

RICHARD DE VISSER & SUSAN AYERS



PSYCHOLOGY FOR MEDICINE & HEALTHCARE

FOURTH EDITION

 Sage



1 Oliver's Yard
55 City Road
London EC1Y 1SP

2455 Teller Road
Thousand Oaks
California 91320

Unit No 323-333, Third Floor, F-Block
International Trade Tower
Nehru Place, New Delhi – 110 019

8 Marina View Suite 43-053
Asia Square Tower 1
Singapore 018960

Editor: Janka Romero
Assistant editor: Hanine Kadi
Production editor: Martin Fox
Copyeditor: Sarah Bury
Proofreader: Thea Watson
Marketing manager: Lucia Sweet
Cover design: Bhairvi Vyas
Typeset by: C&M Digital (P) Ltd, Chennai, India
Printed in the UK

© Richard de Visser and Susan Ayers 2025

Apart from any fair dealing for the purposes of research, private study, or criticism or review, as permitted under the Copyright, Designs and Patents Act, 1988, this publication may not be reproduced, stored or transmitted in any form, or by any means, without the prior permission in writing of the publisher, or in the case of reprographic reproduction, in accordance with the terms of licences issued by the Copyright Licensing Agency. Enquiries concerning reproduction outside those terms should be sent to the publisher.

Library of Congress Control Number: 2024941570

British Library Cataloguing in Publication data

A catalogue record for this book is available from the British Library

ISBN 978-1-5296-8508-4
ISBN 978-1-5296-8509-1 (pbk)

CONTENTS

<i>List of Figures and Tables</i>	x
<i>List of Learning Features</i>	xvi
<i>Guided Tour</i>	xxiv
<i>Online Resources</i>	xxvii
<i>About the Authors</i>	xxviii
<i>Acknowledgements</i>	xxix
1 Psychology and Medicine	1
1.1 Psychology, health, and medicine	1
1.2 What is health?	3
1.3 Why is psychology important?	10
1.4 The science of mind and body	14
1.5 Different approaches to medicine and healthcare	16
Section I Psychology and Health	27
2 Motivation, Emotion, and Health	29
2.1 Motivation	31
2.2 Motivation and health	33
2.3 Emotion	37
2.4 Emotion and health	46
3 Stress and Health	57
3.1 What is stress?	57
3.2 Stress and health	66
3.3 Stress in medicine and healthcare	74
3.4 Managing stress	78
4 Symptoms, Pain, and Illness	84
4.1 Symptom perception	85
4.2 Pain	93
4.3 Placebo and nocebo effects	101
4.4 Illness beliefs and representations	104
5 Health and Behaviour	111
5.1 Predicting and changing health behaviour	111
5.2 Social cognitive models of health behaviour	113
5.3 Process models of conscious behaviour change	124
5.4 Non-conscious influences on health behaviour	129

6 Chronic Illness, Death, and Dying	135
6.1 Chronic illness	136
6.2 Psychological intervention	146
6.3 Death and dying	147
6.4 Death and healthcare practice	154
Section II Basic Foundations of Psychology	163
7 The Nervous System, Neurology, and Psychiatry	165
7.1 Components of the nervous system	165
7.2 Movement, sleep, and biological clocks	169
7.3 Psychiatric disorders	173
7.4 Neurological disorders	183
8 Psychosocial Development across the Lifespan	192
8.1 Childhood	193
8.2 Adolescence	206
8.3 Adulthood	209
8.4 Old age	210
9 Social Psychology	216
9.1 Attitudes	216
9.2 Self psychology	219
9.3 Individuals and groups	226
9.4 Antisocial and prosocial behaviour	233
10 Cognitive Psychology	237
10.1 Perception	237
10.2 Attention	243
10.3 Learning	248
10.4 Memory	255
10.5 Cognitive biases in healthcare	262
Section III Healthcare Practice	265
11 Diversity, Inclusivity, and Equality in Medicine and Healthcare	267
11.1 Social determinants of health inequalities	267
11.2 Addressing social determinants to reduce health inequalities	275
11.3 Diversity in healthcare workforces and healthcare systems	284
12 Evidence-Based Practice	287
12.1 Evidence-based practice	287
12.2 Adherence to treatment	293
12.3 Practitioner–patient communication	301
13 Clinical Communication	310
13.1 How we communicate	311
13.2 Clinical consultations	316

13.3 Difficult consultations	327
13.4 Giving bad news	332
14 Psychological Intervention	337
14.1 Different approaches to psychotherapy	338
14.2 Which therapy is best?	354
14.3 Psychological interventions in medical settings	355
14.4 Technology and psychological intervention	361
Section IV Body Systems	365
15 Immunity and Protection	367
15.1 Infection, inflammation, and immunity	368
15.2 Psychological aspects of immune disorders	375
15.3 Skin	377
15.4 Cancer	380
16 Cardiovascular and Respiratory Health	389
16.1 Cardiovascular health	390
16.2 Respiratory health	404
17 Gastrointestinal Health	414
17.1 Psychological factors and the GI system	415
17.2 Lifestyle and GI health	420
17.3 GI disorders	437
18 Reproductive Health	444
18.1 Reproduction	444
18.2 Endocrine function and psychosocial wellbeing	461
19 Genitourinary Medicine	470
19.1 Sexual health	470
19.2 Sexually transmissible infections	475
19.3 Prostate and testicular cancer	482
19.4 Urinary incontinence and renal failure	487
<i>References</i>	493
<i>Index</i>	603

3

STRESS AND HEALTH

Learning Objectives

This chapter is designed to enable you to:

- Define stress and outline aspects of stress, including (1) appraisal and (2) stress responses.
- Describe physical responses to stress and discuss variations between (1) individuals and (2) situations, in how we respond physically to stress.
- Discuss the relationship between stress and physical health, and outline the factors that protect us or make us more vulnerable to illness following stress.
- Understand some of the psychological consequences of stress, including burnout.

People typically think that stress is bad for us. However, stress is *not* always bad for us – a small amount of stress is necessary for us to confront challenges such as competitions or exams. However, long-term stress does have negative effects, and there is a lot of evidence linking stress to adverse outcomes such as depression, cardiovascular disease, infections, slower recovery, and a worsening of symptoms in many illnesses. In this chapter we explore what stress is, our physical responses to it, how it can affect our physical and mental health, and how we can reduce its harmful effects.

3.1 What is Stress?

The concept of stress originated in physics and mechanical engineering to describe the internal forces in a system caused by external pressures, such as the pressure of water or wind on a bridge. The word **stress** is now widely used to mean many things, including a negative situation, or a feeling of pressure, tension, or negative emotion. According to the psychological definition, stress occurs when perceived demands on us are appraised as exceeding our perceived resources to cope.

Like emotion, stress has many components, so it is necessary to distinguish between stressors and stress responses. **Stressors** are external or internal events that may trigger stress responses. If, for example, you feel stressed because you are sitting an exam, we may say that the exam is an external stressor. If, on the other hand, you feel stressed because you are torn between helping a friend who needs you and revising for that exam, the stress is caused by an internal stressor (your conflicting desires). Stressors can be further divided according to their type or duration, such as acute or short-term stressors (e.g. the death of a relative), chronic or

prolonged stressors (e.g. caring for a sick relative), daily hassles (e.g. problems getting to work), traumatic stressors (e.g. an assault), and role strain (e.g. balancing home and work roles). Not everyone responds to the same stressors in the same way.

Stress responses are the various ways we respond to a stressor. They can be divided into cognitive, affective, behavioural, and physiological responses. Interestingly, there is not always a strong association between these different responses. In other words, it is possible for a person to have a strong physiological response to a stressor but report not feeling emotionally stressed. A commonly used questionnaire measure of stress is given in Highlight Box 3.1 so you can consider how stressed you are.

Highlight Box 3.1

How Stressed Are You?

Complete the questionnaire in Table 3.1 for an indication of your current levels of stress.

