



## **CHAPTER OUTLINE**

### **LEARNING OBJECTIVES**

### **INTRODUCTION**

### **HEALTH BELIEFS AND BEHAVIOURS**

- Behaviour and mortality
- The role of health beliefs
- Integrated models

### **ILLNESS BELIEFS**

- The dimensions of illness beliefs
- A model of illness behaviour
- Health professionals' beliefs

### **THE STRESS-ILLNESS LINK**

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- Does stress cause illness?

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- Profile of an illness
- Psychology's role

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### **SUMMARY**

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## Learning Objectives

By the end of this chapter you should appreciate that:

- health psychologists study the role of psychology in health and wellbeing;
- they examine health beliefs as possible predictors of health-related behaviours;
- health psychology also examines beliefs about illness and how people conceptualize their illness;
- a health professional's beliefs about the symptoms, the illness or the patient can have important implications;
- stress is the product of the interaction between the person and their environment – it can influence illness and the stress–illness link is influenced by coping and social support;
- beliefs and behaviours can influence whether a person becomes ill in the first place, whether they seek help and how they adjust to their illness.

## INTRODUCTION

Health psychology is a relatively recent yet fast-growing sub-discipline of psychology. It is best understood by answering the following questions:

- What causes illness and who is responsible for it?
- How should illness be treated and who is responsible for treatment?
- What is the relationship between health and illness, and between the mind and body?
- What is the role of psychology in health and illness?

Human beings are complex systems and illness can be caused by a multitude of factors, not just a single factor such as a virus or bacterium. Health psychology attempts to move away from a simple linear model of health and looks at the combination of factors involved in illness – biological (e.g. a virus), psychological (e.g. behaviours, beliefs) and social (e.g. employment). This

reflects the *biopsychosocial* model of health and illness that was developed by Engel (1977, 1980). Because, in this model, illness is regarded as the result of a combination of factors, the individual is no longer simply seen as a passive victim of some external force, such as a virus. Acknowledging the role of behaviours such as smoking, diet and alcohol, for example, means that the individual may be held responsible for their health and illness.

**biopsychosocial** the type of interaction between biological factors (e.g. a virus), psychological factors (e.g. beliefs) and social factors (e.g. class)

According to health psychology, the whole person should be treated, not just the physical changes that occur due to ill health. This can include behaviour change, encouraging changes in beliefs and coping strategies, and compliance with medical recommendations. Because the whole person is treated, the patient becomes

partly responsible for their treatment. For example, she may have a responsibility to take medication, and to change beliefs and behaviour. No longer is the patient seen as a victim.

From this perspective, health and illness exist on a continuum. Rather than being either healthy or ill, individuals progress along a continuum from healthiness to illness and back again. Health psychology also maintains that the mind and body interact. It sees psychological factors as not only possible consequences of illness (after all, being ill can be depressing), but as contributing to all the stages of health, from full healthiness to illness.

The aims of health psychology can be divided into two main aspects:

1. Understanding, explaining, developing and testing theory (for example: what is the role of behaviour in the etiology of illness? can we predict unhealthy behaviour by studying beliefs?).
2. Putting theory into practice (for example: if we understand the role of behaviour in ill-

ness, can unhealthy behaviours be targeted for intervention? if we change beliefs and behaviour, can we prevent illness onset?)

Health psychologists study the role of psychology in all areas of health and illness, including:

1. what people think about health and illness;
2. the role of beliefs and behaviours in becoming ill;
3. the experience of being ill in terms of adaptation to illness;
4. contact with health professionals;
5. coping with illness;
6. compliance with a range of interventions; and
7. the role of psychology in recovery from illness, quality of life and longevity.

This chapter will provide an overview of health beliefs and behaviours, individuals' illness beliefs, the role of health professionals' beliefs, stress and chronic illness.

## HEALTH BELIEFS AND BEHAVIOURS

**health behaviours** examples are exercise, food intake and going to the doctor

Over the last century *health behaviours* have played an increasingly important role in health and illness. This

relationship has been highlighted by McKeown's book, *The Role of Medicine* (1979), which discusses the decline of infectious diseases in the nineteenth century, which forms the focus for medical sociology. It also highlights the increasing role of behaviour in illness in the twentieth century. The latter represents the focus for health psychology. The commonly held view is that the decline in illnesses such as TB, measles, smallpox and whooping cough was related to the development of medical interventions such as chemotherapy and vaccinations. For example, antibiotics are seen as responsible for the decline in illnesses such as pneumonia and TB. But McKeown showed that the decline in infectious diseases had already begun, before the development of medical interventions. He claimed that, looking back over the past three centuries, this decline is best understood in terms of social and environmental factors.

McKeown also examined health and illness throughout the twentieth century. He argued that contemporary illness is caused by an individual's own behaviours, such as whether they smoke, what they eat and how much exercise they take, and he suggested that good health was dependent on tackling these habits.

McKeown's emphasis on behaviour is supported by evidence of the relationship between behaviour and mortality.

## BEHAVIOUR AND MORTALITY

It has been suggested that 50 per cent of mortality from the ten leading causes of death is due to behaviour. If this is correct, then behaviour and lifestyle have a potentially major effect on longevity. For example, Doll and Peto (1981) estimated that tobacco consumption accounts for 30 per cent of all cancer deaths, alcohol 3 per cent, diet 35 per cent, and reproductive and sexual behaviour 7 per cent. Approximately 75 per cent of all deaths due to cancer are related to behaviour. More specifically, lung cancer (the most common form) accounts for 36 per cent of all cancer deaths in men and 15 per cent in women in the UK. It has been calculated that 90 per cent of all lung cancer mortality is attributable to cigarette smoking, which is also linked to other illnesses such as cancers of the bladder, pancreas, mouth, larynx and oesophagus, and to coronary heart disease. And bowel cancer, which accounts for 11 per cent of all cancer deaths in men and 14 per cent in women, appears to be linked to diets high in total fat, high in meat and low in fibre.

As health behaviours seem to be important in predicting mortality and longevity, health psychologists have attempted to increase our understanding of health-related behaviours. In particular, based on the premise that people behave in line with the



**Figure 19.1**

Behaviour can have a major effect on longevity: for example, around 90 per cent of deaths from lung cancer are attributable to cigarette smoking.

**health beliefs** examples are perceptions of risk or beliefs about the severity of an illness

way they think, health psychologists have turned to the study of *health beliefs* as potential predictors of behaviour.

## THE ROLE OF HEALTH BELIEFS

### *Attribution theory*

The origins of attribution theory lie in the work of Heider (1944, 1958), who argued that individuals are motivated to understand the causes of events as a means to make the world seem more predictable and controllable (see chapter 17).

Attribution theory has been applied to the study of health and health behaviour. For example, Bradley (1985) examined patients' attributions of responsibility for their diabetes and found that perceived control over their illness (is the diabetes controllable by me or a powerful other?) influenced their choice of treatment. Patients could either choose an insulin pump (a small mechanical device attached to the skin that provides a continuous flow of insulin), intense conventional treatment or 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 doctors. In other words, an individual who attributed their illness externally and felt that they personally were not responsible for it was more likely to choose the insulin pump and to hand over responsibility to 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, the individual was more likely to attend the screening clinic ('I am not responsible for my hypertension but I can control it').

### *Health locus of control*

The issue of controllability emphasized in attribution theory has been specifically applied to health in terms of the *health locus of control*. Individuals differ in their tendency 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 to evaluate whether an individual regards their health as:

- controllable by them (e.g. 'I am directly responsible for my health');
- not controllable by them and in the hands of fate (e.g. 'Whether I am well or not is a matter of luck');
- under the control of powerful others (e.g. 'I can only do what my doctor tells me to do').

**health locus of control** where the cause of health is seen to be located – either internal ('due to me') or external ('due to others')

It has been suggested that health locus of control relates to whether we change our behaviour (by giving up smoking or changing our diet, for instance), and also to our *adherence* to recommendations by a health professional. For example, if a doctor encourages someone who generally has an external locus of control to change his or her lifestyle, that person is unlikely to comply if she does not deem herself to be responsible for her health.

