CHAPTER ONE

Introduction to Health psychology

1.1 Defining 'Health'

The word **health** comes from an Anglo-Saxon term meaning 'wholeness'. The same root-word gives us the words 'whole' and 'holy'. It is interesting that the religious idea of being spiritually holy has a similar origin to the medical notion of being physically healthy. Before the development of modern Western medicine the role of physical healing was often closely connected with the role of spiritual healing, and religious people were involved in the care of the sick.

In many parts of the world today, spiritual health is still associated with physical health.If we are looking for a modern definition of health, then a commonly quoted example was provided by the World Health Organisation in 1948: ***'a state of complete physical, mental, and social well-being and ... not merely the absence of disease or infirmity'***.

The strength of this definition is that it acknowledges that there is more to health than getting rid of spots, rashes and pains. The definition suggests that to be healthy, people must live in good social, political and economic conditions, and must be able to love, work and create. However, for many people in the world, daily life is about getting by, rather than aspiring to a state of complete well-being. Another problem with the World Health Organisation definition is that it suggests that people who are not fulfilled in life, or people who engage in dissent and live rebel lifestyles are all somehow not healthy.

The Wellness Continuum

It would seem that a clear definition of health and illness is not possible. There is, however, general agreement that health is not just the absence of illness. There is also general agreement that the attempt to categorise people as 'sick' or 'healthy' is not particularly helpful. Instead it is suggested that we place people somewhere on a wellness continuum (see Figure 0.1). This continuum acknowledges that nearly everyone could improve their health, and the health of every living person can also deteriorate. If we can place ourselves on the continuum then we can set about trying to improve our health and prevent illness.

Figure 0.1: The wellness continuum. Where would you place yourself on this continuum today?

Models of Health

When we think of healthcare, some of the first images that spring to mind are of doctors and nurses dashing around high-tech hospitals pushing trolleys loaded up with machines that go 'ping!'. Health is usually associated with doing something *physical* to the patient, such as cutting something out of the body, or administering some chemicals. This is at the heart of the **biomedical model** of health. This model has been the cornerstone of Western medicine for 300 years and it is based on the idea that illness can be explained by looking at the workings of the body, such as biochemical imbalances or abnormalities in the activity of the nervous system.

The Biopsychosocial Model

An alternative approach to the biomedical model is look at all the biological, psychological and social factors that are associated with health and illness. This is referred to as the **biopsychosocial model**. It is a real mouthful of a name, but it does have the advantage of telling you exactly what it refers to.

In contrast to the biomedical model, the biopsychosocial model is not reductionist. Instead it looks at all levels of explanation from the micro-level (for example, changes in body chemicals) to the macro-level (for example, the culture that someone lives within). The biopsychosocial model does not look for single causes but starts from the assumption that health and illness have

many causes, and also produce many effects. The model does not make the distinction between mind and body but instead looks at the connections between mental events and biological changes. Finally, the biopsychosocial model is concerned as much with health as it is with illness.

1.2 What Factors Led to the Development of Health Psychology?

This section examines various factors that led to the development of the exciting new field of health psychology.

The Nature of Illnesses Has Changed

Until the early 1900s, most people in the United States died from acute infectious diseases, such as tuberculosis, smallpox, measles, pneumonia, and typhoid fever (Grob, 1983). These diseases were caused by viruses or bacteria and were typically the result of eating or drinking contaminated water or food, interacting with infected people, or living in unhealthy conditions. Moreover, although people sought treatment for these disorders, doctors often had little knowledge or resources to treat or even manage these illnesses.

Today, in contrast, relatively few people (at least in the United States) die from the major infectious diseases that previously caused such high rates of death. What led to the decrease in the incidence of such diseases? First, changes in technology and lifestyle, such as the development of sewage-treatment plants, water purification efforts, and better overall nutrition, led to better overall hygiene. Second, because of the development of vaccines and antibiotics, very few people contract (and even fewer die from) diseases such as smallpox, tuberculosis, and polio.

The major health problems in the western world today are caused by chronic conditions, such as cancer, cardiovascular disease, obesity, diabetes, and pulmonary diseases, which are caused at least in part by behavioral, psychosocial, and cultural factors. heart disease is currently the most common cause of death in the United States.However, the likelihood of developing heart disease is influenced by many behavioral choices—smoking, high-fat diet, physical inactivity, obesity, and alcohol use (all behavioral choices) as well as psychological variables (e.g., stress) and environmental factors (e.g., social support).

Given the role of individuals' behavior in contributing to health problems,principles of psychology can be used to try to change people's behavior, such as to increase health-promoting behavior (e.g., wearing seat belts, engaging in regular exercise, using sunscreen) and decrease health-damaging behavior (e.g., smoking, drinking and driving, eating a fatty diet). Psychological principles can be used such as **primary, secondary and tertiry prevention** mechanisms in promoting behavior.

The Biomedical Model Is Unable to Fully Account for Health

Another reason for the gain in popularity of health psychology is the failure of the **biomedical model** to explain many phenomena of health and illness. The biomedical model, which was formed in the 19th and 20th centuries, proposes that health problems are rooted in physical causes, such as viruses, bacteria, injuries, and biochemical imbalances (Engel, 1977; Schwartz, 1982; Wade & Halligan, 2004).

This model therefore explains illness in terms of the pathology, biochemistry, and physiology of a disease: Diabetes is caused by an imbalance in blood sugar, polio is caused by exposure to a virus, and cancer is caused by genetic mutations. In turn, the biomedical model proposes that medical treatment is needed to cure or manage the physical complaint and thereby return a person to good health. The biomedical model therefore focuses on physical treatments for disease, such as a vaccine to prevent measles, medication to manage high blood pressure, and chemotherapy to delay the spread of cancer.

Although the biomedical model has led to a number of benefits for our society, including advancements in immunology, public-health policy, pathology, and surgery, increasingly evidence is showing that biological factors alone cannot account for health. First, and as described previously, psychological and behavioral factors are associated with the development of many of the leading causes of deaths such as cancer and heart disease. People who are high in neuroticism are at increased risk of developing an ulcer, chronic fatigue syndrome, or coronary heart disease (Charles, Gatz, Kato, & Pedersen, 2008; Suls & Bundle, 2005). Similarly, people who are experiencing high levels of stress—at home and/or work—are at greater risk of experiencing a heart attack (Rosengren et al., 2004). The biomedical model also fails to take into account how psychological factors, such as personality, cognitive beliefs, social support, and the relationship between the patient and the health-care practitioner, can influence development of and recovery from illness and disease. Why do placebos—drugs or treatments that influence health outcomes purely because of people's expectations of them—lead to improvement of symptoms in a sizeable portion of patients? Why do surgery patients who get more visitors leave the hospital sooner? These are just a few of the questions that the biomedical model really cannot answer.

Given the considerable evidence that the biomedical model alone can't explain physical health, researchers have turned to a **biopsychosocial model** in which the mind and body are seen as inherently connected (Ray, 2004; Suls & Rothman, 2004). The biopsychosocial model was developed in the late 1970s and posits that health is affected by both biology and social factors (Engel, 1977, 1980). In this perspective, the physical body is seen as only one aspect of a person; other aspects, such as personality, family, and society, also influence the person and his or her health. In contrast, the biomedical model, which was formed in the 19th and 20th centuries, describes health as a function only of physical attributes and sees physical health as completely separate from psychological health.