Table 3.1 'How stressed are you?' questionnaire

During the last month how often have you...	Never	Almost never	Sometimes	Fairly often	Very often
Been upset because of something that happened unexpectedly?	0	1	2	3	4
Felt that you were unable to control the important things in your life	0	1	2	3	4
Felt nervous and 'stressed'?	0	1	2	3	4
Felt confident about your ability to handle your personal problems?	4	3	2	1	0
Felt that things were going your way?	4	3	2	1	0
Found that you could not cope with all the things that you had to do?	0	1	2	3	4
Been able to control irritations in your life?	4	3	2	1	0
Felt that you were on top of things?	4	3	2	1	0
Felt angered because of things that were outside of your control?	0	1	2	3	4
Felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Scoring

Add your scores together. Scores range from 0–40. The average score for people aged 18–29 is around 14; aged 30–44 is 13; >45 years is approximately 12.

Source: Cohen, S., Kamarack, T. & Mermelstein, R. (1983) A global measure of perceived stress. *Journal of Health and Social Behaviour*, 24: 385–396. Copyright © 1983 American Sociological Association. Reproduced with permission.

3.1.1 Physical Responses to Stressors

Understanding physical responses to stressors is critical to explaining the link between stress and disease. Our understanding of physical responses to stressors initially comes from research in the 1950s detailing the physiological fight-flight response. The **fight-flight response** involves the sympathetic branch of the **autonomic nervous system** as a fast, first-wave response, and the endocrine pathways of the **hypothalamic-pituitary-adrenal (HPA)** axis as a slower, second-wave response. The sympathetic nervous system (SNS) and HPA responses are illustrated in Figure 3.1. The SNS directly activates body systems to prepare the body for immediate action. The adrenal medulla is stimulated to produce stress hormones such as **adrenaline** (epinephrine) and **noradrenaline** (norepinephrine). This causes stimulation of the heart and lungs and the diversion of energy away from unnecessary functions, such as saliva production, digestion, and reproduction.

At the same time, the HPA axis is activated so the hypothalamus releases corticotrophin releasing factor. This sets off a cascade of endocrine events culminating in the release of cortisol and other hormones from the adrenal cortex. **Cortisol** is a steroid and is a critical stress hormone. It results in an increase in blood sugar levels and metabolic rate, hence further supporting the body in the need for fight or flight. It also influences the regulation of blood pressure, the immune system, and the inflammatory response. Normally, the HPA axis works as a negative feedback loop so the presence of cortisol in the bloodstream triggers the hypothalamus to stop producing corticotrophin releasing factor. Thus, cortisol will usually return to normal levels within an hour of the end of the stressor event. However, under prolonged periods of stress, the HPA axis can become dysregulated and result in chronically elevated levels of cortisol. In the long term this has negative effects, such as the accumulation of abdominal fat and the wasting of bone and muscle tissue. The effects of excess cortisol are illustrated by Cushing's syndrome, where there is overproduction of cortisol (hypercortisolism). People with Cushing's syndrome have large amounts of fat on their abdomen and face, perspiration, thinning of the skin, stretch marks, and facial hair. In some cases, it also leads to sleep problems, reduced sexual function, reduced fertility, increased depression, and anxiety; but the syndrome is not *caused* by stress.

Our understanding of physical responses to stressors has developed substantially since the fight-flight responses were first identified. It is now clear that physiological responses to stressors vary according to the characteristics of a situation. Research with animals shows that stronger physiological stress responses occur in situations that are novel, unpredictable, or uncontrollable. Research examining this in humans is broadly consistent with the findings from animal research. It has been acknowledged for some time that unpredictability is related to more stress and higher cortisol levels (Evans et al., 2002), and that a lack of control is associated with greater stress and a more negative impact on health (Walker, 2001). A study of over 5,000 retired adults in the USA found that the effect of chronic stress on physical frailty was fully mediated by perceived control (Mooney et al., 2016). In other words, a high sense of control cancelled out the expected effect of chronic stress on frailty.

This has led to the view that it is important to empower people and encourage them to have as much perceived control as possible. Although this is usually true, there is not a simple blanket effect of perceived control on health, and the effect of perceived control can be moderated by a number of factors. For example, another study of over 6,000 adults in the USA found that stronger beliefs of control over one's life were associated with less risk of dying prematurely for people with low levels of education, but not for those with high levels of education (Turiano et al., 2014). It is also important to note that if a situation is essentially uncontrollable, encouraging someone to

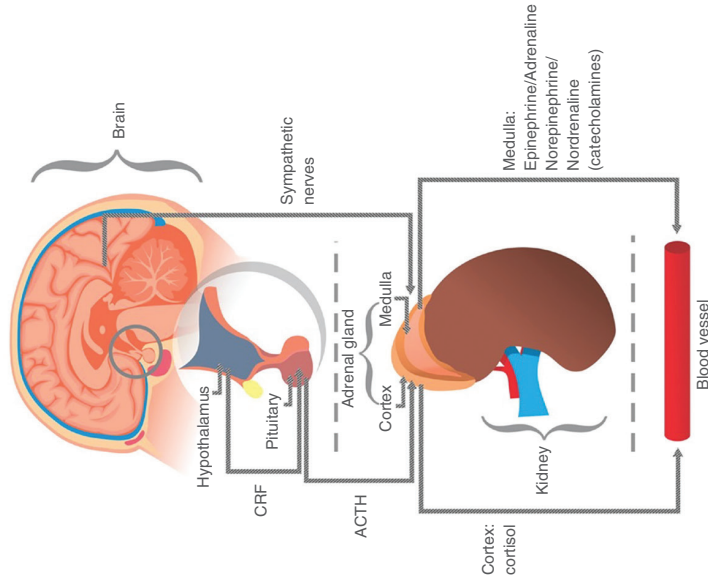
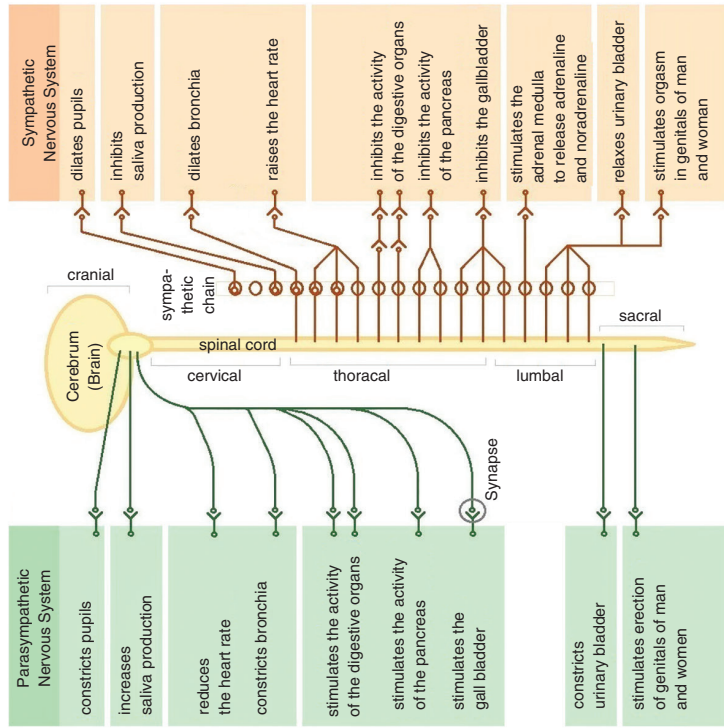


Figure 3.1 Fight-flight responses to stressors

Source: The Autonomic Nervous System courtesy of Geo-Science-International/Wikicommons, shared under the Public Domain. Response to Stress courtesy of Campos-Rodriguez, R. et al./Wikicommons, shared under the CC BY 3.0 license

strive for control might result in more stress. This has important implications for uncontrollable situations in healthcare, such as births that involve obstetric complications that women cannot predict or control. In these circumstances, it may be unhelpful to encourage women to strive for control, and perhaps more emphasis should be placed on supporting them through such events and focusing on those aspects of the experience that they can control.

