

my **revision** notes

Edexcel A Level

# PSYCHOLOGY



Ali Abbas

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Ali Abbas

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# Get the most from this book

Everyone has to decide his or her own revision strategy, but it is essential to review your work, learn it and test your understanding. These Revision Notes will help you to do that in a planned way, topic by topic. Use this book as the cornerstone of your revision and don't hesitate to write in it – personalise your notes and check your progress by ticking off each section as you revise.

## Track your progress

Use the revision planner on pages **iv–vi** to plan your revision, topic by topic. Make a note when you have:

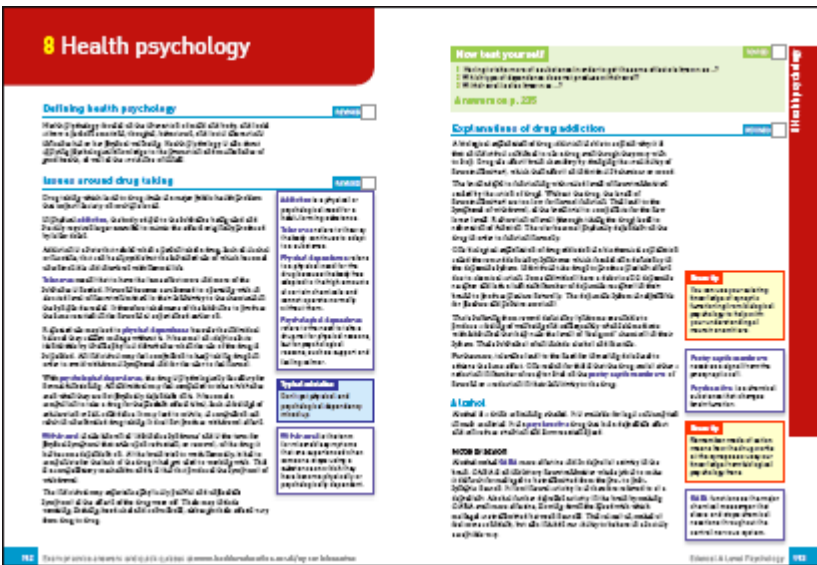
- revised and understood a topic
- tested yourself
- practised the exam questions and gone online to check your answers and complete the quick quizzes.

**My revision planner** ✓

Topic	Done	Revised	Tested
<b>1 INTRODUCTION</b>			
1 Defining social psychology			
1 Distances			
4 Prejudice			
8 Individual differences and developmental psychology			
9 Methods			
17 Studies			
22 Key questions			
22 Practical investigation			
24 Issues and debates			
<b>2 COGNITIVE PSYCHOLOGY</b>			
24 Defining cognitive psychology			
24 Historical theories of memory			
25 Individual differences and developmental psychology			
25 Methods			
47 Studies			
49 Key questions			
64 Practical investigation			
67 Issues and debates			
<b>3 BIOLOGICAL PSYCHOLOGY</b>			
69 Defining biological psychology			
69 The central nervous system			
69 Individual differences and developmental psychology			
69 Methods			
69 Studies			
71 Key questions			
72 Practical investigation			
75 Issues and debates			
<b>4 LEARNING THEORY</b>			
76 Defining learning theories			
76 Classical conditioning			
78 Operant conditioning			
80 Social learning theory			
80 Learning theories and phobias			
<b>5 INDIVIDUAL DIFFERENCES AND DEVELOPMENTAL PSYCHOLOGY</b>			
86 Individual differences and developmental psychology			
86 Methods			
92 Studies			
97 Key questions			
99 Practical investigation			
99 Issues and debates			
<b>6 CLINICAL PSYCHOLOGY</b>			
101 Defining clinical psychology			
101 Diagnosis of mental disorders including the four 'Ds'			
106 Schizophrenia			
106 Treatment for schizophrenia			
107 Anorexia nervosa			
108 Treatment for anorexia			
108 Bipolar depression			
108 Treatment for unipolar depression			
108 Obsessive compulsive disorder (OCD)			
108 Treatment for OCD			
108 Individual differences and developmental psychology			
108 Methods			
108 Studies			
108 Key questions			
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108 Issues and debates			
<b>7 CRIMINAL PSYCHOLOGY</b>			
162 Defining criminal psychology			
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166 Social explanations of crime			
166 Understanding the offender: illness models and case formulation			
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182 Factors influencing jury decision-making			
188 Individual differences and developmental psychology			
188 Methods			
188 Studies			

Save your documents and quick quizzes at [www.pearsoned.com/psychology](http://www.pearsoned.com/psychology)

Edexcel Level Psychology



You can also keep track of your revision by noting each topic heading in the book. You may find it helpful to add your own notes as you work through each topic.

# Features to help you succeed

**Exam tips**  
Expert tips are given throughout the book to help you polish your exam technique in order to maximise your chances in the exam.

**Typical mistakes**  
The author identifies the typical mistakes candidates make and explain how you can avoid them.

**Now test yourself**  
These short, knowledge-based questions provide the first step in testing your learning. Answers are at the back of the book.

**Definitions and key words**  
Clear, concise definitions of essential key terms are provided where they first appear.  
Key words from the specification are highlighted in **bold** throughout the book.

**Revision activities**  
These activities will help you to understand each topic in an interactive way.

### Exam practice

Practice exam questions are provided for each topic. Use them to consolidate your revision and practise your exam skills.

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### Summaries

The summaries provide a quick-check bullet list for each topic.

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### Online

Go online to check your answers to the exam questions and try out the extra *quick quizzes* at

[www.hoddereducation.co.uk/myrevisionnotes](http://www.hoddereducation.co.uk/myrevisionnotes)

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# My revision planner

## 1 Social psychology

- Defining social psychology
- Obedience
- Prejudice
- Individual differences and developmental psychology
- Methods studies
- Key questions
- Practical investigation
- Issues and debates

## 2 Cognitive psychology

- Defining cognitive psychology
- Models/theories of memory
- Individual differences and developmental psychology
- Methods studies
- Key questions
- Practical investigation
- Issues and debates

## 3 Biological psychology

- Defining biological psychology
- The central nervous system
- Brain functioning and aggression
- Individual differences and developmental psychology
- Methods studies
- Key questions
- Practical investigation
- Issues and debates

## 4 Learning theories

- Defining learning theories
- Classical conditioning
- Operant conditioning
- Social learning theory
- Learning theories and phobias



Individual differences and developmental psychology

Methods

Studies

Key questions

Practical investigation

Issues and debates

## **5 Clinical psychology**

Defining clinical psychology

Diagnosis of mental disorders including the four 'Ds'

Schizophrenia

Treatments for schizophrenia

Anorexia nervosa

Treatments for anorexia

Unipolar depression

Treatments for unipolar depression

Obsessive compulsive disorder (OCD)

Treatments for OCD

Individual differences and developmental psychology

Methods

Studies

Key questions

Practical investigation

Issues and debates

## **6 Criminal psychology**

Defining criminal psychology

Biological explanations of crime

Social explanations of crime

Understanding the offender, offence analysis and case formulation

Treatments for offenders

Factors influencing eyewitness testimony

Factors influencing jury decision-making

Individual differences and developmental psychology

Methods

Studies

Key questions

Practical investigation

Issues and debates

## **7 Child psychology**

Defining child psychology

Attachment, deprivation and privation

Day care

Cross-cultural research into attachment types

Autism

Individual differences and developmental psychology

Methods

Studies

Key questions

Practical investigation

Issues and debates

## **8 Health psychology**

Defining health psychology

Issues around drug taking

Explanations of drug addiction

Treatments for drug addiction

Anti-drug campaigns

Individual differences and developmental psychology

Methods

Studies

Key questions

Practical investigation

Issues and debates

## **9 Psychological skills**

Methods

Synoptic review of studies

Issues and debates

**Now test yourself answers**

**Glossary**

**Exam practice answers at**

**[www.hoddereducation.co.uk/myrevisionnotesdownloads](http://www.hoddereducation.co.uk/myrevisionnotesdownloads)**

# Countdown to my exams

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## 6–8 weeks to go

- Start by looking at the specification – make sure you know exactly what material you need to revise and the style of the examination. Use the revision planner on pages **iv–vi** to familiarise yourself with the topics.
- Organise your notes, making sure you have covered everything on the specification. The revision planner will help you to group your notes into topics.
- Work out a realistic revision plan that will allow you time for relaxation. Set aside days and times for all the subjects that you need to study, and stick to your timetable.
- Set yourself sensible targets. Break your revision down into focused sessions of around 40 minutes, divided by breaks. These Revision Notes organise the basic facts into short, memorable sections to make revising easier.

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## 2–6 weeks to go

- Read through the relevant sections of this book and refer to the exam tips, exam summaries, typical mistakes and key terms. Tick off the topics as you feel confident about them. Highlight those topics you find difficult and look at them again in detail.
- Test your understanding of each topic by working through the ‘Now test yourself’ questions in the book. Look up the answers at the back of the book.
- Make a note of any problem areas as you revise, and ask your teacher to go over these in class.
- Look at past papers. They are one of the best ways to revise and practise your exam skills. Write or prepare planned answers to the exam practice questions provided in this book. Check your answers online and try out the extra quick quizzes at [www.therevisionbutton.co.uk/myrevisionnotes](http://www.therevisionbutton.co.uk/myrevisionnotes)
- Use the revision activities to try out different revision methods. For example, you can make notes using mind maps, spider diagrams or flash cards.

- Track your progress using the revision planner and give yourself a reward when you have achieved your target.
- 

### **One week to go**

- Try to fit in at least one more timed practice of an entire past paper and seek feedback from your teacher, comparing your work closely with the mark scheme.
  - Check the revision planner to make sure you haven't missed out any topics. Brush up on any areas of difficulty by talking them over with a friend or getting help from your teacher.
  - Attend any revision classes put on by your teacher. Remember, he or she is an expert at preparing people for examinations.
- 

### **The day before the examination**

- Flick through these Revision Notes for useful reminders, for example the exam tips, exam summaries, typical mistakes and key terms.
  - Check the time and place of your examination.
  - Make sure you have everything you need – extra pens and pencils, tissues, a watch, bottled water, sweets.
  - Allow some time to relax and have an early night to ensure you are fresh and alert for the examinations.
- 

### **My exams**

#### **Paper 1: Foundations in psychology**

Date:.....

Time:.....

Location:.....

#### **Paper 2: Applications of psychology**

Date:.....

Time:.....

Location:.....

#### **Paper 3: Psychological skills**

Date:.....

Time:.....

Location:.....

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# 1 Social psychology

## Defining social psychology

Social psychology examines the effects of our environment on our behaviour and how our actions are influenced by individuals, groups and culture. There is less emphasis on other psychological determinants of behaviour, such as cognition and biology. Our thoughts and feelings are strongly influenced by the social setting in which we find ourselves and we will behave in ways we perceive as being consistent with the social setting. Social psychologists tend to use surveys and field experiments when investigating the impact of the environment on our behaviour as these are carried out in real-life settings and can be universally applied when studying individuals, groups and culture.

### Exam tip

When defining social psychology, stick to the topic overview rather than describing actual theories or studies.

## Obedience

Obedience is a form of social influence where an individual acts in response to a direct order from another individual, who is usually an authority figure. It is assumed that without such an order the person would not have acted in this way. Obedience involves a hierarchy of power/status. Therefore, the person giving the order has a higher status than the person receiving the order.

### Typical mistakes

Remember to include something about authority figures when giving a definition of obedience. It is not enough to just say following orders from someone.

## Agency theory

Milgram's Agency Theory states that obedience is necessary for the stability of human society and that we are socialised into obeying from childhood. The theory suggests that there are two states: the **agentic** state and the **autonomous** state.

In the agentic state, we are working to benefit society at the expense of our own wishes. Milgram suggested that in order for a person to enter the

agentic state, the orders must be perceived as being given by a legitimate authority who will accept responsibility for what happens.

Although an individual may carry out the orders they have been given, they may not necessarily want to do so. This web of obligation is known as **moral strain**.

The theory states that we are socialised into an agentic state from a young age and as children we learn to obey our parents and teachers and act as agents following social rules. This, in turn, is training us to obey employers and others in authority when we are older. Milgram argued that people tend to obey recognised authority figures in order to maintain a stable society. In order to avoid chaos and disorder we have to give up some of our free will to follow certain rules otherwise there would be disorder through disobedience.

### Now test yourself

- 1 Why does society need obedience?
- 2 Explain the difference between agentic and autonomous states saying which state operates when we are obedient.
- 3 How do we acquire the agentic state?

Answers on p. 225

## Social impact theory

Bibb Latané (1981) proposed an alternative theory of obedience which focuses on the presence or actions of others. He defined social impact as ‘any changes in physiological states and subjective feelings, motives and emotions, cognitions and beliefs, values and behaviour, that occur in an individual, human or animal, as a result of the real, implied, or imagined presence or actions of other individuals’ (Latané, 1981, p. 343). The basic principle behind social impact theory is **social force**.

When these forces exert enough pressure to successfully get people to change their behaviour, then that is known as ‘social impact’.

- Strength: a measure of how much influence or power the individual perceives the source to have.
- Immediacy: how recently the event occurred or whether there were intervening events.
- Numbers: the number of people exerting pressures on the individual, the greater the social force they will have.

Thus social impact is higher when the source has higher status, when the statement is more immediate, and when there are a higher number of people saying it. The most significant difference in social impact occurs in the transition from 0 to 1 source. As the number of sources increases, the incremental impact lessens. This is the idea that the first source of influence has the most dramatic impact on people, but that the second, third, fourth, etc., sources generate less and less social force. For example, being watched by one other person can make you feel nervous, but being watched by two does not make you twice as nervous. Increasing the audience to a hundred or even a thousand does not increase the sense of pressure by as much as you would think.

The theory is formulated as a mathematical model:

$$i = f \frac{S}{N}$$

where  $i$  is the magnitude of impact;  $f$  is a function, i.e. the impact of others;  $S$  is the strength of the sources, i.e. one or more people or groups and their powers of persuasion;  $I$  is the immediacy of the sources, how close they are in time and space; and  $N$  is the number of sources.

### Now test yourself

4 Outline one difference between Social Impact Theory and Agency Theory.

Answer on p. 225

## Milgram's research into obedience

### Aims

Milgram wanted to investigate how obedient participants would be when following orders would mean breaking their moral code and harming another person.

### Procedures

He offered \$4 plus 50 cents car fare for any volunteer adult male willing to take part in a study on memory. Participants were met by the researcher in a smart grey lab coat and another 'volunteer', Mr Wallace who was in fact an actor. The researcher drew lots, but this was rigged as both lots said 'teacher'. The participants were shown the shock generator which had 30 switches each showing a 15 volt increase in shock level from the last.

The participant was instructed to increase the level of shock by 15 volts each time a question was answered incorrectly.

Although the participant could not see the learner, he was able to hear him clearly through the wall. He began to complain about his heart and demanded to be let out, refusing to take further part. At the 300 volt level, he pounded on the wall. He repeated this at the 315 level but from then on was silent. The researcher delivered a standardised sequence of verbal prods such as 'please continue' or 'the experiment requires that you continue'. The experiment ended when they refused or after they had shocked to the 450 volt level.

### Results

All 40 participants went up to at least 300 volts and 65 per cent went to the maximum 450 volts.

The distribution of maximum voltages given by participants is as follows:

- Five gave 300 volts as a maximum.
- Eight gave between 315 and 360 volts.
- One gave 375–420 volts.
- Twenty-six gave 450 volts.
- The average maximum voltage given was 368 volts.

Participants were debriefed. They were told the full aims and nature of the study, were reunited with Mr Wallace and reassured that they had behaved absolutely normally – no matter what they actually did.

### Conclusions

The study clearly shows the power of authority over our behaviour. Even when the participants were clearly upset by what they had to do, they still saw no alternative except to obey.

### Now test yourself

5 How does Milgram's original study support Agency Theory?

Answer on p. 225

### Milgram's Experiment 7: telephonic instructions/closeness of authority/experimenter absent

#### Aims

To see if having the experimenter in the room affected the level of obedience, so this was carried out with the experimenter in touch by phone.

#### Procedures



The experimenter was away from the participant, out of sight, and gave instructions over the telephone. The experimenter gave the instructions at the start, in the same room, but then left the laboratory and communicated only by telephone.

### **Results**

The obedience dropped sharply when orders were given by telephone. Instead of 26 obeying the orders, nine obeyed (22.5 per cent).

Participants lied to the experimenter about giving increases in voltage, instead they gave lower shocks. Over the phone, these participants said that they were raising the shock levels, as requested, but were not and did not confess.

### **Conclusions**

When the experimenter is not face-to-face with the participant, it is easier not to obey.

Physical presence was an important force.

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## **Milgram's Experiment 10: rundown office block/institutional context**

### **Aims**

- To see if the outcome would be similar if the study took part in a rundown office block and not conducted in Yale University as it was regarded as prestigious.
- This was as a result of follow-up interviews suggesting that the integrity of Yale institution had given them the confidence to take part in the study.
- Milgram suggested that the participants expose their throats in a barber's saloon, but would not anywhere else, so wanted to determine whether the setting would have an influence on obedience rates.

### **Procedures**

- The experiment was relocated to a rundown commercial office building in Bridgeport, Connecticut and all links to Yale University were removed.
- The same procedures were followed as the original, although the building was sparsely furnished. The lab was clean. This includes the volunteers being asked and paid \$4.50 dollars for attending.

- The same personnel were used and the same age and occupation details for participants.
- The researchers said that they were from a private firm.

### Results

- Participants have more doubts about this study. One participant made notes and asked himself a number of questions about the legitimacy of the study. Another participant questioned his own judgement and thought the study was 'heartless'.
- Obedience did not drop that much. 47.5 per cent obeyed to the maximum voltage level compared with 65 per cent in the original study at Yale. This was a lower level of obedience, but Milgram did not think that it was a significant difference.

### Conclusions

- The idea of having a legitimate setting does seem to be backed by evidence, albeit a barely significant one.
- However Milgram gives the example that people deposit money in prestigious looking banks and seedy ones, so people will obey experiments regardless of where the laboratory is.

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## Milgram's Experiment 13: ordinary man giving orders

### Aims

To see whether an order given by someone without authority is followed. In particular to see if an order given by an ordinary man, who it is clear holds no authority unlike his predecessor, is carried out.

### Procedures

The experimenter gives the instructions about administering the shock, but then gets 'called away' and leaves the room. There is an accomplice in the room who was initially given the task of recording the times and the participant thinks is another participant like him and the learner. The accomplice makes a suggestion of increasing the shocks one at a time as the victim makes a mistake.

### Results

- The experimenter leaving creates an awkward atmosphere, which undermined the credibility of the experiment.
- Sixteen of 20 (80 per cent) participants broke away from the ordinary man's instructions, even though the accomplice urged

them to continue.

- Four of 20 (20 per cent) went to the maximum shock level.
- When the participant refused the orders of the 'ordinary man', there was an adaption to the experiment and the accomplice said the participant should swap roles and take over the recording. 16/20 watched the distressing scene as the ordinary man gave the shocks.
- All of the 16 bystanders protested and five tried to disconnect the power from the generator or physically restrain the accomplice.

### Conclusions

- Levels of obedience fell dramatically with an ordinary man who had no perceived authority.
- Participants did not like seeing the 'ordinary man' giving the shocks, but were not able to prevent it.

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## Factors affecting obedience and dissent/resistance to obedience, including individual differences (personality and gender), situation and culture

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### Typical mistakes

When asked about any of these variation studies, make it clear to the examiner which one you are writing about; do not let them have to work it out. The best way to highlight this is in the aim or results, as the procedure will (mostly) be the same as the original study.

- Situational
  - Personal responsibility. Milgram suggested that obedience would be higher if the personal responsibility is given to the authority figure. This was demonstrated when at one point the learner asks the experimenter, 'He might be dead in there, sir! Do you take responsibility?' To which the reply is 'I am responsible', at which point the learner sits down and continues to administer shocks.
  - Slippery slope. Generator switches only went up in small increments (15 volts), so participants found it easier to obey as each wrong answer only merited a minor increase. Similarly, having begun the experiment, participants did not know how to disobey; nothing they said had any effect on the experimenter and so they felt they should finish what they had started.

- Power and status of the authority. Obedience is only shown if the authority figure was perceived as legitimate. Legitimate power is held by those in certain roles, usually those of authority. The researcher would have had legitimate power in Milgram's experiments on obedience. He would have also had expert power by appearing professional at all times and was wearing a lab coat to indicate his expertise and knowledge.
- Personality
  - Locus of control. This refers to the extent to which individuals believe they can control events affecting them. Someone's 'locus' is either internal (they believe they have some control over events in their life) or external (meaning they believe that life is determined by environmental factors which they cannot influence).
  - Authoritarian Personality. Adorno et al. (1950) proposed that individual differences in obedience could be explained by the idea of an authoritarian personality. Adorno et al. devised the F-scale to measure what they called authoritarianism (F stands for Fascist). High F-scale scorers would show (among other numerous personality characteristics) obedience to those in authority.
- Gender
  - Overall, there does not appear to be any real difference between men and women in their ability to resist obeying an authority figure. This goes against traditional beliefs that females tend to be more obedient to authority. Milgram (1963) found that men and women were equally obedient in one variation of his electric shock experiment. Female participants did report higher levels of stress and tension than male participants, perhaps because women are generally more empathetic than men.
- Culture
  - Individualistic cultures are those that stress the needs of the individual over the needs of the group as a whole. In this type of culture, people are seen as autonomous, independent and tend to resist conformity or compliance. Collectivistic cultures, in contrast, emphasise the needs and goals of the group as a whole over the needs and wishes of each individual. In such cultures, relationships with other members of the

group, cooperation and compliance between people play a central role in each person's identity.

### Exam tip

When answering questions on factors affecting obedience, discuss one of the areas above instead of describing the actual research itself. If the question stipulates only one of these such as culture then do not bring in the other factors like gender.

### Now test yourself

- 6 Explain the difference between individualistic and collectivistic cultures.
- 7 Define the term 'Fascist'.
- 8 You are trying to stop eating chocolates and your friend offers you one small bite so you decide to take it. This would be an example of which type of situational factor of obedience?

Answers on p. 225

## Prejudice

Prejudice means to prejudge. It is an attitude and all of us are prejudiced towards and against certain things. When the prejudiced attitude leads to prejudiced actions, this is called 'discrimination'. Prejudice is an attitude and an attitude comprises of three parts.

- 1 How you feel about something – Affect.
- 2 What you do about it – Behaviour.
- 3 What you know about it – Cognition.
  - A Feelings of dislike, hostility, fear, suspicion.
  - B Insult, discrimination, avoidance, physical attack on others.
  - C Knowledge based on stereotypes.

### Theories of prejudice

Social Identity Theory suggests that participants want to promote members of their in-group over the out-group members, because it enhances their own status. If you are in a group, thinking of that group as the best will enhance your own self-esteem. Tajfel and Turner (1979) suggest that prejudice is caused by the creation of groups, not by realistic conflict – just creating two groups will cause conflict. There does not need to be real conflict over real material goods and being aware of the existence of another group is sufficient for prejudice to develop.

According to Tajfel and Turner (1979), prejudice can be explained by our tendency to identify ourselves as part of a group, and to classify other people as either within or outside that group.

Tajfel refers to the in-group and the out-group:

In-group      we belong to

Out-group     the rest

There are three cognitive processes involved in evaluating others as part of the in-group or out-group. These are:

- 1 Social categorisation. We categorise ourselves and others as members of particular social groups.
- 2 Social identification. We adopt the identity of the group we have categorised ourselves as belonging to.
- 3 Social comparison. This is the final stage, once we have categorised ourselves as part of a group and identified with that group, we compare that group with others.

Critical to our understanding of prejudice, is that for our self-esteem to be maintained our group needs to compare well against other groups.

### Now test yourself

- 9 Define prejudice.
- 10 How can Social Identity Theory be applied to a real-life setting?
- 11 Does Social Identity Theory explain individual differences in prejudice? Why not?

Answers on p. 225

## Research into Social Identity Theory

This theory was based on a series of lab experiments called the ‘minimal group studies’. Minimal groups is so named as the grounds on which the participants would see themselves as belonging to one group or another were minimal (e.g. by the toss of a coin or which painting they preferred). Tajfel’s experiments found that in spite of the fact that there was no competition between groups, the participants consistently displayed prejudice towards those identified as being in the same group as themselves, and against those as being identified as in a different group.

### Typical mistakes

When outlining evidence to support theories, you must only write about the findings of that research rather than describe the whole study itself.

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## Realistic Conflict Theory

Realistic Conflict Theory states that whenever there are two or more groups that are seeking the same limited resources, this will lead to conflict, negative stereotypes and beliefs, and discrimination between the groups. This theory holds that hostility between groups is a result of direct competition for limited and valued resources. Sherif (1966) proposed that intergroup relations reflect the functional relations between groups. The conflict can lead to increasing animosity toward the groups and can cause an ongoing feud to develop. Realistic Conflict Theory is used to explain the conflict, negative prejudices, and discrimination that occur between groups of people who are in competition for the same resources.

If the outcomes of two groups are competitively interdependent (gains for one group depend on losses for the other) intergroup hostility will be maximised; competition gives rise to unfavourable stereotypes, increased in-group solidarity and cohesiveness and thus to in-group biases in evaluations of the two groups. If the groups are cooperatively interdependent (e.g., there is a **superordinate goal**), intergroup hostility will be reduced, cumulatively improving intergroup relations.

Conversely, conflict, negative stereotypes and beliefs, and discrimination between groups can potentially be reduced in situations where two or more groups are seeking to obtain some superordinate goals.

Because of its emphasis on group behaviours and conflict, the Realistic Conflict Theory is also referred to as the realistic group conflict theory.

## Factors affecting prejudice and discrimination

### Personality

Adorno *et al.* (1950) proposed that individual differences in prejudice could be explained by the idea of an authoritarian personality. Based on Freudian theory, Adorno *et al.* argued that prejudiced people were more likely to have experienced a harsh style of parenting. Adorno reasoned that harsh discipline would make the child outwardly obedient, but at the same time create hostility that could not be directed at the parents because of fear. The child would grow into an adult who obeyed and feared those with more power, but the hostility would be displaced onto those who were weaker, such as groups with lower social status. This is the reason for prejudice and discrimination.

---

Now test yourself



**12** How does the authoritarian personality theory differ from Social Identity Theory in its explanation of prejudice?

**13** Give one strength and one weakness of using questionnaires to measure prejudice.

**14** Why would the F-scale questionnaire be less valid today?

**Answers on p. 225**

## **Situational**

Changes in social norms can lead to an increase of prejudice, in particular any kind of social threat from a group may cause problems and these are directly related to the situation. A prime example would be the rise of Islamophobia today as there is a perceived social threat from radicalised Muslims. This is a product of the situation society finds itself in due to various events over the last decade or so. Furthermore, it is reasonable to expect an increase in prejudice and discrimination against minority groups in bad economic times or national trauma like the 9/11 attack, both of which are products of the situation.

Situational factors more close to home may play a part too. A child who is exposed to racism and prejudiced peers and family members will invariably take on the norms and values of the situation him or herself.

Social Identity Theory suggests that whenever a situation arises where there are two groups (in- and out-group), prejudice will occur.

Realistic Conflict Theory suggests that when there is competition over scarce resources, conflict will occur.

## **Culture**

Cultures may demonstrate prejudices about others in a variety of ways including the stereotypes they apply to members of other groups, the ways they make sense of the actions of members of other cultures and, frequently, open aggression and hostility towards members of cultures not their own.

All cultures seem to make a fundamental distinction between 'us' and 'them' and it appears universal that they favour 'us' over 'them' for many purposes. Consequently, it could be said that all cultures show a bias that could be regarded as prejudice.

Clearly, cultural groups stereotype each other, with undesirable characteristics typically being attributed to the out-group. However, the tendency to stereotype out-group members may be a consequence of a predisposition to be biased against them (as in Social Identity Theory)



rather than the initial cause of prejudice. If this is the case, then stereotypes may play a more important role in maintaining prejudice than in causing it. Negative stereotypes may cause people to avoid members of other cultures. They are also likely to influence how the behaviour of out-group members is interpreted.