This model, which was developed by psychiatrist George Engel, views health and illness as the consequences of the complex interplay between biological factors (e.g., genetics, physiology), psychological factors (e.g., personality, cognition), and social factors (e.g., culture, community, family, media; Engel, 1977; Schwartz, 1982). As described by Engel: To provide a basis for understanding the determinants of disease and arriving at rational treatments and patterns of health care, a medical model must also take into account the patient, the social context in which he lives, and the complementary system devised by society to deal with the disruptive effects of illness, that is, the physician role and the health-care system. This requires a biopsychosocial model. (p. 132)

The biopsychosocial model therefore acknowledges that biological factors can and do influence health and illness, and social, cultural, and psychological factors also exert an effect. This model is holistic in that it considers the mind and body as inherently connected. The biopsychosocial model views health as an interactive system in which biological factors (e.g., genetics, physiology) interact with psychological factors (e.g., personality, cognition) and social factors (e.g., community, family, media; Engel, 1980). The biopsychosocial model therefore contributes to the biomedical model by helping to explain the impact of psychological factors on the development and progression of chronic conditions as well as how people cope with pain, illness, and disease.

Health-Care Costs Have Risen Dramatically

Health-care costs have risen sharply in the past four decades, which has caused an increasing focus on the more cost-effective approach of disease prevention. One reason for the rise in health-care costs is the increase in life expectancy that has occurred over the past 100 years. In the early 1900s, people lived to an average age of 47.3 years; today the mean life expectancy is nearly 78 years, resulting in part from the drop in infant mortality that has occurred over the past 50 years (CDC, 2011). People today must bear the financial burden of paying for health care into their elder years, when chronic diseases requiring extended (and costly) treatments are likely to occur. Also, a wider variety of treatment options are now available to manage chronic diseases. Today, people are living with conditions that they would have died from in the past.

Therefore, there is considerable interest in using principles of psychology to decrease such care costs. So, how can this be done? First, health psychologists try to prevent health problems from developing, for instance, by encouraging healthy eating and the use of constructive methods of managing stress. Psychological principles of persuasion, for example, are commonly used to promote condom use and to prevent smoking (Flay, 1987; Kelly et al., 1991). psychological principles can also be used to help people manage pain and recover from illness. Holding a loved one's hand—or even looking at a photograph of that person—leads to reduced pain (Master et al., 2009), and surgical patients who receive high levels of social support show less anxiety, receive lower doses of narcotics, and are released from the hospital faster than those with lower levels of support (Krohne & Slangen, 2005). All of these psychologically based strategies for improving health can lead to decreases in health problems and/or minimize the pain and disability caused by such problems, which reduces health-care costs.

1.3 What Is the History of Health Psychology?

Although health psychology is a relatively new discipline, the idea that the mind influences the body is a very old one—in fact, historically, most cultures have recognized some type of a connection between how people think, feel, and behave and their health (Ehrenwald, 1976). Many early cultures viewed illness and disease as caused by evil spirits—and there is some evidence that early medical procedures, at least in some cases, involved such methods as drilling holes in people's skulls to ''let out the evil spirits.'' As early as 400 B.C., Hippocrates described health as the interaction between mind and body, stating, ''Health depends on a state of equilibrium among the various internal factors which govern the operation of the body and the mind; the equilibrium in turn is reached only when man lives in harmony with his environment'' (Dubus, 1959, p. 114). In line with this view, Hippocrates' humoral theory described disease as caused by an imbalance in the different fluids he believed were circulating in the body: phlegm, blood, black bile, and yellow bile. Despite the faulty theory of the four humors, the emphasis on the interrelation between mind and body is clear.

However, during the 17th century, this holistic view of health changed, and for the first time, health was seen as purely caused by bodily processes. What led to this change? First, René Descartes's development of the doctrine of mind–body dualism—the view that the mind and body are two separate entities with little interaction—led to the view that the body was basically a machine. Disease was seen as resulting from the physical breakdown of the machine, and it was believed that the physician's job was to fix the machine. Second, advances in other scientific fields such as physics led to the view that science could be used to determine precise physical principles. For example, Isaac Newton's demonstration of an apple falling to the earth because of gravitational pull led other theorists to believe that all physical phenomena could be observed with such ease and explained by concrete laws. Third, various scientific advances, including Giovanni Battista Morgagni's work in autopsy, Rudolf Virchow's work in pathology, and Louis Pasteur's work in bacteriology, led to a focus on how microorganisms cause disease. All of these factors facilitated the focus on a biomedical model.

Over the past 100 years, the meaning of health has changed in several ways. Whereas health used to refer to just the absence of illness or disease, health and wellness are now seen in a much broader way. The World Health Organization (WHO) now defines health as ''a state of complete physical, mental, and social well-being, and not merely the absence of disease and illness'' (World Health Organization, 1964). So, people who are physiologically healthy but who are very depressed might be

viewed as unhealthy under the new definition. Similarly, most college students seem healthy—generally they exercise with some regularity and exhibit few obvious signs of disease/serious illness—but can they be viewed as healthy if you look at their eating habits or, even worse, their drinking habits? By the new standard, many college students suddenly seem like they are in worse health. Along the same lines, consider someone who has no obvious signs of illness or disease but who has a mother and two aunts who have died of breast cancer.

Is she healthy? In sum, researchers now see health as a continuum, ranging from a healthy level of wellness on one end and illness and even death on the other, and they have found that this continuum is viewed in different ways by different people (Antonovsky, 1987).

This change in perspective is also reflected in a relatively new focus within psychology on studying the predictors of happiness and well-being, as opposed to the predictors of depression and poor health (Seligman & Csikszentmihalyi, 2000). The newly developed field of positive psychology examines how to help people achieve physical and psychological well-being, including researching the predictors of life satisfaction, altruism, forgiveness, and hope.

Although this chapter has focused on the development of the distinct field of health psychology, several branches of medicine have also described the role of psychological factors in influencing physical health. **Psychosomatic medicine**, which developed in the 1930s, studies how emotional, social, and psychological factors influence the development and progression of illness (Lipowski, 1986).

For example, researchers might study how psychological factors such as anxiety, depression, and stress might lead to physical problems such as ulcers, migraine headaches, arthritis, and asthma. The field of **medical psychology** focuses on teaching physicians how to interact with patients in a tactful and constructive way to best diagnose and manage their illness. Researchers in this discipline might examine how to handle patients who are moody or those who are reluctant to seek or follow medical care. Finally, **behavioral medicine** is an interdisciplinary field that developed in the 1970s and that focuses on the integration of behavioral and biomedical sciences. Specifically, behavioral medicine focuses on developing and applying behavioral techniques to the treatment, management, and rehabilitation of patients (Gentry, 1984). Such techniques are used widely to help people overcome various types of health-damaging behaviors. Correspondingly, the discipline of **behavioral health**, a subdiscipline of behavioral medicine, emphasizes enhancing health and preventing disease in

currently healthy people (Matarazzo, 1980).

