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1 PSYCHOLOGY AND MEDICINE

CHAPTER CONTENTS
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(Continued)
LEARNING OBJECTIVES

This chapter is designed to enable you to:

• Understand different definitions of health and discuss the implications of this for treatment.
• Describe the biomedical and biopsychosocial approaches to healthcare.
• Consider the role of psychological and social factors in health and healthcare.

1.1 PSYCHOLOGY, HEALTH, AND MEDICINE

The importance of psychology for health and medicine is increasingly recognised, and psychological topics are now part of most training programmes in medicine and other healthcare professions. For example, in the UK a report on *Tomorrow’s Doctors* emphasised the importance of having more psychological and social science training in medical degrees (General Medical Council, 2009). This rests on extensive evidence that psychological factors are important in many aspects of physical and mental health – as you will see throughout the course of this textbook.

Yet it has been our experience that there are a number of barriers to students from medical and other healthcare professions learning about psychological topics. First, psychology is often seen as a ‘soft’ science. We will come back to this later in the chapter but hope this book encourages the sceptics among you to explore psychology more and use it in your clinical practice. Second, psychology is a wide-ranging discipline that includes many specialisms. As a result, few students or healthcare professionals have the time to become familiar with the extensive evidence base and psychological theory that are available. Table 1.1 shows the different psychological specialisms with examples of how these may be relevant to medicine. Psychology’s breadth of scope can make it hard for healthcare
professionals to work out which parts are most relevant to clinical practice. Third, being bombarded with psychobabble in the press makes it even more difficult to screen out evidence-based information from popular ‘facts’. A further challenge is that psychological and social services are often separated from physiologically orientated services, such as acute medical wards. This makes it hard to work out where medical care stops and psychological or social care begins.

We hope this book solves this problem by providing a single, integrated overview of the psychology that is relevant to medicine and healthcare, and by considering how this can be used in healthcare practice. This is done in four sections. In this introductory

### TABLE 1.1 Specialisms in psychology

<table>
<thead>
<tr>
<th>Specialism</th>
<th>Focus</th>
<th>Relevance to medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Psychological factors and health</td>
<td>Understanding health behaviour, effective health promotion and intervention, the role of psychosocial factors in health. Resilience and protective factors.</td>
</tr>
<tr>
<td>Clinical</td>
<td>Psychological resilience and disorders</td>
<td>Understanding emotions, emotional disorders (psychopathology), and developing effective interventions.</td>
</tr>
<tr>
<td>Developmental</td>
<td>Development and change over the lifespan</td>
<td>Understanding normal and abnormal aspects of development across the lifespan.</td>
</tr>
<tr>
<td>Forensic</td>
<td>Criminal and judicial behaviour and systems</td>
<td>Understanding criminal behaviour. Medico-legal investigations and testimony.</td>
</tr>
<tr>
<td>Social</td>
<td>Social and group processes</td>
<td>Understanding how social and group processes influence our own and other people’s behaviour in medical settings.</td>
</tr>
<tr>
<td>Biological and Neuropsychological</td>
<td>Link between physiological and mental processes or behaviour</td>
<td>Understanding the interaction between psychological and physiological processes.</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Internal mental processes e.g. attention, perception, memory</td>
<td>Understanding risk perception and decision making. How memory processes affect treatment and adherence to medication.</td>
</tr>
<tr>
<td>Occupational</td>
<td>Work, the workplace, and organisations</td>
<td>Understanding work performance and training requirements. How medical organisations function.</td>
</tr>
<tr>
<td>Educational</td>
<td>Learning and education</td>
<td>Improving education or training for healthcare professionals. Health education.</td>
</tr>
</tbody>
</table>
chapter we examine fundamental conceptual issues of what we mean by health and illness, why psychological and social factors are important, and different approaches to medicine.

The rest of the book is divided into four sections. Section I focuses on the psychology of health and covers theories and research relevant to most areas of healthcare practice, such as emotions, stress, symptoms, and chronic illness. Section II discusses knowledge from other areas of psychology that is relevant, such as brain and behaviour, development from infancy to old age, and the effects of social factors on people’s behaviour. Section III focuses on psychology that is relevant to different body systems, including the cardiovascular, respiratory, gastrointestinal, immune, genitourinary, and reproductive systems. Finally, Section IV outlines psychology that is relevant to clinical practice, such as communication skills and psychological interventions.

Throughout the book you will find clinically relevant information and tips in the clinical notes boxes. Activity boxes will encourage you to apply what you are learning to your own experiences. Case studies will also help you apply what you are learning to clinical scenarios, and help you to understand the impact of illness on individuals. Learning objectives and summary boxes provide easy guides to the main learning points that may prove useful for exams. Revision questions are given at the end of every chapter to help you revise and test yourself.

1.2 WHAT IS HEALTH?

As healthcare professionals you are embarking on careers that involve helping people to get better. But ‘better’, like ‘health’, is not the same for everyone. So how can we decide who to treat and who not to treat? Take a look at the examples in Case Study 1.1 and the definitions of health in Table 1.2.

Health operates on many levels such as the physical, subjective, behavioural, functional, and social. One survey of around 9,000 people found that people think of health in six different ways (Blaxter, 1990):

1. Not having symptoms of illness.
2. Having physical or social reserves.
3. Having healthy lifestyles.
4. Being physically fit or vital.
5. Psychological wellbeing.
6. Being able to function.

Which of these definitions we use will have implications for who receives treatment. Table 1.2 applies these to the cases of a fit young woman with a high risk of breast cancer (Jenny), a terminally ill man who is living life to the full (David), and a suicidal woman (Karen). It shows, for each one, who would be considered healthy and who would be considered ill using these different definitions. Common sense would suggest that the
terminally ill man, David, and suicidal woman, Karen, are ill and need treatment. Yet David would be classified as ill by physical definitions of health but not by behavioural, functional or psychosocial definitions. In contrast, Karen would be classified as ill by behavioural, functional, and psychosocial definitions but not by physical ones. In fact, the only definition of health that would classify both of them as ill is the cultural norm for health – in other words, they are both outside the norm within our society for what is regarded as healthy.