**adherence (or compliance)** the extent to which a patient does as suggested (e.g. taking medicine or changing behaviour)

However, although some studies support the link between health locus of control and behaviour (e.g. Rosen & Shipley, 1983), several other studies either show no relationship or indicate the reverse of what is expected (e.g. Norman, 1990; 1995).

### *Unrealistic optimism*

Weinstein (1983, 1984) suggested that one of the reasons we continue to practice unhealthy behaviours is our inaccurate perceptions of risk and susceptibility. He gave participants a list of health problems to examine and then asked: 'Compared to other people of your age and sex, are your chances of getting [the problem] greater than, about the same as, or less than theirs?' Most participants believed that they were less likely to experience the health problem. Clearly, this would not be true of everyone, so Weinstein called this phenomenon unrealistic optimism.

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.

## Research close-up 1

### Stages of smoking cessation

#### *The research issue*

Traditionally, addictive behaviours have been viewed as 'either/or' behaviours. Therefore, smokers were considered either 'smokers' or 'non-smokers'. But DiClemente and Prochaska (1982) developed a trans-theoretical model to examine the stages of change in addictive behaviours. This model is now widely used in health psychology to both predict and understand behaviour, and it is central to many interventions designed to change behaviour. In particular, individuals are assessed at the beginning of any intervention to identify which stage they are at. The content of the intervention can then be tailored to match the needs of each person.

The stages of change model describes the following stages:

1. precontemplation (not seriously considering quitting in the next six months)
2. contemplation (considering quitting in the next six months)
3. action (making behavioural changes)
4. maintenance (maintaining these changes)
5. relapse (return to old behaviour)

The model is described as dynamic, not linear, with individuals moving backwards and forwards across the stages.

For the present study, the authors sub-categorized those in the contemplation stage (stage 2) as either contemplators (i.e. not considering quitting in the next 30 days) or in the preparation stage (i.e. planning to quit in the next 30 days).

#### *Design and procedure*

The authors recruited 1466 participants for a minimum intervention smoking cessation programme from Texas and Rhode Island. The majority were white, female, started smoking at about 16 years of age, and smoked on average 29 cigarettes a day. The participants completed the following set of measures at baseline and were followed up at one month and at six months. The participants were classified into three groups according to their stage of change: precontemplators, contemplators and those in the preparation stage.

1. Smoking abstinence self efficacy (DiClemente et al., 1985), which measures the smoker's confidence that they would not smoke in 20 challenging situations.
2. Perceived stress scale (Cohen et al., 1983), which measures how much perceived stress the individual has experienced in the last month.
3. Fagerstrom Tolerance Questionnaire (Fagerstrom, 1978), which measures physical tolerance to nicotine.
4. Smoking decisional balance scale (Velicer et al., 1985), which measures the perceived pros and cons of smoking.
5. Smoking processes of change scale (DiClemente & Prochaska, 1985), which measures the individual's stage of change. According to this scale, participants were defined as precontemplators (n = 166), contemplators (n = 794) and those in the preparation stage (n = 506).
6. Demographic data, including age, gender, education and smoking history.

#### *Results and implications*

The results were first analysed to examine baseline difference between the three participant groups. The results showed that those in the preparation stage smoked less, were less addicted, had higher self efficacy, rated the pros of smoking as less positive and the costs of smoking as more negative, and had made more prior quitting attempts than the other two groups.

The results were then analysed to examine the relationship between stage of change and smoking cessation. At both one and six months, the participants in the preparation stage had made more quit attempts and were less likely to be smoking.

The results provide support for the stages of change model of smoking cessation, and suggest that it is a useful tool for predicting the outcome of an intervention.

DiClemente, C.C., & Prochaska, J.O., 1982, 'Self-change and therapy change of smoking behaviour: A comparison of processes of change in cessation and maintenance', *Addictive Behaviours*, 7, 133-42.

These factors suggest that our perception of our 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 we ignore our own risk-increasing behaviour ('I may not always practise safe sex, but that's not important') and focus primarily on our risk-reducing behaviour ('At least I don't inject drugs'). He also argued 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') and focus on the risk-increasing behaviour of those around them ('My friends sometimes drive too fast').

### The stages of change model

The stages of change model (also known as the transtheoretical model of behaviour) was originally developed by Prochaska and DiClemente (1982) as a synthesis of 18 therapies describing the processes involved in behavioural change. These researchers suggested a new model of change which has been applied to several health-related behaviours, such as smoking, alcohol use, exercise and personal screening behaviour such as going for a cervical smear or attending for a mammograph (e.g. DiClemente et al., 1991; Marcus, Rakowski & Rossi, 1992).

If applied to giving up cigarettes, the model would suggest the following stages:

1. Precontemplation: 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.

The model describes behaviour change as dynamic, rather than being 'all or nothing', so the five stages do not always occur in a linear fashion. 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. Even when an individual has reached the maintenance stage, they may slip back to the contemplation stage over time.

The model also examines how we weigh up the costs and benefits of a particular behaviour. In particular, individuals at different stages of change will differentially focus on either the costs of a behaviour ('Giving up smoking will make me anxious in company') or the benefits ('Giving up smoking will improve my health').

## INTEGRATED MODELS

Attribution theory and the health locus of control model emphasize attributions for causality and control, unrealistic

optimism focuses on perceptions of susceptibility and risk, and the stages of change model stresses the dynamic nature of beliefs, time, and costs and benefits. These different perspectives on health beliefs have been integrated into structured models.

### The health belief model

The health belief model (figure 19.2) was developed initially by Rosenstock in 1966 and further by Becker and colleagues throughout the 1970s and 1980s (e.g. Becker et al., 1977). Their aim was to predict preventative health behaviours and the behavioural response to treatment in acutely and chronically ill patients. Over recent years, the model has been used to predict many other health-related behaviours.

According to the health belief model, behaviour is a product of a set of core beliefs that have been redefined over the years. The original core beliefs are the individual's perception of:

- *susceptibility* to illness – 'My chances of getting lung cancer are high';
- the *severity* of the illness – 'Lung cancer is a serious illness';
- the *costs* involved in carrying out the behaviour – 'Stopping smoking will make me irritable';
- the *benefits* involved in carrying out the behaviour – 'Stopping smoking will save me money'; and
- *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 health belief model suggests that these core beliefs are used to predict the likelihood that a behaviour will occur.

In response to criticisms, the model was revised to add the construct health motivation to reflect readiness to be concerned about health matters ('I am concerned that smoking might damage my health'). More recently, Becker and Rosenstock (1987)

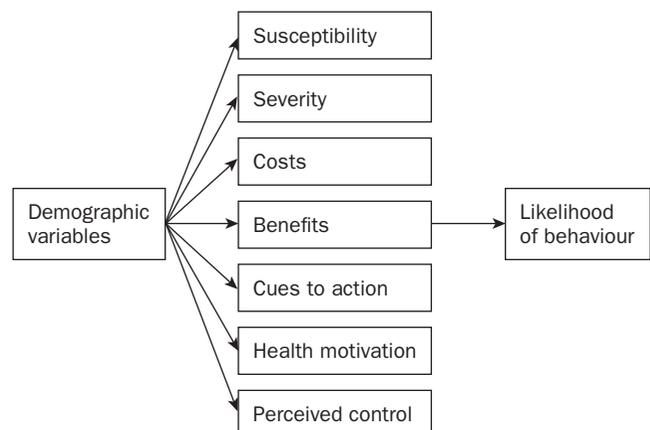


Figure 19.2

The health belief model. Source: Ogden (2000), after Becker et al. (1977).

suggested that perceived control ('I am confident that I can stop smoking') should also be added to the model (see chapter 17).

When applied to a health-related behaviour such as screening for cervical cancer, the health belief model predicts that someone is likely to have regular screening if she perceives that:

- she is highly susceptible to cancer of the cervix;
- cervical cancer is a severe health threat;
- the benefits of regular screening are high; and
- the costs of such action are comparatively low.

There will also most likely be relevant cues to action – either external (such as a leaflet in the doctor's waiting room) or internal (such as pain or irritation, which she perceives to be related to cervical cancer).

The new, amended model would also predict that a woman is more likely to attend for screening if she is confident that she can do so, and she is motivated to maintain her health.