## Individual differences and developmental psychology

Adorno *et al.* devised the F-scale to measure what they called 'authoritarianism' (F stands for Fascist). High F-scale scorers would show these personality characteristics:

- obedience to those in authority
- views things rigidly as right/wrong
- intolerance of those who are different/weak
- hostility to those of lower status
- rigid and conventional views.

These individual differences in terms of personality traits might influence how prejudiced we are.

Milgram's participants also demonstrated locus of control when choosing to obey the experimenter or not. The 35 per cent that did not go to 450 volts were showing independent behaviour and could be said to have more of an internal as opposed to external locus of control.

Similarly, as culture is developed from social norms and values within each particular society, this in turn will impact on how prejudiced we may be. Our upbringing in an individualistic culture will have a different influence on our development from being brought up in a collectivistic one. As obedience is found across all cultures, it can be said to be developed universally as opposed to from the environment.

## Methods

**Self-reports** are used as part of an investigation as a way of collecting data and can be carried out in the form of questionnaires or interviews. They gather information by asking questions of a large number of people, usually through a written questionnaire or through face-to-face interviews. By using questionnaires researchers can acquire a great deal of information very cheaply. These can be distributed by post or handed to people in the street. However, there is no control over how accurately or thoughtfully people answer the questions, whether they understand them/return them at all.

Questions must be carefully prepared, must be clear and not lead the participant (to overcome this, a pilot questionnaire should be used).

**Interviews** are much more time-consuming, but there is more opportunity for control over sampling and assessing whether participants understand questions. Interviews may be structured, using carefully written questions, or unstructured, as in clinical interview. In this, the researcher asks questions, but then asks further questions which depend on the answers that the participants give.

**Closed questions** structure the answer by allowing only answers which fit into categories that have been decided in advance by the researcher. Data that can be placed into a category is called 'nominal data'. The options can be restricted to as few as two (e.g. Yes or No, Male or Female), or include quite complex lists of alternatives from which the respondent can choose. The respondent provides information which can be easily converted into quantitative data (e.g. count the number of Yes or No answers). Closed questions can also provide ordinal data (which can be ranked). This often involves using a rating scale to measure the strength of attitudes or emotions, for example, Strongly agree/Agree/Neutral/Disagree/Strongly disagree/Unable to answer.

## Alternative hypotheses

Whenever psychologists carry out a study, they must start with a **hypothesis**.

A hypothesis, then, is any idea or theory which makes certain predictions and an experiment is designed to test these predictions. A hypothesis states what you believe will happen and is a precise and testable statement of the relationship between two variables.

The experimental hypothesis is sometimes referred to as the 'alternative hypothesis'.

Remember that some studies are not experiments (they may be observations, correlations, etc.) and in this case we do not start with an experimental hypothesis but with an alternative hypotheses. When we carry out an experiment we can use either term.

### Typical mistakes

Do not get hypotheses and aims mixed up – they are not the same thing.

## Sample selection and techniques

A population is an entire group with specified characteristics. The target group/population is the desired population subgroup to be studied, and therefore want research findings to generalise to. A target group is usually too large to study in its entirety, so sampling methods are used to choose a representative sample from the target group.

A representative sample is a subset of the target group with a similar distribution of relevant characteristics, in turn allowing us to generalise from the sample to the target group with some justification. An unrepresentative sample is one that does not reflect the distribution of characteristics of the target group, cannot be generalised to the target population, and is therefore biased.

- **Random.** Random selection is like the National Lottery where every member of the target population has an equal chance of being picked, e.g. names drawn from a hat.
- **Stratified.** The target population is divided into subsets such as age, race and gender, and a representative sample of each is found. For example, if the target population consisted of 75 per cent males and 25 per cent females, a stratified sample of 20 would include 15 men and 5 women.
- **Opportunity.** Whoever is available at any opportune moment, e.g. the first 20 people you find in the canteen. It is the simplest form of sampling and involves selecting anyone who is available from the target population.
- **Volunteer/self-selected.** People volunteer to take part in an experiment, e.g. volunteers replying to a newspaper advertisement (Milgram).

### Typical mistakes

Random and opportunity sampling are frequently mixed up by candidates. The term 'random' is not to be used in its everyday sense. In psychology, it means everyone has an equal chance of being picked.

### Now test yourself

- 15 Write an experimental hypotheses about revision and exam results.
- 16 Give one strength and one weakness of using self-reports to measure prejudice.
- 17 Give one strength and one weakness of each of the four types of sampling techniques.

## Qualitative and quantitative data

- Quantitative ('what?') = measuring by number (e.g. number of words recalled in a memory experiment or how many participants obeyed in the Milgram experiment).
- Qualitative ('why?') = describing, emphasising meanings and experiences (e.g. how memory works or interviewing participants to see why they went so far on Milgram's shock generator).

In general, quantitative methods tend to be stricter and will produce more reliable data as they can be replicated easily which enhances their scientific status. However, such approaches can be criticised for producing narrow, unrealistic information which only focuses on small fragments of behaviour. In contrast, qualitative approaches with less control, conducted in more natural circumstances tend to produce more valid data, but are criticised for low reliability and subjectivity. Qualitative methods can be subjective because they produce information which the researcher has to organise and select from.

## Quantitative data analysis

There are three types of measures of central tendency:

- 1 Mean – add up all scores in a condition and divide by the number of participants.

### Example:

Four tests results: 15, 18, 22, 20

The sum is: 75

Divide 75 by 4 = 18.75

The 'mean' (average) is 18.75 (often rounded to 19).

- 2 Median – put all of the scores in order and find the mid-point. There must be an equal number of numbers either side of this point. The median is the 'middle value' in your list. When the totals of the list are odd, the median is the middle entry in the list after sorting the list into increasing order. When the totals of the list are even, the median is equal to the sum of the two middle (after sorting the list into increasing order) numbers divided by two.

### Example:

- Find the median of 9, 3, 44, 17, 15 (odd number of numbers)  
Line up your numbers 3, 9, 15, 17, 44 (smallest to largest)

The median is 15 (the number in the middle).

- Find the median of 8, 3, 44, 17, 12, 6 (even amount of numbers)

Line up your numbers: 3, 6, 8, 12, 17, 44

Add the two middle numbers and divide by 2:  $8 + 12 = 20 \div 2 = 10$

The median is 10.

- 3 Mode** – Mode is the most frequently occurring score in a condition. The mode in a list of numbers refers to the list of numbers that occur most frequently. A trick to remember this one is to remember that mode starts with the same first two letters that **most** does.

**Example:**

Find the mode of:

9, 3, 3, 44, 17, 17, 44, 15, 15, 15, 27, 40, 8

Put the numbers in order for ease:

3, 3, 8, 9, 15, 15, 15, 17, 17, 27, 40, 44, 44

The mode is 15 (15 occurs the most at three times).

Note. It is important to note that there can be more than one mode and if no number occurs more than once in the set, then there is no mode for that set of numbers.

- 4 Range** – A measure of dispersion where you take the lowest score from the highest score.

### Measures of dispersion or variability

Another descriptive statistic that we need is a measure of dispersion. This will tell us whether our scores are clustered closely round the mean or are widely scattered.

Consider the following sets of scores:

Group A: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100; mean 55, median 55

Group B: 35, 40, 45, 50, 50, 60, 60, 65, 70, 75; mean 55, median 55

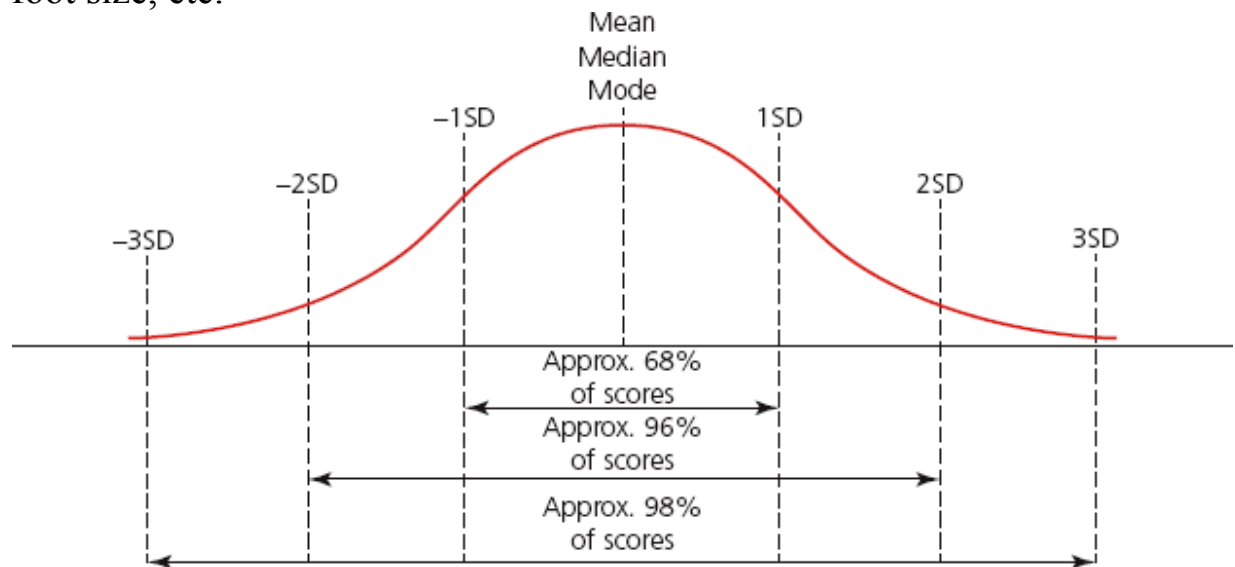
Although the means and medians of these two sets of scores are identical, the dispersion or variability is very different.

If these were results from a test then the teacher in charge of group A would have a very much wider spread of ability to teach than the teacher in charge of group B. This would not be obvious if the only information the teachers had was a measure of central tendency, but it would be obvious if they had a measure of dispersion as well.

### The normal distribution

By plotting the data from a sample as a histogram, we can see if we have a normal distribution. It often occurs where a large number of measurements

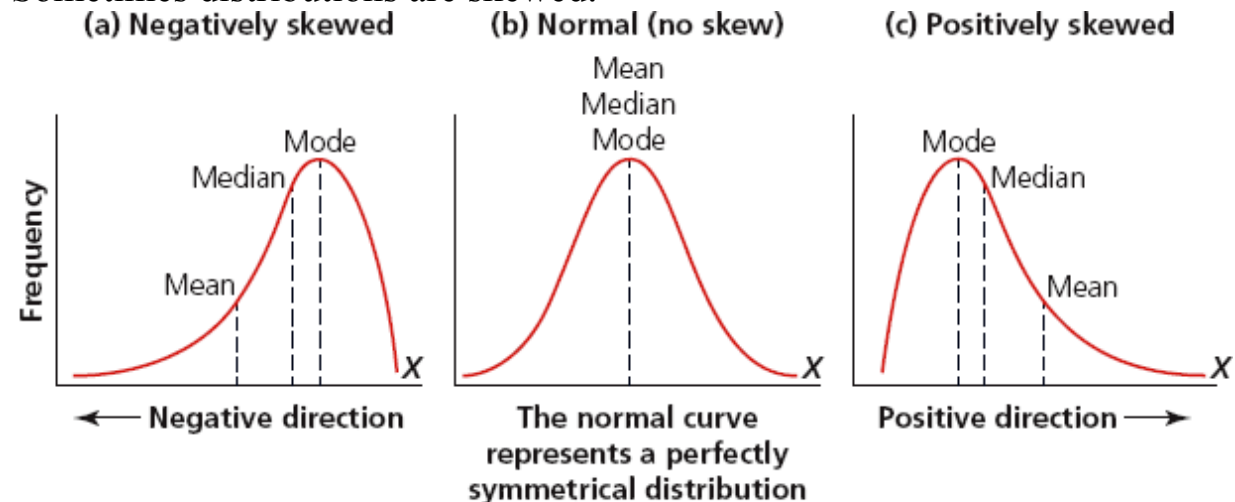
are taken of naturally occurring phenomena, e.g. people's height, weight, foot size, etc.



**Figure 1.1** A normal distribution curve

- The mean, median and mode all occur at the same point (the highest point of the curve).
- It is symmetrical on either side of the central point of the horizontal axis. The pattern of scores is exactly the same above the mean as it is below it.
- A large number of scores fall relatively close to the mean on either side. As the distance from the mean increases, the scores become fewer.
- The tails of the distribution should meet the x-axis at infinity.
- It should be bell-shaped.

Sometimes distributions are skewed.



**Figure 1.2** Normal and skewed distribution curves

The characteristic of skewed distributions is that the mean, median and mode have different values. A skewed distribution is often found when:

- a small number of scores are taken
- a biased sample is taken of a population which may be normally distributed. For example, plot the frequencies of height of females in the room in which you are sitting or plot the distribution of university students' scores.

## Standard deviation

A much more sensitive description is provided by what is called the standard deviation, often abbreviated to SD. The range only takes account of the highest and lowest scores but the SD takes every score in the distribution into account. Loosely speaking, it gives us an idea of how much, on average, scores in a distribution differ from the mean.

Supposing you run a study with two conditions, e.g. investigating the effects of gender and exam performance. You measure the effect of the causal variable in terms of percentage grade on a psychology exam. It is possible that you would get identical means between the two groups (males versus females) so it seems like there is no difference – but the mean could be inflated in one group by a small subset of scores at one extreme. The standard deviation could alert you to this by being much larger in one condition than the other – showing that in one group the scores cluster around the mean, but in the other group there is a much greater spread of scores. Therefore, a small SD shows the mean to be a good representation of the data as a whole – a large SD compared to this might be showing that the mean is not representative of how the group scored as a whole.

### Now test yourself

18 Why do we use standard deviation?

19 Give one strength and one weakness for each of the mean, median and mode.

20 Give one strength and one weakness for using the standard deviation.

Answers on pp. 225–6

The formula for working out the standard deviation is below, followed by an example:

$$s = \sqrt{\frac{\sum x - \bar{x}}{n - 1}}$$



where  $x$  = each score;  $\bar{x}$  = mean;  $n$  = number of participants and  $\Sigma$  = total.

4	7	9	11	13	15	18
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$$\text{mean} = \bar{x} = \frac{4 + 7 + 9 + 11 + 13 + 15 + 18}{7} = 11$$

$x$	$x - \bar{x}$	$(x - \bar{x})^2$
4	-7	49
7	-4	16
9	-2	4
11	0	0
13	2	4
15	4	16
18	7	49

$$\Sigma(x - \bar{x}) = 138$$

$$s = \sqrt{\frac{138}{6}} = 4.796$$

## Qualitative data analysis using thematic analysis

As participants can respond to an open-ended question in many different ways, qualitative data is often analysed using themes. This requires the researcher to be very familiar with the data. **Thematic analysis** is one of the most common forms of analysis in qualitative research.

Themes are patterns across datasets that are important to the description of a phenomenon and are associated to a specific research question. The themes become the categories for analysis.

There is a wide range as to what a 'dataset' entails. Texts can range from a single-word response to an open-ended question or as complex as a body of thousands of pages. As a consequence, data analysis strategies will likely vary according to size. The researcher uses coding to group the data and from the coding develop a limited number of themes. The themes must represent the data fairly. The analyst develops the research and can go back and forth looking at the data more than once, and recode in the light of the development themes. Thematically analysed data can then be converted to quantitative data which allows themes and patterns to be identified. This keeps the meaning within the qualitative data, but makes it easier to manage.



This process of data analysis can occur using two approaches, **inductive** and **deductive**.

Thematic analysis follows a number of stages. Once the data have been gathered, a reflective journal can be used, which is a record of the whole process, starting with the raw data. This can log how coding is done, thoughts when doing the coding and the ideas are developed by themes during the coding.

This systematic way of organising and gaining meaningful parts of data as it relates to the research question is called 'coding'. The coding process evolves through an inductive analysis and is not considered to be a linear process, but a cyclical process in which codes emerge throughout the research process. This cyclical process involves going back and forth between phases of data analysis as needed until the researcher is satisfied with the final themes. Coding can be thought of as a means of reduction of data or data simplification. Using simple but broad analytic codes, it is possible to reduce the data to a more manageable task. The researcher or an independent analyst who does not know the aims of the research can carry out the coding process. Sometimes, more than one coder is used so some form of inter-rater reliability can be established.

### **Ethical guidelines**

In the United Kingdom, ethical guidelines for research are published by the British Psychological Society (BPS). The purpose of these codes of conduct is to protect research participants, the reputation of psychology and psychologists themselves. Ethics refers to the correct rules of conduct necessary when carrying out research. We have a moral responsibility to protect research participants from harm. However important the issue under investigation, psychologists need to remember that they have a duty to respect the rights and dignity of research participants. This means that they must abide by certain moral principles and rules of conduct.

Ethical guidelines are important for the following reasons:

- To avoid psychological harm to participants
- Protects the rights of participants, especially children and those in institutions
- If participants are pressured, valid data may not be found
- Confidentiality means participants are more likely to co-operate fully
- If consent is given, psychologists are themselves protected against complaint

- Competence means psychologists can be trusted, participants can therefore be more trusting and more studies can be done.

### Now test yourself

21 Why would ethical guidelines be less important?

Answer on p. 226

## BPS Code of Ethics and Conduct

The code is based on four ethical principles below.

- 1 Respect.** Psychologists value the dignity and worth of all persons of all cultural backgrounds, with particular regard to people's rights including those of privacy. The experience they bring to the research must be respected and other guidelines, including informed consent and right to withdraw (see below), should be followed.
- 2 Competence.** Psychologists should be fully able to carry out the work assigned to them and place value on the high standards of their own competence in their professional work. They should have an awareness of their own ability and limits and work within these.
- 3 Responsibility.** Psychologists have a responsibility to themselves, their clients, the general public, and to the profession of psychology. They must try and ensure any research does not damage the reputation of psychology. They must ensure participants are protected from harm and always debriefed (see below) at the end of any research.
- 4 Integrity.** Psychologists should be honest and accurate in all their research and with all parties concerned. This includes honesty and accuracy when results of research are published and any conflicts of interest must be open and transparent. There should be an underlying impression of fairness carried out within all the research and with all those concerned.

### Informed consent

Whenever possible, the consent of participants must be obtained. It is not sufficient to simply get participants to say 'Yes'. They also need to know what it is that they are agreeing to. You need to explain what is involved in advance and obtain the informed consent of participants.

Consent forms may need to be accompanied by an information sheet for participants setting out information about the proposed study along with details about the investigator's contact details.

If there is difficulty in gaining consent, then presumptive consent may be sought. A similar group of people can be asked how they would feel about taking part. If they think it would be all right, then it can be assumed that the real participants will also find it acceptable.

## **Debrief**

The aim of the debriefing is not just to provide information, but to help the participant leave the experimental situation in a similar frame of mind as when he/she entered it.

Aronson (1988)

At the end of the study the participant should be able to discuss the procedure and the findings. Debriefing should take place as soon as possible and be as full as possible; participants must be given a general idea of what the researcher was investigating and why, and their part in the research should be explained. They must be asked if they have any questions and those questions should be answered honestly and as fully as possible.

## **Protection of participants**

Researchers must ensure that those taking part in research will not be caused distress and will be protected from physical and mental harm. The risk of harm must be no greater than in ordinary life. The researcher must also ensure that if vulnerable groups, such as the elderly and children, are used they must receive special care. Children get tired easily so participation should be brief.

## **Deception**

This is where participants are misled or wrongly informed about the aims of the research. The researcher should avoid deceiving participants about the nature of the research unless there is no alternative – and even then this would need to be judged acceptable by an independent expert. However, there are some types of research that cannot be carried out without at least some element of deception, for example, in Milgram's study of obedience. The true nature of the research should be revealed at the earliest possible opportunity, or at least during debriefing. Researchers can determine whether participants are likely to be distressed when deception is disclosed, by consulting culturally relevant groups.

**Now test yourself**

**22** In what ways did Milgram deceive the participants in his study on obedience?

Answer on p. 226

## **Confidentiality**

Participants, and the data gained from them must be kept anonymous unless they give their full consent. No names must be used in a research report. Ultimately, decisions to disclose information will have to be set in the context of the aims of the research.

## **Withdrawal from an investigation**

Participants should be able to leave a study at any time if they feel uncomfortable. They should also be allowed to withdraw their data. They should be told at the start of the study that they have the right to withdraw. They should not have pressure placed upon them to continue if they do not want to. Participants may feel they should not withdraw as this may 'spoil' the study. Even at the end of the study the participant has a final opportunity to withdraw the data they have provided for the research.

### **Exam tip**

Always try to give depth when describing guidelines and avoid being tautological by saying things like 'deception means to deceive'.

## **studies**

### **Classic study: Sherif *et al.* (1954/1961)**

#### **Aim 1**

Sherif wanted to test the idea that if you create an in-group/out-group situation by creating groups and then creating conflict between them, prejudice will arise.

#### **Aim 2**

Sherif also thought that if the two groups were set a goal that needed their co-operation to achieve, then prejudice would be reduced.

#### **Procedures**

Twenty boys stayed at the Robber's Cave State Park, Oklahoma, camp for three weeks and were carefully selected to be 'typical' of their age (12), sex (male) and race (white). The boys were randomly divided into two groups, which the boys named the

'Rattlers' and the 'Eagles'. For the first week the groups did not know about each other, and passed the time normally and separately, doing what they chose to do. The 'Rattlers' were tough guys, whereas the 'Eagles' did not allow swearing. Then they discovered each other and both groups felt that the other was invading their territory.

Sherif introduced real conflict at this stage by having a tournament between the two groups. The teams got points, and the member of the team with the most points, got a prize. This indeed led to loyalty to the in-group, and hostility to the out-group, as was predicted.

At this stage, there was negative stereotyping of the other group.

The camp counsellors counted the negative words used when referring to the out-group. Each group thought the others were 'sneaks, smart alecks and stinkers', while their own members were 'brave, tough and friendly'. Each burned the flag of the other group and carried out raids on the other group's camp.

Then the researchers set about trying to reduce the prejudice. At first, they tried simple contact, by bringing the groups together.

However, this made things worse.

So Sherif organised 'superordinate goals', where the boys had to work together to overcome problems. First, the camp water supply 'failed'. Initially, the groups set off separately to find the problem.

They met up at the water tank, where the problem was, and co-operated to fix it, getting on better in the process. Second, a truck got stuck in the mud and they all had to pull it out. This reduced hostility and indeed led to a friendly atmosphere. The counsellors noticed less name-calling and the boys used fewer negative traits when describing the others.

## Results

Prejudice was reduced after the two groups had to work together on the superordinate goals. Sherif (posing as the camp handyman) also asked the boys who their friends were. In the 'hostility' phase, 93 per cent had friends in their own group; however, after the co-operation phase, 30 per cent had friends between the two groups. This shows the reduction in prejudice.

## Conclusions

Prejudice will occur in a situation merely where two groups are created – this supports Social Identity Theory. Sherif's study also supports the idea that competition may also be a factor resulting in prejudice. The study can be used to develop ways to reduce prejudice that has been formed between two groups.

### **Exam tip**

This study unlike most, has more than one aim. Try to give both when you are describing it in the exam.

### **Typical mistakes**

Candidates often think this study has no quantitative data in its findings and forget to include figures when asked about the results of Sherif. There are two specific figures given above; please remember to include these.

### **Now test yourself**

**23** Explain how Sherif could be criticised for ethnocentrism in his methodology.

**24** What ethical issues are raised by the study?

**Answers on p. 226**

## **Contemporary studies: Burger (2009)**

### **Aims**

To see if obedience levels have changed since Milgram's 1963 study and also to conduct a more ethical study on obedience to authority figures. In particular,

- Would Milgram's findings be replicated nearly 50 years later?
- To examine people's reactions to the modelled refusal, i.e. to see whether people use the behaviour of others as a norm reference for how to behave.
- Are there gender differences in obedience?
- Are there personality differences in obedience?

### **Procedures**

Burger had the experimenter administer a very mild 15-volt sample shock to the participants (with their consent) so they could see that the generator was real and could obtain some idea of what the shock felt like. In order to deal with the ethical problems associated

with Milgram's original study, it was decided that the study would not go on any longer than when the participants hit 150 volts. Individuals responded to advertisements in a local newspaper and participants were randomly assigned to one of two conditions (*base condition* and *moral refusal condition*).

Those assigned the base condition were taken to the laboratory by a research assistant and introduced to the experimenter. A minute later, the white male in his 50s entered the room (the confederate). Using a script largely from Milgram's research, the procedure followed Milgram's very closely.

The confederate was told to try to remember each of the 25 word-pairs read by the experimenter. The confederate then had to press a button to indicate their answer, but was told that an incorrect answer would result in an electric shock and it would continue until all 25 word-pairs were learned.

All the responses from the confederate were pre-recorded.

No participant was allowed to press any switches after the 150 volt stage. The participant was debriefed immediately at the end of the experiment and they met the confederate.

### **Model refusal condition**

This followed the same procedure as the base condition, but with a few exceptions. Two confederates were used. One of the confederates was the same man who played the learner in the base condition. The other confederate, also posing as a participant, was of the same gender as the real participant (white Caucasian woman in her late 20s or a white Caucasian male in his mid-30s). The draw was rigged so that the participant was Teacher 2 and the new confederate was Teacher 1.

They both watched the strapping into the chair and were given the sample shock. The teachers then sat next to each other in front of the generator with the participant on the right.

Teacher 1 began the procedure by reading the words and pressing the switches. The confederate showed no signs of hesitation until reaching 75 volts. The confederate paused before continuing and after the 90-volt switch said, 'I don't know about this', while the experimenter used the prod 'Please continue'. The confederate then paused for a few seconds and said, 'I don't think I can do this'.



The experimenter then focused on the participant instead, asking them to continue with the test.

## Results

The results of this study are shown in [Table 2.1](#).

## Conclusions

- Burger's experiment highlights that average Americans react to this laboratory experiment today much in the same way as they did in the 1960s, and that the same situational factors that affected obedience then still apply.
- Contrary to expectations, participants were no less obedient after seeing another person refuse to continue compared with the base condition. This might demonstrate the powers of the situational forces that led participants to follow the experimenter's instructions.
- The failure to find gender differences may reflect the power of situational variables in this setting to override individual differences (such as women's tendency to be more concerned about the learner's plight). Alternatively, women's greater concern for others may have been weaker than their ability to stand up to the experimenter (compared to men).

**Table 2.1** Numbers and (percentages) of participants who stopped and those who continued

Behaviour	Base condition	Modelled refusal condition	Milgram's original experiment
Stopped at 150 volts or earlier	12 (30.0)	11 (36.7)	7 (17.5)
Continued after 150 volts	28 (70.0)	19 (63.3)	33 (82.5)

## Reicher and Haslam (2006)

### Aims

To create an institution that resembled a prison, to investigate the behaviour of groups that were unequal in terms of power, status, privileges and resources in an ethical way. In particular, to see when people accept or challenge inter-group inequalities, whether people who have power use it without constraint and whether those without power accept their inferior group without complaints.

### Procedures



Fifteen male participants took part in an experimental case study with five randomly selected to be guards and the other ten prisoners. They lived in a mock prison for ten days with permeability between the groups altering and participants rating their identification with their own and the other group each morning. The 15 participants were first divided into five groups of three people who were as closely matched as possible on personality, such as racism, authoritarianism and social dominance. From each group of three, one participant was then randomly selected to be a guard (and the remaining two to be prisoners).

The guards were told that their responsibility was to ensure that the institution ran as smoothly as possible and that the prisoners performed all their tasks and were then asked to draw up a series of prison rules and of punishments for rule violations.

There were three planned interventions: permeability, legitimacy and cognitive alternatives. These interventions can be seen as the independent variables. Permeability refers to the degree to which it is perceived to be possible to move from one particular group into another. At their initial briefing, the guards were told that they had been selected because of their reliability, trustworthiness and initiative from pre-selection assessment scales. The experimenters stated that it was also possible that they had misassigned one or more of the prisoners. Hence, the guards were told that they should observe the behaviour of the prisoners to see if anyone showed guard-like qualities.

This information was also announced to the prisoners over the loudspeaker. In the initial days of the study, participants were thus led to believe that movement between groups was possible. After the promotion of one prisoner to guard actually took place, the possibility of movement was removed by announcing that there would be no further promotions.

Legitimacy refers to the extent to which relations and status differences between groups are perceived to be justified or not. Three days after the promotion, participants were to be informed by the experimenters that there were in fact no differences between guards and prisoners. The participants would now believe that the group division was not legitimate.