People also vary in *how* they respond physiologically to stress. Some individuals are more responsive than others. This is called **stress responsivity** or **reactivity**. Studies of twins, epigenetic studies, and animal studies indicate that stress responsivity is partly genetically determined, but that the early environment is critical in altering and shaping our physical and behavioural responses to stressors. Babies of mothers who had high levels of stress and anxiety during pregnancy are more responsive to stressors, show more anxiety and fearfulness, and are more likely to have cognitive and attentional problems (Juruena et al., 2020; Lautarescu et al., 2020). This is referred to as foetal programming, and it makes sense from an evolutionary perspective, because offspring born into a stressful or dangerous environment may need exaggerated stress responses to survive (see also Chapter 18).

The environment is important in shaping infants' stress responses. Animal studies show that offspring of more nurturing mothers have reduced HPA axis responses to stress through less corticotrophin releasing factor (see Figure 3.1) and enhanced negative feedback (Champagne & Meaney, 2001). In addition, the mere presence of the mother alters and reduces their offspring's physiological responses to stressors (Debiec & Sullivan, 2017).

It is apparent that individuals vary in their levels of stress responsivity and that this is determined by **nature and nurture**. Classic studies conducted in the 1990s showed that young children differ in their levels of cardiovascular and immune responsivity to stressors, but showed how their responses to stress are also affected by the context in which they grow up (Boyce et al., 1995). These findings have since been replicated in many studies: children who are more responsive to their environment have the best outcomes if they are raised in a positive environment, and worse outcomes if they are raised in a negative environment. This is found for both physical and psychological health outcomes (Del Giudice et al., 2011; Ellis & Del Giudice, 2019) (see also Chapter 8).

The fight-flight response provided the initial basis of our understanding of physical responses to stressors. However, the matter is more complex than this. In particular, there is more variation between individuals than the above explanations imply. There is also evidence that fight-flight is only one way of responding to stressors and that an alternative response is a **tend and befriend** response, where animals and humans take care of their offspring (tend) and seek out others for safety and comfort (befriend) (Taylor, 2012). In non-human animal studies, tend and befriend responses are more commonly displayed by females, so it has been argued that fight-flight responses may be more relevant to males. However, humans' behavioural responses to stress (such as whether we run away or stay with the group) are influenced by many factors, including social and cultural norms, so there is not a consistent gender difference in whether men and women show fight-flight or tend-befriend responses (Bedrov & Gable, 2023).

The biological basis of the tend-befriend (or affiliative) response to stressors is thought to be the hormone oxytocin in conjunction with endogenous opioids. There is substantial evidence from animal studies for the importance of oxytocin and opioids in affiliative behaviours. For example, administering oxytocin and/or opioids leads to an increase in maternal and other prosocial behaviours (Lim & Young, 2006). If male animals are injected with oxytocin and then subjected to stressors, they are more likely to nurture any young animals present and to show tending behaviours (Taylor, 2012).

There is also accumulating evidence from research with humans that oxytocin and opioids are involved in affiliative behaviours and attachment to others (Carter, 2021; Tolomeo et al., 2020). This may include attachment behaviours (see section 8.1.1) (Plasencia et al., 2019). For example, rises in oxytocin and endogenous opioids occur in women during labour, breastfeeding, and in both men and women during sexual activity, which are presumably to increase affiliation and bonding. Increased oxytocin is also observed in people who are socially isolated or those with poor quality relationships – presumably because they need to seek social affiliation (Taylor et al., 2009). The opioid system is involved in reducing physical pain but also in reducing separation distress. Researchers have therefore argued that coping with social pain (as in loss and separation) might be based on similar physiological mechanisms to physical pain, but there is debate about the strength of the associations (Persson et al., 2019; Sturgeon & Zautra, 2016).

The tend-befriend response also reduces the negative effects of stressors. Oxytocin is associated with reduced physiological stress responses and psychological distress. Studies administering oxytocin to animals show that it reduces fearful behaviour and increases exploration. In humans, oxytocin is associated with decreased SNS and HPA activity (Taylor, 2012). It is therefore thought that, although fight-flight responses are good for acute resolution of threatening events, tend-befriend responses and social affiliation can buffer against the long-term negative impact of stressors on health. This is consistent with the extensive literature showing the importance of social support in health (see section 3.2.2). Figure 3.2 summarises how affiliative responses might decrease stress responses.

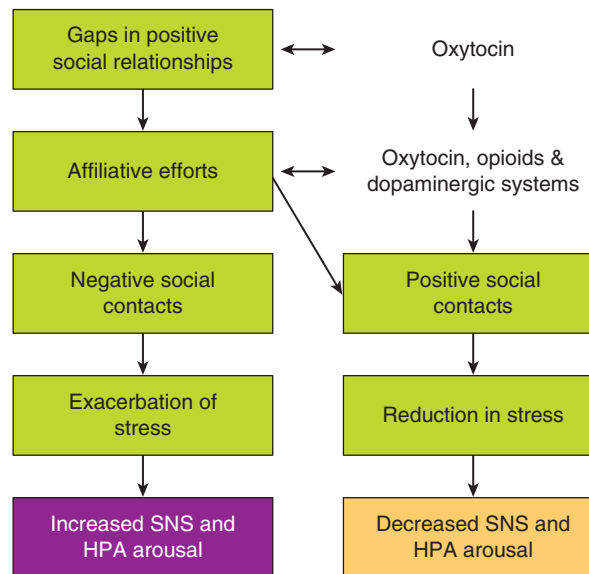


Figure 3.2 Affiliative responses to stressors (adapted from Taylor, 2006)

It can be seen that the fight-flight response to stressors is well established, but is not the only biobehavioural response to stressors. Tend-befriend responses and the importance of affiliation and social relationships illustrate the notion that physical responses to stressors will differ according to circumstances, the individual, and the social context.

Clinical Notes 3.1

Stress and Health

- People vary in how responsive they are to stress, and stress is subjective.
- Severe or chronic stressors are associated with poor health, so helping people to manage and reduce their stress has the potential to reduce illness in the long term.
- The physical symptoms of stress will vary between individuals – some may experience cardiovascular symptoms, such as palpitations, whereas others may experience gastrointestinal symptoms.
- In uncontrollable circumstances, such as an emergency, it may be more helpful to support people through it and to focus on the things they can control rather than encourage them to strive for control over every aspect.

3.1.2 Stress and the Immune System

Stress has various effects on the immune system, depending on the demands of the situation. Both the SNS and the HPA axis affect the immune system. The SNS increases immune system activity, particularly large granular lymphocyte activity, such as natural killer cells. However, the HPA axis suppresses some immune activity through the production of cortisol, which has an anti-inflammatory effect and reduces both the number of white blood cells and the release of cytokines (see Chapter 15).

Different types of stressors make different demands on the body, and the immune response to stress has developed to reflect this. A review and meta-analysis of over 300 studies of stress and immunity showed that immune responses vary according to whether the stressor is acute (lasting a few minutes), a brief naturalistic stressor, a sequence of stressors, or a chronic long-term stressor (Segerstrom & Miller, 2004). Short stressors, such as giving a presentation, lead to an acute increased immune response and redistribution of cells to provide an immediate defence against injuries and the broad risk of infection. This response is rapid, and the immune system quickly returns to baseline levels. Brief stressors that continue for several days, such as studying for exams, have a different effect on the immune system and influence the function of the immune system with a switch away from cellular immunity, which protects against injury or damage, to humoral immunity, which protects against infection. This means that the body will be more able to coordinate responses against infections, and might explain why students often get sick after exams – during the stressful revision period they have increased immunity against infections which disappears when the exams are over. Chronic stressors, such as unemployment or caring for a relative with dementia, have a negative impact on almost all aspects of immune functioning, with poorer immune function overall. This makes a person more likely to get ill, particularly if they are already vulnerable (e.g. elderly people) or have a pre-existing disease (Segerstrom & Miller, 2004).

Activity 3.1

Memory for Stressful Events

- Can you remember how many stressful events you have been through in the last year?
- Can you remember how intense the stress was, or how long it lasted?
- How accurate do you think you can be? Are there things you might have forgotten?
- What do you think affects whether you remember stressful events or not?