These cases illustrate that ‘health’ is not easy to define and is very individual. Research shows that people with a terminal illness generally have a reduced quality of life. Yet quality of life is not a single entity and although people may report worse physical symptoms, pain, and disability, they may also report an increased appreciation of life and family and other positive benefits (as David’s case illustrates). The suicidal woman may be particularly at risk, as research shows that young, divorced, or widowed women are

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**CASE STUDY 1.1  Are these people healthy or ill?**

**Jenny** is 22 and a university student. She has a healthy diet and is a keen athlete. Her mother died of breast cancer when Jenny was 13 and Jenny’s older sister has just been diagnosed with breast cancer. Screening shows that Jenny is carrying a mutation in the BRCA gene which means she is at high risk of breast cancer. She has been offered surgery to remove both breasts as a preventative measure.

**David** is a businessman aged 50. He has been training to ski the ‘Swiss Wall’, a slope in the Alps which is notoriously difficult. David did it once when he was younger and fitter, but had to stop and inch his way down parts of it. Last week he attempted it and managed to ski all the way down without stopping. He says it was exhilarating. He has terminal liver cancer and approximately six months left to live.

**Karen** is 32 and divorced with four children under the age of 7. She works part-time. Her ex-husband has remarried and has a new baby. Karen is upset about her divorce and finds it hard to maintain another steady relationship. She is depressed and smokes 30 cigarettes a day. Four weeks ago she took a large number of paracetamol with a bottle of wine and woke up in hospital.
most likely to attempt suicide, although men are more likely to succeed at completing suicide. Being depressed is a critical risk factor – in Europe, 28% of people with clinical depression will attempt suicide at some point during their lives (Bernal et al., 2007). Cases of apparently healthy people being offered interventions for genetic risk of disease are likely to become more common as screening for genetic risk becomes more widespread. Women like Jenny in the case study, who have prophylactic mastectomies, generally report a reduction in cancer-related distress afterwards, although there can be other negative impacts on their lives.

It is clear that health issues are complex and require our consideration of the individual. We need to recognise that, for individuals, health and illness are subjective states of wellbeing. In other words, does the person feel or think they are healthy or ill? Do they have physical symptoms that they believe mean there is a problem with their health? We also need to take account of disease in the form of underlying pathology – although research shows that a physiological basis is not found for many physical symptoms. At least a third of physical symptoms in primary care have no identifiable organic cause, and 10–15% of primary care patients have a history of multiple unexplained symptoms (Brown, 2007).

### Table 1.2 Definitions of health

<table>
<thead>
<tr>
<th>Definition</th>
<th>Features of definition</th>
<th>Jenny</th>
<th>David</th>
<th>Karen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Absence of disease</td>
<td>Healthy</td>
<td>Ill</td>
<td>Healthy</td>
</tr>
<tr>
<td></td>
<td>Not vulnerable to disease</td>
<td>Ill</td>
<td>Ill</td>
<td>Healthy</td>
</tr>
<tr>
<td></td>
<td>Strong physical reserves</td>
<td>Healthy</td>
<td>Ill</td>
<td>Healthy</td>
</tr>
<tr>
<td></td>
<td>Physically fit, has vitality</td>
<td>Healthy</td>
<td>Healthy</td>
<td>Ill</td>
</tr>
<tr>
<td>Subjective</td>
<td>No symptoms of physical illness</td>
<td>Healthy</td>
<td>Ill</td>
<td>Healthy</td>
</tr>
<tr>
<td>Behavioural</td>
<td>Living a healthy lifestyle</td>
<td>Healthy</td>
<td>Healthy</td>
<td>Ill</td>
</tr>
<tr>
<td>Functional</td>
<td>Able to function in day-to-day life</td>
<td>Healthy</td>
<td>Healthy</td>
<td>Ill</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>Psychosocial wellbeing</td>
<td>Healthy</td>
<td>Healthy</td>
<td>Ill</td>
</tr>
<tr>
<td>Social</td>
<td>Able to contribute to society</td>
<td>Healthy</td>
<td>Healthy</td>
<td>Ill</td>
</tr>
<tr>
<td>Cultural</td>
<td>Matches cultural norm for health</td>
<td>Healthy</td>
<td>Ill</td>
<td>Ill</td>
</tr>
</tbody>
</table>
ACTIVITY 1.1 WHAT IS HEALTH?

- How would you rate your own health?
  - Very poor
  - Poor
  - Fair
  - Good
  - Excellent

- What factors were important in helping you decide where to rate your health?

We therefore need to think of health on many levels. The World Health Organisation (WHO) attempted this by defining health very broadly as ‘a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity’ (World Health Organisation, 1992). The value of this definition is that it is inclusive and the emphasis on wellbeing accounts for individual differences in subjective perceptions of health. However, this definition has been criticised for being too broad to be useful and for referring to a Utopian ‘perfect’ state that few of us will reach, even when we feel healthy.

How we define health has wide-ranging implications for the treatments provided by health services. For example, if we aim for health as defined by the WHO, it might put unrealistic pressures on countries to provide social circumstances and medical systems that mean everyone lives in a state of complete wellbeing. Others have pointed out that conceptualising health as complete wellbeing confuses happiness with health (Saracci, 1997). This opens the door to limitless treatments if people view the pursuit of happiness as a legitimate medical goal. The rapid increase in cosmetic surgery to help people feel happier with their appearance is one example of this.

The way we define health has implications for who can be seen as responsible for our health and for which treatments we offer. These implications are more than just medical and affect society’s policies and laws. In the Western world, the dominant view is that individuals are responsible for their health by either adopting healthy or unhealthy lifestyles. Policies have been implemented that attempt to improve our lifestyles and health, such as providing fruit for young school children and banning smoking in public places.

A striking example of the effect that our definition of health has on treatment is the increasing numbers of obese children being put into foster care by the authorities in an attempt to combat their obesity. The story of one such girl is given in Case Study 1.2. This course of action rests on a number of debatable assumptions, including the view that: (i) obesity is an illness; (ii) obesity is controllable through diet; (iii) parental behaviour is the major cause of childhood obesity; and (iv) a child’s physical health takes priority over the psychological impact of removing that child from their family.