Cognitive alternatives refers to group members' awareness of ways in which social relations could be restructured in order to bring about social change. Within a day of the legitimacy intervention, a new prisoner was introduced. He was chosen for this role because of his background as an experienced trade union official. Hence, it was expected that his introduction would enable the prisoners to envisage the achievement of a more equal set of social relations.

### **Findings/results**

Haslam and Reicher divided the findings of the experiment into two phases rejecting inequality (days 1–6) and embracing inequality (days 7–8).

#### **Rejecting inequality**

In this first phase of the study, the guards did not identify with their group and therefore did not act collectively. The prisoners also lacked a social identity initially and acted individually in the hope of being promoted. However, after the promotion on day 3, the prisoners increasingly identified as a group and on day 6 the guards were overthrown by the prisoners.

#### **Embracing inequality**

In this second phase of the study, the prisoners and guards decided to create a new self-governing commune. However, the commune was unable to deal with internal dissent and some of the former prisoners and former guards attempted to impose a new much harsher regime on the other participants. The study therefore had to be terminated on day 8 as it would have gone on to break ethical guidelines.

The guards identified more strongly with their group compared to the prisoners until participants were told there would be no more movements between groups and the trend reversed with the scores of prisoners remaining higher for the rest of the study. On day 6, prisoners broke out of their cells and soon prisoners and guards governed together as one.

### **Conclusions**

- Tyranny arose as a solution to group failure.
- People do not blindly/automatically conform to roles that are assigned to them.

- Social identification is important to allow the group to be effective and affects the members' mental state. A dysfunctional group led to a worse mental state.
  - The study reinforced Social Identity Theory's suggestion of how far permeability affects how people identify with groups.
  - They concluded that surveillance affects behaviour as the guards were reluctant to appear authoritarian.
- 

## **Cohrs *et al.* (2012)**

### **Aims**

The study aimed to examine any correlations between the Big Five personality dimensions, Right Wing Authoritarianism (RWA) and Social Dominance Orientation (SDO) and prejudice.

Cohrs *et al.* (2012) also wanted to see whether previous research would be supported by using self-report and peer report data, rather than just relying on the one. The use of peer reports would be used to cross-check the self-report data. Using self-reports alone, previous research had found a link between certain personality traits and ideological views which lead to prejudice. More specifically to see whether that conscientiousness correlated positively with RWA and that RWA and SDO correlated positively with prejudice.

### **Procedures**

Two separate studies were carried out in relation to the overall study. The procedure in both studies involved the participants self-rating their own personalities and their peers then rated them (the participant). Participants were asked to give the peer report questionnaire to a friend and to complete the self-report themselves. Confidentiality was maintained throughout and the peer raters were to answer as best they could, thinking about how the participant (their friend) would respond.

Study 1 used an opportunity sample from the general population of Eastern Germany which had just the one peer rater. Study 1 focused on measuring prejudice to foreigners and negative attitudes to disability and homosexuality. The sample consisted of 125 female and 64 male participants and their associated peers who knew the participant they were paired with well. To measure

personality and prejudice, study 1 used the NEO Five Factor Inventory (seven-point scale) which had 12 items for each of the five factors.

Study 2 used volunteer sampling from a twin registry and unlike study 1 had two separate friends for each participant as this would give more reliable data. Study 2 used the German version of the NEO Personality Inventory Revised (five-point scale) which had 48 items for each of the five factors. The sample consisted of 103 men and 321 women aged between 18 and 82 years. They also completed an adapted questionnaire based on the negative attitudes to the same groups from study 1.

## Results

The results of this study are shown in [Table 2.2](#).

**Table 2.2** The table below shows the key significant correlation for self-report data for Study 1 and Study 2

Variable 1	Variable 2	Correlation coefficient (all sig at $p = 0.001$ ) for study 1	Did peer report agree?	Correlation coefficient (all sig at $p = 0.001$ ) for study 2	Did peer report agree?
Conscientiousness	RWA	0.20	Yes (0.13) but not a significant correlation	Not significant	Yes (0.14) but not a significant correlation
SDO	Prejudice	0.27	Yes (0.34)	0.37	Yes (0.28)
RWA	Prejudice	0.57	Yes (0.47)	0.50	Yes (0.48)

## Conclusions

- If an individual is more conscientious, they are more likely to be RWA.
- If an individual has SDO or RWA, they are more likely to be prejudiced.
- The findings of previous research which just uses self-reports has been found to be reliable when using both self-reports and peer reports.

### Exam tip

When asked to describe a study such as those above, do not spend most of your answer writing about just the procedure. Try to give the examiner breadth of knowledge by including the aims, results and conclusions as well.

## Key questions

### What makes people commit acts of terrorism against fellow human beings?

The attack on the World Trade Center in America on 9/11 and the London bombings on 7/7 have stirred up public opinion and made us all consider what motivates an ordinary person to become a terrorist.

Terrorism is defined as ‘the use or threat of action to influence a government or intimidate the public for a political or religious cause’.

Terrorism is not new. It has been used since the beginning of recorded history. Early examples of terrorist acts can be traced back to the French Revolution in 1789. However, it evolved over the last 200 years and now the most common types of terrorism include bombings, hostage taking and hi-jacking.

In terrorism studies in the late 1960s, it was not uncommon to conceive of pathology as a psychological abnormality or affliction rooted inside the individual. However, more recently this idea has fallen into disrepute, and the consensus now holds that the roots of terrorism lie not in the individual, but in the wider circumstances in which terrorists live and act.

### **Application of concepts theories and research to explain this key question**

Terrorists may believe they are the in-group and categorise themselves as such at the expense of the anti-terrorists (out-group). In identifying with one group they may have exaggerated differences with the other group, e.g. through the uniform/clothes worn. This in-group favouritism to their own country/cause may have led to discrimination in order to protect their own self-esteem.

Realistic Conflict Theory would take this idea one step further and suggest there is some competition (political/social) between the groups which leads to this form of discrimination.

Terrorists may be following a leader in a position of authority who may make them obey his commands to carry out atrocities. Terrorists are therefore obeying the (religious) leaders’ authority figures as they are in an agentic state.

There may be a diffusion of responsibility in that the terrorist may believe that those they are obeying will be ultimately responsible. Milgram found

that participants were more likely to continue giving shocks as they knew responsibility lay with the experimenter and not themselves.

Some suicide bombers may be in an autonomous state fully believing what they are doing is correct and of their own free will. However, others may not actually want to do these acts and may experience moral strain when doing so. Zimbardo (1971) found that acts such as these may be the product of the social situation and social roles given to them.

Social Impact Theory would suggest the terrorists were all in agreement that it was acceptable and the message was strong. Because of the number of previous terrorist acts and the immediacy of the message, the impact of the decision to commit these atrocities was high.

### **Exam tip**

When describing your key question try to avoid bringing in any psychology as this should be included in your explanation of the key question only.

## **Practical investigation**

In conducting the practical investigation, you must:

- design and conduct a questionnaire to gather both qualitative and quantitative data to look for a difference in the data
- consider questionnaire construction, sampling decisions and ethical issues
- collect and present an analysis of quantitative data using measures of central tendency, measures of dispersion (including range and standard deviation as appropriate), bar graph and frequency table
- collect and present an analysis of qualitative data using thematic analysis
- consider strengths and weaknesses of the questionnaire
- write up the procedure, results and discussion section of a report.

### **Suitable examples**

- A questionnaire to see if males or females perceive themselves to be more obedient
- In-group out preference and out-group hostility
- Gender differences in obedience to authority
- Prejudice within gender and sport in the media.

## **Issues and debates**

<b>Ethics</b>	<p>Issues of informed consent, causing psychological harm and right to withdraw within obedience research</p> <p>The necessity of creating these conditions in order to study prejudice and obedience</p>
<b>Practical issues in design and implementation of research</b>	<p>Practical issues when researching prejudice, such as social desirability</p> <p>Issues with interviews/self-reports when measuring obedience and prejudice</p> <p>Importance of sampling participants into conditions (Burger 2009 and Sherif <i>et al.</i> 1954/1961)</p>
<b>Reductionism</b>	<p>Reducing behaviour down to an equation in social impact theory</p> <p>Risk of drawing reductionist conclusions from data drawn from self-reports and interviews</p> <p>Measuring prejudice attitudes by questionnaires can reduce the complexity of behaviour</p>
<b>Comparisons between ways of explaining behaviour</b>	<p>Issues of personality, culture, gender and situation in explaining both obedience and prejudice</p> <p>Use of two different theories to explain prejudice and obedience behaviour</p>
<b>Psychology as a science</b>	<p>Controls over variables in laboratory experiments can lead to replicability and reliability</p> <p>However, bias in questionnaires can lead to issues of validity</p>
<b>Cultural and gender issues</b>	<p>Obedience not found to be influenced by gender</p> <p>However, there are cultural differences (collectivistic vs individualistic) in obedience</p>



<b>Nature–nurture</b>	Role of authoritarian personality and upbringing in obedience and prejudice Links from Cohrs (2012) study on prejudice and RWA/SDO suggest prejudice is more nurture than nature
<b>Psychological understanding over time</b>	Changes from Milgram (1960s) and the replication work of Burger (2009) into obedience Similarly, Cohrs (2012) further examined the work of Adorno (1950) on personality and prejudice
<b>Social control</b>	Making people obey authority and socialising them into an agentic state from a young age Knowledge of how to induce and reduce prejudice within individuals and groups
<b>Psychological knowledge in society</b>	Reduction of prejudice Explaining football violence/acts of terrorism/cult behaviour/historical atrocities
<b>Socially sensitive research</b>	Prejudice links to racism and the impact of research on participants and the groups they represent

### Exam practice

- 1 Evaluate Milgram's agency theory as an explanation of obedience. [8]
- 2 Evaluate one contemporary study from social psychology. [8]
- 3 Evaluate Milgram's original study of obedience. [8]
- 4 Evaluate one of Milgram's variation studies. [8]
- 5 Evaluate Sherif's robbers' cave study. [8]
- 6 Evaluate Social Identity Theory as an explanation of prejudice. [8]



- 7 Outline two features of Milgram's (1963) study that might explain why the participants obeyed. [8]
- 8 Compare the agency theory with the social impact theory as an explanation of obedience. [4]
- 9 Describe how personality may affect obedience. [6]
- 10 Explain how prejudice can be explained by developmental psychology. [4]
- 11 Evaluate social impact theory. [4]
- 12 Outline what is meant by social psychology. [8]
- 13 Explain two ways in which prejudice was reduced in the robbers' cave study. [6]
- 14 Sakina has been told by her teacher that she should do her homework this week if she is to improve on her current grades. Using your knowledge of social impact theory, explain why Sakina is likely to follow her teacher's instructions. [4]

### **End of chapter summary**

You should now have an understanding of all the points below:

- two theories of obedience and prejudice
- Milgram's research into obedience including his original and three variation experiments
- factors affecting obedience and prejudice
- issues concerning individual differences and development within obedience and prejudice
- methodology used such as self-reports, interviews and questionnaires
- four sampling techniques
- qualitative and quantitative data

- ethical guidelines
  - the classic study by Sherif et al. (1954/1961) and one other contemporary study
  - one key question relating to social psychology
  - one practical investigation that you have carried out in relation to social psychology
  - issues and debates within social psychology.
-

# 2 Cognitive psychology

## Defining cognitive psychology

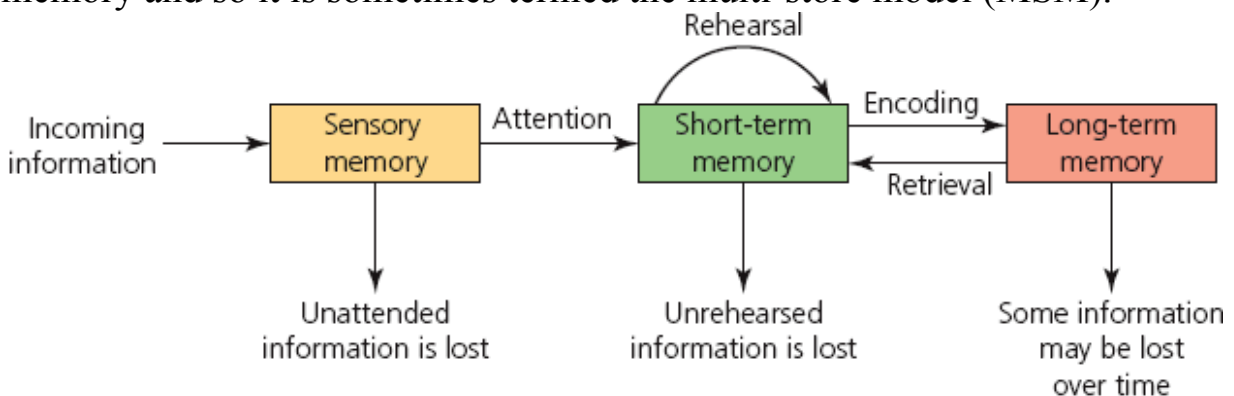
Cognitive psychologists believe our mind is like an information processor. The major influence on human behaviour and emotion is how the mind processes information. Unlike the learning theorists who compare the mind to a black box, the emphasis here is on information processing. Cognitive psychologists compare the human brain to a computer. Information comes into a computer through a keyboard or software disk. Humans receive information through their senses. The computer then runs programs to process the information. Humans process the information via the central nervous system and the brain. The computer gives output in terms of a printout and humans give a wide variety of outputs as behaviour.

## Models/theories of memory

Memory is a single term that reflects a number of different abilities, such as holding information briefly while working with it or remembering episodes of one's life. It involves three processes: **encoding**, **storage** and **retrieval**.

### Multi-store model

Atkinson and Shiffrin (1968) proposed the two-process model of memory, which showed how information flowed through the two stores of short-term (STM) and long-term memory (LTM). Like many of the models, they assumed the existence of a sensory memory that precedes the short-term memory and so it is sometimes termed the multi-store model (MSM).



**Figure 2.1** Multi-store model

Atkinson and Shiffrin regarded the stores as the structural components of the model, but also proposed a number of control processes, such as

attention, coding and rehearsal, which operate in conjunction with the stores. Information moves through three systems (sensory, short-term and long-term memory) under the control of various cognitive processes (attention, rehearsal, etc.). It can therefore be described as an information processing model (like a computer) with an input, process and output. Short-term memory decays rapidly and also has a limited capacity. According to Miller we can hold between five and nine items (digits, words, etc.) at any one given time in our STM ( $7 \pm 2$ ). Chunking of information can lead to an increase in the short-term memory capacity. This is the reason why a hyphenated phone number is easier to remember than a single long number. If information is not rehearsed within 15 to 30 seconds while in STM, it is lost.

The model suggests we receive information from the environment through our five senses, which is automatically stored briefly in our sensory register, the duration of which is up to two seconds. It has a large capacity as it needs to encode all types of sensory experience. Coding and rehearsal determine the fate of this information. Rehearsal is seen as a key process as it not only keeps information in STM, but is also responsible for transferring it to LTM. Material in the sensory register that is attended to is transferred to STM, and information in STM that is sufficiently rehearsed is transferred to LTM. The capacity of the long-term memory is infinite, so vast amounts of information can be stored, potentially for ever. The STM works mostly by acoustic encoding; whereas the LTM uses all types of encoding but favours semantic.

### Now test yourself

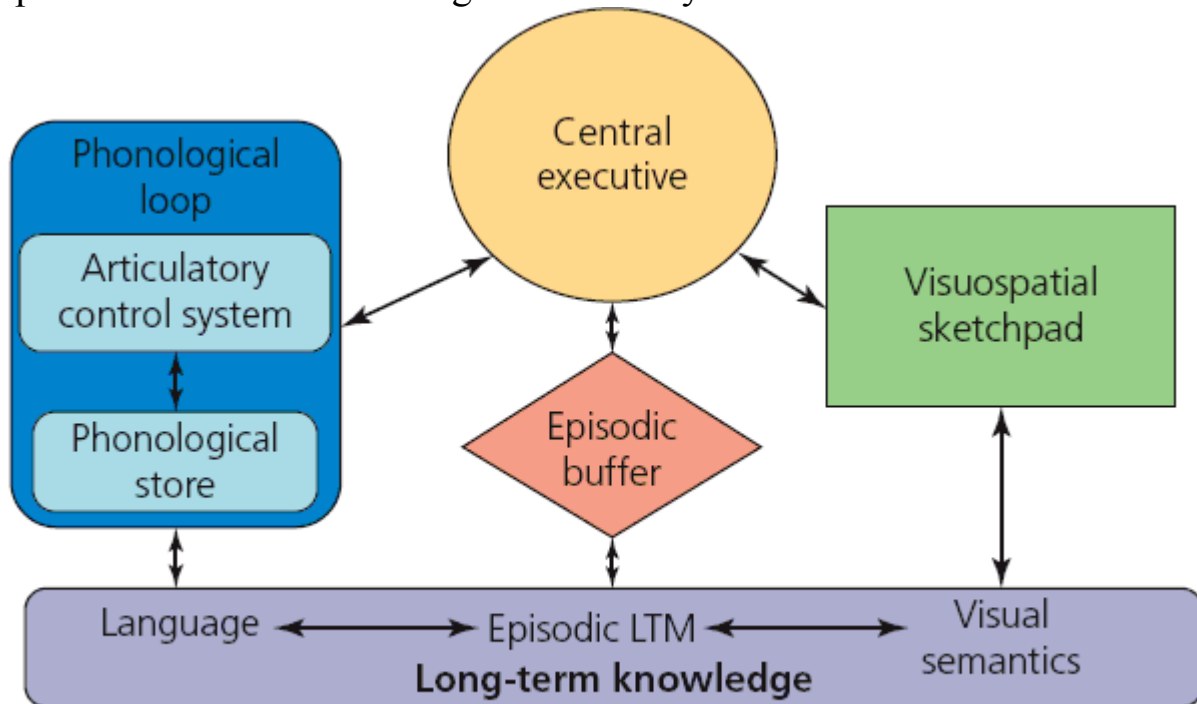
- 1 What are the capacity and duration of STM?
- 2 How could we increase the capacity in our STM?

Answer on p. 226

### Working memory model

Baddeley and Hitch's (1974) working memory model is an active store to hold and manipulate information that is currently being thought about. It consists of three separate components: the central executive; phonological loop and visuospatial sketchpad. The first is attention-like in nature and monitors and co-ordinates the operation of the other two slave systems. The second in which information is rehearsed and stored in a speech-based form consists of two subsystems, one of which is an inner voice, the other an

inner ear. The third component is an inner eye which holds visual and spatial information from long-term memory.



**Figure 2.2** The working memory model

### Central executive

The central executive is considered the most important part of working memory, because it controls attention and coordinates the actions of the other components. It can briefly store information, but has a limited capacity. The central executive is modality free, which means that it can store information in any sense modality.

### Phonological loop

The phonological loop consists of two parts, the *articulatory control system* and the *phonological store*:

- **Articulatory control system** (the inner voice). The articulatory control system rehearses information verbally and has a time-based capacity of about two seconds. It is helpful to think of it as the system that you use to mentally rehearse information by repeating it over and over again.
- **Phonological store** (the inner ear). The phonological store uses a sound-based code to store information, but this information decays after about two seconds, unless it is rehearsed by the articulatory control system. The phonological store receives its input either directly from the ears or from

long-term memory. If you imagine your favourite piece of music, you are using your phonological store.

### **Visuospatial sketchpad**

The visuospatial sketchpad stores and manipulates visual information. Input is from the eyes or long-term memory. If you imagine an object and then picture it rotating you are using your visuospatial sketchpad.

### **Episodic buffer**

The episodic buffer is a fairly recent addition to the working memory model (Baddeley, 2000). Its purpose is to bind together all the information from the other components of working memory with information about time and order. This prepares memories for storage in episodic long-term memory.

#### **Exam tip**

It is always a good idea to draw and accurately label diagrams when describing either MSM or WMM. These will also act as a cue for you when you write about them.

#### **Now test yourself**

**3** Outline one difference between working memory and the multi-store model.

**Answer on p. 226**

### **Episodic and semantic memory as an explanation of long-term memory**

In the same way, the working memory model elaborates on short-term memory in the multi-store model, then similarly episodic and semantic memory elaborates on the long-term memory part of the multi-store model. The theory was put forward by Tulving (1972) who wanted to make a distinction between semantic and episodic memory. The knowledge that we hold in semantic and episodic memories focuses on ‘knowing that’ something is the case. For example, we might have a semantic memory for *knowing* that Paris is the capital of France and we might have an episodic memory for *knowing* that we caught the bus to college today. In both cases we are declaring what we know – hence they both fall under the umbrella type of LTM, known as declarative memory.

**Episodic memory**, the memory of autobiographical events (times, places, associated emotions and other contextual knowledge) that can be explicitly of episodic memory, is dependent on the context in which the event was

initially learned so information retrieval will be aided by the repetition of the same context. Unlike semantic memory, episodic memory is susceptible to transformation during retrieval.

**Semantic memory** is generally derived from the episodic memory, in that we learn new facts or concepts from our experiences, and the episodic memory is considered to support and underpin semantic memory. Semantic memories may once have had a personal context, but now stand alone as simple knowledge.

A gradual transition from episodic to semantic memory can take place, in which episodic memory reduces its sensitivity and association to particular events, so that the information can be generalised as semantic memory.

### Now test yourself

4 Outline one difference between episodic memory and semantic memory.

Answer on p. 226

## Reconstructive memory

In his theory of **reconstructive memory**, Bartlett suggested that memory is more of an imaginative reconstruction of past events influenced by how we encode, store and retrieve information. Memory is not like a blank tape but is changed when we recall it, coding and retrieval depend on how well an event is processed. Our attitudes and responses to events change our memory for those events.

We use **schemas** that we already have to interpret information and incorporate these into our memory. They are mental ‘units’ of knowledge that correspond to frequently encountered people, objects or situations. For example, if you see a scene at the beach and are asked to recall it later, you might recall seeing a beach umbrella even if none was present in the actual scene itself, because an umbrella is consistent with the general schema of items that belong in a beach scene. Therefore, although schemas can aid encoding and guide retrieval, they can also lead to errors. Schemas are therefore capable of distorting unfamiliar or unconsciously ‘unacceptable’ information in order to ‘fit in’ with our existing knowledge or schemas.

## Individual differences and developmental psychology

As cognitive psychology describes how we process information, it means there will be individual differences in how we encode or process and output particular information.

Brain damage can have the same effect on different individuals. Classic cases, such as HM and Clive Wearing, have shown how the hippocampus plays an important role in memory. However, there will also be differences in the effects of the damage between individuals as each case and each person is unique.

Reconstructive memory suggests we remember using schemas and that everyone's schemas are individual, depending on their experiences. For example, some people dislike the police because they have a schema of police as people who perceive everyone as guilty until proven innocent. Other people feel safe around police as their schemas are more about police as brave protectors.

### **Typical mistakes**

When describing reconstructive memory, candidates have neglected to write about confabulation and spend far too much of their answers on schemas. Breadth is as important as depth here and confabulation is an important part of the theory.

Episodic memories are by nature individual, as it is about an individual episode in our lives. Tulving suggests there is a difference between episodic (autobiographical) and semantic memories.

## **Developmental psychology in memory**

### **Dyslexia**

Developmental psychology looks at what happens to us as we age, and is concerned with, for example, why children may fail to learn language as they are expected.

**Dyslexia** can affect writing, spelling and even speaking. People with dyslexia can still understand complex ideas. Sometimes they just need more time to work through the information. Children with dyslexia can take so long to read a sentence that they may not remember the sentence that came before it. This makes it tough to grasp the meaning of the text. Listening to an audio version or using other kinds of assistive technology can help.

For children with dyslexia, reading a single word can be a struggle.

Dyslexia also makes it hard to understand and remember what they have read. Early in school, children are expected to read a passage of text and



answer questions about it. This is what is known as ‘reading comprehension’, and it is essential for building a strong foundation for success in school. Students with dyslexia often have reading comprehension problems because they need to develop several underlying skills, such as decoding and understanding text and reading fluently. Working memory capacity could influence both the duration that a fact remains in the working memory and the probability that it is consolidated in long-term memory. A reader with more efficient working memory might have additional capacity and processing time to devote to rehearsal and consolidate information, while the poorer reader would require all his processing capacity to perform the minimal amount of work on a given task.

Because working memory is used to store and process information during complex and demanding activities, it supports many activities that children routinely engage in at school. Learning to read relies on working memory. Dyslexia involves deficits in both the phonological loop and central executive functioning. We have to match each letter with the correct sound, put it together, and remember it for future use. The process of keeping multiple sounds and letters active is often too difficult for most dyslexics because they have poor auditory working memory. This means that they struggle to hold all the sound units in their head, which makes it hard for them to read, i.e. difficulty holding on to several pieces of information while undertaking a task, e.g. taking notes as you listen, coping with compound questions. Other symptoms include poor short-term memory for facts, events, times, dates and an inability to hold on to information without referring to notes.

Given the heavy working memory demands of classroom instructions and activities, it is perhaps unsurprising that one of the key characteristics of children with working memory deficits is poor educational attainment. When the working memory system fails, children forget what they are doing and this can lead to inattentive behaviour.

### **Alzheimer’s disease**

**Alzheimer’s disease** is the most common form of dementia, and is generally diagnosed in patients over the age of about 65. The most commonly recognised symptom is an inability to acquire new memories and difficulty in recalling recently observed facts.

Alzheimer's does not affect all memory capacities equally: short-term memory is the first to go followed quickly by episodic memory. The hippocampus is one of the first brain structures damaged in Alzheimer's disease and accounts for difficulty remembering recent events, without any trouble remembering events from long ago. Semantic memory is the next to go and patients tend to display a loss of knowledge of the specific characteristics of semantic categories. Initially, they lose the ability to distinguish fine categories, such as species of animals or types of objects, but, over time, this lack of discrimination extends to broader, more general categories. Thus, at first, a patient may see an Alsatian and say, 'That is a dog'; later, they may just say, 'That is an animal'. Procedural memory (knowledge of how to do things such as riding a bike) seems to be linked to the cerebellum and is the last to deteriorate. It also affects working memory; central executive functioning becomes impaired, making complex tasks more difficult to coordinate, and visuospatial processing also weakens. As the disease advances, parts of memory which were previously intact also become damaged, and eventually all reasoning, attention and language abilities are disrupted.

### Now test yourself

5 Describe symptoms of both dyslexia and Alzheimer's disease.

Answer on p. 226

## Methods

Scientific testing within research methods are a key feature of cognitive psychology – they are important as psychologists are investigative scientists. They base all theories on evidence they have collected from scientific experiments.

## Hypotheses

A hypothesis states what you believe will happen. It is a precise and testable statement of the relationship or difference between two variables. This is known as the experimental (alternative) hypothesis. This can be **directional (one-tailed)** or **non-directional (two-tailed)**.

The simplistic definition of the **null hypothesis** is as the opposite of the alternative hypothesis, although the principle is a little more complex than that. The null hypothesis is a hypothesis which the researcher tries to disprove, reject or nullify.

## Variables

In psychology, we often use the experimental method to test out theories and ideas. In an experiment, we must change a single variable (the **independent variable**) while keeping all others the same. We will then measure the effect of this variable on what we are measuring (the **dependent variable**).

### **The experimental method**

There are two types of experiment that cognitive psychologists use: the **laboratory experiments** and **field experiments**. Laboratory experiments involve the deliberate manipulation of one variable while trying to keep all others constant. The researcher manipulates the independent variable and measures the dependent variable. Laboratory experiments are investigating cause and effect, while trying to test a given hypothesis. Participants are usually aware that they are taking part in an experiment, although they may not know the true aims of the study.

#### **Typical mistakes**

It is common to get the independent and dependent variables the wrong way round. When writing hypotheses, the dependent variable will always come first and the independent will always come at the end of the sentence, e.g. there will be a difference in the number of hours of time spent (DV) on social media between males and females (IV).

It is common to have an experimental group and a control group within these experiments in order to compare the effect of the independent variable. The control group acts as a comparison and is not exposed to the independent variable whereas the experimental group is.