3.1.3 Stress as a Person–Environment Interaction

It is now widely accepted that how we respond to stressors depends on the interaction between a person and their environment. Interactional or transactional explanations of stress provide a more complete account of the different processes involved in stress. This approach argues that stress occurs when a person appraises the demands of a situation as being greater than their perceived ability to cope with these demands (Lazarus & Folkman, 1984). Appraisal processes are central and explain why there is so much variation in how different people respond to stressors.

The interactional approach outlines three processes of appraisal:

- 1 *Primary appraisal*: the demands of a situation are evaluated as benign or stressful (i.e. challenging, threatening, or potentially involving harm or loss).
- 2 *Secondary appraisal*: a person evaluates their resources and capacity to cope.
- 3 *Reappraisal*: after applying a coping strategy (or strategies) a person reconsiders the situation. This may lead to reappraisal of a stressor as less or more stressful than originally thought, depending on the effect of their coping responses.

There is a wealth of evidence for the importance of appraisal in how we respond to stressors. A meta-analysis of 81 studies of people with chronic pain or who had pain induced in laboratory experiments showed that in both these situations appraisals of pain as threatening were associated with greater pain, reduced tolerance of pain, and more passive coping. In people with chronic pain, appraisal of the pain as threatening was also associated with more impairment and psychological distress. In contrast, appraisals of pain as challenging were associated with more pain tolerance and active coping (Jackson et al., 2014). The importance of primary appraisal is illustrated throughout this book (see, for example, the discussion in Chapter 2 of responses to discovering a breast lump). Case study 3.1 gives examples of primary and secondary appraisal. A strength of the interactional approach is the recognition of the appraisal–coping–reappraisal cycle. The constant interplay between appraisal, coping, and reappraisal means that stress is conceptualised as a dynamic process. It is also important to note that this dynamic process is a biopsychosocial phenomenon: differences in appraisal and coping between countries and cultures indicate that our appraisal and coping response are learnt, and therefore possible to change (Sharma et al., 2020).

Case Study 3.1

Appraisal and Stress in a Pandemic



Figure 3.3 Appraisal of COVID-19 symptoms

Source: © Towfiqu Barbhuiya/Unsplash

The importance of appraisal in stress was clear in the COVID-19 pandemic. It is common for people to experience mild symptoms, such as headache, cough, or sneezing (see Chapter 4). When the pandemic emerged, the salience of symptoms was heightened, and people's appraisals were critical in how they responded. Examples are:

Person A might cough and think 'I've got coronavirus' and 'I may die' (primary appraisal of cough as threatening). They might think 'there's nothing I can do to stop it' (secondary appraisal of no coping resources), and so feel overwhelmed, stressed, and anxious.

Person B might cough and think 'I've got coronavirus' and 'I may die' but think 'I am young and healthy so low risk' and 'I can rest and look after myself to make sure it doesn't get really bad' (secondary appraisal of many coping resources), and so feel less stressed and anxious.

Person C might cough and think 'it's just a cough' or 'it's probably nothing, just the dust' (primary appraisal of the cough as benign), and so would feel calm and not stressed. Secondary appraisal of coping resources in this instance might not be needed and the person might forget about the cough completely; or they might monitor whether the cough gets worse or goes away over time.

The interactional model as originally proposed is not without problems, but elements of it are now widely accepted, such as the importance of the interaction between the person and environment, the central role of appraisal, and that coping and other psychosocial factors moderate how we respond to stressors. A biopsychosocial approach to stress incorporates all these elements and is illustrated in Figure 3.4.

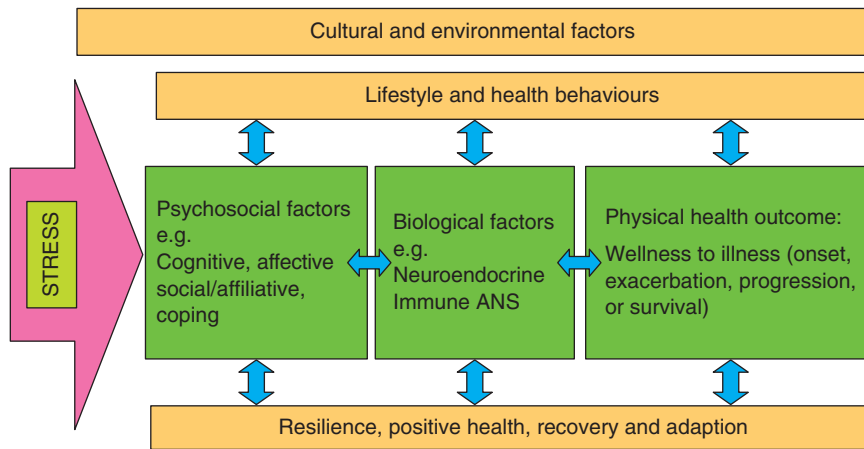


Figure 3.4 Biopsychosocial approach to stress (adapted from Turner-Cobb & Katsampouris, 2019)

Summary 3.1

- The stress process involves (1) stressors and (2) stress responses.
- Stress responses include physiological, behavioural, emotional, and cognitive changes.
- Stress occurs when the perceived demands of a situation are appraised as exceeding a person's perceived resources and ability to cope.
- Appraisal is therefore central to whether a person feels stressed or not.
- Physical stress responses involve the sympathetic nervous system, HPA axis, and immunological changes.
- The fight-flight response is not the only biobehavioural response to stressors. The tend-befriend response is an affiliative response to stressors which is more common in female animals and underpinned by oxytocin and endogenous opioids.
- Physical stress responses vary according to the characteristics of the stressor, with novel, unpredictable, and uncontrollable stressors associated with greater stress responses.
- Individuals vary in the strength and nature of their physical responses to stressors (stress responsivity).

3.2 Stress and Health

The sections above have addressed some conceptual issues related to stress, and explored some of the effects of stress in some bodily systems. This section gives greater attention to how stress affects health, and the various factors that can reduce stress or the effects of stress.

3.2.1 Links between Stress and Health

There is plenty of evidence that stress is associated with morbidity and mortality. For example, studies of bereavement show that older people are more likely to die in the year after their spouse dies than other people of the same age and health (Subramanian et al., 2008). The impact of stress on physical health varies for different illnesses. There is good evidence that prolonged stress (whether measured in terms of stressors or the subjective experience of stress) results in increased episodes of infectious illnesses like colds, a greater risk of cardiovascular disease, slower wound healing, and worsening of auto-immune conditions such as asthma, rheumatoid arthritis, inflammatory bowel disease, and HIV/AIDS (Alexander & Turnbaugh, 2020; Bierstetel et al., 2021; Haykin & Rolls, 2021). Examples of research in these areas can be found throughout Section IV of this book. Similarly, the association between stress and poor mental health is well recognised. Chronic or severe stress can lead to a number of mental health problems, including anxiety, depression, burnout, and post-traumatic stress disorder (PTSD).

However, as with our emotions, it is difficult to establish the definitive pathways between stress and health. There are three main issues. The first is the huge variation in how people respond to stressors. Why is it that if we put two people in the same circumstances, one person becomes stressed and the other does not? Or that one person develops heart disease and another remains healthy? Some of these differences can be accounted for by differences in appraisal and stressor characteristics, as we have already seen, but the effect of stress is also influenced by many other factors, such as an individual's resilience, coping responses, and social support.

The concept of allostasis and **allostatic load** is one way to explain how stress might lead to disease (McEwen, 1998). Allostasis refers to the process of regulating our physiological state to achieve stability, or homeostasis. This is done through physiological systems, such as the autonomic nervous system, HPA axis, neuroendocrine and immune systems, or through changing behaviour. In the short term, these changes are adaptive because they maintain physiological stability while adapting to changing external circumstances. However, frequent or chronic activation of these systems results in a high allostatic load (or strain) on the body. This cumulative allostatic load can lead to an imbalance in allostatic systems and disease. Different types of allostatic load have been proposed. A prolonged response is where physiological systems remain in a continually high state, which results in long-term strain on the body. An inadequate response is where one allostatic system does not respond adequately so other systems have to overcompensate. Alternatively, if people are exposed to repeated acute stressors, there can be a lack of adaptation, with repeatedly high physiological stress responses (Guidi et al., 2021; McEwen, 1998). Allostatic load is usually measured by a combination of biomarkers from the cardiovascular, metabolic, immune, and neuroendocrine systems.

