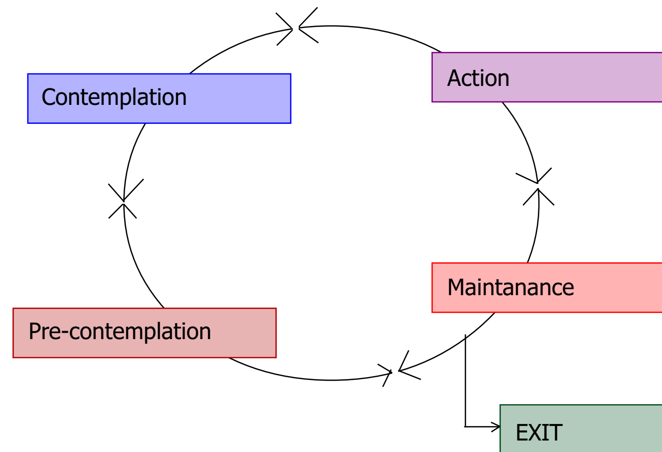

Fig. 7.13 Transtheoretical stage of change model

Readiness to change can be measured by questionnaires such as the 'Readiness to Change Questionnaire' developed specifically for drugs of abuse by Rollnick *et al.*[181] Specifically tailored programmes can be initiated by knowing the stage of change the individual is at.

The transtheoretical model is a very useful and influential model of behaviour change. It is used extensively in drug abuse treatment to ascertain the stage of change and use appropriate methods to change the stage. In relation to tobacco use, this model helps in understanding change in the individual as well as the community, and initiating stage-specific interventions.

Consumer information processing model

This model is based on the fact that information is important for people to solve problems. Information is needed for deciding virtually everything, e.g guidance in choosing treatment modalities or specific information to choose foods for therapeutic diets, etc. The human system, however, is limited by the ability to process information. Furthermore, information is necessary but not sufficient for encouraging healthful behaviours. In the present era of information explosion, information can increase or decrease a person's anxiety, depending on their information preferences, and how much and what kind of information they are given. Misconceptions can lead even motivated consumers to behave in risky ways.

The Information processing model is governed by the need for information and motivation to acquire the information.

Bettman's model (Fig. 7.14) depicts a cyclical process of information search, choice, use, learning and feedback for future decisions.[182] To be used in making decisions for change, the information must be available, appealing and novel.

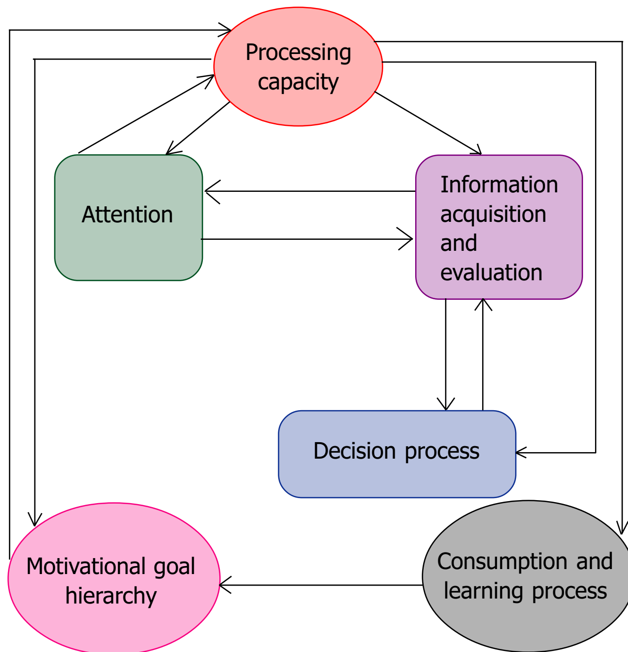

Fig. 7.14 Consumer information processing model of choice

II. Interpersonal theories of influencing behaviours

Social learning theory or social cognitive theory

In the 1970s, Bandura published a comprehensive framework for understanding human behaviour, based on a cognitive formulation, which he named the Social cognitive theory (SCT).[183] This was the first theory to incorporate the notion of modelling or vicarious learning as a form of social learning. Whereas strict behaviourism supports a direct and unidirectional pathway between the stimulus and response, representing human behaviour as a simple reaction to external stimuli, SCT asserts that there is a mediator (human cognition) between the stimulus and response, placing individual control over behavioural responses to stimuli. A basic premise of the Social learning theory (SLT) or SCT is that people learn not only through their own experiences, but also by observing the actions of others (vicarious learning) and the results of those actions. Bandura's work has stimulated an enormous amount of research on learning and behaviour, and has been useful in developing techniques for promoting behaviour change.