They share many similarities with laboratory experiments, such as the deliberate manipulation of one variable while trying to keep all others constant. The researcher once again manipulates the independent variable and measures the dependent variable. However, as they are set outside the confines of a controlled setting, the researcher has control over some variables but very little control over the environment. At the same time, participants are often unaware that they are being studied.

#### **Now test yourself**

**6** Outline four features of a laboratory experiment.

**Answer on p. 226**

## Experimenter effects, demand characteristics and control issues

Experimenter effects are the ways that the experimenter can accidentally influence the participant through their appearance or behaviour. The appearance of the experimenter may produce effects (e.g. as a result of their ethnic group, age, gender or physical attractiveness). Participants may behave differently if the experimenter is a large burly man as opposed to a small softly spoken woman. Similarly, the experimenter might unknowingly communicate their expectations to the participants. This could happen through changes in tone of voice.

**Demand characteristics** can change the outcome of an experiment because participants will often alter their behaviour to conform to the experimenter's expectations. They might read things into the situation and start changing their behaviour responding to the perceived demands of the study. They might feel that they are helping the experimenter or they may not like the experimenter.

### Operationalising variables

This is to make your variables fully understandable. They must include exactly what is being *defined* and *measured*. It is very important that you state how the independent variable is being manipulated and how the dependent variable is being measured.

There are some variables the experimenter cannot control and these fall into two types:

- 1 An **extraneous variable** is anything apart from the IV that could affect the DV. These can come from the situation or the participant (see below) and are meant to be controlled as far as possible.
- 2 A **confounding variable** is when the extraneous variable actually does affect the DV because controls were not strict enough, i.e. when results are analysed it is clear that noise did affect one of the participants or that, during an interview after the experiment, a participant did respond to having previous experience of memory tests/a higher IQ, etc., which influenced results.

Situational variables can be found either in the environment (situation) in which you are conducting your experiment, e.g. if you were testing memory and some participants had to cope with more noise than others, it might affect your results.

Participant variables are characteristics and differences to do with the individuals taking part, e.g. if you were testing driving behaviour and some of your participants were tired that might affect your results.

### Typical mistakes

Confounding variables and extraneous variables such as 'mood' or 'the weather' rarely have a place within cognitive psychology, so try to avoid coming up with these.

## Experimental and research designs

Experimental design refers to how participants are allocated to the different conditions in an experiment. Probably the most common way to design an experiment in psychology is to divide the participants into two groups, the experimental group and the control group, and then introduce a change to the experimental group and not the control group.

The researcher must decide how they will allocate their sample. For example, if there are ten participants, will all ten take part in both conditions or will the participants be split in half and take part in only one condition each?

The designs you need to know are:

- **Independent measures.** In this design, the two or more groups used in the experiment consist of different individuals and where participants only take part in one condition of the experiment. The two groups of participants in this type of experimental design will be exposed to one level of the IV only, e.g. you compare 20 boys with 20 girls on a reading test.
- **Repeated measures.** This is when the same participants are tested on two or more separate occasions. So the same participants are used in each group, e.g. you test ten participants on two different IQ tests and compare the results.
- **Matched pairs.** Different participants are used in different groups but they are carefully matched on important variables, such as age, background, etc., e.g. pairs of participants might be matched for age, gender, intelligence or personality test scores.

### Exam tip

Do not confuse designs with methods of investigation, such as laboratory and field experiments.

### Now test yourself

Name the type of design used in these experiments:

- 7 Men and women are shown two patterns and the researcher records how much time is spent looking at each pattern.
- 8 The perceptual ability of kittens reared in different environments is compared.
- 9 Twenty A-level students are tested on a personality test and then retested the following week. The results of the two tests are compared.

Answers on p. 226

Order effects can occur in a repeated measure design. These include the **practice effect** and the **fatigue effect**. These order effects are a direct disadvantage of using the same participants in both conditions and can therefore skew the results.

Counterbalancing is a method of controlling ‘order effects’ by having some participants do one task first and the rest the other task first. In a repeated measures design, the same participants will do two or more tasks.

Randomisation is another way to control bias as much as possible. It is designed to ‘control’ (reduce or eliminate if possible) bias by all means. The fundamental goal of randomisation is to make sure each participant has an equal chance of being placed in the experimental or control group/condition.

### Objectivity, reliability and validity

Researchers should remain totally value free (**objective**) when studying. They should try to remain totally unbiased in their investigations. They should not be influenced by personal feelings and experiences.

Objective methods (e.g. a laboratory experiment) will produce more reliable data as they can be replicated easily which makes them more scientific.

However, they can be criticised for producing narrow, unrealistic information which only focuses on small fragments of behaviour so are less valid.

Subjective methods with less control (e.g. an interview) are conducted in more natural circumstances and tend to produce more valid data. However, they are criticised for low reliability because they are difficult to replicate. They are also subjective because they produce information which the researcher has to personally interpret.

Psychological tests and other similar measures need to produce consistent results and need to measure what they are supposed to measure. You would not think much of an intelligence test which said you were a genius today and an imbecile tomorrow! (*Not reliable*). Similarly, you would not think much of a psychology exam which only asked questions on geography (*Not valid*).

## **Validity**

Validity is the extent to which a test measures what it claims to measure. It is vital for a test to be valid in order for the results to be accurately applied.

### **Ecological validity**

Ecological validity is the degree to which the behaviours observed and recorded in a study reflect the behaviours that actually occur in natural settings. Essentially, this is the extent to which findings from a study can be generalised to the 'real world'. The more control psychologists exert in a study, typically the less ecological validity and thus, the less they may be able to generalise. For example, when we take people out of their natural environment and study them in the laboratory, we are exerting some control over them and, as a result, possibly limiting how much we can generalise the findings to all people in natural settings.

### **External validity**

When we conduct experiments, our goal is to demonstrate cause and effect relationships between the independent and dependent variables. We often try to do it in a way that enables us to make statements about people at large. How well we can do this is referred to as 'study generalisability'. A study that readily allows its findings to generalise to the population at large has high external validity.

### **Internal validity**

The degree that we are successful in eliminating confounding variables within the study itself is referred to as internal validity. Uncontrolled variables may cause the effect on the dependent variable, e.g. demand characteristics.

## **Reliability**

Reliability refers to the consistency of a measure. A test is considered reliable if we get the same result repeatedly. In order to test reliability the study needs to be replicable, i.e. the experimenter has to have a high level of control.



## Inter-rater reliability

This is concerned with how closely different people (raters) actually agree with each other, e.g. if three teachers were to mark your essay and they all agreed it was a grade A, then we have high inter-rater reliability. This form of reliability is often used in observational studies to make sure observers agree upon what they are observing.

## Test-retest reliability

This is where the same group of people are given the same test twice and scores on both tests are correlated. If the test is reliable then the scores should be similar on both occasions.

## Inferential statistics

Once we have conducted our studies we need to decide from the results whether to accept or reject our null hypothesis, i.e. discover whether our results were due to chance or as a result of the independent variable influencing the dependent variable.

This tells us whether or not it is safe to infer that the results from a particular sample of people are valid for the entire population from which the sample was drawn. We do not simply want to report the scores (by using descriptive statistics) but use the data to test our original prediction to decide whether the independent variable is having the effect we supposed. Inferential statistics provide this information.

So, our aim is to discover the likelihood (or probability) that our results are due to chance factors:

- If it is very *unlikely* results are due to chance, we assume it was the independent variable that caused the results and the difference between our two groups is **significant**, so you accept the experimental hypothesis and reject the null hypothesis.
- However, if it's very *likely* due to chance, then results are **not significant**, so you accept the null hypothesis and reject the experimental hypothesis.

## How do we decide what is due to chance?

Psychologists usually accept a significance level of 0.05 (5 per cent). This means that a difference between two groups will be assumed to be due to chance unless the results could only arise by chance one time in 20 (5 per cent) or less.

If your results are significant, then it means your results were only 5 per cent or less due to chance factors and you can therefore be at least 95 per



cent confident that your IV influenced your DV.

If your results were not significant, then it means your results were more than 5 per cent due to chance factors and you can only be at least 94 per cent confident that your IV influenced your DV.

**$p =$  probability results are due to chance**

**$p > 0.05$  means probability of results due to chance is greater than 5%**

**$p < 0.05$  means probability of results due to chance is less than 5%**

However, in certain circumstances, for example, when our prediction contradicts an established theory or in research which has really important effects like drug testing, we may set ourselves more demanding levels of significance, say 0.01 (1 in 100) or even 0.001 (1 in 1000).

Using different levels of significance can, however, lead to problems known as Type 1 and Type 2 errors.

- Type 1 error
  - Rejecting the null hypotheses when in fact the results could have been due to chance
  - Usually caused by a significance level that is too lenient, such as 10 per cent (0.1)
  - You were not cautious enough and too *optimistic*.
- Type 2 error
  - Accepting the null hypotheses, when in fact the results could have been significant
  - Usually caused by a significance level that is too strict, e.g. 1 per cent (0.01)
  - You were over cautious and too *pessimistic*.

### **Exam tip**

When recalling the difference between the two types remember that O (for optimistic) comes before P (for pessimistic) in the alphabet.

Imagine testing whether students who attend a psychology revision conference will produce significantly higher scores on their psychology exam than those who did not attend the conference.

We can never prove beyond any doubt that chance was not responsible for the better performance of the group that did attend the revision conference. However, by using a statistical test on the results (data) of the investigation,

we shall be able to say how likely it is that any given difference is due to chance.

If it is very unlikely that the difference could be caused by chance (say 1 in 500), then we conclude that the independent variable is responsible for the difference: in our example, that attending the revision conference did impact exam results. The difference between the groups is said to be significant. If, on the other hand, the difference between the two groups could reasonably have arisen by chance, then we assume that the independent variable has not had any effect on the results and we say that any difference between the groups is not significant.

When you actually carry out a stats test on a computer, it will give you an observed value for your particular experiment which has to be compared against a critical value in order to see whether your results were significant or due to chance. When comparing the two values against each other two of the four statistical tests require the observed value to be equal to or less than the critical value in order to be significant. For the remaining two tests, the observed value needs to be equal to or more than the critical value to be significant.

$$U_a = n_a n_b \frac{n_a(n_a + 1)}{2} \sum R_a$$

$$U_b = n_a n_b \frac{n_b(n_b + 1)}{2} \sum R_b$$

## Mann-Whitney U

Children were asked questions about several stories to see if they would exhibit any gender stereotyping. A maximum score of 100 would indicate extreme stereotyping. Group 1 consisted of children from a low socio-economic background, whereas group 2 came from a more affluent background.

Group A (n=7)	Rank (R <sub>a</sub> )	Group B (n=8)	Rank (R <sub>b</sub> )
32	7	67	13
26	4	77	14
24	3	34	8
30	6	78	15
16	1	18	2
57	10	59	11
38	9	28	5
		62	12
	Total for R <sub>a</sub> =40		Total for R <sub>b</sub> =80

**1** Rank all the scores as one group where rank 1 is the lowest and rank 15 is the highest.

**2** Find the total for the ranks in group A (R<sub>a</sub>) and group B (R<sub>b</sub>).

**3** Use the first formula shown above to calculate U<sub>a</sub>:

$$U_a = 7 \times 8 + \frac{7 \times (7 + 1)}{2} - 40 = 56 + \frac{56}{2} - 40 = 56 + 28 - 40, \text{ so } U_a = 44$$

**4** Use the second formula shown above to calculate U<sub>b</sub>:

$$U_b = 7 \times 8 + \frac{8 \times (8 + 1)}{2} - 80 = 56 + \frac{72}{2} - 80 = 56 + 36 - 80, \text{ so } U_b = 12$$

**5** Select the smaller value of U<sub>a</sub> and U<sub>b</sub> and call it U (as 12 is less than 44, so U = 12).

**6** Find the critical value and decide on significance for a one-tailed test at  $p < 0.05$  and at  $p < 0.01$

At  $p < 0.05$ , the critical value is 15 and at  $p < 0.01$ , it is 9, our observed value  $U = 12$  must be lower than or equal to the critical values to be significant. So our results are significant at 0.05, but not at 0.01.

### Wilcoxon ranks test

Students were asked to assess whether cramming was better for exam preparation compared to longer sustained periods of revision, using a specially devised attitude questionnaire.

Student ( $n = 14$ )	A Cramming	B Longer revision	Difference (B - A)	Rank of difference
1	31	40	9	11
2	31	24	-7	8
3	30	25	-5	6
4	18	17	-1	1
5	30	26	-4	5
6	14	22	8	9.5
7	23	33	10	12.5
8	30	40	10	12.5
9	23	29	6	7
10	18	21	3	3
11	26	34	8	9.5
12	42	42	0	
13	28	31	3	3
14	35	38	3	3

1 Calculate the difference between column B and column A to complete the third column.

2 Rank the differences to complete the final column (always ignore 0 differences and the  $\pm$  sign of the difference).

3 Find the total of ranks for differences with a plus (+) sign and for differences with a minus (-) sign. The smaller of these will be the Wilcoxon  $t$  value.

Here the total of the minus (-) ranks -7, -5, -1 and -4 will be smaller than the total of those with a plus (+) sign. So we can add these ranks:  $8 + 6 + 1 + 5$  means  $t = 20$

4 Using  $n$  (which does not include any zero differences), find the critical value and decide on significance for a one-tailed test at  $p < 0.05$  and  $p < 0.01$

$n = 13$ , as we have dropped one result due to it being a zero

At  $p < 0.05$ , the critical value is 21 and at  $p < 0.01$ , it is 12, our observed value  $t = 20$  must be lower than or equal to the critical values to be significant. So our results are significant at 0.05, but not at 0.01.

### Case studies of brain-damaged patients

This method often involves simply observing what happens to, or reconstructing the 'case history' of, a single participant or group of individuals. It is an in-depth detailed observation of an individual or particular group. They are often applied to study unusual or valuable examples of behaviour which may provide important insights for

psychology. The research is usually descriptive and the focus is narrow (on one particular bit of behaviour). They allow an investigation of naturally occurring events which could never be studied otherwise, e.g. effects of brain damage on behaviour.

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### Henry Molaison (HM)

Henry Molaison had been suffering epileptic fits of devastating frequency since the age of 16. At 27, he underwent surgery, using a technique never used before, which miraculously cured his epilepsy but at a terrible cost. The hippocampus was removed on both sides of his brain. He was left with severe **anterograde amnesia**. He had near normal memory for anything which he had learned prior to the surgery, but he had severe memory deficits for events which occurred after the surgery. For example, within the first few hours after the operation he was unable to recognise the medical staff and could not find his bedroom.

His STM was generally normal; for instance, he could retain verbal information for about 15 seconds without rehearsal and for much longer with rehearsal. However, he could not transfer information into LTM or, if he could, he could not retrieve it. He seemed entirely incapable of remembering any new fact or event.

He had almost no knowledge of current affairs because he forgot all the news almost as soon as he had read about it. He had no idea what time of day it was unless he had just looked at the clock. He could not remember that his father had died or that his family had moved house and he would reread the same magazine without realising he had already read it.

Although he could recognise friends, tell you their names and relate stories about them, he could do so only if he knew them before the surgery. People he met after the operation remained, in effect, total strangers to him and he had to 'get to know them' afresh each time they came into his house. Brenda Milner had known him for 25 years – yet she was a stranger to him each time they met.

However, he was able to learn and remember perceptual and motor skills; although he had to be reminded each day just what skills he knew how to do.

But 'new events, faces, phone numbers, places, now settle in his mind for just a few seconds or minutes before they slip, like water

through a sieve, and are lost from his consciousness' (Blakemore, 1988).

### Now test yourself

10 Define anterograde amnesia.

11 How does anterograde amnesia differ from retrograde amnesia?

Answers on p. 226

### Clive Wearing

Clive Wearing used to be the chorus master of the London Sinfonietta, as well as a BBC radio producer. In March 1985, he suffered a rare brain infection caused by the cold sore virus (*herpes simplex*). The virus attacked his hippocampus and destroyed it along with other parts of his cortex. Like HM, he lives in a snapshot of time, constantly believing that he has just awoken from years of unconsciousness. For example, when his wife, Deborah, enters his hospital room for the third time in a single morning, he embraces her as if they had been parted for years, saying, 'I'm conscious for the first time' and 'It's the first time I've seen anybody at all'. Clive's world now consists of a moment, with no past to anchor it and no future to look ahead to. It is a blinkered moment.

At first, his confusion was total and very frightening to him. Once he held a chocolate in the palm of one hand, covered it with the other for a few seconds until its image disappeared from his memory. When he uncovered it, he thought he had performed a magic trick, conjuring it up from nowhere. He repeated it again, with total astonishment and growing fear each time. He now lives a sort of life, constantly playing patience and obsessively keeping a diary – every few minutes, he makes a note that he has just woken for the first time.

Like HM, he can still speak and walk, as well as read music, play the organ and conduct. However, unlike HM, his capacity for remembering his earlier life was patchy in the extreme. He could still remember general features, including his school life, singing for the Pope on his visit to London, but in all cases his capacity to recall detail was extremely poor.

Such amnesic patients' lives are effectively ruined because of a lack of conscious recollection. According to Deborah, 'Without consciousness he's in many senses dead'. If he goes out alone, he gets lost and cannot find his way back, he cannot tell anyone who finds him where he has come from or where he is going. In his own words, his life is, 'Hell on earth – It's like being dead – all the bloody time'.

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## The use of qualitative data

Qualitative methods emphasise the perspective of the individual and their individuality. The use of rich data-gathering methods, such as the in-depth interview and focus groups, encourage this emphasis on the individual's perspective. Research findings in quantitative research tend to be nomothetic, whereas they tend to be idiographic in qualitative research. Nomothetic refers to studying groups or classes of individuals, which leads to generalised explanations, whereas ideographic refers to the study of an individual as an individual.

Qualitative research is useful for studies at the individual level, and to find out, in depth, the ways in which people think or feel (e.g. case studies). This allows the respondent to talk in some depth, choosing their own words. This helps the researcher develop a real sense of a person's understanding of a situation. The qualitative data produced from the years of studying HM shows a clear difference between short-term and long-term memory. It suggests that the hippocampus plays a vital role in transforming short-term memories into long-term memories, because this was something HM (whose hippocampus had been removed in the operation) could not do.

## studies

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### Classic study: Baddeley (1966b)

#### Aims

To investigate the influence of acoustic and semantic word similarity on learning and recall in short-term and long-term memory. This is done by giving participants word lists that are similar in sound (acoustic) or meaning (semantic). If the participants struggle to recall the word order, it suggests LTM is confused by the similarity which means that this is how LTM tends to encode.

#### Procedures



A laboratory experiment was designed to test sequential recall of acoustically and semantically similar word lists. Participants were 72 male and female volunteers from the Applied Psychology research unit at Baddeley's university. There were 15–20 words in each condition (15 in acoustically similar, 16 in semantically similar).

Four lists of ten words were used:

- List A contained ten acoustically similar words (e.g. man, can, cat, map, etc.)
- List B contained ten acoustically dissimilar words that were matched in terms of frequency of everyday use to list A (e.g. pit, few, cow, mat, etc.)
- List C contained ten semantically similar words (e.g. great, large, big, broad, etc.)
- List D contained ten semantically dissimilar words that were matched in terms of frequency of everyday use to list C (e.g. good, huge, deep, late, etc.)

• Lists B and D acted as baseline control groups for lists A and C.

Participants were assigned one of the four list conditions as an independent groups design. Each list of ten words was presented via projector at a rate of one word every three seconds in the correct order. After presentation of each of the four trials, the participants were required to do an interference task (between the learning and recall) which presented eight numbers at one second intervals which they had to write down in the order they appeared. This prevents participants from rehearsing the information or to block the effect of STM (because Baddeley only wanted to test LTM). They were then asked to recall the word list in one minute by writing down the sequence in the correct order. This was repeated over four learning trials.

As it was not a test of learning words, but a test of sequence order, the word list in random order was made visible on a card in the room. Upon completion of the four learning trials, participants were given a 15-minute interference task which involved copying eight digit sequences at their own pace. After the interference task, participants were given a surprise retest on the word list sequence because Baddeley wanted to test LTM for word sequences.



### Results of experiment 3

- Recall in the acoustically similar condition (list A) and the acoustically dissimilar control condition (list B) was very similar, including at retest.
- In LTM, acoustic similarity did not affect the recall of the order of the words.
- Recall in the semantically similar list condition (list C) was much worse than in the semantically dissimilar words control condition (list D).
- Semantic similarity affected recall in LTM.

### Conclusions

The findings from Baddeley's previous two experiments suggested short-term memory is affected by acoustic coding, whereas the findings of this study suggest the long-term memory is affected by semantic coding, but not exclusively.

The fact that participants found it more difficult to recall list A in the initial phase of learning suggests that short-term memory is largely acoustic, therefore acoustically similar sounding words were more difficult to encode. Baddeley concludes that long-term memory encodes semantically, at least primarily.

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### Contemporary studies: Schmolck *et al.* (2002)

#### Aims

Schmolck *et al.* wanted to compare HM to other patients with similar brain damage to see if a precise link could be made between brain structure and semantic memory. In particular, whether damage to the medial temporal lobe (MTL) had an effect on a patient's semantic memory.

#### Procedures

There were 14 patients in total: six with severe damage to the MTL were compared with eight controls who were healthy volunteers with no brain damage. They were matched with the patients in terms of age and education. Three of the six with amnesia (including HM) had brain damage to the hippocampus (part of the MTL) from surgery or other injuries and the other three had brain damage from viral infections that was more widespread. These

latter three patients fell under the category of MTL+ as they suffered from large MTL and anterolateral temporal cortex damage. Schmolck *et al.* created nine tests designed to measure semantic long-term memory functioning. All were based on a set of 48 drawings, half of animals and half of objects and were further subdivided into eight groups of six. These were six domestic land animals, six foreign land animals, six water creatures, six birds, six electrical household items, six non-electrical household items, six vehicles and six musical instruments.

Some of the test conditions are outlined below:

- **Category fluency and sorting.** The participants were asked to name or sort into categories such as 'living' or 'man made' without a picture cue.
- **Definitions.** The participants were shown a picture and asked to define it by the theme it fitted into.
- **Object/non-object discrimination task.** The participants were asked whether the object was real or not.
- **Pointing to or naming a picture.** The participants were asked to point to or name a picture when given the name or a description of the object.

The participants were tape recorded and their responses transcribed (typed up). Each transcript was checked for reliability and also looked at for grammar/syntax errors in the way the participants spoke.

## Results

The controls got all the answers right when asked to point to the picture of a named object, as did those with hippocampus damage only (HM scored 98 per cent for living creatures and 100 per cent for objects). MTL+ patients performed worse, getting an average of 85 per cent for living creatures and 90 per cent for non-living objects.

MTL+ patients performed badly in most of the tests including when participants:

- were shown a picture and asked to name it
- were given a verbal description of an object and had to name it
- were asked 'Yes' or 'No' questions about 24 of the items.

There was also a direct relationship between the amount of brain damage and the number of mistakes made on the tests. The MTL+ patients made the most mistakes, followed by HM, then the three hippocampus damage only patients. Where the hippocampus-only patients did better than the controls, Schmolck *et al.* suggest it is because they were younger.

### Conclusions

There was a clear relationship between how well the participant did and damage to the lateral temporal cortex, particularly for HM and the three MTL+ patients.

There seems to be a clear link between damage to the lateral temporal cortex generally and the loss of semantic LTM. This was only applicable to the three patients with MTL+ damage, but not to the three with hippocampus-only damage.

### Now test yourself

12 How does a MTL patient differ from a MTL+ patient?

Answer on p. 226

### Steyvers and Hemmer (2012)

#### Aims

To investigate the interaction between episodic memory and prior knowledge (semantic memory) in naturalistic environments (e.g. hotel, office and kitchen). In particular, to see how prior knowledge (semantic memory) is used to reconstruct memory from photographs of normal everyday settings (episodic memory).

#### Procedures

To assess prior expectation 22 participants from an experimental pool at University of California had one minute to list, on computer, items they would expect to find in five naturalistic scenes – office, hotel, urban, dining and kitchen. The frequency of objects named was recorded as a measure of prior expectation, and the highest and lowest frequently recall objects were analysed.

A control group was now needed to ensure that objects were not overlooked. So a second group of 25 participants were shown 25 images of the same five scenes and asked to name all the objects that they could as a measure of perception. This was done to make sure all participants could see the objects clearly. This became

known as the 'perception test' and the frequency of objects named in both the prior expectation and this test were recorded.

The results suggest that participants have good prior knowledge of each scene which is representative of each naturalistic environment. That is 22/22 participants associated a television in a hotel room and 20/22 participants associated a computer in an office.

Forty-nine brand new participants were then randomly allocated to be shown a series of the original five scenes for either two- or ten-second duration. They only viewed one set of five images to avoid any order effects from viewing more than one set of images. The reason exposure time was manipulated between two and ten seconds was to alter the extent to which participants used prior knowledge in retrieval of episodic memory.

For example, one participant might see the hotel scene and kitchen scene for ten seconds, then the dining and urban scene for two seconds and finally the office scene for another ten seconds.

When given only two seconds to look at a scene, participants would not have much time to encode so would have to rely on prior knowledge (semantic memory).

It was also believed that correct recall of unusual objects, such as a microwave in an office, would rely on episodic memory and correct recall of an object that was likely to be in the scene, such as a table cloth missing from the dining scene, would be recalled from semantic memory. Participants were asked to recall objects they remembered from each in their own time using free recall.

## **Results**

Mean number of objects remembered during free recall was 7.75 for the two-second exposure and 10.05 for the ten-second exposure.

Incorrect recall of highly probable objects was 9 per cent and incorrect recall of low probability objects was 18 per cent.

The error rate increased to 19 per cent for scenes that do not represent real life, such as a dining scene without a table cloth.

## **Conclusions**

In naturalistic scenes, semantic memory (prior knowledge) can contribute to accurate recall in episodic unmanipulated memory

tasks.

Prior knowledge contributes greatly to recall in naturalistic environments. However, this seems to be of benefit as it frees up cognitive resources to help us to notice novel and unusual items.

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## **Sebastián and Hernández-Gil (2012)**

### **Aims**

To investigate how digit span (an individual's capacity to remember digits/numbers in short-term memory without rehearsal) develops from children to adolescents. In particular, to investigate the development of the phonological loop in children between the ages of 5 and 17 years using digit span as a measure of phonological capacity.

A secondary aim was to check the decline of digit span in older people who suffered from dementia.

Finally, they wanted to see whether digit span would be higher for Spanish speakers as opposed to English speakers for whom the age 15 is where the digit span stops developing further.

### **Procedures**

The study was split into two parts. The first part involving gathering primary data from 570 volunteers from schools in Madrid, Spain. All participants were native Spanish and impairments in hearing, reading and writing ability were controlled. This was to control for any educational and cognitive differences. The independent variable was the age of the participant and the dependent variable was the digit span.

Participants were divided into five different age groups ranging from preschool (aged 5 years) to secondary school (aged 15–17 years), and the average digit span was recorded for each age and age group. Tested individually, participants were read increasing sequences of digits to recall in the correct order. The digits were read out at a rate of one per second and the digit list increased one digit per sequence. Each time the participant got the sequence correct another digit was added to increase the span and the participant tried again. So, for example, a participant might be shown the digits 3 7 8 1 6 9 and be asked to recall them in the correct order, if this was done successfully then another digit would

be added at the end and the procedure repeated until a mistake was made.

The results of this first part of the study are shown in [Table 2.3](#).

**Table 2.3 Summary of average digit span by age group**

Age group	Mean digit span
Preschool (5 years)	3.76
Primary school (6–8 years)	4.34
Primary school (9–11 years)	5.13
Secondary school (12–14 years)	5.46
Secondary school (15–17 years)	5.83

The second part of the study used secondary data which had been gathered from Sebastián and Hernández-Gil's 2010 study to test the aim regarding the decline of digit span in older people who suffered from dementia. This previous data involved 25 healthy older people (acting as a control group), 25 people with Alzheimer's disease and 9 people with frontotemporal dementia. The results of this second part of the study are shown in [Table 2.4](#).

**Table 2.4 Summary of average digit span by different group of adults**

Group	Gender	Mean digit span
Alzheimer's	7M/18F	4.20
Frontotemporal dementia	5M/4F	4.22
Healthy older people	6M/19F	4.44

### Overall results

The Spanish study figures were about one digit below the Anglo-Saxon data. Spanish words are longer than English words and the longer they take to process, the longer it takes for sub-vocal rehearsal, so more decay between learning and recall occurs. Elderly participants had a significantly higher digit span compared to the five-year-olds in this study, but it was not significantly different from other age groups.