A review of the evidence for allostatic load shows that it is associated with a range of social and environmental factors associated with health, and with health disparities between certain groups. Factors associated with allostatic load include ethnicity, socioeconomic status, social relationships, gender, lifestyle factors, exposure to stressors, and genetic factors. Higher allostatic load is also associated with worse health outcomes, and higher all-cause mortality (Beckie, 2012; Guidi et al., 2021; Parker et al., 2022). The concept of allostatic load is therefore useful in that it provides a framework through which the interaction between the environment and individuals' biobehavioural responses can lead to poor health outcomes. The use of combined measures from multiple physiological systems has also broadened the focus onto systemic responses to stressors and the impact this has.

However, a second issue is that it is usually not possible to say whether an illness is due (1) entirely to stress or (2) entirely to other factors (i.e. not at all to stress). Illnesses often have multiple causes, ranging from the genetic and biological to the environmental. The role of stress will also vary widely in different illnesses. A traumatic stressor may cause PTSD but only exacerbate the symptoms of asthma. The contribution of stress to illness will therefore vary widely between individuals, circumstances, and illnesses.

A third issue is that the effect of stress on health can be due to behavioural, emotional, or physical responses to stressors. For example, people who are stressed are also more likely to smoke, drink alcohol, or have a poor diet (Deasy et al., 2015; Hill et al., 2022; Sahani et al., 2022). The physical response to stressors is therefore not the only pathway between stress and disease.

3.2.2 Vulnerability and Resilience

We have already seen how some people are more vulnerable to poor health. Examples include the health disparities observed between different groups, such as people from disadvantaged socioeconomic groups or other minoritised groups (see Chapter 11). The vulnerability-stress model (sometimes called the diathesis-stress model), shown in Figure 3.5, summarises how vulnerability factors interact with stressors to influence whether someone develops disease. This model is also often used to describe the development of psychological distress and psychiatric conditions (see Chapter 7).

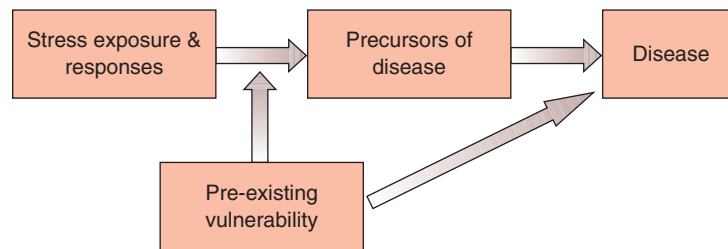


Figure 3.5 Pathways between stress and disease (vulnerability-stress model)

It is also clear that some people are very resilient in the face of stressors and remain in good health despite adverse circumstances. This is illustrated by the research described earlier (section 3.1.1) in which the more resilient children had similar health outcomes regardless of whether they were raised in positive or adverse environments (Boyce et al., 1995). Even in the face of significant adversity, such as chronic or terminal illness, many people can adapt and find happiness and personal growth (see Chapter 6 and section 15.4.2). This kind of resilience has been classified as people showing swift recovery from stressful events, having sustainability of purpose in the face of adversity, and growth or new learning from adversity (Mesman et al., 2021; Zautra & Reich, 2010).

Research suggests that the majority of people are resilient. For example, trauma and adversity are common and at least 50% of people will experience trauma or adversity in their lifetime. However, the prevalence of PTSD in the general population is approximately 10%, suggesting

that most people who experience a traumatic event recover (Horn et al., 2016). A review of factors associated with resilience identified those in Highlight Box 3.2 as being important in developing resilience during childhood and remaining resilient in adulthood (Horn et al., 2016; Mesman et al., 2021). However, it is important to note that whereas resilience is commonly thought of as a characteristic of individuals, it is important to think of how contextual and environmental factors interact with individual characteristics (Ungar & Theron, 2020).

Highlight Box 3.2

Psychosocial Factors Associated with Resilience

Table 3.2 Factors associated with resilience in children and adulthood (adapted from Horn et al., 2016)

Childhood	Adulthood
Positive bonds with caregivers	Positive emotions, optimism
Consistent parenting	Active coping
Self-regulation of emotions	Cognitive reappraisal
Intelligence and problem solving	Altruism
Mastery	Mastery
Positive friendships	Social support
Motivation for achievement	Facing fears
Meaning	Meaning, sense of purpose

Here we focus on a few of the factors associated with resilience, namely (1) emotion and emotional disposition, (2) ways of coping, and (3) social relationships and social support.

Emotion and Emotional Disposition

As we saw in Chapter 2, positive emotions and positive emotional dispositions have a powerful influence on health, and thus are important in resilience. A range of positive emotional states (e.g. emotional wellbeing, positive mood, joy, happiness, vigour, energy) and positive dispositions (e.g. life satisfaction, hopefulness, optimism, sense of humour) are associated with reduced mortality in healthy people and in people with chronic illness (Chida & Steptoe, 2009). Having an optimistic disposition is associated with reduced mortality, increased survival, fewer physical symptoms, lower risk of cardiovascular disease, and improved physiological functioning (including immune function) (Amonoo et al., 2021; Rasmussen et al., 2009). This may be due to direct effects of positive moods and/or indirect effects, whereby more optimistic people are more likely to begin or continue healthy behaviours and cease or reduce unhealthy behaviours. Optimism and hope can also reduce the risk of developing post-traumatic stress disorder (PTSD) following traumatic events (Gallagher et al., 2020).

The role of negative emotions and emotional dispositions as a vulnerability factor is not as straightforward. There is now substantial evidence that some types of negative emotion are associated with specific illnesses. The main examples are associations between stress, anger, hostility, depression, and cardiovascular disease (see section 16.1.1) (Osborne et al., 2020; Prigge et al., 2022; Smaardijk et al., 2020). Depression is a clear vulnerability factor and is associated with a wide range of morbidity and mortality. For example, depressed people are between 50% and 100% more likely to develop cardiovascular disease than healthy people (Lett et al., 2004; Trajkova et al., 2019).

Neuroticism has been identified as a vulnerability factor for poor health. Neuroticism entails a wide range of negative emotions, including anxiety, worrying, low mood, and negative emotions such as guilt, hostility, and fear. People higher in neuroticism generally report more pain and somatic symptoms and are at greater risk of psychological disorders (Contrada & Goyal, 2005). For example, a large prospective study of over 20,000 adult twins in the USA, who were followed up over 25 years, found that, after controlling for genetic vulnerability in twins, those who were high in neuroticism were significantly more likely to report musculoskeletal pain, headaches, migraine, chronic fatigue, colitis, irritable bowel syndrome, gastroesophageal reflux disease, and cardiovascular disease (Turk Charles et al., 2008). However, there is also no consistent link between neuroticism and measures of chronic morbidity, and when combined with conscientiousness, neuroticism may result in healthy worrying (Friedman, 2019). As in other contexts, focusing on single personality traits may obscure the diversity of various intersecting variables.

Activity 3.2

Being More or Less Responsive to Stress

- Do you know anyone who gets stressed very easily?
- Which kind of factors do you think influence why they are so responsive to stress?
- How much of it is due to stressors, social circumstances, the person's resources, vulnerability or resilience, their appraisals, or the coping strategies they use?

Coping

As we saw earlier when looking at the interactional model of stress, coping is a vital part of how we respond to stressors. How we cope with stressors partly determines our physical and emotional responses. People who appraise an event as challenging have smaller cortisol responses than people who appraise it as threatening. Research on coping defines it as *any* attempt to cope with a stressor, irrespective of whether it is successful. This covers a huge range of coping actions and there has been an extensive debate over how to best conceptualise different coping strategies. Categories that are widely used distinguish between emotion-focused and problem-focused coping, or between approach and avoidant coping. **Emotion-focused strategies** are those that concentrate on reducing distress (e.g. not thinking about it, seeking emotional support) whereas **problem-focused strategies** concentrate on dealing with the problem (e.g. information seeking, problem solving).