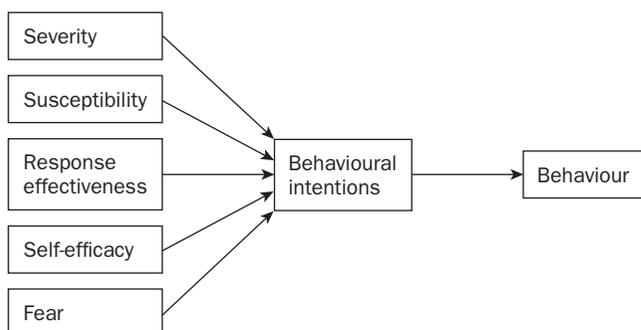
### The protection motivation theory

Rogers (1975, 1983, 1985) developed the protection motivation theory (figure 19.3), which expanded the health belief model to include additional factors.

The original protection motivation theory claimed that health-related behaviours are a product of, and therefore predicted by, five components:

- severity* – 'Bowel cancer is a serious illness';
- susceptibility* – 'My chances of getting bowel cancer are high';
- response effectiveness* – 'Changing my diet would improve my health';
- self efficacy* – 'I am confident that I can change my diet'; and
- fear* – 'Information about the links between smoking and lung cancer makes me feel quite frightened'.

The protection motivation theory describes severity, susceptibility and fear as relating to 'threat appraisal' (i.e. appraising an outside threat), and response effectiveness and self efficacy



**Figure 19.3**

The protection motivation theory. Source: Ogden (2000), after Rogers (1985).

as relating to 'coping appraisal' (i.e. appraising the individual themselves). According to the theory, there are two types of information source: environmental (e.g. verbal persuasion, observational learning) and intrapersonal (e.g. prior experience). This information influences the five components listed above, which then elicit either an adaptive coping response (a behavioural intention) or a maladaptive coping response (such as avoidance or denial).

If applied to dietary change, the protection motivation theory would make the following predictions. Information about the role of a high fat diet in coronary heart disease would increase fear, increase the individual's perception of how serious coronary heart disease was (perceived severity) and increase their belief that they were likely to have a heart attack (perceived susceptibility). If the individual also felt confident that they could change their diet (self efficacy) and that this change would have beneficial consequences (response effectiveness), they would report high intentions to change their behaviour (behavioural intentions). This would be regarded as an adaptive coping response to the presented information.

### The theory of planned behaviour

The theory of planned behaviour (figure 19.4) was developed by Ajzen and colleagues (Ajzen, 1985; 1988; Ajzen & Madden, 1986). It emphasizes behavioural intentions as the outcome of a combination of several beliefs (see chapter 17).

The theory proposes that intentions should be conceptualized as 'plans of action in pursuit of behavioural goals' (Ajzen & Madden, 1986), and that these are a result of the following composite beliefs:

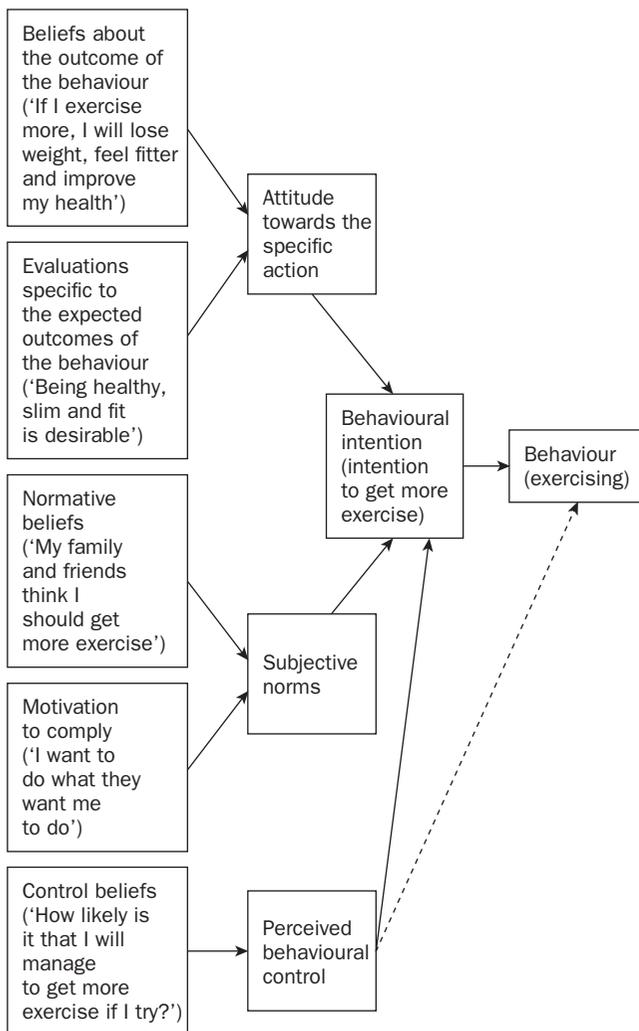
*Attitude towards a behaviour* – composed of a positive or negative evaluation of a particular behaviour, and beliefs about the outcome of the behaviour ('Exercising is fun and will improve my health').

*Subjective norm* – this represents the beliefs of important others about the behaviour, and the individual's motivation to comply with such beliefs ('People who are important to me will approve if I lose weight, and I want their approval').

*Perceived behavioural control* – comprising a belief that the individual can carry out a particular behaviour based on a consideration of internal control factors (e.g. skills, abilities, information) and external control factors (e.g. obstacles, opportunities) – both of which are related to past behaviour.

These three factors predict behavioural intentions, which are then linked to behaviour. (The theory of planned behaviour also states that perceived behavioural control can have a direct effect on behaviour without the mediating effect of behavioural intentions.)

Applied to alcohol consumption, the theory would predict that someone will have high intentions to reduce alcohol intake (behaviour intentions) if he believes that:



**Figure 19.4**

The theory of planned behaviour applied to the intention to engage in physical exercise. Source: Ogden (2000), after Ajzen (1985) and Stroebe (2000).

- reducing his alcohol intake will make his life more productive and be beneficial to his health (attitude to the behaviour);
- the important people in his life want him to cut down (subjective norm); and
- he is capable of drinking less alcohol due to his past behaviour and evaluation of internal and external control factors (high behavioural control).

The model also predicts that perceived behavioural control can predict behaviour without the influence of intentions. For example, a belief that the individual would not be able to exercise because they are physically incapable of doing so might well be a better predictor of their exercising behaviour than their high intentions.

## Pioneer

**Howard Leventhal** (1931–) is Professor of Psychology at the State University of New Jersey at Rutgers. He has carried out extensive research into the experience of being ill, which has informed much work on illness perceptions, and he developed the self-regulatory model of illness behaviour. He places emphasis on the role of symptom perception in triggering illness behaviour and the links between emotion and health.

## ILLNESS BELIEFS

Leventhal and colleagues (Leventhal, Meyer & Nerenz, 1980; Leventhal & Nerenz, 1985) defined *illness beliefs* as a patient's own implicit, commonsense beliefs about his or her illness. They proposed that these beliefs provide a framework, or schema, for coping with and understanding an illness, and for telling us what to look out for if we believe that we are becoming ill.

**illness beliefs** examples are how long the illness will last and what impact it will have on the patient's life

## THE DIMENSIONS OF ILLNESS BELIEFS

Using interviews with patients suffering from a variety of illnesses, Leventhal et al. identified five dimensions of illness beliefs:

1. *Identity* refers to the label given to the illness (the medical diagnosis) and the symptoms experienced; for example, 'I have a cold . . .' (the diagnosis) ' . . . with a runny nose' (the symptoms).
2. The *perceived cause of the illness* – this may be biological (e.g. a virus, in the case of a cold, or an injury or lesion, in the case of another type of illness) or psychosocial (e.g. stress or health-related behaviour). Patients may also hold representations of illness that reflect a variety of different causal models; for example, 'My cold was caused by a virus' versus 'My cold was caused by being run-down'.
3. *Time line* refers to beliefs about how long an illness will last, whether it is acute (i.e. short term) or chronic (i.e. long term); for example 'My cold will be over in a few days'.
4. *Consequences* refers to the patient's perceptions of the possible effects of the illness on his or her life. These may be physical (e.g. pain, lack of mobility), emotional (e.g. loss of social contact, loneliness) or a combination of factors; for example, 'My cold will prevent me from playing football, which will prevent me from seeing my friends'.
5. *Curability and controllability* refers to the patient's beliefs about whether their illness can be treated and cured, and the extent to which its outcome is controllable (either by

themselves or by others): for example, 'If I rest, my cold will go away', 'If I get medicine from my doctor, my cold will go away'.