Researchers in this field focus on general strategies of health promotion. Health psychology is related not only to medical fields but also to the disciplines of sociology and anthropology. **Medical sociology** examines how social relationships influence illness, cultural and societal reactions to illness, and he organization of health-care services (Adler & Stone, 1979). For example, researchers in this field might xamine the effects of social stress on health and illness, how attitudes and behaviors influence health and illness, and the negative consequences of labeling someone a ‘‘patient.’’ The field of **medical anthropology** examines the differences in how health and illness are viewed by people in different cultures. Cultures, in fact, vary tremendously in how they define health, how they view disease, and, in turn, how they treat illness. Even within a single **culture**, such as the United States, people in different subcultures vary in how they view health and illness. Certain religious groups, for example, believe illnesses are caused by mental and spiritual processes, and they rely entirely on prayer and other nonmedical interventions to treat disease.

Health psychology is a relatively new field. In 1973, a task force was created by the American Psychological Association (APA) to study the potential for psychology’s role in health research. Although the final report of this task force in 1976 found little evidence that psychologists were examining health-related issues, the task force noted that the potential for psychological factors to influence health was clear (American Psychological Association, 1976). In turn, this report led to the creation in 1978 of a Health Psychology division, with the goal of providing ‘‘a scientific, educational, and professional organization for psychologists interested in (or working in) areas at one or another of the interfaces of medicine and psychology’’ (Matarazzo, 1984, p. 31). The development of this division was followed in 1982 by the creation of the *Health Psychology* journal, in which many research articles on issues in health psychology are published.

1.4 Defining Health Psychology

It is defined differently by different psychologists. Health psychology is defined as the*: the aggregate of educational, scientific, and professional contributions of the discipline of psychology to the promotion and maintenance of health, the prevention and treatment of illness, the identification of etiology and diagnostic correlates of health, illness and related dysfunction, and the improvement of the healthcare system and health policy formation*. (Matarazzo, 1982, p.4)

As an academic discipline, health psychology might best be defined as "the scientific study of psychological processes related to health and health care." As a professional and policy field, health psychology might best be defined as "the use of findings from basic psychological theory and peer-reviewed research to understand and encourage thoughts, feelings, and behaviors that promote health."

These definitions are narrower than the foundational definitions from the 1980s, which emphasize the educational, scientific, and professional contributions of psychology to the promotion of health, the maintenance of health, the prevention of illness, the treatment of illness, and the analysis and improvement of the health care system and health policy (Matarazzo, 1980, 1983; Stone, 1983a). Such broad definitions include almost everything having to do with psychology and health. Because almost every aspect of psychology has some implications for well-being, and because almost every aspect of health and health care involves some aspect of psychology (such as decision making, communication, psychophysiology, or behavior), a broad definition of health psychology means that almost everything in psychology and almost everything in health care involves health psychology. Although it is useful to acknowledge the pervasive interrelationship of psychology and health, such breadth also engenders ambiguity.

In fact, health psychologists largely focus on a limited number of core psychological processes related to health. These include social support; coping with stress; communication and patient adherence; adaptation to chronic illness; health developmental issues in childhood, adolescence, and aging; health risk behavior; resource allocation and decision making in health care; psychopharmacology; personality and disease; social context and other social influences on health; and the central nervous system, hormones, and immunity.

1.7 What are the aims of health psychology?

Health psychology emphasizes the role of psychological factors in the cause, progression and consequences of health and illness. The aims of health psychology can be divided into (1) understanding, explaining, developing and testing theory, and (2) putting this theory into practice.

1. *Health psychology aims to understand, explain, develop and test theory by*:

a. Evaluating the role of behaviour in the aetiology of illness. For example:

- Coronary heart disease is related to behaviours such as smoking, food intake and lack of exercise.
- Many cancers are related to behaviours such as diet, smoking, alcohol and failure to attend for screening or health check-ups.
- A stroke is related to smoking, cholesterol and high blood pressure.

- An often overlooked cause of death is accidents. These may be related to alcohol consumption, drugs and careless driving.

b. Predicting unhealthy behaviours. For example:

- Smoking, alcohol consumption and high fat diets are related to beliefs.
- Beliefs about health and illness can be used to predict behaviour.

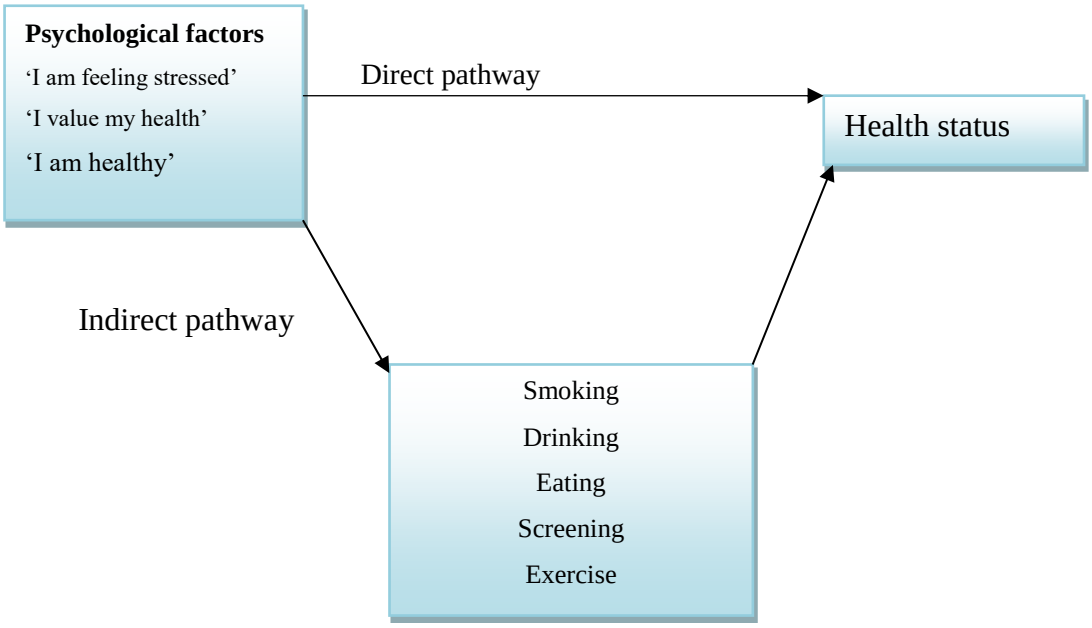


Figure 1.2 Psychology and health: direct and indirect pathways

c. Evaluating the interaction between psychology and physiology. For example:

- The experience of stress relates to appraisal, coping and social support.
- Stress leads to physiological changes which can trigger or exacerbate illness.
- Pain perception can be exacerbated by anxiety and reduced by distraction.

d. Understanding the role of psychology in the experience of illness. For example:

- Understanding the psychological consequences of illness could help to alleviate symptoms such as pain, nausea and vomiting.
- Understanding the psychological consequences of illness could help alleviate psychological symptoms such as anxiety and depression.

e. Evaluating the role of psychology in the treatment of illness. For example:

- If psychological factors are important in the cause of illness they may also have a role in its treatment.
- Changing behaviour and reducing stress could reduce the chances of a further heart attack.