In the context of healthcare, the distinction between approach coping and avoidant coping may be more useful. **Approach coping** strategies are efforts to deal with the situation proactively: they are predominantly active strategies, so they share some overlap with problem-focused strategies. **Avoidant coping** strategies do not address the problem directly (e.g. denial, not wanting to talk about it), so they are predominantly emotion-focused. The important point for health professionals is that a person who predominantly uses avoidant coping may find it very difficult to discuss their illness, the side effects of treatment, or any potential complications. Conversely, someone who uses approach coping will want to know about their illness, and be involved in finding solutions: they may come to consultations armed with extensive information gathered online!

In general, coping strategies that enable a person to feel more in control (mastery) increase positive emotions and decrease negative emotions, and are associated with resilience and better health. For example, finding meaning or benefit in adverse events is associated with resilience. A review of the literature on people with cancer showed that those who found some benefit in having cancer had better immune function (Pascoe & Edvardsson, 2013).

However, it is not possible to say that one coping style is always better than another. Under certain circumstances, avoidant or passive coping strategies may be good for reducing anxiety and distress in the short term. This can be helpful before an operation because it keeps anxiety levels down and once the operation is over the stressor is over. However, for someone with a chronic illness, avoidance can lead to a lack of adherence to treatment regimens and compound illness problems.

Research Box 3.1

Physical Activity May Alleviate the Impact of Racial Discrimination on Allostatic Load

Background

Racial discrimination is a stressor that has been linked to biological dysfunction as reflected in allostatic load. There is evidence that physical activity can reduce the harmful effects of stress, but there was a lack of evidence as to whether regular physical activity may buffer the impact of racial discrimination on allostatic load.

Method and Findings

This study explored the associations between physical activity, racial discrimination, and allostatic load among 150 Indigenous adults in Canada. The index of allostatic load was a combination of measures of blood pressure and body mass index, and analysis of neuroendocrine and immune function based on saliva samples. Participants self-reported their experiences of racial discrimination and physical activity.

For the whole sample, those who reported more racial discrimination also had higher allostatic loads. However, this association was only significant among people who were insufficiently active. Among people who were sufficiently active, allostatic load was not significantly related to experiences of discrimination.

(Continued)



Figure 3.6 Running to alleviate stress

Source: © Pixabay

Significance

This study indicates that physical activity can reduce the harmful physiological effects of racial discrimination. The authors note that whereas physical activity can help to buffer the effects of racism on the health of minority populations, there is also a need to address the overarching problem of racism.

Copeland, J.L., Currie, C.L. & Moon-Riley, K.C. et al. (2021) Physical activity buffers the adverse impacts of racial discrimination on allostatic load among Indigenous adults. *Annals of Behavioral Medicine*, 55: 520–529. doi:10.1093/abm/kaaa068

Activity 3.3

Coping Strategies

- Which kind of coping strategies do you tend to use?
- Can you think of anyone who is clearly an avoidant-coper or an approach-coper?
- How well does this coping approach work for them in different situations?

Social Relationships and Social Support

Interpersonal relationships are vital to our quality of life and health. Negative relationships involving abuse or conflict are some of the most potent stressors. Traumatic events that involve intentional harm from another person, such as rape, assault, or torture, are much more likely to cause PTSD than traumatic events such as natural disasters (Charuvastra & Cloitre, 2008). However, better social support and social relationships can reduce the risk of PTSD, and strong support in one domain (e.g. from friends) may counter unsupportive relationships in other domains (e.g. family) (Hansford & Jobson, 2022).

Social relationships also shape the way we respond to stressors. As noted above, early mothering influences the way young animals respond physiologically and behaviourally to stressors. In humans, social bonds are very influential in shaping a child's stress responses. Attachment theory (see Chapter 8) proposes that babies are born with an instinct to seek their parents or significant others when they experience stressors or are in danger. In extreme situations, such as children being abandoned or abused, children are more likely to develop insecure and chaotic responses to stressors. Parents also shape their children's responses to stressors. Studies of parents and children exposed to the same stressor show that their responses are very similar. There is evidence of links between parental anxiety and the likelihood of their children displaying anxiety (Subar & Rozenman, 2021; van der Bruggen et al., 2008). It has also been shown that interventions designed to promote positive parenting improve resilience in children and young people (Wolchik et al., 2009).

It is well established that social relationships are associated with better health outcomes in both healthy people and those with chronic diseases. A review and meta-analysis of over 300,000 people showed that having stronger social relationships is associated with a 50% increase in survival rates regardless of age, sex, initial health status, or the cause of death (Holt-Lunstad et al., 2010). Conversely, loneliness, social isolation, and living alone are associated with a 26–32% increased risk of premature mortality (Holt-Lunstad et al., 2015). The negative health effects of social isolation and loneliness are comparable to, or greater than, other well-known risk factors, such as smoking, exercise, and hypertension (Uchino et al., 2019).

However, although there is extensive evidence of the importance of social networks and relationships in health, the impact of an act of support on perceived stress is more complex. Laboratory experiments that induce stress by asking people to undertake social speaking or difficult arithmetic tasks show that having someone present can reduce SNS and HPA axis responses, although this finding is not consistent and varies according to factors such as culture, gender, and the nature of the relationship (Hennessy et al., 2009). Similar beneficial effects (but also with variation) have been observed when pets are present (Schreiner, 2016).

Thus, social relationships are critical to health. Having a strong support network and positive relationships has a positive impact on health, and being socially isolated has a negative impact on health. Receiving support during a stressful event can buffer against the effects of stress, but this outcome varies according to a number of factors, such as individual and cultural differences in how support is interpreted. Some have therefore argued that the effect of support on health may be more the result of feeling that other people are close and available to support us if we need it, rather than the actual support received during stressful events (Taylor, 2020).

Clinical Notes 3.2

Coping Styles and Clinical Practice

- Consider people's coping styles when giving them information.
- People with avoidant coping styles may not want information and may become anxious or distressed if they are given information.
- Conversely, people with approach coping styles will want information and may become distressed if they are not given information.
- Social relationships are critical to wellbeing, so it is important to identify people who are socially isolated and encourage or help them to increase their support networks.
- Providing support can buffer against the effects of stressors, but this outcome varies according to how the individual interprets such support.

Summary 3.2

- Severe or chronic stressors are associated with a range of morbidity and mortality.
- Variability in how we respond to stressors makes it difficult to establish causal pathways between stress and disease.
- A vulnerability-stress approach explains how stress may interact with an existing vulnerability to affect health.
- Most people are resilient to stressors.
- Resilience in adulthood is influenced by positive emotions and emotional dispositions, coping, and social relationships and support.
- Interpersonal relationships and social support are critical and shape how we respond to stressors, and, in some cases, can buffer against the negative impact of stress.

3.3 Stress in Medicine and Healthcare

Working in healthcare can be inherently stressful: it involves dealing with health crises and distressed people, and it may entail making life and death decisions. As we have already seen, stress is associated with negative psychological states, including anxiety, depression, burnout, and PTSD. Stress burnout has three main symptoms:

- 1 *Emotional exhaustion*: feelings of physical exhaustion, being depleted, worn out.
- 2 *Reduced sense of accomplishment*: a poor sense of effectiveness, involvement, commitment, and engagement, and a poor belief in one's ability to change or improve work patterns or the work environment.

- 3 *Depersonalisation*: having an unfeeling, impersonal approach to co-workers or patients, cynicism, and a lack of engagement with the job or people.

Burnout can be conceptualised as one end of a continuum. At the opposite end, engagement is characterised by high levels of vigour, dedication, and absorption, and is associated with good performance (Montgomery & Maslach, 2019). In contrast, burnout is associated with high job dissatisfaction, poor performance, absenteeism, and staff turnover. In addition, symptoms of exhaustion are associated with many other physical symptoms, such as headaches, gastrointestinal disorders, hypertension, colds or flu, and sleep disturbances (Leiter & Maslach, 2000).