### Evidence for the dimensions

**qualitative research** uses methods such as open-ended interviews, focus groups or observation, where the data are analysed without resorting to number

**quantitative research** uses methods such as questionnaires, experiments and structured interviews, where the data are analysed using numbers

The extent to which beliefs about illness comprise these different dimensions has been studied using both *qualitative* and *quantitative research*.

Leventhal and colleagues carried out interviews with individuals who were chronically ill (having been recently diagnosed with cancer) and healthy adults. Participants' descriptions of their illness indeed suggested underlying

beliefs made up of the above dimensions. Other studies have provided support for these dimensions using more artificial and controlled methodologies. Lau, Bernard and Hartman (1989) asked 20 people to sort 65 statements into piles that 'made sense to them'. These statements had been previously made in response to descriptions of 'your most recent illness'. The researchers reported that the piles of categories that people produced reflected the dimensions of identity of the illness (diagnosis/symptoms), its consequences (the possible effects), the time line (how long it would last), the cause (what caused the illness) and cure/control (how and whether it could be treated).

A series of experimental studies by Bishop and colleagues provided further support for this framework. For example, Bishop and Converse (1986) presented participants with brief descriptions of patients who were experiencing six symptoms. The participants were randomly allocated to one of two sets of descriptions – a 'high prototype', in which all six symptoms had been previously rated as associated with a given disease, and a 'low prototype', in which only two of the six symptoms had been

previously rated as being associated with the same disease. It was found that those individuals in the high prototype condition labelled the disease more easily and accurately than did those in the low prototype condition. The authors argued that this provides support for the role of the identity dimension (i.e. diagnosis and symptoms) of illness representations, and that this also suggested that there is some consistency in people's concept of the identity of illnesses.

Participants were also asked to describe in their own words what else they thought may be associated with each patient's situation. Bishop and Converse reported that 91 per cent of the associations fell within the aforementioned dimensions of illness beliefs. Within these, the dimensions of 'consequences' (the possible effects) and 'time line' (how long it will last) were the least frequently mentioned dimensions.

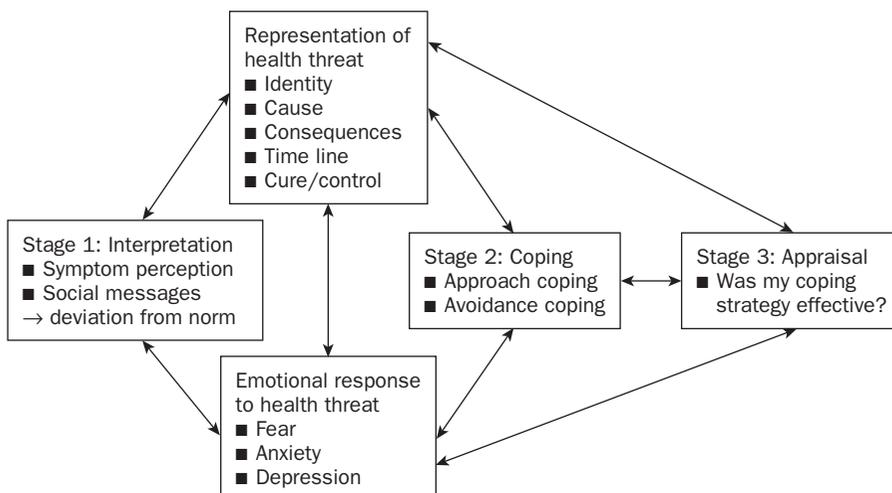
There is also some evidence for a similar structure of illness representations in other non-Western cultures (Lau, 1995; Weller, 1984).

### Measuring illness beliefs

In order to delve further into beliefs about illness, researchers in New Zealand and the UK have developed the 'Illness Perception Questionnaire' (IPQ). This asks people to rate a series of statements about their illness. These statements reflect the dimensions of identity (e.g. symptoms such as pain, tiredness), consequences (e.g. 'My illness has had major consequences on my life'), time line (e.g. 'My illness will last a short time'), cause (e.g. 'Stress was a major factor in causing my illness') and cure/control (e.g. 'There is a lot I can do to control my symptoms').

## A MODEL OF ILLNESS BEHAVIOUR

Leventhal incorporated illness beliefs into a self-regulatory model of illness behaviour (figure 19.5) to examine the relationship between someone's cognitive representation of his or her illness and their subsequent coping behaviour.



**Figure 19.5**

The self-regulatory model. Source: Ogden (2000), based on Leventhal et al. (1980).

The model is based on problem solving and suggests that we deal with illnesses and their symptoms in the same way as we deal with other problems. The assumption is that, given a problem or a change in the status quo, an individual will be motivated to solve the problem and re-establish his state of 'normality'. In terms of health and illness, if healthiness is your normal state, then you will interpret any onset of illness as a problem, and you will be motivated to re-establish your state of health.

Traditional models describe problem solving in three stages:

- interpretation* – making sense of the problem;
- coping* – dealing with the problem in order to regain a state of equilibrium; and
- appraisal* – assessing how successful the coping stage has been.

These three stages are said to continue until the coping strategies are deemed to be successful and a state of equilibrium has been attained.

This process is regarded as self-regulatory because the three components of the model interrelate, in an ongoing and dynamic fashion, in order to maintain the status quo. In other words, they regulate the self.

The three stages of Leventhal's model can be applied to health as follows:

### Stage 1 – Interpretation

**symptom perception** how an individual experiences and makes sense of their symptoms

**social messages** input from a range of sources such as friends, family and media regarding the nature of symptoms

An individual may be confronted with the problem of a potential illness through two channels – *symptom perception* and *social messages*.

Symptom perception ('I have a pain in my chest') influences how an individual interprets the problem of illness. This is not a straightforward process, perception

being in turn influenced by individual differences, mood and cognitions.

The factors contributing to symptom perception are illustrated by a condition known as 'medical students' disease', described by Mechanic (1962). A large component of the medical curriculum involves learning about the symptoms associated with a multitude of illnesses. More than two thirds of medical students incorrectly report at some time that they have the symptoms they are learning about. This phenomenon might be explained in terms of mood (i.e. medical students becoming quite anxious due to their work load), cognition (the students are thinking about symptoms as part of their course) and social context (once one student starts to perceive symptoms, others may model themselves on this behaviour).

Information about illness also comes from other people, perhaps as a formal diagnosis from a health professional or a positive test result from a routine health check. But we also often access such information via our 'lay referral system' (i.e. seeking informa-

tion and advice from multiple sources, such as colleagues, friends or family). For example, coughing in front of one friend may result in the advice to speak to another friend who had a similar cough, or a suggestion to take a favoured home remedy. Or it may result in a lay diagnosis or a suggestion to seek professional help from a doctor. Social messages like this will influence how we interpret the 'problem' of illness.

Once we have received information about the possibility of illness through these channels we become aware that something has deviated from the norm and that there has been a change in our health status. According to this framework we are then motivated to return to a state of 'problem free' normality. This involves assigning meaning to the problem. According to Leventhal, we may do this by accessing our illness beliefs. So the notion is that the symptoms and social messages contribute towards the development of illness beliefs, which will be constructed according to the five dimensions mentioned earlier. These cognitive representations of the problem will give the problem meaning and enable us to develop and consider suitable coping strategies.

According to Leventhal, the identification of the problem of illness will result in changes in emotional state as well as in our cognitive representation. For example, perceiving a) the symptom of pain and receiving b) the social message that this pain may be related to coronary heart disease may result in deviation from the norm, and resultant anxiety. So any coping strategies have to relate to both our illness beliefs and our emotional state.

### Stage 2 – Coping

Coping can take many forms, but two broad categories have been defined – approach coping (e.g. taking pills, going to the doctor, resting, talking to friends about emotions) and avoidance coping (e.g. denial, wishful thinking). When faced with the problem of illness, we develop coping strategies in an attempt to return to a state of healthy normality.