❍ Treatment of the psychological consequences of illness may have an impact on longevity.

2. *Health psychology also aims to put theory into practice. This can be implemented by:*

a. Promoting healthy behaviour. For example:

❍ Understanding the role of behaviour in illness can allow unhealthy behaviours to be targeted.

❍ Understanding the beliefs that predict behaviours can allow these beliefs to be targeted.

❍ Understanding beliefs can help these beliefs to be changed.

b. Preventing illness. For example:

❍ Changing beliefs and behaviour could prevent illness onset.

❍ Modifying stress could reduce the risk of a heart attack.

❍ Behavioural interventions during illness (e.g. stopping smoking after a heart attack) may prevent further illness.

❍ Training health professionals to improve their communication skills and to carry out interventions may help to prevent illness.

Chapter Two

Health Beliefs and Illness Cognitions

2.1 What are health behaviours?

Kasl and Cobb (1966) defined three types of health-related behaviours. They suggested that:

- a *health behaviour* was a behaviour aimed to prevent disease (e.g. eating a healthy diet)
- an *illness behaviour* was a behaviour aimed to seek remedy (e.g. going to the doctor)
- a *sick role behaviour* was any activity aimed to get well (e.g. taking prescribed medication,resting).

Health behaviours were further defined by Matarazzo (1984) in terms of either:

- *health-impairing habits*, which he called 'behavioural pathogens' (e.g. smoking, eating a high fat diet), or
- *health protective behaviours*, which he defined as 'behavioural immunogens' (e.g. attending a health check).

In short, Matarazzo distinguished between those behaviours that have a negative effect (the behavioural pathogens, such as smoking, eating foods high in fat, drinking large amounts of alcohol) and those behaviours that may have a positive effect (the behavioural immunogens, such as tooth brushing, wearing seat belts, seeking health information, having regular checkups, sleeping an adequate number of hours per night). Generally health behaviours are regarded as behaviours that are related to the health status of the individual.

Health and Behavior

It is difficult to imagine an activity or behavior that does not influence health in some way. **Health behaviors** are actions that people take to improve or maintain their health. Exercising regularly, using sunscreen, eating a healthy diet, sleeping well, practicing safe sex, and wearing seatbelts are all behaviors that help "immunize" you against disease and injury, while activities such as meditation and laughter help many people manage stress and remain upbeat.

Because they occur on a continuum, some health behaviors can have both a positive and a negative impact on health (Schoenborn and others, 2004). For example, exercise and dieting are often beneficial, but if carried to the extreme, they can actually be hazardous to health. The same can be said of alcohol consumption. Excessive use of alcohol has a direct negative impact on physical health. Other behaviors influence health indirectly through their association with behaviors that have a direct impact on health. Many people who drink coffee excessively, for example, also smoke and engage in other risky behaviors that increase the risk of heart disease (Cornelis and others, 2006).

As part of its *Youth Risk Behavior Surveillance* project, the Centers for Disease Control and Prevention identified six health-risk behaviors—often begun while young—that put people at risk for premature death, disability, and chronic illness (YRBSS, 2013):

1. Smoking and other forms of tobacco use

2. Eating high-fat and low-fiber foods

3. Not engaging in enough physical activity

4. Abusing alcohol or other drugs (including prescription drugs)

5. Not using proven medical methods for preventing or diagnosing disease early (e.g., flu shots, practicing healthy sexual behaviors, Pap smears, colonoscopies, mammograms)

6. Engaging in violent behavior or behavior that may cause unintentional injuries (e.g., driving while intoxicated)

Some behaviors (not wearing a seatbelt) affect health immediately, while others (eating a healthy diet) have a long-term effect. Still others (exercising or smoking) have both immediate *and* long-term effects on health. Health behaviors also interact and are often interrelated. The combined effect of smoking, drinking alcohol, and consuming too much coffee, for example, is stronger than that of only one such behavior. Similarly, exercising, eating healthy foods, and drinking a lot of water also tend to come together, but in a positive way. When a person engages in both healthy and unhealthy behaviors at the same time, one behavior may offset the effects of the other, either for better or worse. Finally, a healthy behavior may replace an unhealthy one, as when ex-smokers substitute aerobic exercise for nicotine.

What is the potential impact of adopting a healthier lifestyle? In one classic epidemiological study begun in 1965, Lester Breslow and Norman Breslow began to track the health and lifestyle habits of male residents of Alameda County, California. Over the many years of this landmark study (Breslow &Breslow, 1993), the salutary effects of seven healthy habits—

- sleeping seven to eight hours daily,
- never smoking,
- being at or near a healthy body weight,
- moderate use of alcohol,
- regular physical exercise,
- eating breakfast, and
- avoiding between-meal snacking

2.2 Predicting Health Behaviours(Theories of health behaviors)

Much research has used quantitative methods to explore and predict health behaviours. For example, Kristiansen (1985) carried out a correlational study looking at the seven health behaviours defined by Belloc and Breslow (1972) and their relationship to a set of beliefs. She reported that these seven health behaviours were correlated with (1) a high value on health; (2) a belief in world peace; and (3) a low value on an exciting life. Obviously there are problems with defining these different beliefs, but the study suggested that it is perhaps possible to predict health behaviours.

Leventhal et al. (1985) described factors that they believed predicted health behaviours:

- social factors, such as learning, reinforcement, modelling and social norms
- genetics, suggesting that perhaps there was some evidence for a genetic basis for alcohol use
- emotional factors, such as anxiety, stress, tension and fear
- perceived symptoms, such as pain, breathlessness and fatigue
- the beliefs of the patient
- the beliefs of the health professionals.

Leventhal et al. suggested that a combination of these factors could be used to predict and promote health-related behaviour.

In fact, most of the research that has aimed to predict health behaviours has emphasized beliefs. Approaches to health beliefs include attribution theory, the health locus of control, unrealistic optimism, self-affirmation theory and the stages-of-change model.

Attribution theory

Attributions for health-related behaviours

Attribution theory has been applied to the study of health and health-related behaviour. Herzlich (1973) interviewed 80 people about the general causes of health and illness and found that health is regarded as internal to the individual and illness is seen as something that comes into the body from the external world.

More specifically, attributions about illness may be related to behaviours. For example, Bradley (1985) examined patients' attributions for responsibility for their diabetes and reported that perceived control over illness ('is the diabetes controllable by me or a powerful other?') influenced the choice of treatment by these patients. Patients could choose (1) an insulin pump (a small mechanical device attached to the skin, which provides a continuous flow of insulin), (2) intense conventional treatment, or (3) a continuation of daily injections. The results indicated that the patients who chose an insulin pump showed decreased control over their diabetes and increased control attributed to powerful doctors. Therefore, if an individual attributed their illness externally and felt that they personally were not responsible for it, they were more likely to choose the insulin pump and were more likely to hand over responsibility to the doctors. A further study by King (1982) examined the relationship between attributions for an illness and attendance at a screening clinic for hypertension. The results demonstrated that if the hypertension was seen as external but controllable by the individual then they were more likely to attend the screening clinic ('I am not responsible for my hypertension but I can control it').