Burnout is a particular problem for doctors, nurses, and student health professionals. Reviews across these various populations indicate that more than one-quarter report burnout (Balendran et al., 2021; Li et al., 2018; Naji et al., 2021; Pradas-Hernández et al., 2018). A European survey of family doctors in 12 countries found that high levels of burnout were associated with poor job satisfaction, stronger intentions to change job, more sick leave, being younger, being male, and using alcohol, tobacco, and psychotropic medication (Soler et al., 2008). Burnout also varies according to country and region. In one meta-analysis, burnout in doctors in the USA was associated with work–life conflict and poor coping strategies, whereas in Europe, burnout was associated with negative attitudes to work (R.T. Lee et al., 2013). In another meta-analysis, burnout among Asian nurses was most strongly influenced by person-related factors such as personality and empathy, whereas burnout among European nurses was influenced more by work-related factors (Ma et al., 2023). Lifestyle and health behaviours are also affected: a study of burnout in seven European countries found that burnout led to more fast-food consumption, less exercise, and greater use of alcohol and painkillers. These associations remained even after controlling for individual differences and country of residence (Alexandrova-Karamanova et al., 2016).

Although there is some evidence that interventions to prevent and reduce burnout among undergraduate and graduate medical education trainees can be effective, there is a need for well-designed studies that are conducted with a specific focus on prevention (Anger et al., 2024; Walsh et al., 2019). Research Box 3.2 gives an example of a study that used a team-based programme designed to promote physical activity as a way of improving quality of life and reducing burnout among physician trainees.

Risk of burnout operates at three levels: individual (healthy lifestyle/behaviours, adequate coping), the individual and the environment (social support structures, relationships, improving person–organisation fit), and at the organisational level (adequate working conditions, organisation of work, work design). Interventions to prevent burnout should therefore be aimed at all three levels. However, although there is evidence for individual risk factors for burnout, there is more substantial evidence for the importance of organisational risk factors (Montgomery & Maslach, 2019). The six main organisational factors associated with burnout are shown in Highlight Box 3.3. Ways to change these to engender a positive organisational culture and staff engagement have also been proposed. There is some evidence that interventions such as Civility, Respect and Engagement in the Workplace (CREW) promote change and a work culture that is more empowering for staff (see Research Box 3.2).

Highlight Box 3.3

Workplace and Burnout

Evidence suggests that burnout is more likely in jobs that involve:

- High workload
- Lack of control
- Insufficient rewards
- Absence of fairness
- Value conflicts
- Poor sense of community

(Leiter & Maslach, 2004)

Research Box 3.2

Impact of a Team-Based Exercise Programme on Quality of Life and Burnout among Physician Trainees



Figure 3.7 Exercise to reduce burnout

Source: © Gabin Vallet/Unsplash

Background

Burnout is common in healthcare professions, and is a particular problem among trainees due to long work hours, clinical responsibilities, academic demands, and sleep deprivation. Regular physical activity is known to provide benefits for physical and psychological wellbeing, and this study was designed to explore whether it could reduce the risk of burnout.

Method and Findings

This study evaluated the impact of an incentivised physical activity programme run over 12 weeks. Incentives were awarded for self-reported exercise and gym attendance, completion of surveys and physical assessments, and improvements in objective markers of fitness. Participants were also encouraged to form teams to provide mutual motivation and support. The participants were 532 residents and fellows at a single site: 174 took part in the challenge, and 358 did not. Although 1,060 people were invited, only 230 enrolled in the programme. Among participants, there was high satisfaction with the exercise programme. At the 12-week follow-up, participants reported greater engagement in fitness and strength training and better quality of life, and there was a significant association between greater physical activity and better quality of life. Scores on three markers of burnout were lower among participants than non-participants, but these were not statistically significant differences.

Significance

This study indicated that residents and fellows could be incentivised to engage in physical activity, and that this could lead to improvements in their quality of life. The use of incentives and teams appears to have facilitated continuation with the programme among those who enrolled, but there is a need to find ways to encourage more people to engage with the programme.

Weight, C.J., Sellon, J.L., Lessard-Anderson, C.R., Shanafelt, T.D., Olsen, K.D. & Laskowski, E.R. (2013) Physical activity, quality of life, and burnout among physician trainees: The effect of a team-based, incentivized exercise program. *Mayo Clinic Proceedings*, 88(12): 1435–1442. doi:10.1016/j.mayocp.2013.09.010

Students training in medicine and other health professions also face many stressors. These include keeping up with coursework and exams, dealing with death, suffering, and difficult ethical issues, performing intimate examinations of others, and demanding work hours. Longitudinal studies that have followed medical students over time have identified some characteristics that are associated with stress and burnout later in life. One UK study followed medical students over a 12-year period, and found that those who were disorganised, had poor time management skills, felt overwhelmed, and were unsure of the demands of different tasks were more likely to report stress and burnout in the years following graduation (McManus et al., 2004). Another study with a shorter study period found that burnout during the one-year follow-up was associated with poor support, employment during studies, depression, poor quality of life, more stress and fatigue, and experiencing the learning environment less positively (Dyrbye et al., 2010). A more recent study with three rounds of data collection found that students who were more resilient at enrolment

were less likely to experience burnout during the two-year study period (Q. Wang et al., 2022). Learning positive ways to manage stress is therefore extremely important for health professionals. These include using appropriate support and learning positive stress management techniques. The remainder of this chapter focuses on how to manage stress, and Case Study 3.2 below shows how the interactional model of stress can be used to help a student cope with exam stress.

3.4 Managing Stress

Understanding the processes of stress provides a basis for helping people to manage stress more effectively. Most stress management interventions aim to reduce arousal and build coping skills so that the person is able to manage stress better. There are many different approaches to stress management, which can broadly be divided into two main categories: (1) those that focus on physical and mental relaxation, such as relaxation exercises, meditation, mindfulness, and yoga; and (2) those that focus on cognition and behaviour, such as psychoeducation, cognitive restructuring, assertiveness training, and stress inoculation. More information about relaxation, mindfulness, and cognitive behavioural therapy (CBT) is given in Chapter 14. Interventions such as stress inoculation are based on exposing people to potential stressors and training them in skills (e.g. skills drills) so they become 'inoculated' against these stressors and are able to work effectively under potentially stressful conditions. For example, paramedic training will often include rehearsals or 'mock ups' of major road traffic accidents, so that when paramedics are in a real accident situation they are equipped with the right knowledge and actions to deal with it effectively.

Building resilience is frequently suggested as a preventative strategy against burnout among doctors and health professionals. This is a broad approach that can draw on many of the techniques described in Case Study 3.2 to help an individual to cope better with stress and to recover more quickly. Research referred to in section 3.3 showed that resilient students are less likely to experience burnout, but also found that one consequence of burnout is lowered resilience (Q. Wang et al., 2022). It is therefore important to prevent a downward spiral of eroding resilience, and to support the development and maintenance of resilience in all students. The dynamic and evolving nature of resilience was observed in a qualitative study of physicians in Canada (Jensen et al., 2008). In that study, the four main aspects of resilience in physicians were:

- 1 Attitudes and perspectives, which included valuing the physician role, maintaining interest, developing self-awareness, and accepting personal limitations
- 2 Balance and prioritisation, which included setting limits, taking effective approaches to continuing professional development, and honouring the self
- 3 Practice management style, which included sound business management, having good staff, and using effective practice arrangements
- 4 Supportive relations, which included positive personal relationships, effective professional relationships, and good communication.

Cognitive-behavioural stress management programmes focus on appraisals and coping responses to help people to manage stressors and perceived stress better. These can be useful to assist people who are coping with illness. Stress management techniques have therefore been widely implemented and evaluated for people with cardiovascular disease, cancer, and chronic headaches – but with mixed results. The evidence suggests that stress management has positive effects on psychological outcomes, such as

reducing depression, increasing self-esteem, and improving quality of life, and cortisol levels, but psychological and educational interventions have less obvious positive impact on morbidity or mortality (Anderson & Taylor, 2014; Antoni et al., 2023; Horn, Stangl et al., 2023; Rogerson et al., 2024).