Unlike previous research, this study speculates that digit span in the Spanish population increases beyond the age of 15 years.

Comparing the elderly group to the dementia patients showed no significant difference, suggesting that impoverished digit span was a consequence of ageing rather than dementia.

### Conclusions

Digit span was found to increase with age from 5 to 17 years. This contrasts with previous research which found that digit span peaked at 15 years. Older healthy people have a digit span matching that of a seven-year-old showing a decline from adult digit span over time, though it is not clear at what age that decline starts. The digit span of those with Alzheimer's and frontotemporal dementia is similar to the healthy control group and to a normal six-year-old, suggesting that dementia does not affect digit span.

### Now test yourself

- 13 According to the multi-store model of memory, how many digits should the participants in this study have been able to remember?
- 14 Why did Sebastián and Hernández-Gil use 25 healthy participants in this study?

Answers on p. 226

## Key questions

### How can psychologists' understanding of memory help patients with dementia?

Dementia is a chronic or persistent disorder of the mental processes caused by brain disease or injury and marked by memory disorders, personality changes and impaired reasoning. It affects 850,000 people in the UK and is set to rise to 1 million people by 2025. Dementia often creeps up on people because they expect to have memory problems as they get older so they do not notice the symptoms until the disease is quite far advanced.

The most common cause of dementia is Alzheimer's and common symptoms of dementia include loss of memory, confusion even when in a familiar environment and problems with thinking and reasoning, especially when doing more than one task at the same time. They commonly might 'live in the past' remembering certain events clearly, and can seem like they are actually living within them.



People with dementia begin to forget more and more, and the most recent events seem to be forgotten most quickly. Occasionally though, clear 'pockets of memory' are still present, and these are usually triggered by familiar faces, smells, touches, songs or rituals.

Sufferers often find it hard to complete everyday tasks that are so familiar we usually do not think about how to do them. In particular carrying out activities in the proper sequence, they may not know in what order to put on their clothes.

Some symptoms may appear earlier or later, so there is no linear progression. Likewise, some patients may switch back and forth between stages and symptoms in a cyclical fashion.

### **Application of concepts, theories and research to explain this key question**

Episodic memory can be an aspect of memory that could explain 'living in the past' as this involves memory of past experiences. More recent episodic memories are lost first, but sufferers often keep memories from their youth or childhood right to the end. It is therefore useful to listen to dementia patients speaking about their past, and not cause distress by contradicting or interrupting them as they believe what they see is true.

The multi-store model can explain why patients might forget what they have just been told as the information was not encoded properly or they may have a problem with retrieval from short-term memory to long-term memory. This would also explain why they say things that do not make sense or struggle to recall the right word. A successful method here would be to employ more specific questioning rather than general questions to encourage specific responses.

Working memory would suggest multi-tasking would be very difficult and so to avoid it where possible. Competition between the central executive, phonological loop and visuospatial sketchpad can explain confusion and problems with thinking and reasoning. To help with a reduction in background noise, such as turning off the television and only one person talking at a time, will ensure more focused attention and remove any dual tasking.

Confusion when in a familiar environment could be explained by reconstructive memory as dementia patients may be struggling to retrieve the correct schemas and also be using mixed episodic memories. In this



case, it would be helpful to describe cues that could help the patient recall the correct schema.

Steyvers and Hemmer (2012) have shown the importance of prior knowledge when trying to recall events. In particular that damage to semantic memory can cause a failure in the effect of prior knowledge. So if prior knowledge can be explained, it may help patients who have poor semantic memories fill in the gaps.

## Practical investigation

In conducting the practical investigation, you must:

- design and conduct a laboratory experiment to gather quantitative data and include descriptive statistics as analysis and a non-parametric test of difference
- make design decisions when planning and conducting your experiment, including experimental design, sampling decisions, operationalisation, control, ethical considerations, hypothesis construction, experimenter effects and demand characteristics
- collect, present and comment on data gathered, including using measures of central tendency (mean, median and mode, as appropriate); measures of dispersion (including range and standard deviation, as appropriate); bar graph, histogram, frequency graph, as relevant; normal distribution, if appropriate and draw conclusions
- use a Mann-Whitney U or Wilcoxon non-parametric test of difference to test significance (as appropriate), including level of significance and critical/observed values
- consider strengths and weaknesses of the experiment, and possible improvements
- write up the procedure, results and discussion section of a report.

## Suitable examples

- An experiment to look at acoustic similarity of words and the effect on short-term memory.
- Repeated reproduction (War of the Ghosts).
- Dual task experiment to investigate components of working memory.
- Demonstration of STM and LTM in the multi-store model of memory.
- Replication of the classic study by Baddeley (1966b).

## Issues and debates

<b>Ethics</b>	Case studies of brain-damaged patients, such as HM, raise issues of confidentiality and informed consent
<b>Practical issues in design and implementation of research</b>	Much of cognitive research relies on laboratory experiments so raises issues around ecological validity, mundane realism in the tasks carried out by participants, control and operationalisation of variables How can we actually measure memory?
<b>Reductionism</b>	Studying memory in a laboratory is not the same as studying memory in the real world so ignores the importance of the environment and other variables which can affect cognitive processes Breaking up areas of cognition, such as memory and forgetting, and less importance is placed on the interconnections between parts of the brain, in favour of individual parts responsible for memory
<b>Comparisons between ways of explaining behaviour</b>	Four models of memory show different ways of explaining memory either through a series of structures or the way memory is processed
<b>Psychology as a science</b>	One of the most scientific perspectives as it adopts the scientific method in explaining how we process information. Experiments and controls mean replicability and reliability which are cornerstones of the scientific method
<b>Cultural and gender issues</b>	How memory is reconstructed based on cultural differences or gender stereotypes; or differences in digit span cross-culturally if studied Sebastián and Hernández-Gil contemporary study
<b>Nature-nurture</b>	HM would suggest that the hippocampus plays an important inherent role in forming new memories, so sides with the nature argument However, reconstructive memory emphasises how our learned schema and experiences have helped

	our memories develop through interaction with the environment
<b>Psychological understanding over time</b>	Baddeley's work studying short- and long-term memory later led to the working memory model. This model was later added to (episodic buffer) and has illustrated how knowledge about behaviour is built over time. More recent research into eyewitness testimony (EWT) has added to existing findings from the last half century about the debate around the reliability of witnesses
<b>Social control</b>	The use of EWT and manipulation using leading questions in courtroom situations
<b>Psychological knowledge in society</b>	Use of psychological knowledge to help with dementia and dyslexia Helping aid revision techniques for students preparing for exams To help with the debate whether EWT is reliable or not
<b>Socially sensitive research</b>	Issues of memory loss due to dementia and how the study of this is socially sensitive for the individual and their families

### Exam practice

- 1 Evaluate the multi-store model of memory. [8]
- 2 Compare laboratory experiments with field experiments as used in cognitive psychology. [6]
- 3 Your tutor is helping you revise and wants to see if you can pick out the most important points from theories you have studied. Outline two features from reconstructive memory that you think are the most important. [4]
- 4 Explain how amnesia patients can be used as evidence for and against the multi-store model. [4]

- 5** Imagine you were one of the participants in Baddeley's (1966b) study on memory. Describe the steps you would have been asked to complete during the procedure of the experiment. [5]
- 6** Evaluate the reconstructive model of memory. [8]
- 7** Using concepts from cognitive psychology, explain how you would improve revision techniques for students who are preparing for an exam. [6]
- 8** Compare the MSM with the working memory model as an explanation of memory. [6]
- 9** Outline the abstract from your cognitive practical. [4]
- 10** Some researchers believe that cognitive psychology suffers from issues regarding ethics; others believe it has no ethical issues.  
Explain whether you think that cognitive psychology has any ethical issues or not. [4]
- 11** Evaluate the working memory model. [8]
- 12** Outline what is meant by cognitive psychology. [6]
- 13** Outline two differences between laboratory and field experiments. [4]
- 14** You will have learned about one of the following studies in detail in cognitive psychology:  
Steyvers and Hemmer (2012)  
Schmolck et al. (2002)  
Sebastián and Hernández-Gil (2012)  
Choose one study from the list.  
Describe the conclusions of your chosen study. [4]

## **End of chapter summary**

You should now have an understanding of all the points below:

- four models/theories of memory
- individual differences in memory
- developmental psychology in memory
- issues concerning dyslexia and Alzheimer's disease
- methodology used, such as field and laboratory experiments
- decision making and interpretation of inferential statistics
- case study of brain-damaged patients, including HM
- the classic study by Baddeley (1966b) and one other contemporary study
- one key question relating to cognitive psychology
- one practical investigation that you have carried out in relation to cognitive psychology
- issues and debates within cognitive psychology.

# 3 Biological psychology

## Defining biological psychology

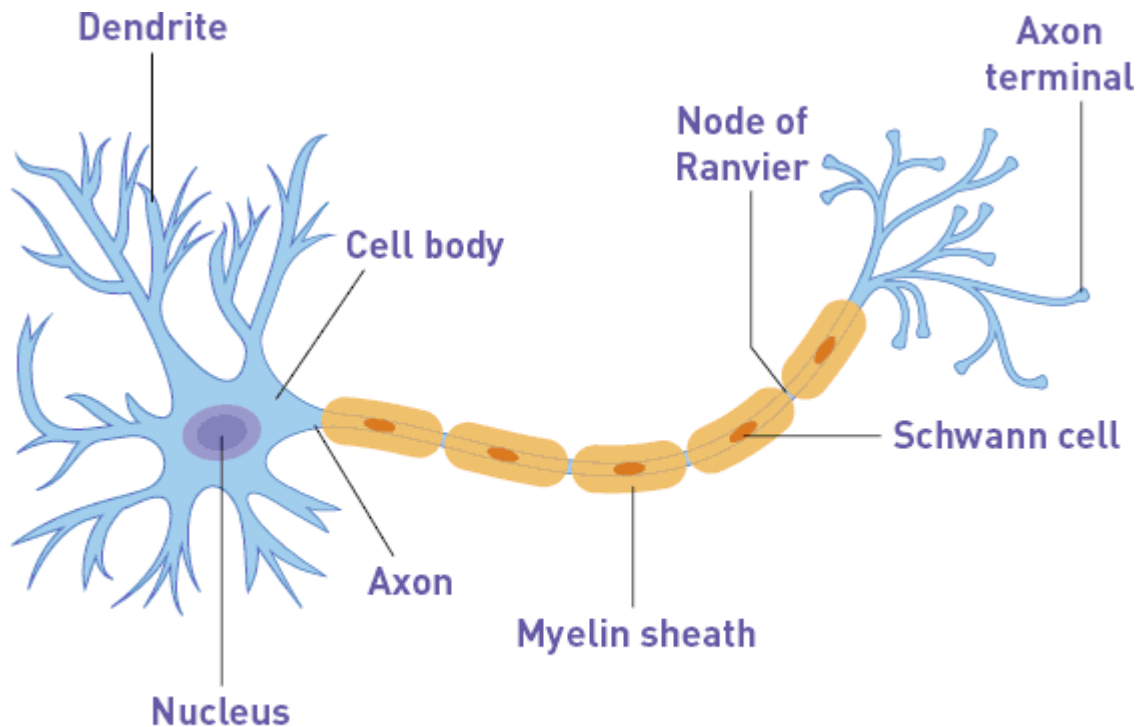
Biological psychology examines the effects of brain structure and function on our behaviour (e.g. hormones, chemicals and electrical activity of the brain). Therefore, biological psychologists try to identify specific parts of the brain which are involved in controlling behaviour. In order to do this, they study people with brain damage to identify the area damaged and subsequent behaviour change.

Biological psychologists believe the largest influence on our behaviour is genetics. In order to investigate the influence of genes, researchers focus on the study of identical twins. The technique of comparing two variables is called a 'correlation'. If genetic factors are important in determining behaviour then, for example, the aggression score for one twin is likely to be close to the aggression score for the other.

## The central nervous system

The **central nervous system** (CNS) consists of the brain and spinal cord. Connecting to the central nervous system are the nerves that serve the body. Some of these carry information about movement out from the brain: these are motor neurones. Others carry sensory information inward to the CNS: these are sensory neurones. One important pathway running between the body and brain carrying messages both inwards and outwards is the spinal cord.

When information is more detailed or decision making more complex, however, the brain takes over the processing role. The brain contains billions of nerve cells called neurons which pass information around inside the brain. It then communicates with the rest of the body through the nerve cells in the nervous system, telling different parts of the body what to do.



**Figure 3.1** The structure of a neuron

Neurons communicate with one another through **synapses**. This allows the brain to process thoughts and memories. The **neurotransmitter** travels across the gap between the two neurons (the synapse) and upon reaching the other side attaches itself to receptor sites on the surface of the target neuron, like a key in a lock. The receptor sites are unique to each type of neurotransmitter and are shaped so that only one particular type of neurotransmitter can fit into them. This process converts the chemical signal back into an electrical nerve impulse.

Some synapses are excitatory and encourage the neuron to 'fire' (lead to the release of another neurotransmitter), while other synapses are inhibitory and tell the neuron not to 'fire'. The decision over whether to 'fire' or not depends on how many excitatory and inhibitory messages the neuron receives from its thousands of synapses. If the number of excitatory messages far outweighs the number of inhibitory messages, it is likely to fire, and vice versa.

### Typical mistakes

Remember that information travels away from the cell body not towards it.

Now test yourself

1 Define three terms that are used when describing how neurotransmitters are used in the brain.

Answer on p. 226

## The action potential

The term 'potential' refers to a difference in electrical charges. Neurons have two types of potentials, a resting potential and an action potential. The neural threshold must be reached before a change from **resting potential** to **action potential** occurs. As an action potential travels down the axon, the polarity (the condition of having positive and negative charges) changes across the membrane.

Action potentials are considered an 'all or nothing' event. Once the threshold potential is reached, the neuron completely depolarises. As soon as depolarisation is complete, the cell 'resets' its membrane voltage back to the original resting potential. The neuron then returns to its resting electrical state until stimulated again.

The speed of conduction of an action potential along an axon is influenced by both the diameter of the axon and the axon's resistance to current leak. Myelin acts as an insulator that prevents current from leaving the axon, increasing the speed of action potential conduction.

A node of Ranvier is a natural gap in the myelin sheath along the axon. The flow of ions through these channels regenerates the action potential over and over again along the axon. Action potential 'jumps' from one node to the next. If nodes of Ranvier were not present along an axon, the action potential would spread very slowly.

### Now test yourself

2 What influences the speed of conduction of an action potential?

3 What important role do the nodes of Ranvier play?

Answers on p. 226

## Synaptic transmission

The action potential causes information to be transmitted from the axon of the first neuron (presynaptic neuron) to the dendrites or cell body of the second neuron (postsynaptic neuron) by secretion of neurotransmitters. This process is known as **synaptic transmission**.

The axon of the presynaptic neuron does not actually touch the dendrites of the postsynaptic neuron and is separated from them by a space called the 'synaptic cleft'. Stimulation of the presynaptic neuron to produce an action



potential causes the release of neurotransmitters into the synaptic cleft. Most of the released neurotransmitters bind with molecules at special sites, receptors, on the dendrites of the postsynaptic neuron. At this point, the process of **reuptake** may occur. These are then eventually destroyed within the neuron so it can return to its resting potential.

### Now test yourself

4 What happens to molecules that do not bind to the receptors on the receiving neuron?

Answer on p. 226

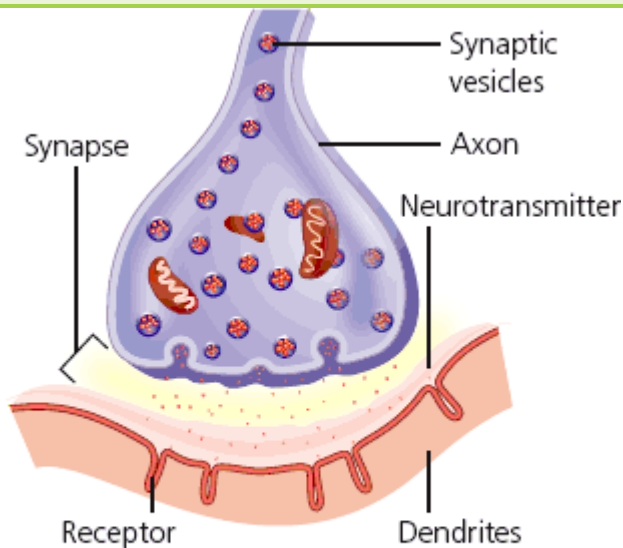


Figure 3.2 Synaptic functioning

### Exam tip

When asked to draw or label a diagram in the exam, make it as accurate as you can as the slightest mistake may be penalised.

## The effect of recreational drugs on the transmission process in the central nervous system

Drugs act by changing the way neurotransmitters work in the brain.

**Recreational drugs** take effect in the following way: the brain contains a 'reward pathway' which when activated causes us to experience a pleasant and rewarding feeling. Dopamine release occurs after pleasurable experiences, for example after food, but can also be induced by some drugs causing a feel-good factor. Drugs that artificially increase dopamine release in this way may cause craving for more.

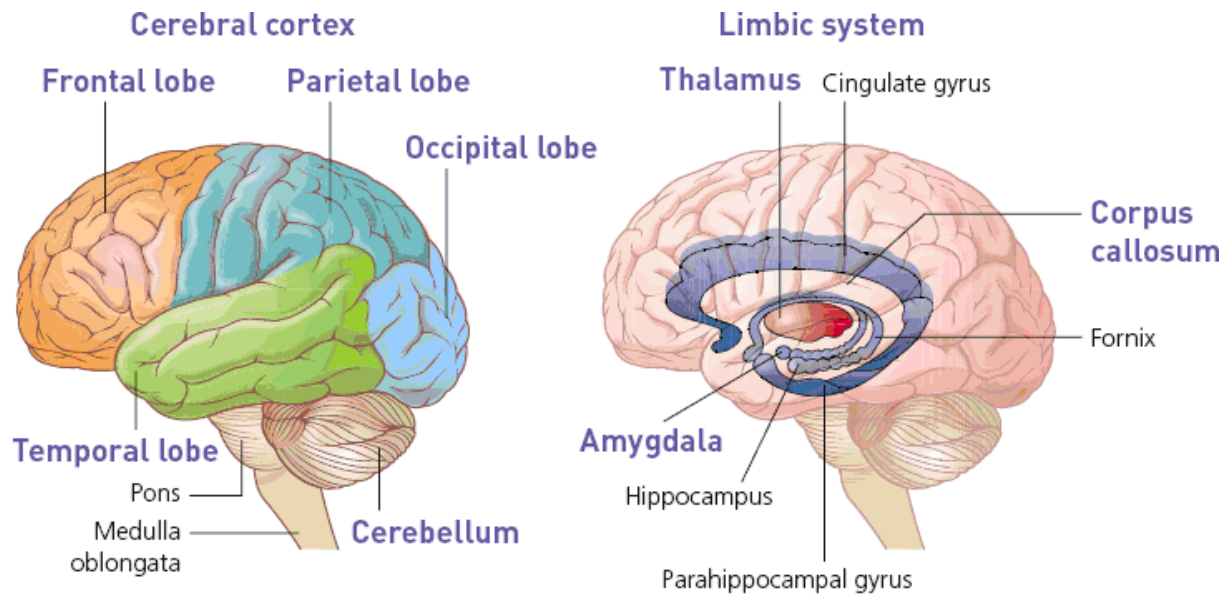
Drugs imitate neurotransmitters, to bind with receptors so that the message is sent in the drug to pass the message on and to function in the way it would normally. Alternatively, the drug could block the message so that the natural neurotransmitter cannot pass the message on because the receptor site is not accessible.

- Caffeine takes effect within minutes as it blocks chemical signals in your brain, by blocking the reuptake of dopamine stopping you from feeling sleepy. In moderate doses, caffeine also improves mental ability – reaction times, memory and reasoning skills.
- Nicotine works by mimicking the actions of acetylcholine which is a naturally occurring chemical in the brain by binding with its receptor molecules. It increases the amount and transmission of dopamine which in turn activate part of the ‘pleasure centre’ in the brain.
- Amphetamines increase the levels of two of the brain’s chemicals, noradrenaline and dopamine by reversing the reuptake process. This leaves more dopamine in the synapse causing a feel-good factor.
- Cocaine exaggerates changes caused by noradrenaline and dopamine, increasing alertness and causing euphoria. It blocks the reuptake of dopamine in the presynaptic neuron so more dopamine remains in the synapse.
- Heroin increases the amount of dopamine in the ‘reward pathways’ in the brain by boosting the activation of dopaminergic synapses which causes euphoria. As this wears off or is regulated by the brain’s natural systems, this causes a negative feeling – dysphoria. This motivates the person to take more heroin to reproduce the high first experienced and stop them feeling bad.

### **Exam tip**

Make sure you are confident in describing the influence of at least three recreational drugs.

## **The structure of the brain**



**Figure 3.3** the anatomy of the brain

### Now test yourself

- 5** Outline one difference between the occipital and temporal lobes.
- 6** Which part of the brain allows communication between the two hemispheres?

Answers on p. 227

## Brain functioning and aggression

### Amygdala

The amygdala has been shown to be an area that causes aggression. It gives us an instinctive feeling or reaction to the environment, including aggression. Stimulation of the amygdala results in augmented aggressive behaviour, while lesions of this area greatly reduce one's competitive drive and aggression. It is responsible for controlling our instinctive emotional response in any situation, including aggression.

Damage can occur through stroke, tumour or developmental problems (i.e. it just did not grow correctly). Some areas of damage may lead to the amygdala reacting in an overly fearful way; other damage may lead to the amygdala not reacting to fear at all. In overtly aggressive responses, it is thought that the amygdala misinterprets information from the senses and/or cortex and responds incorrectly with overly aggressive behaviour.

### Hypothalamus

**Hypothalamus** is the part of the **midbrain** which maintains the stability of the human body in times of change. The hypothalamus maintains the regulation of hormones including those of sexual function, such as testosterone, which is implicated in aggression. Male prisoners with an extra Y chromosome are often imprisoned for violent crimes, linking increased testosterone levels to criminal activity related to violence. The hypothalamus has been shown to cause aggressive behaviour when electrically stimulated but more importantly has receptors that help determine aggression levels based on their interactions with the neurotransmitter serotonin and vasopressin.

### Typical mistakes

Lesioning of the amygdala reduces aggression, whereas stimulation of the amygdala increases aggression, not the other way around.

Two neurotransmitters within the brain are implicated in aggressive behaviour, these are **serotonin** and **dopamine**. Essentially low levels of serotonin or high levels of dopamine are linked with aggression. The **prefrontal cortex** of the brain is responsible for planning, reasoning and, most importantly in respect of aggression, impulse inhibition. Whether or not a person behaves aggressively may well be a factor of whether or not they are able to successfully resist the urge to be aggressive. Serotonin is implicated in this mechanism as, in normal levels, it seems to have a calming inhibitory effect on neuronal firing in the prefrontal cortex. Therefore low levels of serotonin may disrupt the calm inhibited firing of neurones, with the result that individuals are less able to resist the impulse to be aggressive.

### Now test yourself

7 Describe the role of one neurotransmitter on aggressive behaviour.

Answer on p. 227

## The role of evolution and natural selection to explain human behaviour and aggression

Evolution can be used as an explanation for human behaviour because it claims that the structure and function of our brains have evolved to be adaptive in order to enhance survival and reproductive success. One component of this explanation is natural selection. Patterns of behaviour

have evolved through natural selection, in the same way that physical characteristics have evolved. Through natural selection, behaviour that increases reproductive success is kept and passed on from one generation to the next. So organisms that best adapt to their surroundings are more likely to survive and pass on their genes to future generations.

Evolutionary psychologists are particularly interested in studying **genotypes** and **phenotypes**.

### **Evolutionary explanation of aggression**

The evolutionary theory states that a human's main aims are to survive long enough to pass on their genes, and to ensure that those genes live on in their children. If the desire to achieve these goals is not met or is threatened, humans can become aggressive. Evolution can be used as an explanation for aggression because it claims that the structure and function of our brains have evolved to serve an adaptive function.

Aggression, as an innate response, suggests that humans are aggressive because of a process of natural selection. It is suggested that our ancestors passed on their aggressive traits to their offspring through their genes, who in the first place were aggressive in order to ensure reproductive success. It suggests that our male ancestors were aggressive to compete and eliminate male competition to ensure reproductive success. They were also aggressive to protect their offspring and partner and to bring back resources (i.e. food), both of which are to ensure survival of the offspring. They are said to be aggressive to attract females as they like strong and powerful men to ensure survival.

Another evolutionary explanation for aggression is that it deters aggression from other people. Parents who teach children that the best way to stop a bully is to stand up to him will intuitively understand this point. A child, by behaving aggressively, may discourage the bully from behaving aggressively in the future.

Aggression can also help strong members of a society establish power and status over weaker members. Being seen as powerful is a major advantage in all societies because it deters attack and increases sexual reproduction options. Aggressive behaviours, such as fighting, allow people to display strength and secure a higher spot in the pecking order.

### **The psychodynamic explanation of aggression**

Freud believed we are born with two major instincts (an irresistible biological urge). The two most important of which are the life and the death

instinct. The life instinct is often called Eros or the Libido which is our main source of energy for life and is concerned with survival and sexual reproduction. The death instinct, however, is often known as **Thanatos**. Those with a strong death wish push themselves to a state when all their tensions will finally be relieved, i.e. death. Freud's analysis of his patients' problems led him to believe that people are born with different amounts of these two instincts. For example, those with a high libido may have a more positive outlook on life than someone with higher levels of Thanatos.

### Model of the mind

Freud thought the human mind was a bit like an iceberg. The tip which shows above the water is the **conscious** part. The **unconscious** part is much larger, and is hidden from view. In between these two parts is the **preconscious**.

Freud believed that all thoughts start in the unconscious and while some get through to preconscious and conscious awareness, others do not. These thoughts have to be forcefully repressed into the unconscious. This repression is dynamic and active because the thoughts in the unconscious keep trying to break through. Just because these wishes and ideas are not accessible by the conscious mind, and we are therefore not aware of them, does not mean that they do not have an effect on behaviour. According to Freud, the unconscious mind motivates our behaviour.

#### Exam tip

Make sure you give enough detail for at least two marks each when asked to define the three parts of the model of the mind.

#### Now test yourself

8 Outline what Freud meant by the life and death instincts.

9 How does Freud compare the mind to an iceberg?

Answers on p. 227

### Structure of personality

Freud argued that our personality consists of three related elements:

- 1 The first part to appear is the **id**. Id is mainly concerned with things which ensure that the person survives and with those things which give it pleasure, such as food, comfort and avoiding pain. Id demands that its needs be satisfied by the other instincts immediately and at all costs. Freud said the id operates on the 'pleasure principle' which means that the child is only interested in things which give it pleasure.