Ultimately, the multidimensional nature of health makes finding an adequate definition difficult. Antonovsky (1987) therefore proposed that we think of health as a continuum
from optimal wellness to death, as shown in Figure 1.1. Health promotion techniques operate on the wellness side of the continuum to encourage people to choose a lifestyle that optimises their health. Medical treatment focuses on the illness side of the continuum when people show signs or symptoms of illness.

**CASE STUDY 1.2 Obese child taken into care**

In August 2000, in a controversial case, the state of New Mexico took legal custody of a 3-year-old girl, AM, because she was morbidly obese. She was removed from her parents and put in foster care for three months. A gagging order was put on her parents so they could not talk publicly about the case for five months. AM weighed three times more than a normal 3 year old and was 50% taller. She had undergone numerous tests to determine what was causing her increased growth but doctors could not find a medical cause.

While in foster care, AM was put on a strict diet, lost weight, and learned to walk unassisted. It is difficult to gauge the emotional impact of being taken from her parents (e.g. she stopped speaking Spanish, her father’s language). After three months of legal and political wrangling, AM was returned to her parents, although the state kept legal custody of her for a while, monitoring her progress.

[Photograph reproduced courtesy of Malingering/www.flickr.com]
1.3 WHY IS PSYCHOLOGY IMPORTANT?

The importance of treating the person and not just the disease is widely recognised. Each person is a unique mix of thoughts, emotions, personality, behaviour patterns, and their own personal history and experiences. Understanding more about people will help us treat them more effectively. Psychology, however, is a subject that some students think is ‘just common sense’, ‘interesting but I can’t see how it’s useful’, or not ‘proper medicine’. Here we will consider each of these objections in turn before looking at the science underpinning the integral nature of body and mind.

‘Psychology is just common sense’

Often statements from psychological research coincide with common sense. Examples of these include ‘Stress is bad for you’, ‘A healthy lifestyle is important’, and ‘People with chronic illness have a worse quality of life’. If this was all we could take from psychology, then most of us would indeed dismiss the subject as mere common sense. The value of psychological research is that:

- It tests common sense views empirically to confirm or disconfirm them.
- It goes beyond common sense.
- People don’t always act according to common sense!

First, let’s look at the empirical testing of common-sense views. Much common sense is in fact contradictory. For example, the proverbs ‘Too many cooks spoil the broth’ and ‘Many hands make light work’ contradict each other. In some cases psychological research has confirmed common-sense views, although in other cases it has rejected these. Examples of common-sense views that have been tested by research are given in Box 1.1 – take a look at these statements and make up your own mind about whether these are facts or myths.

In fact, statements 1, 3, and 4 in Box 1.1 have not been supported by research. In contrast, there is evidence that antioxidants can reduce the impact of some eye disorders (e.g. slow down age-related macular degeneration; Grover & Samson, 2014), that ginger can reduce nausea and vomiting in pregnancy (Dante et al., 2013), and that the majority of sexual violence towards women and men is carried out by men (Breiding et al., 2014). Research therefore not only challenges common sense but also examines the things that go beyond common knowledge, such as why depression puts people at a higher risk of heart disease, whether there are critical periods in development when babies are more sensitive to psychosocial or biological circumstances, and whether therapy for psychological disorders should try to change what people think or the relationship people have with their thoughts. There are many other examples of this that you will read about throughout the course of this book.
BOX 1.1 Common sense: fact or myth?

1. Taking vitamin C prevents colds.
2. The majority of domestic violence is committed by men.
3. Being an oldest, middle, or youngest child affects your personality.
4. People with schizophrenia are often violent.
5. Eating fruit and vegetables improves your eye health.


‘Psychology is interesting but not useful’

Most people will find at least some parts of psychology interesting, but that does not necessarily mean it is useful. We need to ask what exactly it means in medicine for something to be useful. If the goal in medicine and healthcare is to treat people effectively and restore them to health, then what does this involve and how can psychology help? In order to treat people effectively we need to be able to: (i) diagnose the problem accurately and (ii) treat that problem appropriately. Psychology can help in both these areas. Accurate diagnoses are more likely if we understand how people’s experiences shape their perception and reporting of symptoms, and help-seeking behaviours (see Chapter 4). Negotiating an acceptable and effective treatment plan rests on understanding decision-making processes, what makes people more likely to adhere to treatment, and the influence of people’s beliefs and emotions (see Chapter 17). In illnesses such as HIV, where there is no complete cure, behaviour change is crucial for limiting the spread of disease (see Chapter 15). Effective communication skills also help in making an accurate diagnosis and in agreeing appropriate treatment for each individual (see Chapter 18). Thus, understanding psychological and social processes will help us diagnose and treat people more effectively.

Psychology can also help us to understand psychological symptoms, such as anxiety and depression, which can range from mild to severe, as well as diagnostic disorders, such as panic disorder, major depressive disorder, or schizophrenia. In the UK, psychological symptoms of anxiety and depression account for approximately 9% of consultations in general practice (Office for National Statistics, 2000). However, the majority of people with psychological symptoms will present with physical symptoms (Kroenke, 2003a). One study asked primary care physicians in the UK to rate the content of 2,206 consultations and found that, in addition to consultations for psychological symptoms, another 30% of consultations were rated as involving some psychological content (Ashworth et al., 2003). Evidence shows there is a strong link between physical health and psychological health: if we concentrate on only one side, we risk missing important information and
prescribing ineffective treatments. For example, chronic illness is associated with increased rates of psychological disorders (Cooke et al., 2007). People with psychological disorders are also at an increased risk of illness. A study of 4,864 people in the USA found that anxiety, depression, psychological distress, substance use disorders, and use of healthcare services were associated with experiencing more physical symptoms, regardless of whether these symptoms had an identifiable physical cause (Escobar et al., 2010). Psychological interventions, such as cognitive behaviour therapy (CBT), can be effective in managing or treating illnesses that have physical and psychological components, such as obesity, chronic pain, irritable bowel syndrome, and addiction (see Chapters 11 to 16), as well as psychological disorders, such as bipolar disorder, personality disorder, and schizophrenia (see Chapters 16 and 19).