In an alternative model of coping, Taylor and colleagues (e.g. Taylor, 1983; Taylor, Lichtman & Wood, 1984) looked at how we adjust to threatening events. In a series of interviews with rape victims and cardiac and cancer patients, they found that coping with threatening events (including illness) consists of three processes:

- a search for meaning – 'Why did it happen to me?'
- a search for mastery – 'How can I prevent it from happening again?'
- a process of self enhancement – 'I am better off than a lot of people.'

Taylor and colleagues argued that these three processes are central to developing and maintaining 'illusions', and that these illusions constitute a process of cognitive adaptation.

### Stage 3 – Appraisal

Appraisal is the final stage in Leventhal's model. At this point people evaluate their coping strategy as either effective or ineffective. If it is appraised as effective then they will continue with it and

the same set of coping strategies will be pursued. If the coping strategies are appraised as ineffective then people are motivated to think of alternatives which will then be put into place. The appraisal stage clearly illustrates the self-regulatory nature of the model as the process of interpretation, coping and appraisal is not a linear pathway but dynamic and ongoing. Accordingly, the individual self-regulates by a constant ongoing process of appraisal, which assesses whether coping is effective and whether the individual is successfully managing to achieve a renewed sense of equilibrium.

## HEALTH PROFESSIONALS' BELIEFS

Early research regarded health professionals as experts and assumed that doctors with similar levels of knowledge and training would act in similar ways. But there is, in fact, considerable variability in different aspects of medical practice.

For example, Anderson et al. (1983) reported that doctors differ in their diagnosis of asthma. Mapes (1980) suggested that they also vary considerably in terms of their prescribing behaviour, some doctors giving drugs to only 15 per cent of their patients and others offering prescriptions for up to 90 per cent. Bucknall, Morris and Mitchell (1986) reported significant variation in doctors' measurement of blood pressure, and Marteau and Baum (1984) reported that doctors differ significantly in their treatment of diabetes.

It is now generally accepted that health professionals may behave not just according to their education and training, but also according to their own 'lay beliefs'. This means that any evaluation of the interaction between health professionals and patients should not only focus on the personal beliefs of the patient and the knowledge base of the professional, but also on the personal belief system of the professional.



**Figure 19.6**

Interaction between patient and doctor can be influenced by the health professional's beliefs about the patient and the disease, as well as by their knowledge.

## Beliefs that influence practice

Research indicates that the following beliefs influence the development of a health professional's original diagnosis.

*The nature of clinical problems* If a health professional believes that illness is determined by biomedical factors (e.g. lesions, bacteria, viruses), they will develop a diagnosis that reflects this perspective. But a professional who places the emphasis on psychosocial factors may develop a different diagnosis. For example, if a patient reports feeling tired all the time, the first professional might point to anaemia as the cause, and the second to stress.

*The probability of the disease* Health professionals also have different beliefs about how common a health problem is. For example, some doctors may regard childhood asthma as a common complaint and hypothesize that a child presenting with a cough has asthma. Another doctor who believes that childhood asthma is rare might not consider this diagnosis.

*The seriousness of the disease* Health professionals are motivated to consider the 'pay-off' in reaching a correct diagnosis, which is related to their beliefs about the seriousness and treatability of an illness. For example, if a child presents with abdominal pain, the professional may diagnose appendicitis, as this is a serious but treatable condition. In this case, the benefits of arriving at the correct diagnosis for this condition far outweigh the costs involved (such as time wasting) if the diagnosis is actually wrong.

*The patient* The original diagnosis will also be influenced by the health professional's existing knowledge of the patient, including medical history, degree of support at home, psychological state, and beliefs about why the patient came to see the doctor.

*Similar patients* We know that stereotypes can confound a decision-making process (see chapter 17). Yet without them, consultations between health professionals and patients would be extremely time consuming. Stereotypes reflect the process of 'cognitive economy'. They play a central role in developing and testing a hypothesis and reaching a management decision. So a health professional will typically base their decision partly on factors such as how the patient looks/talks/walks, and whether they are reminiscent of previous patients.

## Communicating beliefs to patients

Health professionals' own health-related beliefs may be communicated to patients. A study by McNeil et al. (1982) examined the effects of health professionals' own language on patients' choice of treatment. They found that patients are more likely to choose surgery if they are told it will 'increase the probability of survival' rather than 'decrease the probability of death'. The phrasing of a question like this tends very much to reflect the beliefs of the individual doctor. So the results indicate that the subjective views of health professionals may be communicated to the patient, and subsequently influence the patient's choice of treatment.

## THE STRESS–ILLNESS LINK

**stress** negative emotional experience resulting from a mismatch between the individual's appraisal that the stressor is stressful and their ability to cope with and therefore reduce their response to it

The term '*stress*' means many different things to many people. A lay person may define stress in terms of pressure, tension, unpleasant external forces or an emotional response. Psychologists define stress in a variety of different

ways. Contemporary definitions of stress regard the external environment as a potential stressor (e.g. problems at work), the response to the stressor as stress or distress (e.g. the feeling of tension), and the concept of stress as something that involves biochemical, physiological, behavioural and psychological changes. Researchers have also differentiated between stress that is harmful and damaging ('distress') and stress that is positive and beneficial ('eustress').

The most common definition of stress was developed by Lazarus and Launier (1978), who regarded it as a transaction between people and the environment. Within this definition,



**Figure 19.7**

On the stock exchange floor, it is easy to see how stress arises from a transaction between people and their environment.

stress involves an interaction between the stressor ('My job is difficult') and distress ('I feel stressed by it'). So a stressful response might be the feeling of stress that results from a mismatch between a) a situation that is appraised as stressful and b) the individual's self-perceived ability to cope and therefore reduce the stress.

## STRESS MODELS

Throughout the twentieth century, stress models have varied in terms of their definition of 'stress', their emphasis on physiological and psychological factors, and their description of the relationship between the individual and their environment.

### *Cannon's 'fight or flight' model*

One of the earliest models of stress was developed by Cannon (1932). The 'fight or flight' model suggested that external threats elicit the 'fight or flight' response, increasing activity rate and arousal. These physiological changes enable the individual either to escape from the source of stress or fight. Cannon defined 'stress' as a response to external stressors that is predominantly seen as physiological (see chapters 5 and 6).

### *Selye's general adaptation syndrome*

Developed in 1956, Selye's general adaptation syndrome describes three stages in the stress process:

- 'alarm', which describes an increase in activity and occurs immediately the individual is exposed to a stressful situation;
- 'resistance', which involves coping and attempts to reverse the effects of the alarm stage; and
- 'exhaustion', which is reached when the individual has been repeatedly exposed to the stressful situation and is incapable of showing further resistance.

### *Life events theory*

In an attempt to depart from models that emphasize physiological changes, the life events theory examines stress and stress-related changes as a response to life change. Research has shown links between life events and health status, in terms of both the onset of illness and its progression (Yoshiuchi et al., 1998).

These results were obtained using Holmes and Rahe's (1967) 'Schedule of Recent Experiences' (SRE) – an extensive list of possible life changes or life events. These range in supposed objective severity from serious events, such as 'death of a close family member' and 'jail term', through more moderate events, such as 'son or daughter leaving home' and 'pregnancy', to minor events, such as 'vacation' and 'change in eating habits'.

Each event has a predetermined point score to reflect its impact, with the combined score reflecting the adjudged stress rating of the assessed individual. For example, 'death of spouse' would result in more changes to an individual's life schedule than 'trouble with boss', and is therefore allocated a higher point

score. The difficulty with this significance weighting is that it was devised by psychologists, not the research participants. For example, whilst a divorce may be very stressful for one person, it might be liberating for another.

## *The model of appraisal and transaction*

Both Cannon's and Selye's early models of stress presented it as an automatic response to an external stressor – a perspective that is also reflected in life events theory, with its use of expert rather than individual rating schemes. By contrast, more recent models allow for active interaction between the individual and external stressors, rather than passive response. This approach provides a role for psychological state. It is epitomized by Lazarus's transactional model of stress and his theory of *appraisal*.