Health locus of control

The internal versus external dimension of attribution theory has been specifically applied to health in terms of the concept of a health locus of control. Individuals differ as to whether they tend to regard events as controllable by them (an internal locus of control) or uncontrollable by them (an external locus of control). Wallston and Wallston (1982) developed a measure of the health locus of control which evaluates whether an individual regards their health as controllable by them (e.g. 'I am directly responsible for my health'), whether they believe their health is not controllable by them and in the hands of fate (e.g. 'whether I am well or not is a matter of luck'), or whether they regard their health as under the control of powerful others (e.g. 'I can only do what my doctor tells me to do'). Health locus of control has been shown to be related to whether an individual changes their behaviour (e.g. gives up smoking) and to the kind of communication style they require from health professionals. For example, if a doctor encourages an individual who is generally external to change their lifestyle, the individual is unlikely to comply if they do not deem themselves responsible for their health.

Although the concept of a health locus of control is intuitively interesting, there are several problems with it:

- Is the health locus of control a state or a trait? (Am I always internal?)
- Is it possible to be both external and internal?
- Is going to the doctor for help external (the doctor is a powerful other who can make me well) or internal (I am determining my health status by searching out appropriate intervention)?

Unrealistic optimism

Weinstein (1983, 1984) suggested that one of the reasons that people continue to practice unhealthy behaviours is due to inaccurate perceptions of risk and susceptibility – their unrealistic optimism. He asked subjects to examine a list of health problems and to state 'compared to other people of your age and sex, what are your chances of getting [the problem] – greater than, about the same, or less than theirs?' The results of the study showed that most subjects believed that they were less likely to get the health problem. Weinstein called this phenomenon *unrealistic optimism* as he argued that not everyone can be less likely to contract an illness.

Weinstein (1987) described four cognitive factors that contribute to unrealistic optimism:

(1) lack of personal experience with the problem;

(2) the belief that the problem is preventable by individual action;

(3) the belief that if the problem has not yet appeared, it will not appear in the future; and

(4) the belief that the problem is infrequent. These factors suggest that perception of own risk is not a rational process.

In an attempt to explain why individuals' assessment of their risk may go wrong, and why people are unrealistically optimistic, Weinstein (1983) argued that individuals show selective focus. He claimed that individuals ignore their own risk-increasing behaviour ('I may not always practise safe sex but that's not important') and focus primarily on their risk-reducing behaviour ('but at least I don't inject drugs'). He also argues that this selectivity is compounded by egocentrism: individuals tend to ignore others' risk-decreasing behaviour ('my friends all practise safe sex but that's irrelevant'). Therefore an individual may be unrealistically optimistic if they focus on the times they use condoms when assessing their own risk and ignore the times they do not and, in addition, focus on the times that others around them do not practise safe sex and ignore the times that they do.

In one study, subjects were required to focus on either their risk-increasing ('unsafe sex') or their risk-decreasing behaviour ('safe sex'). The effect of this on their unrealistic optimism for risk of HIV was examined (Hoppe and Ogden 1996). Heterosexual subjects were asked to complete a questionnaire concerning their beliefs about HIV and their sexual behaviour. Subjects were allocated to either the risk-increasing or risk-decreasing condition. Subjects in the riskincreasing condition were asked to complete questions such as 'since being sexually active how often have you asked about your partners' HIV status?' It was assumed that only a few subjects would be able to answer that they had done this frequently, thus making them feel more at risk.

Subjects in the risk-decreasing condition were asked questions such as 'since being sexually active how often have you tried to select your partners carefully?' It was believed that most subjects would answer that they did this, making them feel less at risk. The results showed that focusing on risk-decreasing factors increased optimism by increasing perceptions of others' risk. Therefore, by encouraging the subjects to focus on their own healthy behaviour ('I select my partners carefully'), they felt more unrealistically optimistic and rated themselves as less at risk compared with those who they perceived as being more at risk.

The stages-of-change model

The transtheoretical model of behaviour change was originally developed by Prochaska and DiClemente (1982) as a synthesis of 18 therapies describing the processes involved in eliciting and maintaining change. It is now more commonly known as the stages-of-change model. Prochaska and DiClemente examined these different therapeutic approaches for common processes and suggested a new model of behaviour change based on the following stages:

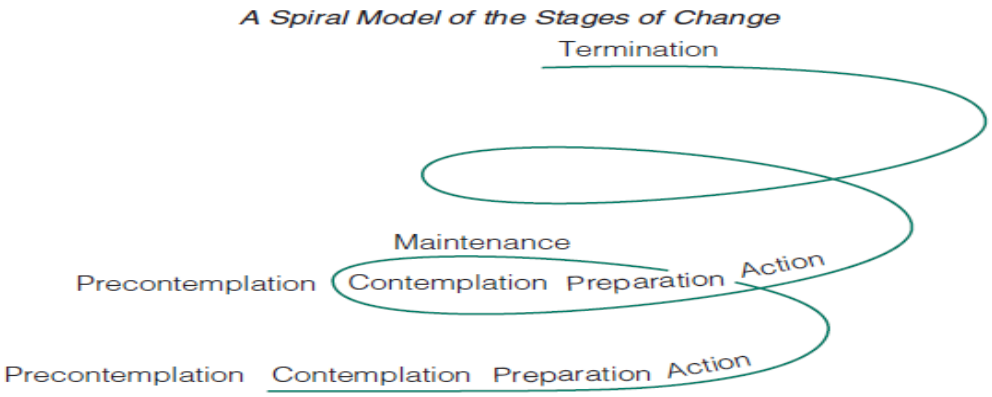
1 ***Pre-contemplation:*** not intending to make any changes.

2 ***Contemplation:*** considering a change.

3 ***Preparation:*** making small changes.

4 ***Action:*** actively engaging in a new behaviour.

5 ***Maintenance:*** sustaining the change over time.



These stages, however, do not always occur in a linear fashion (simply moving from 1 to 5) but the theory describes behaviour change as dynamic and not 'all or nothing'. For example, an individual may move to the preparation stage and then back to the contemplation stage several times before progressing to the action stage. Furthermore, even when an individual has reached the maintenance stage, they may slip back to the contemplation stage over time.

The stages-of-change model has been applied to several health-related behaviours, such as smoking, alcohol use, exercise and screening behaviour (e.g. DiClemente et al. 1991; Marcus et al. 1992). If applied to smoking cessation, the model would suggest the following set of beliefs and behaviours at the different stages:

1 ***Pre-contemplation:*** 'I am happy being a smoker and intend to continue smoking'.

2 ***Contemplation:*** 'I have been coughing a lot recently, perhaps I should think about stopping smoking'.

3 ***Preparation:*** 'I will stop going to the pub and will buy lower tar cigarettes'.

4 ***Action:*** 'I have stopped smoking'.

5 ***Maintenance:*** 'I have stopped smoking for four months now'.

This individual, however, may well move back at times to believing that they will continue to smoke and may relapse (called the revolving door schema). The stages-of-change model is increasingly used both in research and as a basis to develop interventions that are tailored to the particular stage of the specific person concerned. For example, a smoker who has been identified as being at the preparation stage would receive a different intervention to one who was at the contemplation stage.