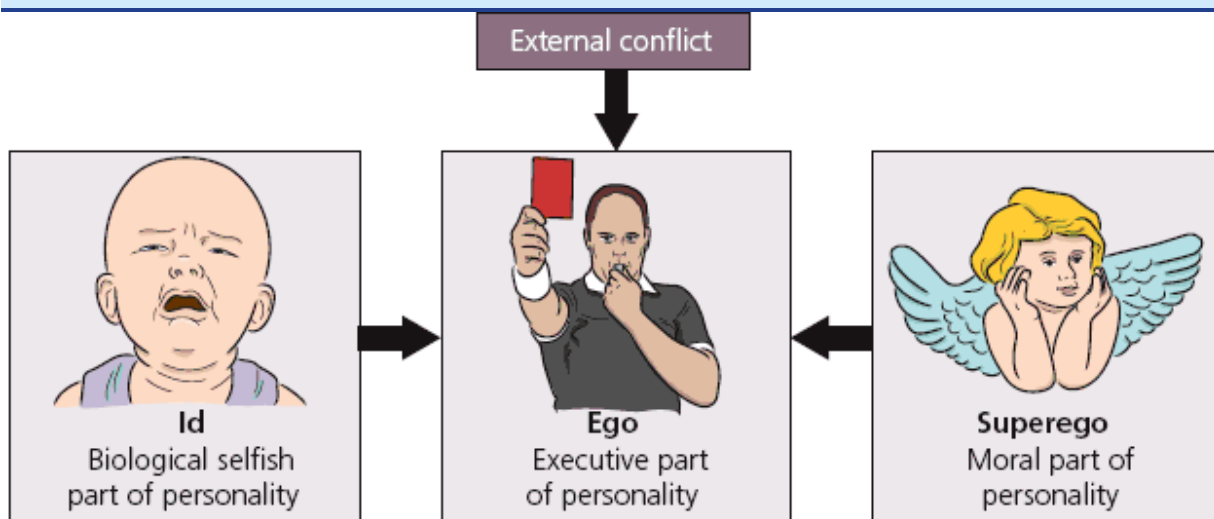
- 2 The **ego** is the second part of personality to appear. The child has to become more realistic and realise that making demands which are not met is a waste of energy. The id is still demanding satisfaction, so the second aspect of personality, the ego, appears. It allows the child to realise that talking, explaining, planning, negotiating, asking, etc., will be more effective in satisfying id's demands. It relies more on the 'reality principle'.
- 3 The **superego** is the third part of personality. By the age of about three, we have a child whose unconscious id makes selfish demands for things which will give it pleasure. Ego is trying to satisfy id's demands. The superego makes sure the ego does not use unacceptable means to satisfy id's demands. The superego relies on the 'morality principle'.

### Exam tip

Try and use the appropriate termed principle when describing the three parts of personality (i.e. pleasure/reality and morality).

### Typical mistakes

The job of the ego is not to take sides with either the id or the superego, but to try to reach a fair balanced resolution that satisfies them both.



**Figure 3.4** Structure of personality

### Defence mechanisms

According to Freud, we use unconscious ego **defence mechanisms** as a way of our mind distorting reality so that we do not have to face certain problems. The ego uses these defences to deal with the stress caused by the



conflicting demands of id and superego. **Catharsis** and **displacement** are two examples of defence mechanisms that can explain aggressive behaviour.

Catharsis involves both a powerful emotional component in which strong emotions are felt and expressed, as well as a cognitive component in which the individual gains new insights. The purpose of such catharsis is to bring about some form of positive change in the individual's life.

### **Exam tip**

There are many defence mechanisms and you do not need to know all of them. Stick to the ones that can be applied to aggression, such as displacement or catharsis.

With displacement, the target can be a person or an object that can serve as a symbolic substitute. Someone who is frustrated by his or her superiors may go home and kick the dog or hurl verbal abuse at a family member. It has also been offered by some psychologists as a factor in domestic violence and road rage.

### **Now test yourself**

Decide if the following examples are displacement or catharsis:

- 10** A man who is angry with his neighbour goes hunting and kills a deer.
- 11** A girl who has had a bad day at college goes home and argues with her brother about who is going to do the washing up.
- 12** Playing a violent video game after coming home from a frustrating day at college.
- 13** Why do we use ego defence mechanisms?

**Answers on p. 227**

## **The role of hormones to explain human behaviour, such as aggression**

The **endocrine** system is a system comprised of glands, which secrete **hormones** into the bloodstream where they may travel to act on target structures at some distance from their origin.

Hormones are similar in function to neurotransmitters. However, hormones can operate over a greater distance and over a much greater range than neurotransmitters. Communication via neurotransmitters is like travelling on a train. These messages can only be sent along existing nerves – like train tracks. Communication via hormones is like travelling in a car, i.e. you

can drive to many more destinations than train travel allows because there are more roads than tracks. However, as hormones enter directly into the bloodstream they take longer to produce changes in behaviour than neurotransmitters.

Some hormones produced by the body are adrenaline and cortisol from the adrenals; melatonin, from the pineal gland; oxytocin from the pituitary gland and hypothalamus; and testosterone and oestrogen from the gonads (testes/ovaries). Hormones have widespread effects on both physiology and psychology in humans and thus behaviour.

### **Hormones and aggression**

The role of hormones can be used to explain aggression because hormones affect behaviour and cause physical changes in the body. Relationships between aggressive behaviour and the endocrine system have been studied intensively in recent years. This interest has occurred because hormones are naturally occurring secretions of the body's endocrine glands, and are perceived as providing possibly reversible therapies for some clinical conditions that include aggressiveness as a symptom.

Testosterone is an androgen which develops and maintains male characteristics so is more dominant in males. Androgens appear to be related to aggressive behaviour in the male, although the exact nature of this relationship remains unclear. A higher level of androgen is associated with increased agonistic behaviour, and a reduction of androgenic compounds may reduce some types of aggression. Androgens are important in sex-related aggression and there is some indication that they may play a role in generalised irritable aggression. During a critical period immediately following birth, testosterone stimulates cell growth in the hypothalamus and amygdala, which later sets up the action of testosterone as an adult to effect aggression.

The hormone cortisol is thought to inhibit aggression. It is thought to do this by having a mediating effect on other hormones related to aggression, such as testosterone. High levels of cortisol inhibit testosterone and so inhibit aggression. This may be due to the fact that cortisol increases anxiety and the likelihood of social withdrawal.

### **Individual differences and developmental psychology**

The male sex hormone testosterone plays an important role in human development and is thought to increase levels of aggression from young adulthood onwards. It is thought that testosterone may influence areas of the brain that control behavioural reactions, such as the amygdala and the hypothalamus. Testosterone also influences the levels of other hormones which are thought to be involved in aggression, such as vasopressin. There are also individual differences here, males naturally produce more testosterone than females and those that are born with an extra Y chromosome (XYY) tend to display even more aggressive behaviours, as they produce excessive amounts of testosterone. This is linked to aggressive behaviour in males and heightened productivity could lead to an increase in aggressive behaviours.

The variation within a species clearly affects our development and those with characteristics most suited to the environment are more likely to survive. The species that survive will have the advantage over animals without the mutation, as they may be poorly adapted to their environment and will be less likely to survive to reproduction age. So the next generation will not have these genes passed on. Biologists call this process 'sexual selection', which is related to natural selection. Whereas natural selection results in adaptations that make organisms more likely to survive, sexual selection just makes them more likely to mate.

Hormones also affect our development and can be used to explain human behaviour because it claims that hormones affect behaviour and cause physical changes in the body. The hormones are sent to target cells by impulses which initiate specific responses. The human body contains various hormones which relate to specific emotions and carry out different responses and actions in the body.

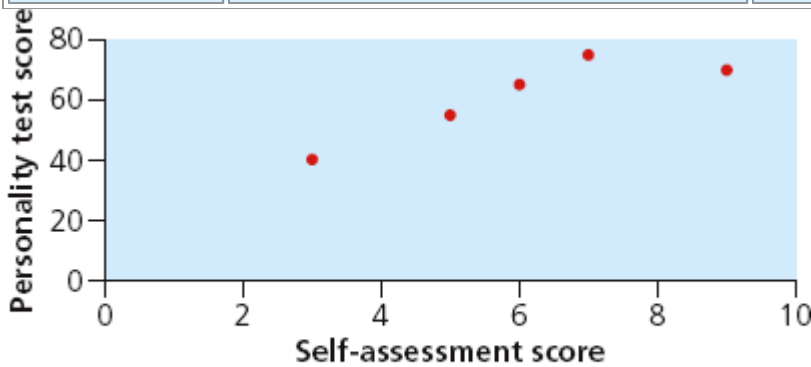
## Methods

### Correlations

In a study of personality, participants had to rate themselves on a scale of 1–10, where 1 was extremely shy and introverted to 10 which was very outgoing and extroverted. They then completed a personality questionnaire where a low score was extremely shy and introverted and a high score (maximum 100) was very outgoing and extroverted. Researchers wanted to see if there was a relationship (correlation) between self-assessment and test score.

**Table 3.1 Scores on self-assessment and personality test**

Participant	Personality self-assessment	Score on personality test
1	5	55
2	7	75
3	3	40
4	9	70
5	6	65



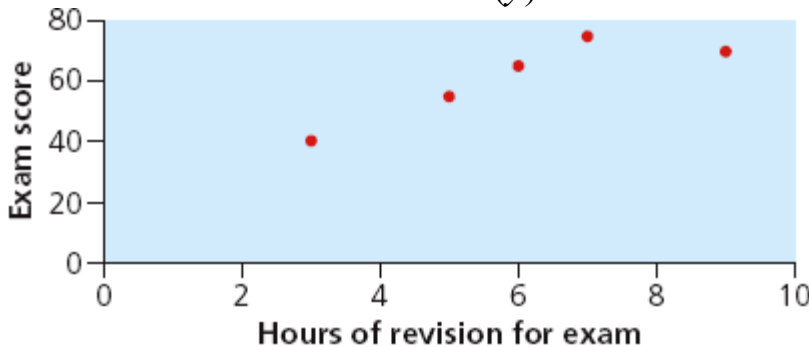
**Figure 3.5 Correlation graph**

**Typical mistakes**

Do not get positive and negative correlations the wrong way around. Make sure you are clear on which is which.

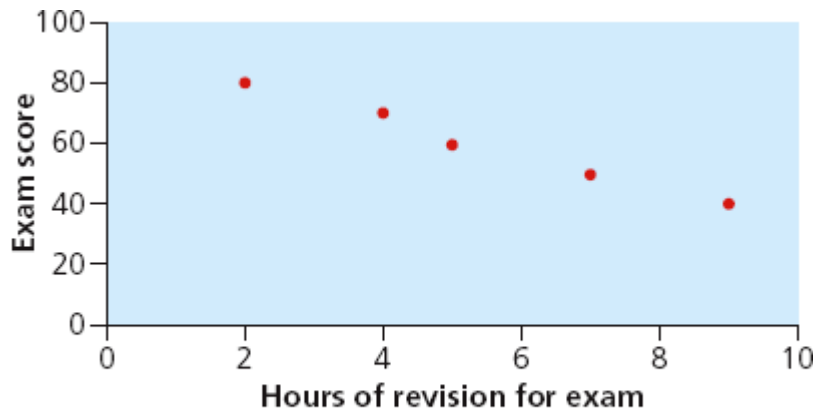
The two main types of correlation are:

- 1 Positive correlation: As the score on one variable increases ( $x$ ), so does the score on the other variable ( $y$ ).



**Figure 3.6 Positive correlation**

- 2 Negative correlation: As the score on one variable increases ( $x$ ), the score on the other variable ( $y$ ) decreases.



**Figure 3.7 Negative correlation**

**Correlations** involve mapping a relationship between two variables and noting that the two variables change together. A **coefficient** is given which states the strength and type of agreement between the two variables.

A coefficient of +1 shows a perfect positive correlation, for example, high values in one measure (height) may relate perfectly to high values in the other measure (weight).

A coefficient of -1 shows a perfect negative correlation. For example, high values of one measure (driving speed) may relate perfectly to low values in the other measure (miles per gallon). A coefficient of 0 would indicate no relationship at all between the two measurements.

Coefficients of +1, -1 and 0 are extremely rare in psychology, but a tendency towards one gives us valuable information concerning the nature (positive or negative) and the strength (between 0 and 1) of the relationship between the scores.

### **Issues surrounding the use of correlations**

It is impossible to establish a cause and effect relationship as a correlation only measures the degree of relationship between variables, and not whether one variable has caused another. This means that it is impossible to claim that one covariable actually causes the other covariable, as it could be that a third unknown variable (a mediating variable) is causing both variables to change together. For example, a 0.76 coefficient in MZ twins suggests IQ is genetic. However, this does not mean that intelligence is necessarily passed on through genes. Families share similar environments and experiences. Therefore, any correlation may be something to do with a shared environment.

However, researchers can employ a fast, straightforward methodology to see whether or not there is a relationship between two variables that is worth exploring further. They can use pre-existing data (e.g. children's GCSE scores at the end of year 11 and A-levels at the end of year 13) and then decide if any further investigation is necessary.

### **Typical mistakes**

Correlations predict a relationship between the variables; they do not look at differences between groups. Make sure this is clear when asked to write a correlational hypothesis in the exam.

A correlation coefficient is a simple and objective way to describe the strength of a relationship between two variables. Expressing it as a precise number through a correlation coefficient makes it clear to comprehend.

### **Analysis of correlational data**

#### **Types of data (levels of measurement)**

The data that we collect from investigations may take different forms: sometimes we just count, other times we record the order of things and at other times we measure using a variety of different instruments, such as rulers or stopwatches.

#### **Nominal data**

Whenever you simply count the number of participants that did one thing or another, you are using nominal (sometimes called frequency) data. This is the simplest level of measurement and uses categories such as male and female or old and young, for example.

For example, there are ten patients over 60 years old in the clinic and six patients under 30 years old.

#### **Ordinal data**

The results of many sporting events are given in the form of ordinal (sometimes called ranked) data. You are told who came first, second, etc. It does not tell you how much difference there was. Similarly, if a child is said to be 'third in the class', we know his position relative to others in the class but not how much better he is than those below him, or how much behind the top two students he is.

For example, in the recent psychology mock exam, we know:

- 1st Kazim
- 2nd Dominic
- 3rd John
- 4th Michael

## Interval data

Some data in psychology is derived from the use of measuring instruments, such as clocks and thermometers. These instruments give data in the form of objective data, such as seconds and degrees Celsius. Because each unit has an agreed value then the difference between 4 and 5 seconds is exactly the same as that between 10 and 11 seconds.

Interval and ratio data give more than just order; they also show how much difference there is between the first and second, the second and third, etc. So, using our previous example, if we know the actual scores between each of the four students below then we are using interval data.

- 1st Kazim, 100 per cent
- 2nd Dominic, 96 per cent
- 3rd John, 88 per cent
- 4th Michael, 75 per cent

Hopefully, you can now see that interval data gives us more detail than ordinal data, which in turn gives us more detail than nominal data.

### Now test yourself

What type of data would be collected in the following:

- 14 Time taken to read a book
- 15 The order runners finish in a marathon
- 16 How many people are over 18 years in this class
- 17 How cold is it today
- 18 Whether more males or females study psychology.

Answers on p. 227

### Now test yourself

Decide which test is appropriate in the following scenarios:

- 19 A study to see if males or females blow their car horns at older cars that hold them up in traffic rather than more new cars.
- 20 A survey to see if students who vote Labour are more likely to be obedient to authority than those who vote Conservative or



Liberal.

- 21 To see if the number of words generated on a topic while undergoing a scan is linked with length of time in education.
- 22 To see whether one of the diets below tended to produce taller girls. [Table 3.2](#) shows the height in cm of girls who ate either porridge or corn flakes.

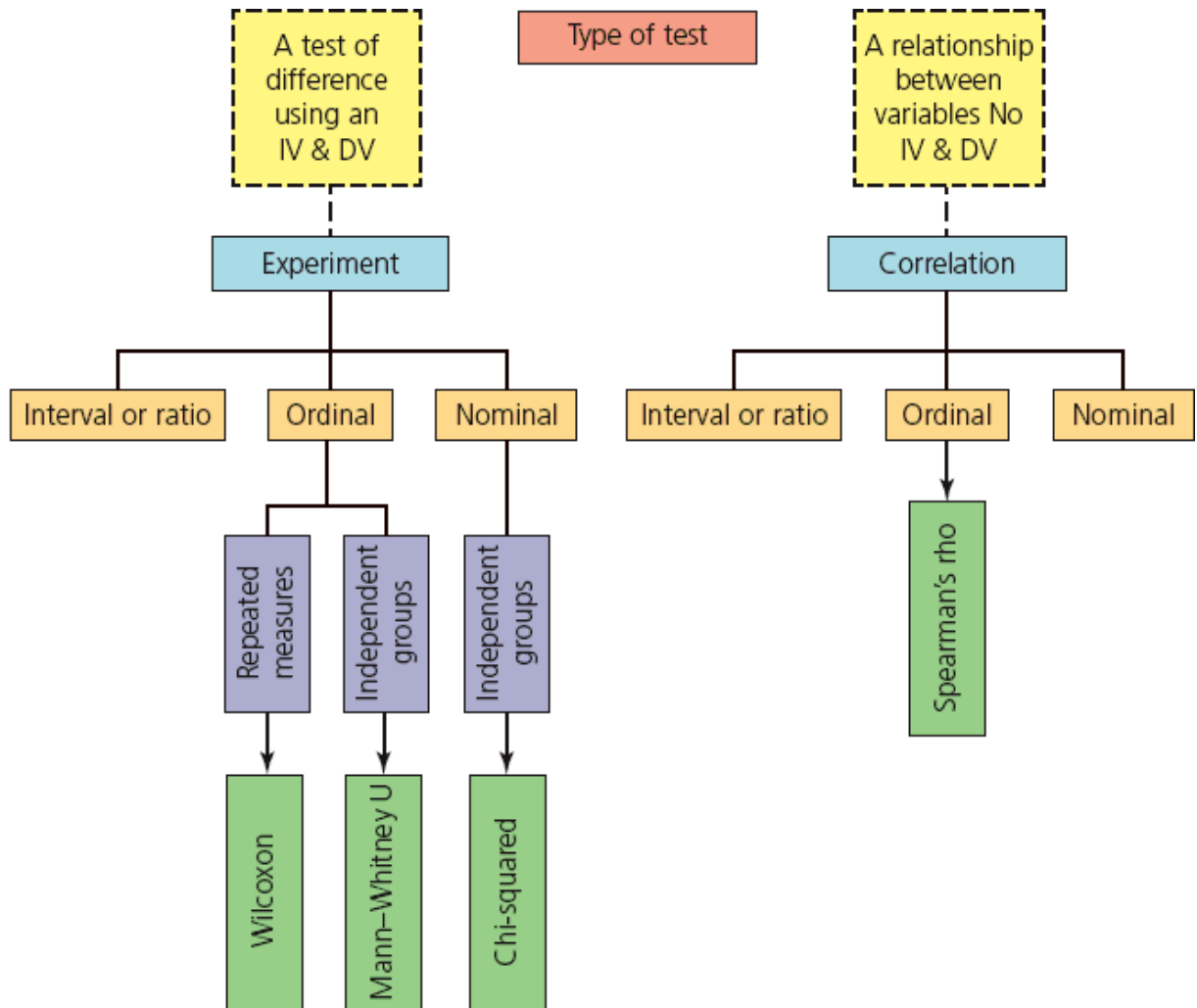
**Table 3.2 Corn flakes or porridge**

Corn flakes	Porridge
178	164
181	167
189	145
190	139

Answers on p. 227

### Decision tree: choosing an appropriate statistical test

- Is the research a test of difference (experiment) or a test of relationship (correlation)?
- What is the level of measurement/type of data?
- What was the experimental design?



**Figure 3.8** Choosing an appropriate statistical test

Source: T. Heaton(2015)

To be sure that there is a clear relationship between the two variables studied, an inferential test should be conducted on the data. The inferential statistical test used on correlations is the Spearman's rho which calculates the correlation coefficient of a data set. This will be a number between +1 and -1 to show the strength and direction of the relationship between the co-variables: +1 means a perfect positive correlation and -1 means a perfect negative correlation.

### Spearman's rho

An investigation was carried out to see if there was a relationship between students' marks in their psychology exam and hours of revision.

**Table 3.3** Scores for students' psychology test marks and hours of revision completed

Student ( $n=6$ )	A Psychology exam mark	B Hours of revision	C Psychology rank	D Hours rank	E Difference (C - D)	$d^2$
1	49	30	5	2	3	9
2	72	38	6	3	3	9
3	41	70	4	4	0	0
4	40	71	3	5	-2	4
5	36	82	2	6	-4	16
6	11	12	1	1	0	0
						$\Sigma d^2 = 38$

$$r_s = 1 - \frac{6\Sigma d^2}{n(n^2 - 1)}$$

- 1 Rank column C and column D where rank 1 is the lowest and rank 6 is the highest.
- 2 Calculate the difference between column C and column D to complete column E.
- 3 Square all the scores in column E to complete the final column ( $d^2$ ).
- 4 Add the results of step 3 to find the total  $\Sigma d^2 = 38$ .
- 5 Now complete the Spearman's formula as shown above to find the value of  $r_s$

$$r_s = 1 - \frac{6 \times 38}{6(6^2 - 1)} = 1 - \frac{228}{210} = 0.085$$

- 6 Find the critical value and decide on significance for a one-tailed test at  $p < 0.05$  and  $p < 0.01$ .

At  $p < 0.05$ , the critical value is 0.829 and at  $p < 0.01$ , it is 0.943. Our observed value  $r_s = 0.085$  must be greater than or equal to the critical values to be significant. So our results are significant at 0.05, but not at 0.01.

## Brain scanning techniques

During a **CAT scan**, the patient lies still and the machine rotates around his or her body. Several x-ray pictures are taken of the brain from different angles and reaching different depths within the brain. A computer then produces a 3D image of the brain's structure based on these pictures allowing the user to see inside the object 'slice by slice' without actually cutting the body part. The series of pictures are like slices through the brain.

With a **PET scan**, a computer produces coloured images of the level of activity throughout the brain as the patient performs different physical or mental tasks.

A scanner detects radioactive material that is injected or inhaled to compounds like glucose or oxygen in the brain. As the glucose is used in the active parts of the brain, the radioactive material breaks down and gives off a neutron and a positron. When a positron hits an electron, both are destroyed and two gamma rays are released, detectors then record the brain area where the gamma rays are emitted.

The radioactive labels decay in a characteristic way, giving off subatomic particles (positrons). By surrounding the subject's head with a detector array, connected to a suitable computer, it is possible to build up images of the brain showing different levels of radioactivity, and therefore, cortical activity.

With functional magnetic resonance imaging, or **fMRI**, the scanner picks up signals of the body's atoms, moves them back into positron and the computer turns the signals into a picture. Using the same technology as MRI, fMRI scans use a strong magnetic field and radio waves to create detailed images of the body, but instead creates images of organs and tissues.

It works by detecting the changes in blood oxygenation that occur in response to neural activity in the brain which is an indicator of blood flow, a property of cortical activity. Blood that is rich in oxygen differs in texture and colour to oxygen-poor blood and monitoring the changes can enable researchers to determine which parts of the brain are most active. When a brain area is more active, it consumes more oxygen, and to meet this increased demand, blood flow increases to the active area.

### Now test yourself

**23** Outline at least one strength and one weakness for each of the three brain scanning techniques.

Answer on p. 227

## The use of brain scans to investigate human behaviour, such as aggression

Brain-imaging techniques are used in neuroscience to investigate the relationship between behaviour and brain structures, for example after brain damage or to find out which areas of the brain are involved in which

cognitive activities. Brain-imaging technology is a promising way to investigate the possible relationship between biological factors and behaviour, but so far scanning can merely register structures and activity in the brain. It is not possible to determine cause–effect relationships at this point.

The following cases describe the use of brain-imaging technology in a range of studies.

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### **Raine *et al.* (1997) – Brains of murderers**

#### **Aims**

To discover if murderers who pleaded not guilty by reasons of insanity (NGRI) show evidence of brain abnormalities.

#### **Procedures**

The study examined forty-one NGRI participants, 39 male and 2 female, with an average age of 34 years.

Forty-one control participants were selected and matched (in terms of sex and age) to an NGRI patient.

Each participant was injected with a glucose tracer and had to perform tasks as they were scanned.

#### **Results**

NGRIs had less activity in the amygdala and medial temporal hippocampus (linked to inhibition of violent behaviour, fearlessness, inappropriate emotional expression and failure to perceive consequences of violent behaviour).

#### **Conclusions**

A link was established between the amygdala (biological factor) and crime (behaviour).

---

### **Lindstroem *et al.* (1999) – Schizophrenia and dopamine**

#### **Aims**

To determine whether or not schizophrenic patients had differences in dopamine levels compared to non-schizophrenics.

#### **Procedures**

PET scans were conducted on ten schizophrenic patients and ten non-schizophrenic control patients. Subjects were injected with I-DOPA, which is used in the production of dopamine, to monitor uptake.

#### **Results**

I-DOPA uptake was faster in schizophrenic patients, suggesting that more dopamine was used for production.

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## **Harris and Fiske (2006) – Biology and prejudice**

### **Aims**

Harris and Fiske analysed fMRI scans to study students' brain processes as a response to being presented with pictures of extreme out-groups. They looked for biological correlates of stereotypes and prejudice.

### **Procedures**

The authors scanned students while they watched different humans or objects. They predicted that the medial prefrontal cortex would be active only when humans looked at humans, but not when they looked at objects.

### **Results**

When participants looked at pictures of people from extreme out-groups (homeless people, drug addicts), brain regions related to disgust were activated and there was no activity in prefrontal cortex.

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## **Twin and adoption research methods**

Psychologists look for genetic explanations to support the argument that our behaviour is biologically determined. One of the best ways to do this is to study identical twins, as they have exactly the same genes. Researchers focus on the study of identical twins (monozygotic or MZ twins) because they share 100 per cent of their genes. The results are then compared with findings from pairs who are less genetically alike, i.e. non-identical twins (dizygotic or DZ twins).

Psychologists look at twins to see what traits (behaviour) they share by looking at **concordance** rates between them. Most twins also share the same environment, so the similarities in behaviour may be due to environmental factors and not genes.

Studying MZ twins reared apart is the best way of overcoming this as the twins have identical genetic make-up, but if they have been raised separately, any similarities could therefore be the result of genetic influences.

Apart from using twins, studying children who have been adopted is another way of looking at whether behavioural traits are the result of nature (genetic) or nurture (environmental) factors. Adopted children share no

genes in common with their adoptive families, but share the same environment. They also share 50 per cent of their genes with each of their biological parents, but no longer share the same environment.

An adoption study looks for similarities between children who are adopted, their adoptive parents and their biological parents. If the children show similarities with their adopted parents, with whom they share no genes, it may be assumed that the child has learnt this behaviour from the adoptive parents.

However, if the child shows more similarities to their biological parents, with whom they share genes, than they do to the adoptive parents, then we might assume that the behaviour in question is genetically determined.

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## **Gottesman and Shields (1966) – Twin study**

### **Aims**

Gottesman and Shields wanted to look at how far schizophrenia was genetic, and to try to replicate other studies that had found a genetic link with schizophrenia. In particular, to investigate the relative importance of genetic and environmental influences on schizophrenia by comparing MZ and DZ twins over a 16-year period from a hospital in London.

### **Procedures**

The researchers collected secondary data from hospital records of twins from the Maudsley and Bethlem Royal Joint Hospital. From a sample of 392 patients with twins of the same sex, born between 1893 and 1945 that had survived to age 15 (from a total of about 45,000 psychiatric patients), 57 twin pairs were selected aged between 19 and 64 years (average age 37 years). They used blood and visual tests to identify whether the twin pairs were MZ or DZ. The information shown in [Table 3.4](#) was obtained. The following information was also obtained:

- case histories based on a self-report questionnaire and interview with the twins and their parents to provide a record of verbal behaviour
- a personality test
- a test used to measure disordered thinking conducted on twins and parents.



**Table 3.4** Number of MZ and DZ twins used

	MZ	Same sex DZ	Total
Female	11	16	27
Male	13	17	30
Total	24	33	57

Analysis of the data has looked for similarities between each client and their twin. Concordance was assessed in three different ways:

- Grade 1 Both client and co-twin have been hospitalised and diagnosed with schizophrenia.
- Grade 2 Both client and co-twin have had psychiatric hospitalisation, but the co-twin has a different diagnosis.
- Grade 3 The co-twin has some psychiatric abnormality (e.g. out-patient care, GP care, neurotic or psychotic personality profile or being abnormal on interview).

### Results

A high concordance rate was found among MZ twins and a much lower one among DZ twins. This is shown in [Table 3.5](#).

**Table 3.5 Findings showing concordance rates with schizophrenia**

	MZ	DZ
Pairs were both diagnosed with schizophrenia	42%	9%
Diagnosed with schizophrenia or close	54%	18%
Diagnosed with schizophrenia or close or somehow rated abnormal	79%	45%

### Conclusions

Genes appear to play an important role in schizophrenia because the concordance rate is higher in MZ twins than DZ twins. (MZ twins are at least 48 times more likely to have schizophrenia than someone in the general population).

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### Heston (1966) – Adoption study

#### Aims

To test the assumption that a parent could be the cause of schizophrenia by creating a distorted family environment. It was

thought that the parent may produce a distorted interpersonal environment with the individual, and also that the closer the relationship the greater the distortion.