**appraisal** an individual's assessment of both the outside world and their ability to cope with this world

In the 1970s, Lazarus introduced the psychological dimension into our understanding of the stress response (1975; Lazarus & Cohen, 1973, 1977). He argued that stress involves a transaction between an individual and his or her external world, and that a stress response is elicited if the individual appraises an event as stressful. Lazarus defined two forms of appraisal:

1. Primary appraisal: the individual initially appraises the event in three ways – as (a) irrelevant, (b) benign and positive or (c) harmful and negative.
2. Secondary appraisal – the individual evaluates the pros and cons of his or her different coping strategies.

So primary appraisal is essentially an appraisal of the outside world and secondary appraisal is an appraisal by the individual of himself (figure 19.9).

## DOES STRESS CAUSE ILLNESS?

The relationship between stress and illness is not straightforward, and there is a lot of evidence to suggest that several factors mediate the stress-illness link, including exercise, coping styles, life events, personality type, social support and actual or perceived control.

Stress can affect health through a behavioural pathway or through a physiological pathway. Behaviours that may change as a result of stress include sleep, food intake and alcohol consumption. Stress can also induce changes in the body's biochemicals, such as catecholamines and corticosteroids, and changes in activity, such as heart rate.

### *Stress and behaviour*

Recent research has examined the effect of stress on specific health-related behaviours, such as exercise, smoking, diet and alcohol consumption, in terms of initiation, maintenance and relapse. It has also highlighted the impact of stress on general

## Pioneer



Figure 19.8

Richard Lazarus developed the role of psychological factors and appraisal in the study and treatment of stress.

**Richard Lazarus** (1922–2002) was Professor of Psychology at the University of California, Berkeley. His original work explored theories of emotion, which led him to focus on stress and coping. In particular, he introduced and developed the role of psychological factors in stress and emphasized the importance of appraisal. He established the UC Berkeley Stress and Coping Project, in which he extended his ideas on the importance of appraisal to explain exactly what stress is and what coping involves. This project culminated in the publication in 1984 of *Stress, Appraisal, and Coping*, one of the most widely cited and read books in psychophysiology and health psychology.

behavioural change. For example, research suggests that individuals who experience high levels of stress show a greater tendency to perform behaviours that increase their chances of becoming ill or injured (Wiebe & McCallum, 1986) and of having accidents at home, work and in the car (Johnson, 1986). For example, when under stress a person may smoke more, sleep less, drive faster and be less able to focus on the task in hand, which, in turn, may result in heart disease, cancer or accidents.

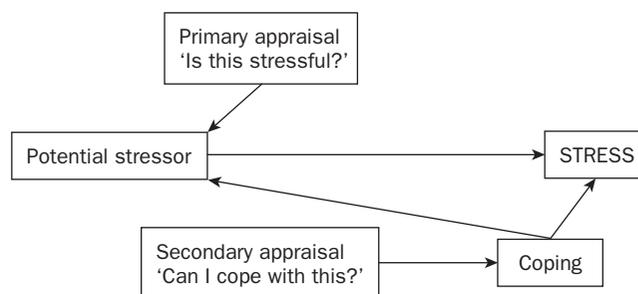


Figure 19.9

The role of appraisal in stress. Source: Ogden (2000), based on Lazarus (1975).

## Stress and physiology

The physiological consequences of stress have been studied extensively, mostly in the laboratory using the acute stress paradigm. This involves bringing participants into a controlled environment, putting them into a stressful situation (such as counting backwards, completing an intelligence task or giving an unprepared speech) and then recording any changes. This research has highlighted two main groups of physiological effects:

**1 Sympathetic activation** When an event is appraised as stressful, it triggers responses in the sympathetic nervous system. This results in the production of catecholamines (adrenalin and noradrenalin), which causes changes in factors such as blood pressure, heart rate, sweating and pupil dilation. These changes are experienced subjectively as a feeling of increased arousal. This process is similar to the 'fight or flight' response described by Cannon. Sympathetic activation and prolonged production of adrenalin can result in:

- blood clot formation
- increased blood pressure
- increased heart rate
- irregular heart beats
- fat deposits
- plaque formation
- immuno-suppression

These changes may increase the chances of heart disease and kidney disease, and leave the body open to infection.

**2 Hypothalamic-pituitary-adrenocortical (HPA) activation** Stress also triggers changes in the HPA system. This results in increased levels of corticosteroids (cortisol), leading to more diffuse changes, such as the increased use of carbohydrate stores and a greater chance of inflammation. These changes constitute the background effect of stress, and cannot be detected by the individual. They are similar to the alarm, resistance and exhaustion stages of stress described by Selye as they show how chronic ongoing stress can be damaging to the body in the longer term. HPA activation and prolonged production of cortisol can result in:

- decreased immune function
- damage to neurons in the hippocampus

These changes may increase the chances of infection, psychiatric problems and losses in memory and concentration.

### The role of hormones

Kiecolt-Glaser and Glaser (1986) argued that stress causes a decrease in the hormones produced to fight carcinogens (factors that cause cancer) and repair DNA. In particular, cortisol decreases the number of active T cells, which can increase the rate of tumour development. This suggests that experiencing stress whilst ill could exacerbate the illness through physiological changes. So if the illness itself is appraised as being stressful, this itself may be damaging to the chances of recovery.

### Psychoneuroimmunology (PNI)

This relatively new area of research is based on the prediction that psychological state can influence the immune system via the

nervous system. This perspective provides a scientific basis for the 'mind over matter', 'think yourself well' and 'positive thinking, positive health' approaches to life. It suggests that not only can psychological state influence health via behaviour, but beliefs may influence health directly. In particular, research has focused on the capacity of psychological factors (such as mood, thought suppression and stress) to modify immune functioning.

Positive mood is associated with better immune functioning, whereas negative mood is associated with poorer immune functioning (Stone et al., 1987). Humour appears to be particularly beneficial (Dillon, Minchoff & Baker, 1985). Certain coping styles (such as suppression and denial) may relate to illness onset and progression (e.g. Kune et al., 1991), while thought expression through writing or disclosure groups may improve immune functioning (Pennebaker et al., 1988; Petrie, Booth & Pennebaker, 1998; see also chapter 6).

## Everyday Psychology

### Life and stress

Most of us would like to be better at managing stress, especially if we cope through potentially damaging habits such as smoking or drinking.

Robert Sapolsky is one of the foremost authorities in the field of stress. In his book, *Why Zebras Don't Get Ulcers*, Sapolsky argues that we evolved for a very different stress environment than that which faces us today. He argues that in our evolutionary past we regularly faced serious, life-threatening situations (such as a predator attack or hostility with a neighbouring tribe over an important resource). Today our lives are much safer and our stressors much milder, but there are many of them – continual, recurring and irritating. We may find it hard to 'escape' from these stressors and their effects may build up over time. Sapolsky explores the role of stress in heart disease, diabetes, growth retardation, memory loss and auto-immune diseases such as multiple sclerosis.

In attempting to decide why zebras do not get ulcers (or heart disease, diabetes and other chronic diseases), Sapolsky suggests that people develop such diseases partly because our bodies are not designed for the constant stresses of a modern-day life (like sitting in traffic jams or dealing with multiple conflicting demands). Instead, we seem better equipped to deal with the kind of short-term stress faced by a zebra, such as outrunning a lion!

So why do we adapt to some stressful emergencies, while others make us sick? And why are some of us especially vulnerable to stress-related diseases? Is this related to features of our personalities? If so, are these features learned or innate?

Humans today live long enough and are intelligent enough to engage with and even generate all sorts of stressful events. Sapolsky suggests that stress-related disease emerges, predominantly, from our chronic activation of a physiological system that has evolved to respond to acute physical emergencies. We seem able to turn on the stress response not only in response to physical or psychological insults, but also by just thinking about potential stressors.

Stress may be characterized by non-constructive fretting and agonizing, and may generalize into more serious free-floating anxiety and panic attacks, which can interfere with daily living.

Sapolsky highlights studies that suggest we do have some control over stress-related ailments. One strategy is 'containment'. Simply set aside about 10–20 minutes each day for worrying! It is then easier to dispatch concerns from your mind for the remainder of your waking hours. Another technique is to put some constructive thought into how to better deal with problems during this 'worry period' rather than fretting in an unfocused manner. Another idea is to focus on living life in the present. According to this principle (related to Zen philosophy), we should strive constantly to enjoy each moment to its fullest. If you cannot live 'in the moment', there will always be other concerns on your mind.