This theory has been used to study a wide range of health problems, from compliance to medical therapy, to alcohol abuse, to immunizations. One particularly fruitful area of investigation in which it has been employed is in understanding how children are socialized to accept the standards and values of their society. The theory is not without its limitations, prominent among which is the theory's comprehensiveness and complexity, which make it difficult to operationalize. Further, many applications of the theory focus on one or two constructs, such as self-efficacy, while ignoring the others.

This theory defines human behaviour as a triadic, dynamic and reciprocal interaction of personal factors, behaviour, and the environment, with the individual's behaviour being uniquely determined by each of these three factors. The key constructs include:

(i) Reciprocal determinism, meaning that behaviour and the environment are reciprocal systems and that the influence is in both directions. The environment shapes, maintains, and constrains behaviour with people in active interaction in the process, as they can create and change their environments.

(ii) Behavioural (symbolizing) capability, which maintains that symbols serve as the mechanism for thought and that, through the formation of symbols such as images (mental pictures) or words, humans are able to give meaning, form and contiguity to their experiences.

(iii) Expectations, which are the results that a person thinks will occur as a result of action.
(iv) Self-reflection or self-efficacy, which is the single most important aspect and a major determinant of self-regulation.

Observational (vicarious) learning allows one to develop an idea of how a new behaviour is formed without actually performing the behaviour oneself. It is often referred to as 'modelling', or learning about what to expect through the experiences of others. This means that people can gain a concrete understanding of the consequences of their actions by observing others and noting whether the modelled behaviours are desirable or not, and not indulging in the behaviour themselves. Observational learning is governed by four processes—attention span, retention processes, motor reproduction processes, and motivational processes.

Reinforcement is a term from classical behaviourism and is a response to a person's behaviour that affects whether or not the behaviour will be repeated. Positive reinforcements, often called 'rewards', increase the chances that the positive behaviour will be repeated. They are often useful as motivators for continued participation but not for sustaining long-term change.

III. Community/Organizational network theories

Organizational change theory

Organizations are complex and layered social systems, composed of resources, members, roles, exchanges and unique cultures. Thus, organizational change can best be promoted by working at multiple levels within the organization. Understanding organizational change is important in promoting health to help establish policies and environments that support healthy practices and create the capacity to solve new problems. While there are many theories of organizational behaviour, two are especially promising in public health interventions: stage theory and organizational development (OD) theory.

Stage theory

The stage theory is based on the idea that organizations pass through a series of steps or stages as they change. By recognizing those stages, strategies to promote change can be matched to various points in the process of change. An abbreviated version of the stage theory involves four stages:

— Problem definition (awareness)
— Initiation of action (adoption)
— Implementation of change
— Institutionalization of change.

Organizational theory

The OD theory grew out of the recognition that organizational structures and processes influence worker behaviour and motivation. The OD theory concerns the identification of problems that impede an organization's functioning, rather than the introduction of a specific type of change. Human relations and quality of work–life factors are often the targets of OD problem diagnosis, action planning, interventions and evaluation. A typical OD strategy involves process consultation, in which a specialist from outside the organization helps to identify problems and facilitates the planning of change strategies.

When combined, the stage and OD theories have the greatest potential to produce health-enhancing change in organizations. Such strategies can be used at various stages as they are warranted. Simultaneously, the stages signal the need to involve organization members and decision-makers at various points in the process. For example, these could become the guide to the development of a smoke-free work site programme.

Community organization theory

This theory emphasizes empowerment and active participation of communities that can better evaluate and solve health and social problems.

This theory emanates from the theory of social networks and support. Community organization is the process by which community groups are helped to identify common problems or goals, mobilize resources, and develop and implement strategies for reaching their goals. It has roots in several theoretical perspectives: the ecological perspective, social systems perspective, social networks and social support. It is also consistent with the SLT and can be successfully used along with SLT-based strategies. Although community organization does not use a single unified model, several key concepts are central to the various approaches. The process of empowerment is intended to stimulate problem-solving and activate community members.