Although psychological knowledge can help us be more effective healthcare practitioners, many students are put off psychology because of a sense that it is ‘interesting, but there’s no right answer’. Psychology can appear abstract or ambiguous with many competing theories. The reasons for this are that when studying people we must deal with outcomes like behaviour that are influenced by many factors. Explanatory theories are therefore tested by using a range of research methods and statistics to try to identify which factors are the most important. This means psychology will often present students with competing theories and supporting or conflicting evidence (and this book is no exception!). The ambiguity or uncertainty this involves may contrast directly with the large amount of physiological and anatomical facts students are required to learn in the first few years of their training.

So psychology requires a different way of thinking, but this method of thinking is a useful skill in itself – and one that is essential in medical practice. A lot of medical practice is about dealing with uncertainty, often in the face of patients who want certainty. For example, people will rarely present with a clearly defined textbook set of symptoms. In trying to diagnose and treat a person, you will often have to form a hypothesis about what might be wrong, then find a way to test it, and then reformulate your hypothesis if the tests do not confirm it. Understanding the psychosocial context of a person’s symptoms and concerns will help you reach a more probable diagnosis and/or provide reassurance in the face of uncertainty. For example, there are still many medical conditions that do not have suitable tests to confirm them. Examples include chronic fatigue syndrome and irritable bowel syndrome (see Chapter 13). As with psychological learning, these conditions involve a tolerance of ambiguity and an openness to alternative explanations, particularly in the early stages of diagnosis and treatment.

‘Psychology is not real medicine’

Most students will come to their medical studies keen to learn about the workings of the body, how it goes wrong, and how to fix it. Learning about the heart and how to resuscitate people is much closer to the common view of what it means to be a medical doctor than learning about topics such as health behaviour and stress. This implies a mechanical view of the body and medicine. Such a view is not new: it stems from a belief in dualism,
according to which the mind and body are independent. Dualism has its roots in classical philosophy and was reinforced by later thinkers, such as René Descartes (1637). Focusing on the mechanics of the body enabled rapid advances in medicine during the 18th and 19th centuries. Medical understanding grew exponentially as doctors and researchers focused on increasingly detailed physiological processes and identified the causes of pathology. Treatment also advanced: antibiotics and vaccines were developed and anaesthesia was introduced. The disadvantage of dualism is that it provided the basis for the biomedical approach or model, which dominated medicine for centuries. This approach, which is examined later in this chapter, is based on a separation of body and mind that is unhelpful in many ways.

1.4 THE SCIENCE OF MIND AND BODY

Science has advanced considerably since dualism and there is now increasing evidence that the mind and body are integrally linked and important in health. Throughout this book there are examples of how our mind influences physiological factors, such as fight-flight stress responses, pain, and physical symptoms. Cognitive science and neuroscience have also challenged dualism by showing that the mind (e.g. thoughts, feelings) is influenced by our body and bodily experiences. Theories of embodied cognition propose that many aspects of cognition are influenced by our bodily state. These cognitive factors include memory making and recall, tasks such as decision making and judgement, as well as higher level mental constructs such as concepts and language. Bodily factors that influence cognition include the motor system (e.g. movement, posture), perceptual system (e.g. sight, hearing), and physical interactions with others and the environment.

Theories of embodied cognition rest on research from areas like psychology, neuroscience, linguistics, and artificial intelligence. Psychological research has shown that sensorimotor feedback can influence our thoughts and emotions (Niedenthal, 2007). Many of these studies artificially place a person in a particular posture and examine the effect of this posture on thoughts, feelings, and behaviour. For example, research into feedback from facial expressions gets people to activate smile muscles by holding a pencil between their teeth and shows that when people ‘smile’ they are more likely to rate cartoons as funny, remember positive memories, evaluate stories more positively, and are quicker to perceive things that are congruent with a positive emotional state (Arminjon et al., 2015). Facial feedback has also been shown to reduce stress responses like heart rate and skin conductance (Lee et al., 2013), and increase recovery from stress (Kraft & Pressman, 2012).

The importance of bodily feedback in how we think and feel extends beyond an individual. Social psychologists have looked at how rapport between people is embodied through mirroring each other’s posture and gestures (interpersonal synchrony). A review and meta-analysis of the research on interpersonal synchrony shows it leads to people having more prosocial attitudes and behaviours, such as perceived affiliation, cooperation, and helping behaviours (Rennung & Göritz, 2016).
Functional brain imaging has identified some of the physiological processes that underlie this. It is now clear that other people’s actions can influence neuronal activity in our brains and that animals and humans have mirror neurons which fire both when we carry out a specific act and when we see others performing the same action. So our minds respond to observed movements of others as if we were carrying out the same behaviour. Similarly, recognising someone else’s facial expression of an emotion and feeling that emotion ourselves involve overlapping neural circuits in the brain (Niedenthal, 2007).

The science of mind and body has therefore moved beyond simple separation of mind and body to show that they are interdependent and influence each other in numerous ways, as does our environment and the people around us. This science has informed developments in artificial intelligence and robotics, where artificial humans are being created with socio-emotional intelligence, such as virtual characters that facilitate interaction between humans and technology by interpreting and responding to nonverbal cues (Vogeley & Bente, 2010). This is also being used in healthcare interventions, such as using virtual characters to assess and train people with high-functioning autism to recognise nonverbal communication cues (Georgescu et al., 2014).

1.5 DIFFERENT APPROACHES TO MEDICINE AND HEALTHCARE

1.5.1 BIOMEDICAL APPROACH

The biomedical approach to healthcare is based on a dualistic approach to mind and body so is not consistent with current science and evidence. The biomedical approach is summarised in Figure 1.2. It assumes that all disease can be explained in terms of physiological processes: therefore the treatment acts on the disease and not on the person. There is a linear progression of causality from the pathogen to the person and not the other way around. Psychological and social processes are separate and incidental. The person as a whole is therefore not considered by the biomedical approach.