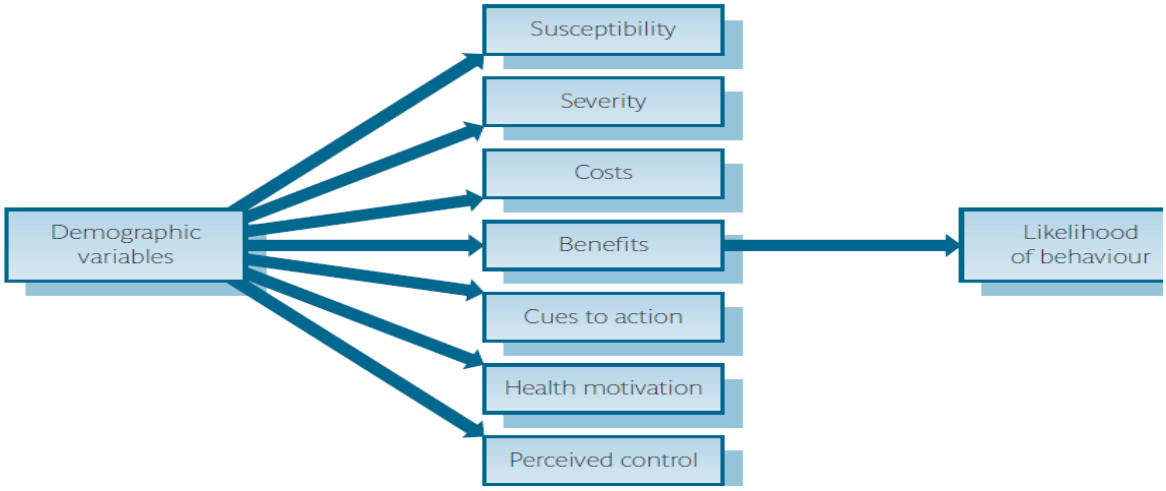
Cognition models

Cognition models examine the predictors and precursors to health behaviours. They are derived from subjective expected utility (SEU) theory (Edwards 1954), which suggested that behaviours result from a rational weighing-up of the potential costs and benefits of that behaviour. Cognition models describe behaviour as a result of rational

information processing and emphasize individual cognitions, not the social context of those cognitions. This section examines the health belief model and the protection motivation theory.

The Health Belief Model

The health belief model (HBM) was developed initially by Rosenstock (1966) and further by Becker and colleagues throughout the 1970s and 1980s in order to predict preventive health behaviours and also the behavioural response to treatment in acutely and chronically ill patients. However, over recent years, the health belief model has been used to predict a wide variety of health-related behaviours.



Basics of Health Belief Model

Components of the HBM

The HBM predicts that behaviour is a result of a set of core beliefs, which have been redefined over the years. The original core beliefs are the individual's perception of:

- susceptibility to illness (e.g. 'my chances of getting lung cancer are high')
- the severity of the illness (e.g. 'lung cancer is a serious illness')
- the costs involved in carrying out the behaviour (e.g. 'stopping smoking will make me irritable')
- the benefits involved in carrying out the behaviour (e.g. 'stopping smoking will save me money')
- cues to action, which may be internal (e.g. The symptom of breathlessness), or external (e.g. Information in the form of health education leaflets).

The HBM suggests that these core beliefs should be used to predict *the likelihood that a behavior will occur*. In response to criticisms the HBM has been revised originally to add the construct 'health motivation' to reflect an individual's readiness to be concerned about health matters (e.g. 'I am concerned that smoking might damage my

health'). More recently, Becker and Rosenstock (1987) have also suggested that perceived control (e.g. 'I am confident that I can stop smoking') should be added to the model.

The protection motivation theory

Rogers (1975, 1983, 1985) developed the protection motivation theory (PMT), which expanded the HBM to include additional factors.

Components of the PMT

The original PMT claimed that health-related behaviours are a product of four components:

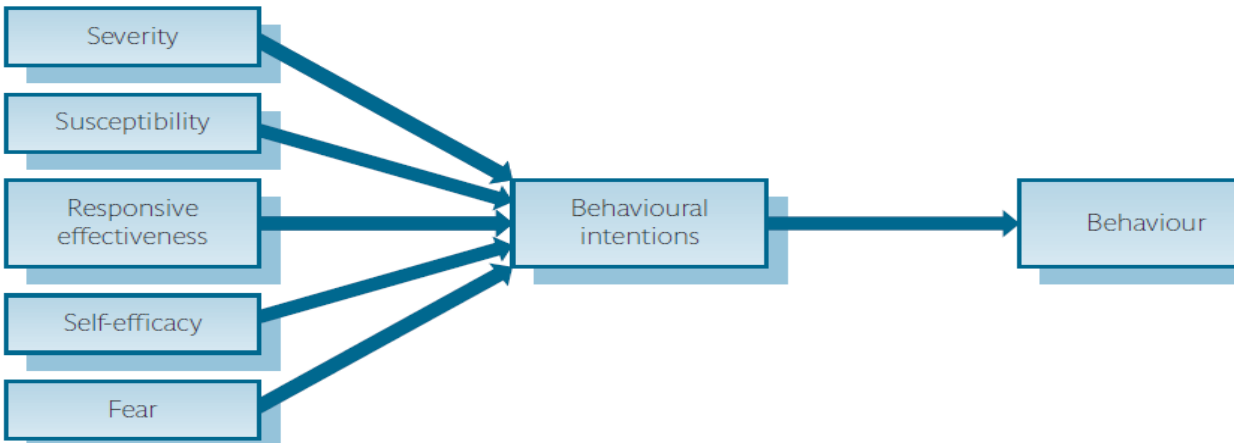
1. Severity (e.g. 'Bowel cancer is a serious illness').

2. Susceptibility (e.g. 'My chances of getting bowel cancer are high').

3. Response effectiveness (e.g. 'Changing my diet would improve my health').

4. Self-efficacy (e.g. 'I am confident that I can change my diet').

These components predict *behavioural intentions* (e.g. 'I intend to change my behaviour'), which are related to behaviour. Rogers (1985) has also suggested a role for a fifth component, fear (e.g. an emotional response), in response to education or information. The PMT describes severity, susceptibility and fear as relating to *threat appraisal* (i.e. appraising to outside threat) and response effectiveness and self-efficacy as relating to *coping appraisal* (i.e. appraising the individual themselves). According to the PMT, there are two types of sources of information, environmental (e.g. verbal persuasion, observational learning) and intrapersonal (e.g. prior experience). This information influences the five components of the PMT (self-efficacy, response effectiveness, severity, susceptibility, fear), which then elicit either an 'adaptive' coping response (i.e. behavioural intention) or a 'maladaptive' coping response (e.g. avoidance, denial).