Community competence is an approximate community-level equivalent of self-efficacy plus behavioural capability, which include the confidence and skills to solve problems effectively.

Social action approaches to community organizing go beyond the traditional notion of geographic and political boundaries. Communities of people who share common health problems have coalesced to attract attention and obtain power to address their needs including health services, anti-discrimination policies and more research funding.

Media advocacy is the strategic use of mass media as a resource for advancing a social or public policy initiative. The media is an important, and often essential, part of social action and advocacy campaigns because it focuses on public concerns and spurs public action. The core components of media advocacy are developing an understanding of how an issue relates to prevailing public opinions and values, and designing messages that frame the issues so as to maximize their impact, and attract powerful and broad public support.

Diffusion of innovations theory

This theory addresses how new ideas, products, and social practices spread within a society or from one society to another. Some of the most important characteristics of innovations are their relative advantage (is it better than what was there before?), compatibility (fit with the intended audience), complexity (ease of use), trialability (can it be tried out first?), observability (visibility of results).

Communication channels are a two-way process of flow of information and they mediate the impact of the media. The utility of innovation depends on the innovation (a new idea, product, practice or technology) as well as communication channels and social systems (networks with members, norms and social structures).

Illustrative studies

Some illustrative studies of health behaviour change in smoking and alcohol cessation described below are taken from the reported literature and are from settings in the western world. Available Indian studies are summarized at the end of this section. These studies illustrate the use of theoretical models in changing health behaviours in general, including tobacco use.

1. Lando *et al.*[184] reported the results of a general media campaign to compare the number of people who sent in interest cards and pledged to stop smoking versus those who sent in cards but did not pledge to stop smoking in a non-randomized trial with contemporaneous controls, and also compared outcomes from a previous study (historical controls). The campaign was tied to a contest and used telephone surveys for evaluation. They compared differences in quit rates between pledgers and non-pledgers and the results found that an extended enrolment period and intensive campaign increased enrolment and overall quit rates. Pledgers had higher self-reported abstinence rates. The study is, however, limited by the absence of a control group (a comparison community without the intervention), even though the historical controls may be a good indicator of change.
2. Popham[185] studied a group of people who quit smoking from among the entire population of

those exposed to California's anti-tobacco media campaign, to measure the exposure of those who quit in response to the campaign. This cross-sectional study determined that the media campaign had influenced change.

3. Prochaska[179,186] used a test of 40 questions to track subjects for 2 years to determine the progression through stages of change related to quitting smoking and outlined processes by which addictive behaviours are modified and the stages of change.
4. The World Health Organization sponsored a study of alcohol education in four countries. This pilot study of alcohol education in 8th grade students in 25 schools in Australia (6), Chile (3), Norway (14) and Swaziland (2) from 1985 to 1987 used random allocation in each country to control/teacher-led/peer-led programmes using social-led influences as the basis of intervention. Results indicated that students in the peer-led alcohol education programme reduced their drinking in all the four countries. Despite an increase in knowledge, teacher-led groups had same drinking status as that of controls.[187]
5. A Healthy Living Campaign was launched in Hong Kong in May 1998, as a demonstration of the stages of change model. The stages of change model were applied to measure changes.[188]
6. The Indian experience with behavioural intervention in tobacco use has been summarized in an annotated bibliography of tobacco-related research in India.[189] Some reports assessed behavioural variables such as initiation following exposure to surrogate advertisement, cessation and prevalence, and some studies included the incidence of oral lesions after behaviour change interventions. Most of the studies used health education as the intervention. Some used mouth self-examination as a tool for education and demonstrated its efficacy.

7.10 BENEFITING FROM MODELS OF BEHAVIOUR CHANGE

KEY MESSAGES

- Influencing behaviours to change them in a manner that reduces risks is a necessary step to promote health.
- A number of influential models of behaviour change have been proposed and evaluated. These models provide a framework to show how behaviours can be changed to achieve better health and social practices.
- The use of communication planning systems, such as social marketing and Precede–Proceed models, increases the probability of programme success by examining health-related behaviour at multiple levels.
- The Precede–Proceed model directs initial attention to outcomes rather than inputs and hence planners focus the planning process from the outcome point of view.
- The transtheoretical model of change provides the basis for stimulating and supporting individual efforts at tobacco cessation.
- Lessons learned from social marketing stress the importance of understanding the target audience and designing strategies based on their wants and needs rather than what good health practice directs them to do.