**FIGURE 1.2** Biomedical approach to health (adapted from Lovallo, 2004)
Although this view has dominated medicine and led to great advances, it has been criticised for many reasons, in particular that it does not consider the influence of (i) social or (ii) psychological factors on health. Historically, the influence of social factors on population health is clear. Let us take the example of infectious diseases. The rapid decline in deaths from infectious diseases in the UK between 1859 and 1978 occurred before most vaccines were introduced. Some of the reason for this can be explained by more effective treatments, but a lot was due to changes in people’s understanding of illness and the effect of lifestyle. For example, in the mid-1800s a physician, John Snow, noticed that patterns of cholera outbreaks clustered around particular water supplies in London. This led to a better understanding of the cause and transmission of cholera, as well as social changes such as an improved water supply and sanitation. More recently, the Ebola epidemic in Western Africa in 2014 was partly spread by burial rites that meant the Ebola virus was transmitted from the deceased person to other members of the community. A key part of the World Health Organisation’s strategy was therefore to support affected communities to ensure safe burial practices (WHO, 2014a). The examples of cholera and Ebola show how social and cultural change is important and that the reduction of infectious diseases cannot be explained on a purely biomedical basis.

Social factors are just as important today. One of the most consistent findings from public health research is the influence of social class on health. People in lower social classes are at more risk of illness (morbidity) and death (mortality) from a variety of causes (see Research Box 1.1). This increased risk is partly due to differences in lifestyles. For example, people in lower social classes have a poorer diet, harder working and living conditions, and are more likely to smoke. However, studies that examine this indicate that even after these factors are taken into account, people in lower social classes still remain at an increased risk of poor health.

The role of lifestyle in illness illustrates the importance of psychosocial factors, yet these are not considered by the biomedical model. Understanding and changing health behaviour would do more than anything else to reduce morbidity and mortality in our society (see Chapter 5). For example, one in four deaths from cancer in the UK is due to unhealthy diets and obesity (Cancer Research UK, 2010). Increased alcohol use is directly related to increased rates of liver disorders and cancers of the GI tract (see Chapter 13). Smoking is directly related to lung cancer – the third highest cause of mortality in the UK (see Chapter 12).

It is not only lifestyle that is important. Individual factors such as personality, health behaviours, and beliefs also affect health. For example, individuals who are high on the personality trait of conscientiousness are less likely to engage in risky behaviours and more likely to engage in positive health behaviours. Perhaps unsurprisingly, they are therefore also more likely to live longer (Stone & McCrae, 2007). Stress and depression are strongly implicated in a range of illnesses, including cardiovascular disease: evidence suggests that both these factors are associated with the onset of heart disease (see Chapter 12).

A good example of the effect of our beliefs on health and illness is the placebo effect, whereby people recover because they think they are going to recover, as opposed to
RESEARCH BOX 1.1  Social class and mortality

Background
In addition to being affected by health behaviours, morbidity and mortality rates are affected by socioeconomic status. This study looked at the effect of family socioec-
nomic status at birth on mortality from any cause across the lifespan.

Method and findings
The Uppsala Birth Cohort is a study of 11,868 men and women born in Uppsala, Sweden, between 1915 and 1929. This study looked at death rates in this cohort up to 2009 to examine the risk of mortality according to the family’s socioeconomic position and the mother’s marital status.

People born in families of lower socioeconomic status and whose mothers were unmar-
rried had an increased risk of death from any cause (hazard ratios were 1.19 and 1.18 respectively). This increased risk was still observed after adjusting for the child’s sex, birth year, birth weight, gestational age, parity, and maternal age. The effect of lower socioeco-
nomic status on mortality was found across all age groups. However, mothers’ marital status had a greater effect on mortality in the first year of life and after 75 years of age.

Significance
This study shows the lifelong impact of socioeconomic status on risk of mortality from any cause.


recovery because of pharmacological or physical treatment. The placebo effect is typ-
ically tested by giving one group of people a fake drug (placebo group), and comparing their recovery to another group of people given an active drug (drug group) or no drug (control). The placebo effect is the recovery that occurs in the group given the fake drug, which is over and above any recovery observed in the control group. This effect is well established and there is evidence that beliefs are responsible for a large part of it. For example, a study of surgery for osteoarthritis compared two different types of procedure (arthroscopic debridement or lavage) with placebo surgery where people were anaesthetised and skin incisions made but the arthroscope was not inserted. Those who had placebo surgery showed the same level of improvements up to two years later (Moseley et al., 2002). A review and meta-analysis of this and seven other randomised controlled trials concluded that arthroscopic debridement does not improve pain or functional status more than sham surgery or usual care (Evidence Development and Standards, 2014). The placebo effect is considered in more detail in Chapter 4.
The biomedical approach cannot account for any of these effects of social and psychological factors on health. Even when the biomedical approach dominated medicine, most healthcare professionals realised that psychological and social factors were still important. However, working within the biomedical framework meant these factors were not made explicit or used to the advantage of medicine. They therefore remained part of the art of medicine rather than the science – although ironically the term ‘medicine’ comes from the Latin medici-na (ars) – the (art of) healing.

**CLINICAL NOTES 1.1**

In primary care:

- At least a third of physical symptoms seen in primary care have no identifiable organic cause.
- Between 10% and 15% of primary care patients have a history of multiple unexplained physical symptoms.
- Psychological and physical symptoms are highly related. Many people will only mention physical symptoms, so it is important to ask about psychological symptoms as well.
- In treatment, a lot of the effect of drugs can be due to people believing they will recover rather than the drug itself.

**1.5.2 BIOPSYCHOSOCIAL APPROACH**

The biopsychosocial approach (Engel, 1977) is a framework that does incorporate biological, psychological, and social factors. This approach was later expanded to include such factors as ethnicity and culture (Suls & Rothman, 2004). A schematic diagram of the biopsychosocial approach is shown in Figure 1.3, which shows the personal and external factors that, according to this approach, impact on health.