Social cognition models

Social cognition models examine factors that predict behaviour and/or behavioural intentions and in addition examine why individuals fail to maintain a behaviour to which they are committed. Social cognition theory was developed by Bandura (1977, 1986) and suggests that behaviour is governed by expectancies, incentives and social cognitions. Expectancies include:

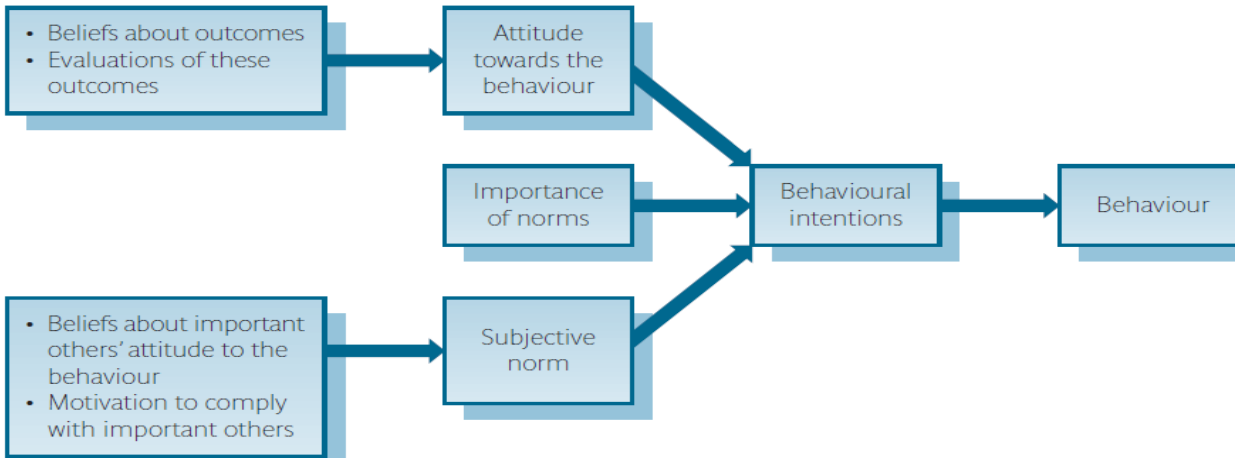
- *situation outcome expectancies*: the expectancy that a behaviour may be dangerous (e.g. 'smoking can cause lung cancer')
- *outcome expectancies*: the expectancy that a behaviour can reduce the harm to health (e.g. 'stopping smoking can reduce the chances of lung cancer')
- *self-efficacy expectancies*: the expectancy that the individual is capable of carrying out the desired behaviour (e.g. 'I can stop smoking if I want to').

The concept of *incentives* suggests that a behaviour is governed by its consequences. For example, smoking behaviour may be reinforced by the experience of reduced anxiety, having a cervical smear may be reinforced by a feeling of reassurance after a negative result.

Social cognition models include measures of the *individual's representations of their social world*. Accordingly, social cognition models attempt to place the individual within the context both of other people and the broader social world. This is measured in terms of their normative beliefs (e.g. 'people who are important to me want me to stop smoking') with the additional variables. For example, when social norms and previous behaviour were also considered, there was improved association with future behaviour. In addition, the results suggested that although there was a relationship between fear and behavioural intentions, high levels of fear detracted from this relationship. The authors suggested that when experiencing excess fear, attention may be directed towards reducing anxiety, rather than actually avoiding danger through changing behaviour.

The theories of reasoned action and planned behaviour

The theory of reasoned action (TRA) was extensively used to examine predictors of behaviours and was central to the debate within social psychology concerning the relationship between attitudes and behaviour (Fishbein 1967; Ajzen and Fishbein 1970; Fishbein and Ajzen 1975). The theory of reasoned action emphasized a central role for social cognitions in the form of subjective norms (the individual's beliefs about their social world) and included both beliefs and evaluations of these beliefs (both factors constituting the individual's attitudes).



Basics of the Theory of Reason to Action

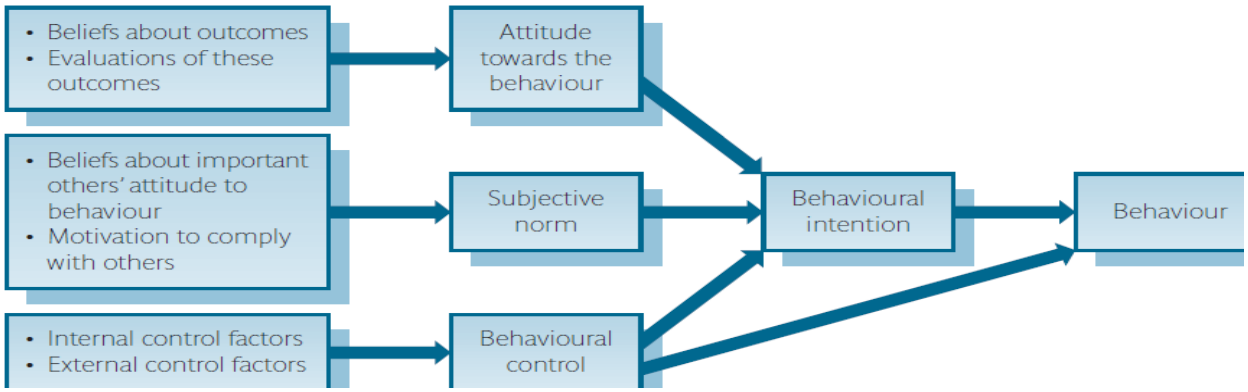
The TRA was therefore an important model as it placed the individual within the social context and in addition suggested a role for value which was in contrast to the traditional more rational approach to behaviour. The theory of planned behaviour (TPB) (see Figure 2.6) was developed by Ajzen and colleagues (Ajzen 1985; Ajzen and Madden 1986; Ajzen 1988) and represented a progression from the TRA.

Components of the TPB

The TPB emphasizes *behavioural intentions* as the outcome of a combination of several beliefs. The theory proposes that intentions should be conceptualized as 'plans of action in pursuit of behavioural goals' (Ajzen and Madden 1986) and are a result of the following beliefs:

- *Attitude towards a behaviour*, which is composed of either a positive or negative evaluation of a particular behaviour and beliefs about the outcome of the behaviour (e.g. 'exercising is fun and will improve my health').
- *Subjective norm*, which is composed of the perception of social norms and pressures to perform a behaviour and an evaluation of whether the individual is motivated to comply with this pressure (e.g. 'people who are important to me will approve if I lose weight and I want their approval').
- *Perceived behavioural control*, which is composed of a belief that the individual can carry out a particular behaviour based upon a consideration of internal control factors (e.g. skills, abilities, information) and external control factors (e.g. obstacles, opportunities), both of which relate to past behaviour.

According to the TPB, these three factors predict behavioural intentions, which are then linked to behaviour. The TPB also states that perceived behavioural control can have a direct effect on behaviour without the mediating effect of behavioural intentions.



Basics of the Theory of Planned Behavior

2.3 Illness cognitions

What does it mean to be healthy?

For the majority of people living in the western world, being healthy is the norm – most people are healthy for most of the time. Therefore, beliefs about being ill exist in the context of beliefs about being healthy (e.g. illness means not being healthy, illness means feeling different to usual, etc.). The World Health Organization (1947) defined good health as 'a state of complete physical, mental and social well being'. This definition presents a broad multidimensional view of health that departs from the traditional medical emphasis on physical health only. Over recent years, this multidimensional model has emerged throughout the results of several qualitative studies that have asked lay people the question 'what does it mean to be healthy?' For example, from a social anthropological perspective, Helman (1978) explored the extent to which beliefs inherent within the eighteenth-century's humoral theory have survived alongside those of conventional medicine.