Finally, our overall attitude or 'mindset' can influence our responses to stressful situations. Realistically, life is never as bad as it seems during our darkest and most depressed moments, nor as wonderful as it seems during our happiest, most ecstatic moments. It is somewhere in between. A sage piece of advice might be: instead of worrying about relatively trivial matters, save your emotional energy for the really big problems in your life, because it is likely that there will be more than enough of those.

**Pioneer**



**Figure 19.10**

Jamie Pennebaker found that writing and talking can reduce time spent visiting the GP and improve work performance.

**Jamie Pennebaker** (1950– ) is Professor of Psychology at the University of Texas at Austin and has been involved in exploring the role of psychological factors in symptom perception. He has also promoted research into the impact of psychological factors on the immune system, and he has a particular interest in the links between traumatic experiences, language, and physical and mental health. His studies find that time spent in simple writing and/or talking (including self-disclosure) can reduce time spent being seen by a physician, medical costs and alcohol use, and can increase work performance.

**CHRONIC ILLNESS**

Chronic illnesses, such as asthma, AIDS, cancer, coronary heart disease and multiple sclerosis, are another important focus for health psychologists. This section uses coronary heart disease (one of the leading causes of death in the present day) to illustrate the role of psychology at every stage, from predicting risk factors through to rehabilitation.

**PROFILE OF AN ILLNESS**

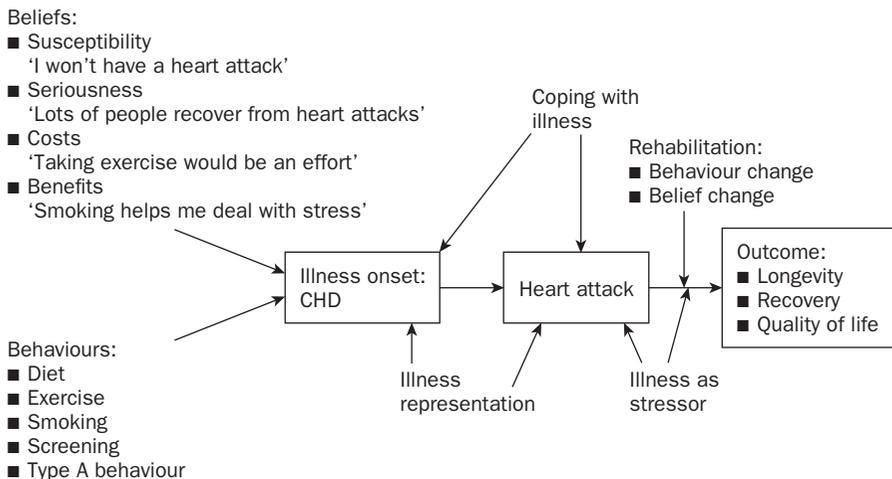
Coronary heart disease (CHD) is caused by hardening of the arteries (atherosclerosis), which are narrowed by fatty deposits. This can result in angina (pain) or a heart attack (myocardial infarction). CHD is responsible for 33 per cent of deaths in men under 65 and 28 per cent of all deaths. It is the leading cause of death in the UK, killing 4300 men and 2721 women per million in 1992. It has been estimated that CHD cost the National Health Service in the UK about £390 million in 1985/86. The highest death rates from CHD are found in men and women with a manual occupation and men and women of Asian origin. In middle age, the death rate is up to five times higher for men than women, but this evens out in old age, when CHD is the leading cause of death for everyone, regardless of gender.

Many risk factors for CHD have been identified, some less modifiable (e.g. educational status, social mobility, social class, age, gender, family history and race) than others (e.g. smoking behaviour, obesity, sedentary lifestyle, perceived work stress and type A behaviour).

**PSYCHOLOGY'S ROLE**

Psychology has a role to play at all stages of CHD (figure 19.11):

1. Psychological factors influence the onset of CHD. Our beliefs about both behaviour and illness can influence



**Figure 19.11**

The role of psychology in coronary heart disease. Source: Ogden (2000).

whether we become ill or stay healthy. For example, someone who believes that 'lots of people recover from heart attacks' may lead an inactive and sedentary lifestyle; and a belief that 'smoking helps me deal with stress' is hardly likely to help someone give up smoking. Beliefs such as these therefore result in unhealthy behaviours that can lead to CHD.

2. Once ill, people also hold beliefs about their illness and will cope in different ways. Psychology therefore continues to play a role as the disease progresses. For example, if someone believes 'my heart attack was caused by my genetic

makeup', they may cope by thinking 'there is nothing I can do about my health; I am the victim of my genes'. Beliefs like this are likely to influence the progression of the illness either by affecting behaviour or by having an impact on the immune system.

3. Psychology also has a role to play in the outcome of CHD. For example, believing that a heart attack is due to a genetic weakness rather than a product of lifestyle may mean that a person is less likely to attend a rehabilitation class and be less likely to try and change the way they behave. People also differ in other ways regarding their

## Research close-up 2

### Patient expectations and the placebo effect

#### *The research issue*

For a long time, medicine has regarded adherence to (i.e. compliance with) medical recommendations as important for patient recovery. This might be expressed in simplified forms such as: 'Take these drugs and you will get better.' Implicit within this assumption is the belief that an 'active drug' is better than a placebo. This is why trials to explore the effectiveness of a drug should compare it with a placebo. But it is possible that simply taking medication (whether active or inert) may also be beneficial if the patient expects to get better. This perspective is in line with the focus on beliefs found within health psychology, and the prediction that positive expectations may result in improvements in health.

This paper (Horwitz et al., 1990) presents a reanalysis of the data from a drug trial that explored the effectiveness of beta blockers following a heart attack. The paper asks whether simply adhering to medical recommendations to take pills was beneficial to recovery following a heart attack, regardless of whether the pills taken were active pills or placebo pills.

#### *Design and procedure*

The original study included 3837 men and women aged 30 to 69 who were reassessed every three months for an average of 25 months. For this paper, data were analysed from 1082 men in the experimental condition (who had received the beta blocker) and 1094 men in the placebo condition. Follow-up data were analysed for 12 months. Measures were taken of psychosocial factors, adherence and clinical characteristics.

#### *Results and implications*

- Compared to patients with good adherence, those with poor adherence were twice as likely to have died at one year follow-up. This was true for both the experimental group and the control group.
- Even taking into account psychosocial factors (e.g. stress, depression, smoking, alcohol use, exercise) and clinical factors (e.g. severity of heart attack), this finding was the same.
- So, regardless of whether the drug was a beta blocker or a placebo, taking it as recommended halved the participants' chances of dying over a 12-month period.

These results indicate a strong link between adherence to medical recommendations and mortality, regardless of the type of pill taken. This effect does not appear to be due to psychosocial or clinical factors (for example, the non-adherers did not simply smoke more than the adherers). So doing as the doctor suggests appears to be beneficial to health, but not necessarily because 'the drugs are good for you'. Instead, the findings indicate that simply by taking (what is believed to be) medication, the patient expects to get better.

The authors concluded that 'perhaps the most provocative explanation for the good effect of good adherence on health is the one most perplexing to clinicians: the role of patient expectancies or self-efficacy'. The researchers suggest that 'patients who expect treatment to be effective engage in other health practices that lead to improved clinical outcomes' (Horwitz & Horwitz, 1993). The authors also propose that the power of adherence may not be limited to taking drugs; it may occur with other forms of health intervention such as recommendations for behaviour change.

Horwitz, R.I., Viscoli, C.M., Berkman, L. et al., 1990, 'Treatment adherence and risk of death after a myocardial infarction', *Lancet*, 336 (8714), 542-5.

experiences of illness and their ability to adjust to such a crisis in their lives. For example, whilst some people cope by taking definite action and making plans about how to prevent the illness getting worse, others go into a state of denial or cope by indulging in unhealthy behaviours, making the situation worse. Such factors can impact upon their quality of life, possibly even influencing how long they live.

### *Behavioural risk factors*

The risk factors for CHD can be understood and predicted by examining an individual's health beliefs. Psychology's role is to both understand and attempt to change these behavioural risk factors.