External factors include the sociocultural environment, such as poverty, available support structures, access to healthcare and other facilities, and environmental factors and legislation that impact on health. External factors include pathogenic stimuli, which can range from, for example, being exposed to a virus, to passive smoking, to living in an area high in radon gas. External factors also include any treatment that the individual receives which can act on the pathogenic stimuli or the person. All of these external factors both influence the person and are influenced by the person.

Internal factors include personal history, psychosocial processes, and physiological and biochemical mechanisms. Personal history involves multiple factors such as ethnicity, genetic make-up, learned behaviour, developmental processes, and previous illnesses.
These inevitably influence psychosocial processes such as lifestyle, sociability, personality, mood, perception of symptoms, behaviour, adherence to treatment and so on. All these factors will influence, and be influenced by, physiological mechanisms.

Consider smoking, for example. Many people report that their first cigarette is fairly unpleasant, so why do people persist in smoking until they are addicted? Most people start smoking in adolescence when it is important to them to gain peer approval and fit in with group norms. In high-income countries, the prevalence of smoking is often highest in people from deprived backgrounds with a low socioeconomic status (Hiscock et al., 2012). Thus a child growing up in a deprived area may be more exposed to others who smoke and more likely to start smoking, which further reinforces the group norm. Without a motivation to quit smoking this child is also unlikely to seek help.

The pathogens in cigarettes mean that, with continued use, smokers are at increased risk of many illnesses, including lung cancer, chronic obstructive pulmonary disease, heart disease, head and neck cancer, impotence, infertility, gum disease, back pain, and type II diabetes (West & Hardy, 2007). Whether an individual develops any of these illnesses will be determined by the other aspects in the biopsychosocial approach, such as their individual vulnerability, physiological processes, other lifestyle behaviours, and exposure to other pathogens. However, to return to our example, not all children in deprived circumstances will smoke. Therefore the sociocultural environment interacts with the characteristics of each child to determine exposure to the pathogen of cigarettes, the likelihood of seeking treatment, and the risk of disease.

The biopsychosocial approach provides a clear framework that sums up what many healthcare professionals already intuitively know. It is an improvement on the biomedical approach in that it makes the links between psychological and social factors and health explicit. Illness is seen to be caused by many factors at different levels, rather than purely by pathogens as posited by the biomedical model. Responsibility for health and illness therefore rests on individuals and society rather than on the medical profession alone. Similarly, treatment considers physical, psychological and social contributing factors as opposed to the physical in isolation. A further comparison of the key features of the biomedical and biopsychosocial approaches is given in Table 1.3.

The biopsychosocial approach has implications for research, education, and clinical practice. It should lead to more comprehensive research that examines the multiple levels, systems, and factors involved in health. Moreover, in clinical practice the biopsychosocial approach should result in a more complete understanding of the many factors that can contribute to health or illness. This in turn should lead to a more holistic approach – that is, treatment of the whole person. The biopsychosocial approach has already formed the basis for a more person-centred approach to medicine (Borrell-Carrío et al., 2004). It should also lead to better healthcare training, with the inclusion of education about psychological and social factors.

Thus the biopsychosocial approach is an improvement on the biomedical approach and should result in clear clinical benefits if used. It is therefore puzzling that, more than 30 years after it was proposed, the biopsychosocial approach still is not widely used or
practised in medicine or psychology. Although the biopsychosocial approach is taught in most training courses for healthcare professionals, it tends to be taught more as a theoretical framework than applied to clinical work.

So we still have a long way to go to properly incorporate the biopsychosocial approach into medicine. There are many reasons why this might be. The biomedical approach has been dominant for centuries and modern medicine and healthcare developed within this framework. Although the biopsychosocial approach may appear simple, in fact the inclusion of all the different elements makes research and medicine more complicated to carry out in practice. In addition, the biopsychosocial approach suggests circular or nonlinear causality. In other words, that physical, psychological, and social factors all influence, and are influenced by, each other. This means there is rarely a simple and linear cause–effect relationship between one factor and illness. This raises difficulties in clinical practice if we need to choose or prioritise one treatment (see Case Study 1.3). To do this, we have to think in terms of a hierarchy of causes (e.g. one cause is more important than others) and linearity of treatment (e.g. removing this cause will remove illness) (Borrell-Carrio et al., 2004).

**CASE STUDY 1.3**  Applying a biopsychosocial approach

Anne is a 50-year-old woman with hypertension. This hypertension could be due to Anne’s high cholesterol, obesity, smoking, demanding job, lack of support at home, or perfectionist tendencies and inflated beliefs about responsibility that mean she works long hours and is stressed. Which of these explanations we adopt will influence the treatment we offer.

If we take the biological cause (high cholesterol), then we would treat Anne with cholesterol-reducing drugs. If we take the behavioural explanations (smoking and obesity), we might offer Anne support to stop smoking or lose weight. If we take the psychological explanation (stress and maladaptive beliefs), we might offer Anne stress-management or psychotherapy sessions. Finally, if we adopt the social explanations (work stress and a lack of support), we might refer her to an occupational health worker, counsellor, or a life coach.

In reality Anne’s hypertension will be affected by all these factors and we need to treat her in the most effective way. To decide this, we would need to consider which treatment will provide the best outcome for Anne at the least cost and time for the health service. What do you think would constitute effective treatment in this case?