The issue of 'what is health?' has also been explored from a psychological perspective with a particular focus on health and illness cognitions. For example, Lau (1995) found that when young healthy adults were asked to describe in their own words 'what being healthy means to you', their beliefs about health could be understood within the following dimensions:

- *physiological/physical*, for example, good condition, have energy
- *psychological*, for example, happy, energetic, feel good psychologically
- *behavioural*, for example, eat, sleep properly
- *future consequences*, for example, live longer

- *the absence of illness*, for example, not sick, no disease, no symptoms.

Lau (1995) argued that most people show a positive definition of health (not just the absence of illness), which also includes more than just physical and psychological factors. He suggested that healthiness is most people's normal state and represents the backdrop to their beliefs about being ill. Psychological studies of the beliefs of the elderly (Hall et al. 1989), those suffering from a chronic illness (Hays and Stewart 1990) and children (Normandeau et al. 1998; Schmidt and Frohling 2000) have reported that these individuals also conceptualize health as being multidimensional. This indicates some overlap between professional (WHO) and lay views of health (i.e. a multidimensional perspective involving physical and psychological factors).

What does it mean to be ill?

In his study of the beliefs of young healthy adults, Lau (1995) also asked participants 'what does it mean to be sick?' Their answers indicated the dimensions they use to conceptualize illness:

- *not feeling normal*, for example, 'I don't feel right'
- *specific symptoms*, for example, physiological/psychological
- *specific illnesses*, for example, cancer, cold, depression
- *consequences of illness*, for example, 'I can't do what I usually do'
- *time line*, for example, how long the symptoms last
- *the absence of health*, for example, not being healthy.

These dimensions of 'what it means to be ill' have been described within the context of illness cognitions (also called illness beliefs or illness representations).

What are illness cognitions?

Leventhal and his colleagues (Leventhal et al. 1980, 1997; Leventhal and Nerenz 1985) defined illness cognitions as 'a patient's own implicit common sense beliefs about their illness'. They proposed that these cognitions provide patients with a framework or a schema for *coping with* and *understanding their illness*, and *telling them what to look out for if they are becoming ill*. Using interviews with patients suffering from a variety of different illnesses, Leventhal and his colleagues identified five cognitive dimensions of these beliefs:

1 *Identity*: This refers to the label given to the illness (the medical diagnosis) and the symptoms experienced (e.g. I have a cold – 'the diagnosis', with a runny nose – 'the symptoms').

2 *The perceived cause of the illness*: These causes may be biological, such as a virus or a lesion, or psychosocial, such as stress- or health-related behaviour. In addition, patients may hold representations of illness that reflect

a variety of different causal models (e.g. 'My cold was caused by a virus', 'My cold was caused by being run down').

3 *Time line*: This refers to the patients' beliefs about how long the illness will last, whether it is acute (short term) or chronic (long term) (e.g. 'My cold will be over in a few days').

4 *Consequences*: This refers to the patient's perceptions of the possible effects of the illness on their life. Such consequences may be physical (e.g. pain, lack of mobility), emotional (e.g. loss of social contact, loneliness) or a combination of factors (e.g. 'My cold will prevent me from playing football, which will prevent me from seeing my friends').

5 *Curability and controllability*: Patients also represent illnesses in terms of whether they believe that the illness can be treated and cured and the extent to which the outcome of their illness is controllable either by themselves or by powerful others (e.g. 'If I rest, my cold will go away', 'If I get medicine from my doctor my cold will go away').

Leventhal's self-regulatory model of illness cognitions

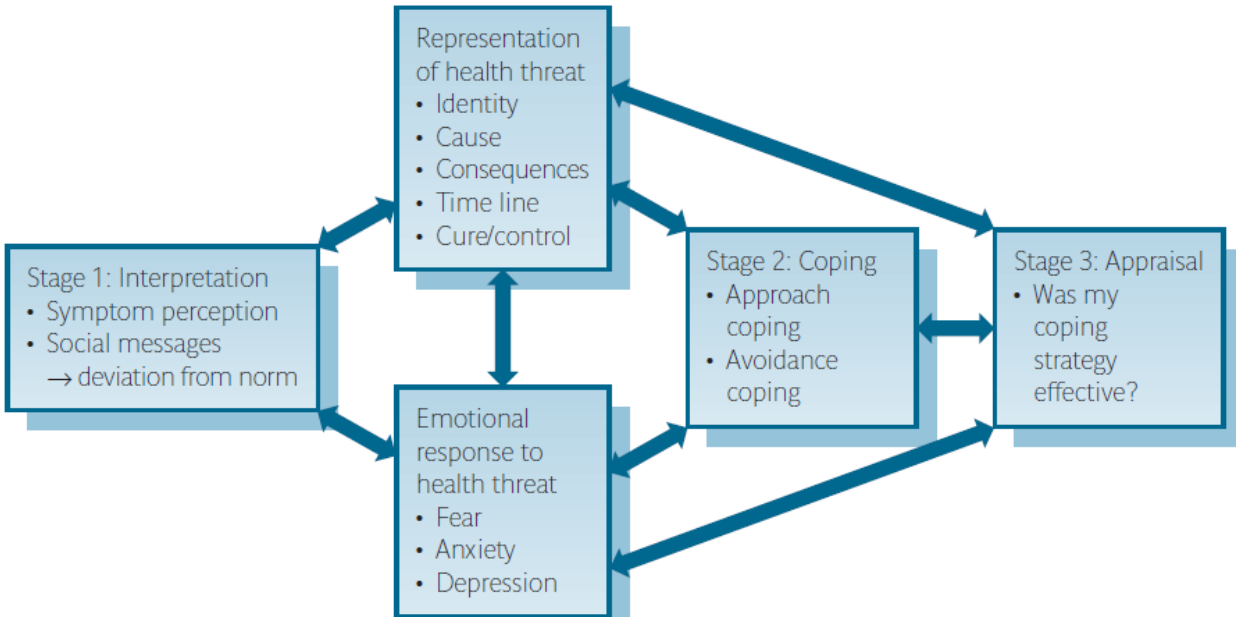
Leventhal incorporated his description of illness cognitions into his self-regulatory model of illness behaviour. This model is based on approaches to problem solving and suggests that illness/symptoms are dealt with by individuals in the same way as other problems. It is assumed that, given a problem or a change in the *status quo*, the individual will be motivated to solve the problem and re-establish their state of normality.

Traditional models describe problem solving in three stages:

(1) interpretation (making sense of the problem);

(2) coping (dealing with the problem in order to regain a state of equilibrium); and

(3) appraisal (assessing how successful the coping stage has been). According to models of problem solving these three stages will continue until the coping strategies are deemed to be successful and a state of equilibrium has been attained. In terms of health and illness, if healthiness is an individual's normal state, then any onset of illness will be interpreted as a problem and the individual will be motivated to re-establish their state of health (i.e. illness is not the normal state).



Leventhal's self-regulatory model of illness behaviour