### Procedures

There were 47 experimental participants (30 male, 17 female) and 50 controls (33 male, 17 female). The participants in the study were born between 1915 and 1945 to schizophrenic mothers in an American psychiatric hospital. They were selected if their mothers had put them up for adoption and the researchers ensured the mother had (a) a diagnosis of schizophrenia; (b) evidence of behaviour consistent with schizophrenia; (c) no diseases; (d) that the child and mother were separated from birth.

### Results

A diagnosis of schizophrenia was given only when two psychiatrists plus Heston himself all agreed on their evaluations and they were also diagnosed by a psychiatric hospital.

A summary of the findings is shown in [Table 3.6](#). The table shows that there were differences in psychosocial disability, schizophrenia and IQ deficiency. The rate of schizophrenia in those born to schizophrenic individuals was 10.6 per cent compared with zero in those not born to schizophrenic individuals.

**Table 3.6 Summary of findings from Heston (1966)**

	Control (n)	Experimental (n)
	50	47
Psychosocial disability	80.1	65.2
Schizophrenia	0	5
Average IQ	103.7	94
IQ below 70 (now would be diagnosed as <b>mental retardation</b> )	0	4

### Conclusions

It was concluded that the findings support the influence of genes in schizophrenia but that there must be other possible factors influencing the development of schizophrenia as some of the

experimental group were successful adults who possessed talents not found in the control group.

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## Studies

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### Classic study: Raine *et al.* (1997)

#### Aims

The aim of the study was to investigate brain patterns in murderers compared to non-murderers using PET scans. Raine *et al.* wanted to see if there was a difference in the prefrontal cortex of murderers pleading not guilty of murder through diminished responsibility and non-murderers. In particular, to see whether they would show brain dysfunction in areas of the brain associated with aggression, namely the prefrontal cortex, amygdala, hippocampus, thalamus and corpus callosum.

#### Procedures

Forty-one participants became an experimental group; they had all been charged with murder or manslaughter and had pleaded NGRI. The group consisted of 39 men and two women, six had a diagnosis of schizophrenia. A control group was also used in which people were matched for sex, age and mental disorder, and were also medication free. The research was approved by an ethics committee and all participants consented to take part.

No participants took any medication for two weeks before testing and were asked to work on a continuous performance task, involving a presentation of a sequence of blurred numbers which participants had to focus on for ten minutes as a trial. Participants were injected with a glucose tracer, required to work at a continuous performance task that was based around target recognition for 32 minutes, and then asked to perform a visual task which was aimed at increasing activity in the prefrontal cortex. Immediately after the task, PET scans were completed which were used to see how active the brain had been in the prefrontal cortex. The NGRIs were compared with the controls on the level of activity (glucose metabolism) in right and left hemispheres of the brain in six cortical areas and eight subcortical areas.

#### Results

The results did support the hypothesis that brain dysfunction in the NGRI group was in those same areas previously associated with violent behaviour. Murderers' brains were more active in the right side of the thalamus compared to non-murderers. Those not guilty by reasons of insanity had less activity in the prefrontal areas/parietal cortex of the brain. There was less activity in the subcortical area of the brain and in particular the NGRI group also showed:

- lower activity in the corpus callosum
- asymmetrical activity in the amygdala
- asymmetrical activity in the medial temporal lobe, including the hippocampus
- higher level activity in the right of the thalamus.

There was no difference between the two groups in how well they did the task. However, the brain scans did show that some of the NGRI group had head injuries which may have affected the activity of the corpus callosum; no head injuries were detected in the brain scans of the control group.

### Conclusions

The areas with abnormal levels of activity are associated with a lack of fear, lowered self-control, increased aggression and impulsive behaviour. These could all lead to an increased risk of committing violent crime. Another consideration is that these areas are linked with a failure to learn from experiences which could lead to a lower IQ, therefore higher chance of unemployment and so higher risk of criminality. The hippocampus and the thalamus have been related to learning which could explain how abnormal activity here could result in criminals being unable to modify their own behaviour by learning from the consequences of their actions.

The researchers also suggest that their study does not show that violent behaviour is only caused by abnormalities in the brain. However, they concluded that brains of murderers were significantly different from the brains of non-murderers.

They also concluded that there was a difference in corpus callosum activity between the NGRI participants and the control group, which might suggest a lack of emotional expression and an inability to grasp the long-term implications of a situation.

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## Contemporary studies: Li et al. (2013)

### Aims

The aim of the study was to investigate the relationship between chronic heroin use and the effect of this on brain areas, specifically the posterior cingulate cortex (PCC) and to look for evidence of damage in the brain because of heroin use. More specifically to investigate whether chronic heroin use is associated with craving-related changes in the functional connectivity of the PCC of heroin-addicted users.

### Procedures

Fourteen male heroin users who fulfilled the diagnosis of heroin dependence (according to the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edn) were recruited from the Drug Rehabilitation Centre in China. Their mean duration and dosage of heroin use was 89 months and 0.6 g/day. To make sure the participants were in the detoxification phase, all of the heroin users tested negative for the presence of morphine in the urine analysis. Fifteen matched healthy controls were recruited. None of them reported a history of any drug dependence other than nicotine. All participants underwent a resting-state fMRI scan and a cue-induced craving task fMRI scan.

**Resting state condition** The participants had to focus their attention on a target for five minutes and do nothing else.

**Cue-induced condition** The participants were exposed to 24 drug related pictures (e.g. syringes; cooking heroin on a spoon) and 24 neutral stimuli, each shown for two seconds in random order.

Between each picture there was an inter-stimulus interval of between 4 and 12 seconds, during which the resting state screen was shown. The main analysis was to look at differences in brain connections between the heroin users and the controls. Functional connectivity was analysed based on resting-state fMRI data in order to determine the correlation between brain regions. The relationship between the connectivity of specific regions and heroin dependence was investigated.

## Results

The PCC was more active when heroin users did the cue-related tasks than the control group.

The relationship between different parts of the brain showed a stronger connectivity between the PCC and bilateral insula and between the PCC and the bilateral dorsal striatum in chronic heroin users than the control group.

There was a positive correlation between the degree of connectivity between these regions of the brain and the length of time of heroin use: chronic users showing greatest level of connectivity.

## Conclusions

Li *et al.* demonstrate that there are changes in the brain that come from long-term heroin use and those changes are where connections are made between areas that are for rewards and addiction.

The PCC being more active during cue-related tasks demonstrates how cues do trigger habitual reactions and highlights how the PCC is likely to have an important role in the limbic system, an area believed to be linked to reward and cravings.

The study helps to explain why addicts are susceptible to relapse if exposed to a drug stimulus that activates these areas of the brain.

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## Brendgen *et al.* (2005)

### Aims

The researchers were examining the genetic and environmental (shared and non-shared) effects on social and physical aggression using six-year-old twins.

They wanted to investigate whether social aggression is caused by genes or the environment and to see if social aggression shared the same cause as physical aggression. Also to determine whether one type of aggression led to another type of aggression.

### Procedures

Participants were 234 six-year-old twins of whom 94 were MZ twins (44 male and 50 female), 73 were DZ same-sex twins (41 male and 32 female) and 67 were DZ mixed-sex twins. The participants were already part of a longitudinal study in Canada and were all born between November 1995 and July 1998. They were studied at ages

5, 18, 30, 48, 60 months and then at six years to assess social adaptation at kindergarten, the average age at final assessment being 73 months, and it is these final data that the researchers focused on in their analysis. Written consent was obtained from the parents of all the children in a class prior to the start of the study. Two behaviour ratings were obtained on the twins from those who knew the twins well. One from their teacher and one from their classmates, giving each twin a physical and social aggression score. The teacher was required to fill in two questionnaires on the twin(s). The first measured social aggression by using descriptions like 'tries to make other children dislike a child' and 'becomes friends with child for revenge'. The second measured physical aggression, based on a three-point scale with questions like 'Does the child get into fights?', 'Does the child hit?' or 'Does the child bite' were asked.

Peer rating was completed by giving the children pictures of their classmates, researchers checked the students could identify the pictures and they were asked to circle children who fit a description. Every child was then asked to circle three pictures of children that they thought matched different behaviour descriptions. For social aggression, the description was 'tries to make others dislike a child'/'tells mean secrets about others'. For physical aggression, the description was 'hits others', 'bites others' or 'gets into fights'. The children completed the task individually and were asked not to talk about it to the other children. For each 'descriptor', the number of nominations received for each child was calculated to give a total social aggression and total physical aggression score.

- 82 per cent of twins received at least one nomination for social aggression.
- 62 per cent of twins received at latest one nomination for physical aggression.

## Results

The results are shown in [Table 3.7](#).

The teacher was more likely to find boys to be more physically aggressive than girls and girls to be more socially aggressive.

There was a moderate correlation between peer ratings and teacher ratings; children seen as physically aggressive were also



described as socially aggressive.

The peers were more likely to find boys more physically and social aggressive and physical aggression was found to lead to social aggression.

Higher concordance rates for physical aggression were found in MZ twins compared to DZ twins, suggesting physical aggression is a consequence of biology.

A correlation between ratings of aggression for each twin pair was calculated. MZ twins were twice as likely to score the same for physical aggression compared to DZ twins.

Correlations for social aggression in MZ and DZ twins were very similar suggesting social aggression is a consequence of environmental factors.

**Table 3.7** Variance for the type of aggression from teacher and peer ratings

Variance	Teacher		Peer	
	Physical	Social	Physical	Social
Genetic (%)	63	20	54	23
Shared (%)	0	20	0	23
Non-shared (%)	37	60	46	54

### Conclusions

Physical aggression has a strong genetic component, whereas social aggression is a consequence of environmental factors. This suggests that physical aggression may be due to the genes we inherit rather than our environment. Social aggression, on the other hand, seems to be influenced more by environmental factors than inherited factors.

Children who were physically aggressive were also more likely to display social aggression. This could be due to an interaction between genes and environment. Children may be genetically predisposed by their genes to behave aggressively, but the environment they grow up in may lead to more social aggression.

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**Van Den Oever et al. (2008)**

**Aims**

The aim of the study was to investigate the changes to the synaptic functioning of the brain after exposure to the cues associated with an abused drug. In particular what happens at the synapse when rats with an extinguished heroin addiction are exposed to cues related to their heroin-taking. It was thought the findings may be able to help identify possible ways to treat drug addiction. Previous research has shown that when blocking activity of the AMPA receptor in the ventral medial prefrontal cortex, rats showed reduced cue-induced relapse to heroin, which again has implications for possible treatments.

### **Procedures**

Male rats were conditioned to become dependent on heroin in response to nose-poking behaviour. The rats would be given the drug intravenously via an implanted catheter each time they exhibited the nose-poking behaviour. The rats were then forced to undergo extinction to the heroin over a three-week period until they no longer showed the previous nose-poking behaviour. The researchers then wanted to establish that if the cues that were present during the conditioning phase were also present during a re-exposure phase, would this lead the rats to relapse? The rats were therefore re-exposed to the heroin-induced cues for one hour. It became evident that learned cues present within the drug-taking stage act as a powerful connection to any possible relapse. In order to validate previous research, some rats were then also given an injection in various areas of the prefrontal cortex prior to re-exposure to the cues. This was to block activity of the AMPA receptor to see if this had an impact on the cue-induced relapse. The medial prefrontal cortex was then dissected from the brains and the researchers found there were significant changes in proteins after cue exposure when compared with control rats. This suggested that re-exposure to heroin cues resulted in reduced synaptic activity in the medial prefrontal cortex.

### **Results**

The results showed that plasticity does occur in the brain when re-exposed to cues associated with a drug of abuse. Using other tests, it was found that relapse to heroin affected the ventral medial prefrontal cortex but not the dorsal medial prefrontal cortex.

## Conclusions

It seems cues may trigger a synaptic response to encourage heroin-seeking behaviour even after abstinence. The findings could be used to develop possible treatments to help heroin addicts from seeking to relapse when presented with cues such as the drug paraphernalia related to heroin.

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## Key questions

### Is anorexia nervosa caused by biological factors?

The latest version of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) cites the main eating disorders as anorexia and bulimia, and binge eating disorder (BED). Before the latest change in diagnostic criteria, it was estimated that of those with eating disorders, 10 per cent were anorexic and 40 per cent were bulimic. It is estimated that 1.6 million people in the UK are affected by an eating disorder and 11 per cent of the 1.6 million are male.

Anorexia nervosa comes from the term ‘anorectic’ which describes a nervous loss of appetite. It is an emotional disorder characterised by an obsessive desire to lose weight by refusing to eat or having a total aversion to food. Anorexia most commonly affects girls and women, although it has become more common in boys and men in recent years.

On average, the condition first develops at around the age of 16 to 17. It is estimated that 1.0 to 4.2 per cent of women have suffered from anorexia in their lifetime. Anorexia has the highest fatality rate of any mental illness. It is estimated that 4 per cent of anorexic individuals die from complications of the disease. Typical symptoms include

- chronic dieting despite being hazardously underweight
- obsession with calories and fat contents of food
- engaging in ritualistic eating patterns, such as cutting food into tiny pieces, eating alone and/or hiding food
- an abnormal absence of menstruation (amenorrhoea), or loss of three consecutive menstrual cycles.

The effects of the extreme behaviours resulting from anorexia nervosa are far more devastating and consequential than dieting. While someone may diet in an attempt to control weight, anorexia nervosa is often an attempt to gain control over one’s life and emotions, especially in the light of traumatic events or a chaotic environment.

## **Application of concepts theories and research to explain this key question**

Anorexia may be associated with a biochemical imbalance. Research in the biological field has focused on the hypothalamus. The lateral hypothalamus (LH) and the ventromedial hypothalamus (VMH) work alongside each other to provide a 'weight thermostat'. When hungry, the LH is activated (on switch) and when full the VMH is activated (off switch). The problem may be that in anorexia the switch is always jammed in the 'off' position due to some chemical imbalance in the brain. This makes the individual think they are constantly full and not hungry.

Amenorrhoea (loss of menstrual cycle) can occur before weight loss, which suggests a primary disorder of low endocrine levels, again associated with a hypothalamus dysfunction. This suggests anorexic symptoms are caused by changes in hormone levels. The endocrine levels of anorexics of around 19 years of age are similar to those of a healthy nine-year-old.

An alternative type of biological explanation is the idea that anorexia may result from an imbalance of neurotransmitters in particular parts of the brain. Fava *et al.* (1989) found that when anorexia develops, there are also changes in the amount of noradrenaline and serotonin present in the brain, and suggested that this might be a cause of the problem. It is believed that noradrenaline acts on part of the hypothalamus which leads to eating and in contrast serotonin suppresses appetite in non-human animals.

It has also been suggested that anorexia may result from genetic factors. Scott (1986) reviewed a number of twin studies of anorexia, and found that the concordance rate (where one had it, the other did too) for MZ twins was higher than that for DZ twins, which suggests that there may be a genetic factor. Similarly, Holland, Sicotte and Treasure (1988) found 56 per cent of MZ twins were concordant for anorexia, whereas only 5 per cent of DZ twins were concordant.

As with most disorders, it has been suggested that neither biological factors nor environmental factors cause anorexia in isolation, but a mixture of both may provide an answer. This classic diathesis (stress model) suggests we all have a genetic predisposition to certain disorders but that these lay dormant until if and when some environmental event triggers them. This could mean that anorexia is the result of a dormant gene being activated by a stressful life experience, such as death of a close relative.

## Practical investigation

In conducting the practical investigation, you must:

- design and conduct a correlational study
- link your research to aggression or attitudes to drug use
- include inferential statistical testing (Spearman's rho) and explain the significance of the result and the use of levels of significance. You must also be able to use descriptive statistics (strength/direction) to explain the relationship
- produce an abstract of the research method and a discussion section that includes conclusions
- include research question/hypothesis, research method, sampling, ethical considerations, data-collection tools, data analysis, results, discussion.

### Suitable examples

- A correlation into age and attitudes to drug use.
- Correlation between attitudes to drugs and aggressive tendencies.
- Correlation between age and aggression.
- Correlation between parents' attitudes towards whether aggression is innate and self-rating of aggressive tendencies.
- Correlation between height/weight, etc., and self-rating of aggressive tendencies.

## Issues and debates

<b>Ethics</b>	<p>Studying aggression and issues around links to brain damage</p> <p>Use of brain scanning techniques and protection of participant</p> <p>Issues of confidentiality and informed consent especially within adoption studies</p> <p>Ethical issues with the use of animals within biological psychology</p>
<b>Practical issues in design and implementation of research</b>	<p>Issues around cost and equipment when scanning and measuring the complexity of the brain</p> <p>Cause and effect when trying to infer conclusions from studying such a complex organ</p> <p>Difficulty in finding samples of MZ and DZ twins and establishing whether samples are valid</p>
<b>Reductionism</b>	<p>Focusing on aggression when studying the brain means reducing behaviour to individual structures like the prefrontal cortex of amygdala. This view neglects the whole person/other environmental factors for behaviour and so is less valid</p>
<b>Comparisons between ways of explaining behaviour</b>	<p>Comparing Freud's ideas and biological explanations of aggression</p> <p>Role of evolution against hormones when explaining aggression</p>
<b>Psychology as a science</b>	<p>Synaptic transmission; brain-scanning techniques, all objective and scientific help increase credibility. However, some methods, such as correlations and psychodynamic explanations of aggression, reduce the scientific status</p>
<b>Cultural and gender issues</b>	<p>Hormonal differences between males and females possibly influencing behaviour, such as aggression</p>
<b>Nature–nurture</b>	<p>The focus on brain structure/CNS/hormones/neurotransmitters and brain localisation in aggression are all on the nature side of the debate</p>

<b>Psychological understanding over time</b>	Development of scanning techniques up to fMRI and development of older methods, such as trepanning to CAT or MRI
<b>Social control</b>	Using knowledge of brain function to control individuals (such as Raine <i>et al.</i> ) and aggression, could lead to unfair labelling and treatment and even unnecessary therapy Prefrontal lobotomies have been used to control antisocial behaviour in the past Chemical castration of males to block male hormones used with sex offenders
<b>Psychological knowledge in society</b>	Understanding explanations of aggression to help with treatments and possible predictions of risk Understanding, explaining and treating drug addiction
<b>Socially sensitive research</b>	Linking biology to behaviour, such as aggression, homosexuality or intelligence, is socially sensitive for those involved as it has implications for the rest of society

### Exam practice

- 1 Evaluate the psychodynamic explanation of aggression. [8]
- 2 Evaluate one contemporary study from biological psychology. [8]
- 3 Evaluate the biological explanation of aggression. [8]
- 4 Evaluate what is known about the effect of recreational drugs on the transmission process in the brain. [8]
- 5 Evaluate the classic study by Raine et al. (1997). [8]
- 6 Outline at least two strengths and two weaknesses of brain scanning techniques as they are used in biological psychology. [6]
- 7 Compare the biological and psychodynamic explanations of aggression.



- 8 Describe how our biology can explain how we develop. You must make reference to genetics in your answer. [6]
- 9 Outline at least three strengths and three weaknesses of correlations as they are used in biological psychology. [4]
- 10 Explain why the psychodynamic explanation of aggression might be said to be unscientific. [6]
- 11 Outline what is meant by biological psychology. [5]
- 12 Compare twin studies with adoption studies as they are used in biological psychology. [6]

### **End of chapter summary**

You should now have an understanding of all the points below:

- the central nervous system and the function of neurotransmitters and synaptic transmission
- the effect of recreational drugs on synaptic functioning
- the structure of the brain and brain functioning as an explanation of aggression
- the role of evolution/natural selection and hormones to explain human behaviour, including aggression
- biological and psychodynamic explanations of aggression
- issues concerning individual differences and development within biological psychology
- analysis of correlational data and issues surrounding their use as a method in psychology
- Spearman's rho statistical test
- brain-scanning techniques and their use to investigate behaviour, such as aggression
- one twin study and one adoption study
- the classic study by Raine et al. (1997) and one other contemporary study
- one key question relating to biological psychology

- one practical investigation that you have carried out in relation to biological psychology
  - issues and debates within biological psychology.
-

# 4 Learning theories

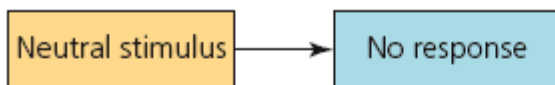
## Defining learning theories

Learning theorists examine the effects of the environment in the shaping of behaviour and believe that, as scientific psychologists, we should only study observable behaviour. The learning approach views the mind as a 'black box' which we cannot access. Therefore, it only studies overt behaviours and the stimuli which cause them. The most important influence on learning and behaviour is our environment. We are born as a tabula rasa (blank slate) and learning or experience makes us the people we become. Learning theories focus on how nurture shapes individuals in terms of behaviour through, for example, family, peers, social and cultural situations. This is viewed as far more important than the influence of genetics.

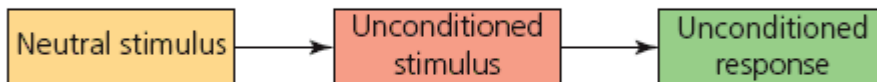
## Classical conditioning

Pavlov wondered whether if a dog could associate a bucket with its food, it could also associate some completely different object or event with the food and begin to salivate in response to that. For the next few feedings, each time the dog received its food, a bell was sounded for a few seconds, and the amount of saliva secreted was measured. After several such trials, Pavlov sounded the bell without accompaniment of food and the dog still salivated, nearly as much as it normally did when food was presented. Pavlov gave scientific names to the parts of this procedure. The food is termed the 'unconditional stimulus' or UCS: it is the stimulus, which normally elicits the salivary reflex response. It is 'unconditional' because it works by itself; it needs no other help, or 'conditions', to allow it to work. The bell is a 'conditional stimulus' or CS because it will only activate the reflex on condition that it is presented at the same time as the food. Salivation to the food is therefore the 'unconditional response' or UCR; it is a response to an unconditional stimulus. Salivation to the bell is a 'conditional response' or CR – a response to a conditional stimulus.

### Before conditioning



### During conditioning



### After conditioning



**Figure 4.1** Classical conditioning

#### Typical mistakes

Do not get the neutral stimulus and unconditioned stimulus mixed up. Remember the NS is called neutral as it does nothing until it is paired with the UCS. In this case, the bell gets no response until it is paired with the food.

Dogs learn to salivate when they hear the sound of a bell alone, after hearing the bell rung at the same time as they have received food, which does make them salivate. Thus, the salivation of the dog to the sound of a bell is conditional upon the bell having been associated with food. Pavlov found that the conditioning technique was most effective when the conditional stimulus was presented very slightly before the unconditional stimulus.

#### Now test yourself

- 1 The dogs salivated to the sound of a bell. What had the dogs associated the bell with in order for this to happen?
- 2 Explain how Pavlov extinguished this response.
- 3 Something which would not normally trigger a specific response is known as a ...?

Answers on p. 227

### Other features of classical conditioning

#### Extinction

If a dog hears a buzzer on several trials when no food is presented, then the association between buzzer and food weakens, so that eventually the dog

will not salivate upon hearing the buzzer. This is called ‘extinction’ because the learned response appears to have been extinguished. Extinction occurs when the UCS (the stimulus that naturally elicits the response) appears a few times without the CS and then the association is lost.

### **Spontaneous recovery**

However, when the dog is removed from the experiment for a few hours and is then returned, it will salivate (show the CR) when it hears the buzzer. This is called ‘spontaneous recovery’ and shows the association between the buzzer and salivation has not been completely extinguished.

### **Stimulus generalisation**

Pavlov also found that the dog salivated to a buzzer, which had a similar tone to the original one (the CS). The more similar the tone, the greater the quantity of saliva produced by the dog.

### **Discrimination**

However, when buzzers are sounded which are more and more different from the original tone (the CS), the dog will no longer salivate.

### **One-trial learning**

Sometimes learning occurs when the unconditional and the conditional stimulus are paired together only once. If you see a bad traffic accident (the UCS), this might trigger a fear response (the UCR). Subsequently, you might experience the fear response whenever you pass the scene of the accident again. Because the scene has become associated with the accident (the UCS), the scene has become the CS and the fear response has become the CR.

#### **Exam tip**

Make sure you can define each of these terms with an example for at least two marks.

#### **Now test yourself**

- 4 Outline one difference between extinction and discrimination.
- 5 If the CR is triggered by a similar stimulus to the UCS, this is known as ....

**Answers on p. 227**

## **Operant conditioning**

In classical conditioning, the person doing the teaching does something which triggers some reflex in the animal. In operant conditioning, the

animal must do something first, for which it will then be rewarded. To obtain another reward it will have to do the same thing again. Classical conditioning uses involuntary reflexes, while operant conditioning uses voluntary reflexes.

The key feature of operant conditioning is that the subject behaves in a certain way, which is followed by a 'reward'. The subject may associate its behaviour with the reward, and so learn to repeat it. The behaviour the animal learns is called an 'operation' or an **operant**. If your dog fetches the stick you have thrown, you reward the dog in some way. Its operant behaviour (fetching the stick) comes first and your behaviour (giving a reward) is a response to it. It may also be a reinforcer for the animal. In classical conditioning the experimenter's stimulus comes before the animal's response (Pavlov's bell rang before the dog salivated). Also, in classical conditioning, only behaviour which is mainly automatic (like reflexes) is conditioned. In operant conditioning, just about any behaviour can be conditioned.

One of the most influential psychologists this century was B.F. Skinner who used some apparatus called a Skinner box, to study the way rats and similar animals learn. Inside the box was a lever and a food tray. Pressing the lever released a food pellet into the tray. Skinner's rats soon learned to press the lever. A well-fed rat is less likely than a starving rat to regard food as pleasure.

Skinner used the term 'reinforcer' to apply to anything which would make the animal (or human) repeat the response. In many societies, money is a powerful reinforcer. Skinner found discomfort might act as a reinforcer. If giving a response caused pain to stop, this was quickly learned (and slowly forgotten).

### **The nature of reinforcement**

Skinner identified **positive reinforcers** and **negative reinforcers**. Secondary reinforcers may be exchanged for primary reinforcers. Stopping or avoiding unpleasant things can also be strong reinforcers. One final method of changing some behaviour is using **punishment**. If we know that we will be punished severely for doing something, we are less likely to do it (or more careful not to be caught!).

#### **Typical mistakes**

Negative reinforcement is not the same as punishment. Don't get these the wrong way around. Simply put, negative reinforcement

means do something good to take away something bad.  
Punishment is get something bad for doing something bad.

### Now test yourself

- 6 How could positive reinforcement be used to improve a student's work in class?
- 7 How could negative reinforcement be used to improve a student's work in class?

Answers on p. 227

## Schedules of reinforcement

Skinner experimented with reinforcers and stopped reinforcing the animals every time they gave correct responses. Instead they were given reinforcement every other time, or every third time. He reinforced some every few minutes rather than every few times they have a correct response. Skinner taught a pigeon to peck a coloured disk when a particular light came on, when it only received reinforcement once in a thousand pecks. The animal seems to know that it will receive reinforcement sometimes and continues to give the correct response until the reinforcer occurs. There are five possible ways of reinforcing. They are called 'schedules of reinforcement'.

The five major schedules of reinforcement are:

- 1 **Continuous** where the desired effect is reinforced every time it occurs.
- 2 **Fixed ratio** such as when every fifth, tenth, twelfth, or any other such regular correct response is reinforced.
- 3 **Variable ratio** where the number of necessary correct responses is constantly altered.
- 4 **Fixed interval** reinforcement made once every fixed number of minutes, so long as there has been at least one correct response during that time.
- 5 **Variable interval** where the time between reinforcements is varied.

Although animals are quickest to condition using continuous reinforcement, Skinner found that switching to one of the other made the response harder to extinguish. If the animal is not led to expect reinforcement after every correct response, it will give many correct responses before stopping.

## Behaviour modification, including behaviour shaping

Behaviour modification involves changing behaviour using operant conditioning principles – chiefly reinforcement. Two applications are behaviour shaping and the token economy.



Skinner believed that complex behaviours, such as language, can be learned through operant conditioning through the process of **behaviour shaping**. Initially, any behaviour which vaguely resembles what we are looking for is reinforced, but then additional behaviours are required. For example if parents are trying to make their child learn to tidy their room, they may use the following steps:

- 1 Reward given for picking up dirty clothes.
- 2 Reward given for putting books away and picking up dirty clothes.
- 3 Reward only given when the floor is visible.