(Continued)
FIGURE 1.3  Biopsychosocial approach to health

TABLE 1.3  Comparison of biomedical and biopsychosocial approaches

<table>
<thead>
<tr>
<th></th>
<th>Biomedical</th>
<th>Biopsychosocial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mind–body relationship</td>
<td>Separate; independent (dualism)</td>
<td>Part of dynamic system; influence each other</td>
</tr>
<tr>
<td>Cause of disease</td>
<td>Pathogens</td>
<td>Multiple factors at different levels</td>
</tr>
<tr>
<td>Causality</td>
<td>Linear</td>
<td>Circular</td>
</tr>
<tr>
<td>Psychosocial factors</td>
<td>Irrelevant</td>
<td>Essential</td>
</tr>
<tr>
<td>Approach to illness</td>
<td>Reductionist</td>
<td>Holistic</td>
</tr>
<tr>
<td>and treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility for</td>
<td>Medical professionals – e.g. to combat disease</td>
<td>Individuals/society – e.g. healthy lifestyle</td>
</tr>
<tr>
<td>health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus of treatment</td>
<td>Eradication or containment of pathology</td>
<td>Physical, psychological, and social factors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>contributing to illness</td>
</tr>
<tr>
<td>Focus of health</td>
<td>Avoidance of pathogens</td>
<td>Reduction of physical, psychological, and social risk factors</td>
</tr>
<tr>
<td>promotion</td>
<td></td>
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</tbody>
</table>
CLINICAL NOTES 1.2

In clinical practice:

- Promoting healthy lifestyles is an important aspect of medicine and has the potential to save thousands of lives.
- People respond differently to illness so it’s important not to assume you know how each person feels.
- Tolerance of ambiguity and the ability to test alternative explanations for symptoms are essential clinical skills.
- The holistic approach means we should consider biomedical factors, lifestyle behaviour, psychological factors (e.g. beliefs, emotions, symptoms), and social factors.

ACTIVITY 1.2   DIFFERENT APPROACHES TO MEDICINE

- Reflect on the last time you saw a doctor.
- To what extent was this doctor working with a biomedical framework or a biopsychosocial one?
- How would their treatment have differed if they’d altered their framework(s)?

We can see that barriers to applying the biopsychosocial approach include the facts that (i) it is not possible to address all the factors that influence illness, and (ii) in order to plan treatment we need to think in terms of linear causality rather than circular causality. However, this does not mean we should abandon it and return to the biomedical approach, which ignores psychosocial and environmental factors completely. There is, after all, a crucial difference between, on the one hand, recognising all potential determinants and then selectively treating an individual and, on the other hand, focusing only on biomedical factors because that’s all we look at. Psychologists also need to be reminded of this. Just as medicine and other healthcare professions err toward biological explanations, psychologists err toward psychological explanations. In fact, a search of research published in a leading health psychology journal found that only 26% of studies included biological, psychological, social, and macro-cultural variables (Suls & Rothman, 2004).

Therefore we all need to consciously remind ourselves to explore factors at each level of the biopsychosocial approach when assessing and treating people. This will give us a more complete understanding of the illness, encourage an holistic treatment of the person, include a consideration of potential psychosocial barriers to treatment efficacy, and allow us to change or modify treatments accordingly if our first approach is not as effective as expected.
This tendency to focus on biology or psychology emerges in debates about nature and nurture. Some argue strongly that nature (i.e. genes) is the determinant of behaviour and wellbeing. Others argue just as strongly that nurture (i.e. environment and psychosocial context) is the main determinant. The problem with many nature–nurture debates is that health and wellbeing are determined by nature and nurture. Furthermore, interactions between nature and nurture are often crucial. As noted in Chapter 16, the likelihood of developing psychological disorders such as schizophrenia may be influenced by a genetic predisposition and experiences during pregnancy/birth, early childhood, or later life. Similarly, material presented in Chapter 8 shows how the cognitive potential children inherit in their genes can be optimised or impaired by psychosocial experiences in childhood.

The evolving field of epigenetics focuses on how environmental factors — including social contextual factors — regulate the activity and expression of genes (Kundakovic & Champagne, 2015). There is emerging evidence that environmental influences such as a lack of nurturing can lead to physiological changes that can then be passed from parents to children and grandchildren; this is sometimes termed the intergenerational transmission of vulnerability. It has led some to suggest that health communication and health education could incorporate epigenetics to explain how parenting practices, lifestyle factors, and social environments affect different people in different ways (McBride & Koehly, 2017). Better knowledge of epigenetic processes could help the planning of public health interventions so that they are delivered at key times when environmental exposures most strongly influence gene expression.

1.6 SOCIAL DIVERSITY AND HEALTH

Within any population, there is wide variation in health behaviours and health outcomes along the lines of age, sex, education, socioeconomic status (SES), ethnicity (sometimes referred to as ‘race’), sexual orientation, and other demographic variables.

Health status is more than simply a consequence of biological, physiological, or genetic factors; it is also affected by much broader economic, social, cultural, and environmental elements. The conditions in which people are born, grow up, and live influence their health (WHO, 2008b). Research in different countries has revealed that the general sociopolitical context (social democratic, corporatist, or welfare state) and levels of gender equity affect health outcomes and health-related behaviours such as alcohol use (Bambara et al., 2009; Bosque-Prous et al., 2015). Socioeconomic status (SES) influences health behaviours and health outcomes, including mortality. Poor health and poverty go hand in hand (Centers for Disease Control and Prevention, 2014; El-Sayed et al., 2011; Wang & Beydoun, 2007). People with lower levels of education and/or income tend to report less healthy patterns of behaviour, report poorer physical and psychological wellbeing, and have shorter life expectancy (Bleich et al., 2012; Braveman & Gottlieb, 2014).

Ethnicity is an important influence on health behaviours and health outcomes, and people from ethnic minorities tend to have poorer health. Some research indicates that our understanding of risk factors may be blind to the important influence of ethnicity.
For example, a 13-year follow-up study of nearly 60,000 Canadians revealed that the risk of diabetes was significantly higher among people of south Asian, black, or Chinese ethnicity than among white adults (Chiu et al., 2011). Furthermore, the risk of diabetes for a white person with a Body Mass Index (BMI) of 30 (the lower boundary of the ‘obese’ category) was comparable to that of south Asian, black and Chinese people with much lower BMIs at the boundary between ‘healthy’ and ‘overweight’. This highlights a need for ethnicity-specific BMI targets and prevention strategies. In addition to considering how ethnicity interacts with physiological factors to influence disease onset and progression, it is important to consider whether health services and individual health professionals are aware of, and responsive to, cultural diversity (Memon et al., 2016).