One particular type of stress management programme, called critical incident debriefing, has proved controversial. Debriefing was initially developed to help people to deal with very stressful or traumatic events and prevent the development of PTSD. Debriefing programmes vary but they usually involve one session within four weeks of the event, during which a person is encouraged to talk about their thoughts and feelings during the event and their symptoms since the event. The therapist will then educate the person about responses to traumatic events in an attempt to normalise these experiences. Reviews have found a lack of clear evidence that early interventions of debriefing reduce the symptoms of PTSD or depression, and have highlighted a need for better quality research (Roberts et al., 2019).

Case Study 3.2

Managing Stress in Medicine and Healthcare



Figure 3.8 Stress in medical students

Source: © Vladimir Fedotov

Isha is a medical student approaching the end of her first year. Before medical school Isha was a straight-A student. Since she has been at medical school her results have varied. She has passed everything but has lost confidence. Isha finds the constant assessments at medical

(Continued)

school really hard. She feels tired, tense, and is finding it difficult to concentrate on her studies. She is beginning to doubt whether medicine is the right career for her.

Stress management involves education about stress and coping, exploring each person's unique way of dealing with stressors, and facilitating more adaptive coping. When based on the interactional model, stress management looks at demands, appraisal, coping resources, and strategies to manage stress. Here, the interactional model of stress management is applied to Isha's situation.

Demands

The demands of medical school on Isha can be explored in order to make them explicit. For example:

- *What are the triggers to this situation?* For example, assessments.
- *What demands does it place on Isha?* The exams make Isha feel not good enough, and she has lost confidence.
- *How real are these demands?* Are they based on fact or Isha's fears?

Appraisal

This stage looks at Isha's appraisals and how the demands of medical school affect her feelings and ability to cope. For example:

- *When she is feeling unable to cope, what thoughts are going through her head?* This question would emphasise the role of appraisal in how Isha feels. Her appraisals include: 'I am going to fail', 'I'm not good enough'.
- *How can she think differently to help her to feel and cope better?* This question highlights appraisals and coping strategies that might be more adaptive: 'Exams are hard but it's not only me who finds exams hard', 'If I fail, it's not the end of the world'.

Resources to Cope

This stage involves exploring with Isha which resources she can use to help her to cope better. It includes helping her to draw on existing coping strategies and to learn new ones. For example:

- *What support is available?* Support includes other students, teachers, friends, family, and health professionals. *How can she use this support now?*
- *How has she coped with difficult situations in the past?* This question would raise Isha's awareness of which coping strategies are available to her.
- *What worked and what didn't work?* This question would help Isha to realise which coping strategies are adaptive or maladaptive in different situations.
- *How can she use these strategies to cope now?* This could help Isha to realise that she has the resources to cope and that these resources should reduce her feelings of helplessness and encourage her to use strategies that will help her to feel better.
- *What new coping strategies might help her now?* This question would encourage Isha to learn and use new ways of coping.

Managing Stress

Drawing on the previous stages, some practical steps and strategies are explored to help Isha to manage now and in the future. To some extent, managing stress is very individual. For example, Isha may realise that talking to other students really helps because it normalises a certain amount of anxiety and worry. Or she may realise that in a previous stressful situation she was able to think about it differently and ‘talk’ herself out of her fears.

Interventions to prevent work stressors and perceived stress in health professionals have mixed results. Some interventions have good results in particular settings. For example, an intensive training programme for oncology nurses to help improve attitudes, communication skills, and reduce perceived stress led to nurses having better communication skills with patients, reporting less stress, and patients being more satisfied with their care (Delvaux et al., 2004). Reviews of mindfulness interventions to help nurses cope with stressors and perceived stress found that they lead to improved wellbeing, reduced anxiety and depression, and improved performance at work (Guillaumie et al., 2016; Karo et al., 2024). Mindfulness-based interventions have also been found to decrease stress, anxiety, and depression in health profession students, and to improve their mood, self-efficacy, and empathy (McConville et al., 2017). A Cochrane review concluded that individual-level stress interventions can lead to enduring reductions in stress among health-care workers (Tamminga et al., 2023).

Clinical Notes 3.3

Looking After Yourself

- Studying and working in healthcare can be stressful. It is therefore really important that you are aware of your own stress levels and take steps to look after yourself.
- Recognise the signs and symptoms of stress in yourself and take steps to manage your stress.
- Avoid trying to ‘go it alone’. Use the formal and informal support resources that are available to you, such as student counsellors (at university) and colleagues (in practice). There are also organisations that provide support where health professionals can talk through stressful or difficult issues and their wellbeing, for example Doctors’ Support Network, Balint groups.
- If you have symptoms of burnout or other psychological problems, seek help as soon as possible, before the problem becomes chronic or severe.
- Skills in organisation, time management, and finding positive ways of dealing with stressors are worth developing early in your career.

Summary 3.3

- Severe or chronic stress is associated with psychological problems such as anxiety, depression, burnout, and PTSD.
- Burnout occurs when people feel exhausted, depersonalised, and have a poor sense of personal accomplishment.
- Health professionals are at increased risk of burnout and stress-related psychological problems, particularly in demanding specialties such as intensive and palliative care.
- Understanding stress processes is important for the development of interventions that help people to manage stressors more effectively.
- Stress management interventions are generally associated with increased psychological wellbeing, but evidence of their effect on physical health outcomes is mixed.

Conclusion

It is clear that we need to take a more sophisticated approach than thinking there is a simple dose–response relationship between stress and illness. As we saw in Chapter 2 on emotion, some negative emotions, such as depression and anger, are associated with illnesses such as heart disease. However, as this chapter on stress has shown, we need to account for individual differences in many factors, including pre-existing vulnerability and resilience, exposure, health behaviour, and social and environmental factors, in determining whether a person under stress will become ill and the type of illness they may suffer.

In the previous chapter and this one we have concentrated on the effects of motivation, emotion, and stress on health. In trying to explain the mechanisms underlying the associations between emotion, stress, and health, we have primarily concentrated on physical and behavioural pathways. However, emotion and stress will also influence symptom perception, help-seeking, and illness behaviour. In the next chapter we examine the role of symptom perception and illness beliefs in more detail.

Further Reading

- Llewellyn, C.D. et al. (eds) (2019) *The Cambridge Handbook of Psychology, Health and Medicine* (3rd edition). Cambridge: Cambridge University Press. Includes short chapters on stress, coping, personality, emotions, physical activity, social factors, social relationships, psychoneuroimmunology, and burnout in health professionals.
- Cooper, C.L. & Campbell Quick, J. (2017) *The Handbook of Stress and Health*. Malden, MA: Wiley Blackwell. A comprehensive book covering all aspects of stress and health.
- Hill-Rice, V. (2012) *Handbook of Stress, Coping, and Health*. London: Sage. A comprehensive book that covers various models of stress, coping, and health, with a particular focus on their relevance to nursing and related fields of healthcare.

Medical School Council and General Medical Council (2022) *Achieving Good Medical Practice: Guidance for Medical Students*. Manchester: General Medical Council. Includes a section on why it is important for medical students to look after their psychological wellbeing and provides advice on how to address concerns.

Revision Questions

- 1 How is stress defined in psychology?
- 2 Outline the different elements of the interactional model of stress.
- 3 Describe the physiological responses to stress.
- 4 What factors explain differences in how people respond physiologically to stress?
- 5 Outline the vulnerability-stress model of how stress influences health.
- 6 Discuss some of the factors that can moderate the effect of stress on health.
- 7 Define 'coping' and describe two different ways in which coping strategies have been classified.
- 8 Outline the evidence that social support affects health.
- 9 What is stress burnout and how does it affect health professionals?
- 10 Describe two types of stress management intervention and briefly discuss the evidence that they are effective.