- *Smoking* is estimated to be the cause of one in four deaths from CHD. Smoking more than 20 cigarettes a day increases the risk of CHD in middle-age threefold. Giving up smoking can halve the risk of another heart attack in those who have already had one.
- *Diet and exercise* (especially cholesterol levels) have also been implicated in CHD. It has been suggested that the 20 per cent of a population with the highest cholesterol levels are three times more likely to die of heart disease than the 20 per cent with the lowest levels. We can reduce cholesterol by cutting down total fats and saturated fats in our diet, and increasing polyunsaturated fats and dietary fibre. Other risk factors include excess coffee and alcohol and lack of exercise.
- *High blood pressure* is another risk factor – the higher the blood pressure, the greater the risk. Even a small decrease in the average blood pressure of a population could reduce the mortality from CHD by 30 per cent. Blood pressure appears to be related to a multitude of factors, such as genetics, obesity, alcohol intake and salt consumption.
- *Type A behaviour* is probably the most extensively studied risk factor for CHD. Friedman and Rosenman (1959) initially defined type A behaviour as excessive competitiveness, impatience, hostility and vigorous speech. In 1978, using a semi-structured interview, they identified two types of type A behaviour. Type A1 is characterized by vigour, energy, alertness, confidence, loud speaking, rapid speaking, tense clipped speech, impatience, hostility, interrupting, frequent use of the word 'never' and frequent use of the word 'absolutely'. Type A2 was defined as being similar to type A1, but not as extreme, and Type B behaviour was regarded as relaxed (for example, showing no interruptions of others' speech) and quieter.
- *Stress* has also been extensively studied as a predictor of CHD. In the 1980s Karasek developed a job demand/job control model of stress. He proposed the 'job demand control hypothesis', which includes the concept of job strain (see chapter 20). According to Karasek and colleagues (e.g. Karasek & Theorell, 1990), there are two aspects of job strain: i) job demands (which reflect conditions that affect performance) and ii) job autonomy (which reflects the



**Figure 19.12**

The risk of heart disease can be reduced by cutting down on saturated fats and increasing polyunsaturated fats and fibre in our diet.

person's control over the speed or the nature of decisions made within the job). Karasek's hypothesis suggests that high job demands and low job autonomy predict CHD. More recently, Karasek developed the hypothesis further to include the concept of social support. This is deemed to be beneficial for CHD, and is defined in terms of emotional support (i.e. trust between co-workers and social cohesion) and instrumental social support (i.e. the provision of extra resources and assistance).

### *Rehabilitation programmes*

*Modifying exercise* – Most rehabilitation programmes emphasize exercise as the best route to physical recovery, on the assumption that this will in turn promote psychological and social recovery, too. But whether, more generally, these programmes influence risk factors other than exercise (such as smoking, diet and Type A behaviour) is questionable.

*Modifying type A behaviour* – The recurrent coronary prevention project was developed by Friedman et al. (1986) in an attempt to modify type A behaviour. It is based on the following questions: 'Can type A behaviour be modified?' and 'Could such modification reduce the chances of a recurrence?' The study involved a five-year intervention and

1000 participants who had all suffered a heart attack. They were allocated to one of three groups: (i) cardiology counselling, (ii) type A behaviour modification, or (iii) no treatment. Type A behaviour modification involved: discussions of beliefs, values and ways to reduce work demands and increase relaxation, and education about changing the individual's cognitive framework. At five years, the type A modification group showed a reduced recurrence of heart attacks, suggesting that such intervention programmes may reduce the probability of reinfarction in 'at risk' individuals.

*Modifying general lifestyle factors* Other rehabilitation programmes have focused on modifying risk factors such as smoking and diet. For example, van Elderen, Maes and van den Broek (1994) developed a health education and counselling programme for patients with cardiovascular disease after discharge from hospital, with weekly follow-ups by telephone. Although this study involved only a small number of patients, the results seemed to provide some support for including health education in CHD rehabilitation programmes.

## FINAL THOUGHTS

Doctors often express surprise at the behaviour of their patients. They ask, 'why do they continue to smoke even when they know the risks?', 'why do patients come to see me when nothing is really wrong?', 'why do patients not come to see me when something is seriously wrong?' and 'why are people so different in the ways they manage the stress in their lives and respond to illness?'

Health psychology addresses these questions and highlights the role of psychological factors in understanding the issue at their core, namely variability. This chapter has explored the beliefs people have about health behaviours and illness, the beliefs that might influence health professionals and the impact of stress upon our lives. In addition, it has illustrated how psychological factors have a role to play at all stages of a chronic illness. Central to all this is the study of variability. Health psychology provides a means to understand this variability and helps to explain why people differ both from each other and from how other people would sometimes like them to be.

## Summary

- Health psychologists study the role of psychology in health and wellbeing. They highlight the importance of both a) developing and testing psychological theory and b) relating theory to health practice.
- Health psychology examines health beliefs as possible predictors of health-related behaviours, such as: a) the costs and benefits of a behaviour, b) susceptibility and severity of an illness, c) self efficacy in changing behaviour, d) a person's past behaviour and e) the beliefs of important others.
- Health psychology also examines beliefs about illness and suggests that individuals conceptualize their illness in terms of its time line, its symptoms, the causes and consequences of the problem, and whether it can be controlled or cured.
- The self-regulatory model of illness behaviour highlights how symptoms are a perception, how people are motivated to make sense of their illness, how they cope with illness in different ways, and how these factors can influence how they behave in relation to their illness.
- A health professional's beliefs about the symptoms, the illness or the patient may influence their diagnosis, how patients are treated and the effectiveness of any communication between patient and professional.
- Stress is seen as an interaction between the person and their environment. It can influence illness, either through changing health-related behaviours such as smoking and exercise or via a physiological pathway, and it is mediated by coping and social support.
- Beliefs and behaviours can influence whether a person becomes ill in the first place, whether they seek help and how they adjust to their illness.

## REVISION QUESTIONS

1. Medicine suggests that people become ill because they catch bacteria or viruses or develop something wrong with their bodies. What other factors might influence whether someone becomes ill?
2. Medicine takes responsibility for making people well again. What can the person themselves do about their own health?
3. Most people know that smoking is bad for them but many continue to smoke. Why might this be?
4. Even after being asked by their doctor, many women do not attend for their regular cervical smear. What factors might influence their decision not to attend?
5. When ill, some people take to their bed, take time off work and need looking after. For others, illness simply gets in the way and they try to carry on as usual. Why do people differ in this way?
6. If you took the same symptoms to five different doctors, you might get five different diagnoses and five different treatments. Why do you think this is?
7. Stress has been linked with a range of health problems. How do you think that stress influences illness?
8. Some people die from heart attacks, whilst other people recover and have long and happy lives. Once someone has had a heart attack, what do you think they could do to prevent another one?

### FURTHER READING

- Bennett, P. (2000). *An Introduction to Clinical Health Psychology*. Buckingham: Open University Press.  
A useful introduction to how the theories and research of health psychology can be put into practice.
- Bowling, A. (1995). *Measuring Disease*. Buckingham: Open University Press.  
An overview of the theory behind measuring quality of life and a clear review of the existing scales for assessing health status.
- Connor, M., & Norman, P. (eds) (1995). *Predicting Health Behaviours*. Buckingham: Open University Press.  
A thorough description of social cognition models and the extent to which they predict health-related behaviour.
- Ogden J. (2004). *Health Psychology: A Textbook*. 3rd edn. Buckingham: Open University Press.  
This book has formed the basis for this chapter and provides a grounding in health psychology at a more advanced level.
- Penny, G., Bennett, P., & Herbert, M. (1994). *Health Psychology: A Lifespan Perspective*. Amsterdam: Harwood.  
An examination of health psychology with a focus on the lifespan, and an assessment of childhood, adolescence, adulthood, mid life and the elderly.
- Stroebe, W. (2000). *Social Psychology and Health*. 2nd edn. Buckingham: Open University Press.  
Recently updated edition of this authoritative and clear text applying social-psychological principles to topics such as modification of health behaviour, stress and health, and health promotion.
- Taylor, S. (1999). *Health Psychology*. 4th edn. Boston: McGraw-Hill.  
A thorough overview of health psychology with an emphasis on health care delivery and work from the US.

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