**Sex and gender** also have an influence on health and health outcomes. Statistics reveal some stark differences between women’s and men’s health. In nearly every country, life expectancy is several years shorter for men than for women. This difference is strongly influenced by patterns of behaviour such as smoking, alcohol use, and poor diets, which are linked to chronic conditions such as cardiovascular disease, diabetes, and some cancers (White et al., 2011; WHO, 2014b, 2014c). In addition, women are more likely than men to engage in screening behaviours or to consult health professionals for psychological or physical concerns (Hing & Albert, 2016; White et al., 2011). Such sex differences should not simply be interpreted as the result of biological differences. The health of men living in different countries can vary greatly, and the health of women within the same country (e.g. women of different ethnicity) can also vary greatly (Bambra et al., 2009; Thümmler et al., 2009; White et al., 2011).

People often use the terms ‘sex’ and ‘gender’ interchangeably, but they have quite distinct meanings. Sex and sex differences are biologically based: they refer to comparisons between people who are biologically female and people who are biologically male. Gender refers to the social construction of femininities and masculinities through ‘feminine’ and ‘masculine’ behaviours. Of course there are some basic biological characteristics that distinguish all men from all women, but femininity is not a single thing – compare Margaret Thatcher and Marilyn Monroe – and nor is masculinity a single thing – compare Genghis Khan and Freddie Mercury. Some have argued that gender is better conceptualised as a verb than a noun: femininity is not something that women have, but something that they do (West & Zimmerman, 1987). Many social behaviours – including types of jobs, expressions of emotion, and competitiveness – have clear links to traditional definitions of gender.

Furthermore, many health-related behaviours have clear gender stereotypes: boys and men are encouraged to take risks and not to show weakness, whereas women are often expected to take care of themselves and others (Courtenay, 2000). This helps to explain within-sex differences in health that cannot be explained by biological differences. For example, men who believe more in ‘traditional’ definitions of masculinity are more likely to engage in unhealthy ‘masculine’ behaviours, such as excessive alcohol consumption, and less likely to engage in healthy ‘feminine’ behaviours, such as healthy eating and consulting health professionals about physical or psychological wellbeing (Addis & Mahalik, 2001).
Furthermore, health professionals’ beliefs about masculinity and femininity can influence how they respond to men’s and women’s emotional distress (Möller-Leimkuhler, 2002). Health behaviours and health outcomes also vary along the lines of sexual identity. People who identify as Lesbian, Gay, Bisexual, or Transgender – often abbreviated as LGBT – tend to have poorer psychological wellbeing and are more likely to attempt or complete suicide (O’Brien et al., 2016). LGBT people are also more likely to report smoking, drinking alcohol excessively, or using illicit drugs, and are also more likely to experience and report barriers to using health services (Conron et al., 2010). Important reasons for poorer wellbeing and less healthy behaviour among LGBT people include minority stress, and responses to stress arising from prejudice, discrimination, and violence (Hughes, 2016). Furthermore, many LGBT people may avoid health services because health professionals do not understand their specific needs or because they feel marginalised by health professionals’ heteronormative assumptions (i.e. unquestioningly assuming that heterosexuality is a given and is normal instead of being one of many possibilities).

It is clear that health is shaped by a range of demographic variables. Each of these may be important in its own right and may also intersect with other variables. This concept of intersectionality was first introduced in the context of social justice (Crenshaw, 1991), but it has spread to influence social studies of health and illness. Awareness of intersectionality draws attention to the ways in which age-, sex-, gender-, ethnicity-, sexuality- or SES-based inequalities can combine to magnify inequalities in health behaviours and health outcomes (Mereish & Bradford, 2014). When designing and providing health services we must be responsive to diversity and intersectionality.

Summary

- It is difficult to define health. The choice of definition has implications for medical practice and society.
- No single definition of health is adequate and it is perhaps easier to think of health and illness on a continuum from complete wellness to death.
- The separation of psychology and medicine was initially founded on the mind–body divide (dualism).
- Contemporary research challenges dualism by showing that the mind and body are interdependent and influence each other in many ways.
- Medicine was dominated by the biomedical approach for many years but it assumes a mind–body split so cannot account for contemporary research evidence.
- The more recent biopsychosocial approach has the capacity to unify disciplines in theory and practice, and encourage a holistic approach to medicine.
CONCLUSION

In this chapter we have looked at how health is difficult to define and for individuals health is subjective in terms of whether they feel or think they are healthy or ill. It is therefore important to consider psychological and social factors for a number of reasons. First, a substantial proportion of people seen by healthcare professionals have no identifiable physical cause for their symptoms. Second, there is substantial evidence for the importance of psychological and social factors in both the onset, spread, and treatment of diseases, such as Ebola. Third, elements of social diversity and intersectionality are also associated with health and health outcomes.

Historically, the lack of focus on psychosocial factors in healthcare was perpetuated by a widespread belief in mind–body separation (dualism) and the pervasiveness of the biomedical approach. Developments in psychological sciences and neuroscience have shown how the mind and body are integrally linked. Research on embodied cognition and emotion shows how bodily sensations influence our thoughts and feelings, as do the actions of people around us. Epigenetics shows how environmental factors regulate the activity and expression of genes, and there is evidence that psychosocial factors during pregnancy and early childhood influence long-term health and can lead to an intergenerational transmission of vulnerability (see Chapters 8 and 14).

The biopsychosocial approach is consistent with current evidence and shows that we need to consider biological, psychological, social, and macro-cultural factors in health and healthcare. This will lead to a more complete understanding, more accurate and appropriate treatment, and a holistic approach to treating people.

FURTHER READING


REVISION QUESTIONS

1. Describe three specialisms in psychology and outline how they are relevant to healthcare.

2. Outline four different definitions of health.

3. Compare and contrast two definitions of health. What are the implications of each definition for treatment?

4. What is dualism? How has it influenced medicine?

5. Describe the biomedical approach to medicine and outline the strengths and weaknesses of this approach.

6. Describe the biopsychosocial approach to medicine and outline the strengths and weaknesses of this approach.

7. Compare and contrast the biomedical and biopsychosocial approaches to medicine.

8. Explain what is meant by ‘intersectionality’ and why it is an important influence on health outcomes.