The child is only rewarded if its attempts to tidy their room are better than the last.

### **The token economy**

In institutions such as long-stay psychiatric wards, tokens are given to reward and therefore strengthen appropriate behaviour. These can be exchanged for various desirable goods, sweets, cigarettes, day trips and so on. Tokens have been found to be effective in changing behaviour, but when they are no longer given, the behaviour may stop. To counteract this, a schedule of variable-ratio reinforcement can prolong the desired behaviour. However, the underlying cause of the inappropriate behaviour is not being treated by the use of tokens.

Behaviour modification principles are also widely used in schools.

Reinforcement is used to encourage appropriate behaviour and punishment to weaken inappropriate behaviour.

#### **Exam tip**

The token economy is an important technique throughout many areas of psychology. It can be applied with learning theories, and criminal and clinical psychology, so make sure you understand how it works.

#### **Now test yourself**

- 8 How could behaviour shaping be used to train a dog to open a door?
- 9 How could the token economy be used to improve a student's attendance in lessons?

**Answers on p. 227**

## **Social learning theory**

Social learning theory focuses on the learning of new or novel behaviour, something which neither classical nor operant conditioning are very good at explaining. According to social learning theory, observational learning, learning through watching the behaviour of others, is the main way in which we learn novel behaviour and there are four important points to be considered:

- 1 The person whose behaviour is observed is the 'model' (the term 'modelling' is often used instead of observational learning).
- 2 Learning is spontaneous without any intention to learn or to teach.
- 3 Both specific behaviours (e.g. aggression) and more general, emotional behaviours (e.g. fear of spiders) can be modelled.
- 4 There is a difference between learning (acquisition or modelling) of behaviour and performance (imitation) of that behaviour.

Modelling occurs without reinforcement. However, reinforcement increases the likelihood of the learned behaviour actually being shown (or imitated) by the learner. **Vicarious reinforcement** can be either positive or negative and has the same effects as in operant conditioning.

Bandura claims that there are four processes in observational learning, i.e. **attention, retention, reproduction** and **motivation**.

### **Exam tip**

Use the acronym ARRM to remember the four processes above.

### **Typical mistakes**

Never just list these or describe them too briefly. Use examples for each if necessary, but make sure these are psychological ones and not just colloquial everyday examples.

### **Exam tip**

Remember social learning theory has more to it than just ARRM. Always include the influence of role models and the type we are most likely to imitate, alongside the importance of perceived consequences.

Bandura's studies from 1961, 1963 and 1965 are now described in some detail.

## **Bandura (1961)**

### **Aims**

To find out if aggression learnt by copying others would be repeated in a new setting. In this new setting, the role model was not present. To see whether observation of the same-sex role model would lead to copying the aggressive behaviour of the same-sex role model.

### **Procedures**

Children aged three to six years (36 boys and 36 girls) were divided into three groups. There was a control group of children who did not see a model. There were two groups who were exposed to adult models who behaved in either aggressive or non-aggressive ways. Half of each group saw a same-sex model, the others an opposite-sex model. The children were then tested in different situations to see how much they would imitate the aggressive acts of the model. After exposure to the model, all participants were put in a situation designed to frustrate them. This was to increase the likelihood of aggression being displayed.

In the final stage, the children were allowed to play and were observed by the experimenters using a one-way mirror. Records were made of aggressive acts, which replicated the model's behaviour (both physical and verbal), other aggression with the mallet and non-aggressive behaviour.

### **Results**

Children who observed violent models imitated their exact behaviours and they were much more aggressive than those children who did not see the aggressive model. The increase in aggression for boys was greater than for girls. These results are shown in [Table 4.1](#).

### **Conclusions**

The results showed that observation and imitation can explain how specific acts are learnt and that this occurred without reinforcements being given. A possible explanation for the results is that children think behaving aggressively is ok, which could then encourage children to behave aggressively, because they do not think they will be punished.

**Table 4.1** Mean aggression score for participants in experimental and control conditions

		Aggressive role model		Non-aggressive role model	
		Female	Male	Female	Male
Physical	Girls	5.5	7.2	2.5	0.0
	Boys	12.4	25.8	0.2	1.5
Verbal	Girls	13.7	2.0	0.3	0.0
	Boys	4.3	12.7	1.1	0.0

## **Bandura (1963)**

### **Aims**

To find out if children would become more aggressive if exposed to an aggressive role model seen in a film or in a less realistic cartoon compared to watching a real live model.

### **Procedures**

Ninety-six children were matched for pre-existing levels of aggression (as in the 1961 study) and allocated to one of the three experimental groups and a control group, with 24 children in each group:

- 1 The aggressive role model was real.
- 2 The aggressive role model was shown on film on a screen.
- 3 The aggressive role model was a cartoon character shown on a normal television while the children were playing.
- 4 A control condition where the children did not see a role model at all.

Children were exposed to mild aggression arousal before being taken to a different room where they were left to play with a range of toys (as in the 1961 study).

Children's behaviour was observed (number of verbal, physical, mallet and gun-play aggressive actions the children carried out) every five seconds for 20 minutes, so there was a total of 240 responses for each child.

### **Results**

The results are shown in [Table 4.2](#).

In all three conditions, children displayed significantly higher aggression compared to the control group.

Watching a human or cartoon character made no difference in the number of aggressive behaviours displayed.

### **Conclusions**

Bandura concludes that children will imitate filmed aggression in the same way as live aggressive role models.

Bandura expected there to be less imitation to the cartoon role model because the children would identify with it less. However, the cartoon aggression seemed to weaken social inhibitions generally, because there was less imitative aggression, but more non-imitative aggression in this condition.

Table 4.2 Mean total aggression scores for all conditions

Mean total real-life aggression	Mean total human film aggression	Mean total cartoon aggression	Mean total control group aggression
83	92	99	54

## Bandura (1965)

### Aims

To see the impact of vicarious reinforcement on children's imitation of aggression. In particular, to see if children would be more likely to imitate a role model they see being rewarded and less likely to imitate a role model they see being punished.

### Procedures

Thirty-three males and 33 females were allocated to one of the two experimental conditions and a control group, with 22 children in each group (11 boys and 11 girls):

- 1 Model rewarded: In the model reward condition, the children watched as another adult positively reinforced the aggressive behaviour of the model by giving them sweets and a soft drink.
- 2 Model punished: In the model punished condition, the children watched as another adult walked up to the model shaking their finger disapprovingly and saying, 'You big bully'.
- 3 Control group: Children did not witness any consequence to the model's behaviour.

The children then watched a five-minute programme of an adult in the playroom being aggressive with a Bobo doll. They saw the model getting rewarded or punished depending on the condition they were in, while the control group observed no response to the aggression. Each child was then taken to another room and left to play with a Bobo doll. They were observed by the researchers who recorded behaviours every five seconds for ten minutes.

### Results

Children who were in the model reward condition demonstrated a higher number of imitative aggressive acts.

Boys displayed more aggressive behaviours compared to girls in the control condition where model aggression did not have any consequences.

### Conclusions

Children were more likely to imitate aggressive behaviours if the model was positively reinforced and vice versa. Seeing another person receive rewards for their behaviour would motivate another person to reproduce the same behaviour, whereas observing a behaviour being punished would discourage another person to repeat such behaviour.

### Exam tip

You need to know these three Bandura studies and could be asked about any in the exam. Make sure you differentiate them by date or independent variables.

### Now test yourself

- 10 Describe how the independent variables are different in Bandura 1961, 1963 and 1965.
- 11 After exposure to the model, why were all the children put in a situation designed to frustrate them?
- 12 Why might this have caused the results to be less valid?

Answers on p. 227

## Learning theories and phobias

### How we acquire and maintain phobias

Learning therapists believe that phobias are a result of learning and can originate through a process very similar to classical conditioning. A phobia is acquired through pairing/association of a neutral stimulus with an unconditioned stimulus which leads to an unconditioned response. So, for example, anything which becomes associated with a terrifying experience may thus become a CS and may itself induce fear and anxiety. [Table 4.3](#) shows how a behaviour therapist might interpret the way in which a person's rat phobia could develop.

**Table 4.3** How a phobia of rats is explained using classical conditioning principles

UCS Terrifying experience	→	UCR Fear and anxiety
CS+UCS Rat+Terrifying experience	→	UCR Fear and anxiety
CS Rat	→	CR Fear and anxiety

A more common phobia is that of lifts, the classical conditioning explanation proposes that first a panic attack occurs, in response for instance, to being trapped in a lift. This results in an association being established between anxiety and that lift. Subsequently, this anxiety becomes generalised to all lifts. Consequently, the person will actively avoid using lifts in the future.

### Exam tip

If you always draw the classical conditioning procedure as a diagram, like the one in [Table 4.3](#), you will be less likely to make a mistake. The procedure will only ever use three terms, in this case 'rat', 'terrifying experience' and 'fear and anxiety'. Your job is to cut and paste them in, the second column is always the same for each row.

According to operant conditioning, phobias develop as a result of reinforcement of fear response to objects or situations. In terms of the previous example above regarding phobia of lifts, the avoidance of lifts is further reinforced by the reduction in anxiety experienced when the person adopts alternative strategies, such as using the stairs. Any future avoidance of lifts will give positive reinforcement through feeling relaxed, thus motivating the individual to avoid similar situations in the future and as such the phobia continues and is maintained.

According to social learning theory, a phobia is acquired through the observation of others and particularly the consequence of the 'other's' behaviour. If a role model shows fear of something then that fear may be imitated. For example, a child watches her older sister running away from a dog (observation). The older sister is then seen being comforted by her parents who calm her down (vicarious reinforcement), then later the



younger sister imitates the behaviour she saw by running away from a dog herself. This in turn is met with the same comforting from her parents who might console her, but end up reinforcing the fear.

## Treatments for phobias

Behaviourists believe that as phobias are learned behaviour then they can also be unlearned using the same principle from learning theories. They do not assume that sets of symptoms reflect single underlying causes.

### Flooding and implosion therapy

These are used to treat phobias and involve the patient being exposed to the phobic object at maximum strength. The rationale is that once the patient has reached full anxiety, they realise that their phobia is irrational and therefore calm down. In terms of classical conditioning, anxiety is a CR to a CS (e.g. spiders). The aim of the therapy is to extinguish this response. This occurs by preventing the patient from making their usual escape response like running away. Of course normally the person would do everything they can to avoid such a situation. Now they have no choice but to confront their fears, and then the panic subsides and they find they have come to no harm. The fear (which to a large degree was anticipatory) is extinguished.

Therefore, these therapies are a form of forced reality testing, e.g. if you have a phobia of spiders you will experience anxiety and try to get away from them. If you are 'flooded' with spiders you will become highly anxious and then calm down realising for the first time that spiders are harmless. Fear is a time-limited response. At first the person is in a state of extreme anxiety, perhaps even panic, but eventually exhaustion sets in and the anxiety level begins to go down. Prolonged intense exposure eventually creates a new association between the feared object and something positive (e.g. a sense of calm and lack of anxiety). It also prevents reinforcement of phobia through escape or avoidance behaviours.

Flooding is known as **in vivo**, but may be very traumatic and so instead alternative strategies have been devised known as **in vitro** such as implosion. In implosion therapy, an individual is asked to imagine scenes that incorporate the most obvious cues that may be associated with a particular fear or other emotions. So for example, a person with an irrational preoccupation with germs might be asked to imagine being covered with germs, as well as cues associated with disease, death, loss of personal control, etc.

### Now test yourself

13 Outline one strength and one weakness for flooding therapy.

Answer on p. 227

**Systematic desensitisation** (SD) is based on the principle of incompatible responses, i.e. the idea that you cannot be both anxious and relaxed at the same time. As this is the behaviourist approach, phobias are thought to be learned anxiety responses to particular stimuli. Therefore it is assumed that the phobia can be removed by teaching someone to relax when in contact with the phobic object. Systematic desensitisation is so called because instead of being directly exposed to the feared object, the patient is only gradually exposed to it. Systematic desensitisation takes place over a number of sessions depending on the strength of the phobia and the client's ability to relax. The first part of the procedure involves discussing the patient's fears and building up an 'anxiety hierarchy', that is a list of the things that the person is afraid of from extreme fear to slight anxiety. Therapist and client jointly agree what the therapeutic goal should be and the therapy is deemed successful once this goal has been reached. There are four stages to SD:

- 1 Functional analysis – careful questioning to discover the nature of the anxiety and possible triggers.
- 2 Construction of an anxiety hierarchy – client and therapist derive a hierarchy of anxiety-provoking situations from least to the most fearful.
- 3 Relaxation training (this is the desensitisation).
- 4 Gradual exposure (this is the systematic component).

The patient is then introduced to objects low down on the anxiety hierarchy. As the anxiety response to each object is extinguished, so the next item on the hierarchy is presented. In addition, as each object is shown, the patient is trained in various relaxation methods so that he or she can learn to associate relaxation with each of them in turn. By the time the object of the phobia is presented, the level of anxiety will be much less than it was originally due to the effect of extinguishing the anxiety responses all the way up the hierarchy.

### Typical mistakes

Candidates always forget to include relaxation techniques when describing systematic desensitisation. These could be deep

breathing techniques or listening to music, etc., and are decided by the client and therapist in advance.

Modelling which is based on social learning theory has been used to treat phobias particularly in children. The idea behind it is that if someone with a phobia observes another person in a relaxed state around the object they are frightened of, then this should help them vicariously learn the object will not harm them. For example, Bandura and Menlove (1968) treated 48 nursery school children with dog phobias. One group of children watched brief film clips in which a five-year-old boy engaged in progressively bold interactions with a cocker spaniel. A second group watched the same number of films, but these had several children in them interacting with a number of dogs ranging in size from very small to quite large. The third control group watched films about Disney Land and Marine Land. Children in the first two groups showed increased confidence in dealing with dogs and this was sustained over a long period.

## Individual differences and developmental psychology

Classical conditioning can affect development and explain individual differences, in that phobias might develop through associations between different stimuli and cause differing responses between individuals.

Learning through operant conditioning can affect development. Reinforcers, such as merits, stars, teacher approval and special responsibilities, are given in order to strengthen desired behaviour in schools. Being isolated from friends, doing litter duty or being told off are usually unpleasant experiences, which are aimed at weakening behaviour, and influence a child's development.

This in turn shows individual differences in behaviour in that a child may or may not change behaviour based upon the given reward or punishment. Social learning theory would suggest individual differences in whether we imitate someone or not. Individuals are more likely to imitate someone who we perceive as being like us. We are more likely to imitate someone's behaviour if we consider it appropriate behaviour for them to be displaying. Both these factors depend on the individual themselves.

There are individual differences in gender as Bandura has found where both boys and girls were more likely to imitate a same-sex model. Another

finding from Bandura (1961) was that girls were more likely to imitate verbal aggression and boys were more likely to imitate physical aggression.

## Methods

### Observations

Developmental psychologists often use **structured observations** which allow researchers to control some variables as they are usually (although not always) carried out in an artificial environment, possibly reducing the 'naturalness' of behaviour being studied. The researcher decides where the structured (controlled) observation will take place, at what time, with which participants, in what circumstances and uses a standardised procedure.

Structured observations are usually overt as the researcher explains the research aim to the group, so the participants know they are being observed. Structured observations are also usually non-participant as the researcher avoids any direct contact with the group, keeping a distance (e.g. observing behind a two-way mirror). Bandura used this method to study aggression in children (the Bobo doll studies).

With **naturalistic observation**, the researcher simply records what they see in whatever way they can with no attempts at intervention. Compared with structured methods it is like the difference between studying wild animals in a zoo and studying them in their natural habitat. The goals of naturalistic observation are to describe behaviour as it normally occurs and to examine relationships among variables. This type of research is often utilised in situations where conducting other research is unrealistic and cost prohibitive.

**Participant observations** can be either covert or overt. Overt participant observation is often used to understand the culture and behaviour of groups of individuals. Covert participant observation is often used when researchers believe individuals would change their behaviour if they knew it was being recorded.

In participant observation, the researcher intervenes in the environment. Most commonly, this refers to inserting himself/herself as a member of a group, aimed at observing behaviour that otherwise would not be accessible.

**Non-participant observation** is used to understand a phenomenon by entering the community or social system involved, while staying separate from the activities being observed. This approach is sometimes criticised on

the grounds that the very fact of their being observed may lead people to behave differently. To overcome this, researchers normally observe a number of similar situations, over a period of time. Although video-recorders can now be used in non-participant observation, this too may alter (indeed almost certainly will alter) the behaviour of the research participants.

**Covert observations** involve the researcher not informing members of the group the reason for their presence; keeping their true intentions secret. There are different reasons why a researcher would use this methodology but, as with undercover police officers, it is usually in an attempt to gain unrestricted access that allows them to gather evidence, data or other information. Covert observation is a kind of qualitative methodology because it is used to gather in-depth information through, among other things, interviews and observations.

**Overt observations** refer to the researcher being open about their intentions in the field and ensuring all members of the social group are aware of what is happening. The researcher is likely to inform the group's members about such things as the purpose of the research, its scope, how long the research will last and so forth.

With all observation studies, an important decision the researcher has to make is how to classify and record the data. Usually this will involve a method of **tallying** and sampling. Some sort of pilot study may be carried out prior to the observation to ensure observers know what they are looking for. For example, if observing gender differences in playground aggression it would be necessary to run a pilot to see what types of aggressive behaviours actually take place, in order to make tallies of them later.

### **Exam tip**

There are a number of different types of observation and you need to know them all, so make sure you can tell the difference between them. You will, of course, be using one of these for your practical investigation which will help.

**Event sampling.** The observer decides in advance what types of behaviour (events) they are interested in and records all occurrences. All other types of behaviour are ignored. For example, making a note every time a person laughs during the 15-minute observation period.

**Time sampling.** The observer decides in advance that observation will take place only during specified time periods (e.g. ten minutes every hour, one hour per day) and records the occurrence of the specified behaviour during that period only. Time sampling refers to researchers choosing time intervals for making observations either systematically or randomly.

**Content analysis** is a technique for systematically describing written, spoken or visual communication. Content analysis is used by psychologists in order to analyse qualitative data. The researcher will usually try to categorise what has been recorded in magazines, book adverts, speeches, etc. The content for analysis can be from secondary sources or produced by surveys such as those for marketing. Coding units are constructed so the content can be categorised according to the study aim. A researcher records incidents that match the coding unit with tallies or frequencies.

The analysis is mainly to enable comparisons, contrasts and insights to be made rather than simply allowing counting of events which quantitative data would do. It provides a quantitative (numerical) description. Many content analyses involve media, i.e. print (newspapers, magazines), television, video, movies, the internet.

The method is used to analyse qualitative data. In its most common form, it is a technique that allows a researcher to take qualitative data and to transform it into quantitative data. Quantification allows us to characterise the material in a way that is potentially reliable and valid. The information is broken down into categories and then summarised via both format and content. Format refers to the form or structure of the information. Is it pictorial or verbal? What shape does it take?

### Now test yourself

- 14 Outline two strengths and two weaknesses of using time sampling in observations.
- 15 Outline two strengths and two weaknesses of using event sampling in observations.

Answers on pp. 227–8

## Animal research

### Using animals in laboratory experiments

Animals are used frequently in research, including lesion studies, where damage to the brain is caused and the resulting change in behaviour is measured. Lesions can be carried out on animals by surgically cutting or



burning away a part of the brain, or by using drugs and other techniques to ‘shut off’ parts of the brain temporarily. Causing damage to the brain (lesioning) would be the independent variable and the resulting changes in behaviour that may occur would be the dependent variable. By comparing the behaviour of those animals with brain damage with a control group who have fully functioning brains, it is possible to see which parts of the brain control which types of behaviour.

The popularity of animal research has diminished, particularly within the UK as a result of the Scientific Procedures Act of 1986 and the Home Office regulations for the use of animals. Any psychologist who wishes to carry out research using animals must apply to the Home Office for a project licence; they must also apply for personal licences for anyone who is involved in carrying out the research. Some of the guidelines are summarised below:

- 1 Ethical considerations.** If the research necessitates that animals should be confined, constrained or stressed in any way, the experimenter must be sure that the end justifies the means. If the knowledge to be gained is trivial, alternatives should be favoured.
- 2 Knowing the species.** In order to avoid distressing animals unduly, the experimenter should have a sound understanding of how the species being studied responds to different situations. Some species may suffer more from a particular research situation than others, in which case the one least likely to suffer should be preferred. In any case, distressed animals do not make good subjects so it is in the experimenter’s best interests to care for them properly.
- 3 Numbers of animals.** Experimenters should have a sound knowledge of experimental design such that the minimum number of animals can be used to maximum effect. Statisticians may be able to give advice on techniques of analysis which can give meaningful results from the fewest number of subjects.
- 4 Caging and social environment.** This should take into account the social habits of the species. Some are distressed by being isolated; others will be distressed by being caged together.

### Typical mistakes

Do not refer to human ethical guidelines here as they are completely separate to animal ethics. It is still common for candidates to talk about Pavlov’s dogs not giving consent.



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## **Ethical issues regarding the use of animals in laboratory experiments**

Some scientists, such as Gray (1989), point out that opposition to animal research is contradictory in a society where there is widespread abuse of pets and a heavy reliance on intensive farming methods. Gray goes on to suggest that rather than having to justify the use of animals in research, scientists have a responsibility to use animals whenever their use could make a significant contribution to the relief of human suffering.

Bateson's decision cube should be used to decide whether it is ethical to carry out the study. If the researchers are certain of the benefits, animal suffering is low and the research is of a high quality the study is ethical. It is possible to carry out procedures on animals which are unethical to do on humans. For example, Skinner gave electric shocks to the rats in the Skinner box, but we would not be able to give electric shocks to humans in the same way. However, we can never be sure that the results will actually be of benefit until after the study however much benefit is speculated. For example thalidomide caused no effect to rabbits, but caused human babies to be born without limbs.

Animal species are not sufficiently different from humans for them to be treated as objects. In general terms, they are not treated as conscious beings in the same way as humans. For example, they cannot have the right to withdraw or give consent as they are not conscious beings like humans. Singer (1975) saw discrimination against animals as logically parallel to any other form of discrimination. In the same way as we would argue against racism and sexism as being morally indefensible, Singer suggests that speciesism is also indefensible.

### **Analysis of data**

The chi-square test is intended to test how likely it is that an observed distribution is due to chance. It is also called a 'goodness of fit' statistic, because it measures how well the observed distribution of data fits with the distribution that is expected if the variables are independent (so is applicable for independent measures designs).

A chi-square test is designed to analyse nominal (categorical) data. That means that the data have been counted and divided into categories. It will not work with parametric or continuous data (such as height in inches). For example, if you want to test whether attending class influences how students perform in an exam, using test scores (from 0 to 100) as data

would not be appropriate for a chi-square test. However, arranging students into the categories 'Pass' and 'Fail' would. Additionally, the data in a chi-square grid should not be in the form of percentages or anything other than frequency (count) data.

What a chi-square will tell us is if there is a large difference between collected numbers and expected numbers. If the difference is large, it tells us that there may be something causing a significant change. A significantly large difference will allow us to reject the null hypothesis, which is defined as the prediction that there is no interaction between variables. Basically, if there is a big enough difference between the scores, then we can say something significant happened. If the scores are too close, then we have to conclude that they are basically the same.

$$X^2 = \sum \frac{(o - e)^2}{e}$$

where  $o$  is observed frequency and  $e$  is expected frequency.

Researchers observed whether male and female university students put their phones away at a lecture if the professor asked them to.

**Table 4.4** Observed frequencies showing how many participants put or did not put their phones away

	Sex of student		
	Female	Male	Total
Put phone away	80 (cell A)	22 (cell B)	102
Did not put phone away	34 (cell C)	18 (cell D)	52
Total	114	40	154

**1** Calculate **expected frequency** for each cell using formula below:

$$\frac{\text{Total of row of cells} \times \text{total of column of cells}}{\text{Total of all cells}}$$

Using **cell A** as an example:

$$\frac{102 \times 114}{154} \text{ expected frequency} = 65.2$$

Now do the same for cells B, C and D

**2** Put the values into the chi-square equation as shown at the top of the page by completing the table below. Cell A is done for you.

Cell	O - E	(O - E) <sup>2</sup>	(O - E) <sup>2</sup> /E
A	80 - 75.5 = 4.5	4.5 × 4.5 = 20.25	20.25 ÷ 75.5 = 0.26
B	22 - 26.4 = -4.4	-4.4 × -4.4 = 19.36	19.36 ÷ 26.4 = 0.73
C	34 - 38.4 = -4.4	-4.4 × -4.4 = 19.36	19.36 ÷ 38.4 = 0.5
D	18 - 13.5 = 4.5	4.5 × 4.5 = 20.25	20.25 ÷ 13.5 = 1.5

- 3 Now do the same for the remaining cells and then add up all the totals in the last column to find the chi-square value  

$$X^2 = 0.26 + 0.73 + 0.5 + 1.5 = 2.99$$
- 4 Find degrees of freedom  $(R-1) \times (C-1)$   

$$df = 1 \times 1 = 1$$
- 5 Find the critical value and decide on significance for a one-tailed test at  $p < 0.05$  and  $p < 0.01$ .  
 At  $p < 0.05$ , the critical value is 2.71 and at  $p < 0.01$  it is 5.41, our observed value = 2.99 must be greater than or equal to the critical values to be significant. So our results are significant at 0.05, but not at 0.01.

**Now test yourself**

16 Give three reasons for choosing a chi-square statistical test.

17 If the observed value for chi-square is greater than the critical value, what conclusions would be reached regarding the null and experimental hypotheses?

**Answers on p. 228**

### Scientific status of psychology

Science is knowledge that we know to be true. It relies on empirical methods with verifiable data that show a relationship between variables. This means that the aims of the scientific method are:

**Replication–Prediction–Control–Verification**

A theory is formulated and a hypothesis is created from this theory, which can be objectively and empirically tested against reality by manipulating variables. These **empirical** data are then used to test a hypothesis. Scientific research should be based on directly observable phenomena. Laboratory experiments are the best way to test this as they draw clear cause-and-effect relationships between variables and use a standardised procedure with a high level of control over extraneous variables. Karl Popper (1935) argued that scientific theories cannot be verified but that they can be shown to be false, as science aims to falsify not verify.

Thus when using an inferential test and the results are found to be not significant, we can accept the null hypothesis and the data have been said to be **falsified**.

**Reductionism** is based on the scientific assumption of parsimony, i.e. that complex phenomena should be explained by the simplest underlying principles possible. Strong supporters of reductionism believe that behaviour and mental processes should be explained within the framework of basic sciences.

For example, a reductionist believes that the complexity of the human brain is a result of complex and interacting physical processes. If scientists research and understand these underlying chemical reactions, then they can explain intelligence, emotion and all of the other human conditions.

**Replicability** means researchers should be able to find the same results if the study is completed again. However, just because a study is reproducible does not mean that it is replicable. Replicability is stronger than reproducibility. A study is only replicable if you perform the exact same experiment (at least) twice, collect data in the same way both times, perform the same data analysis and arrive at the same conclusions.

**Reliability** requires tight control over variables to establish consistency in an experiment. For maintaining reliability internally, a researcher will use as many repeat sample groups as possible, to reduce the chance of an abnormal sample group skewing the results.

A scientific **control** increases the reliability of the results, often through a comparison between control measurements and the other measurements. If all the controls work as expected, it is possible to conclude that the experiment is working as intended and that the results of the experiment are due to the effect of the variable being tested. Controls are needed to ensure objectivity and high internal validity as well as replicability and reliability.

**Validity** encompasses the entire experimental concept and establishes whether the results obtained meet all of the requirements of the scientific research method. For example, there must have been randomisation of the sample groups and appropriate care and diligence shown in the allocation of controls.

**Internal validity** looks at how well the procedures of a study allow cause and effect conclusions to be drawn. Uncontrolled variables may cause the effect on the dependent variable, e.g. demand characteristics. It claims the results should be caused by the manipulation of the independent variable

only. Internal validity and reliability are at the core of any experimental design.

**Ecological validity** is the extent to which findings from a study can be applied to the 'real world'. The more control psychologists exert in a study, typically the less ecological validity and thus, the less they may be able to apply.

**Predictive validity** is determined by calculating the correlation coefficient between the results of the assessment and the subsequent targeted behaviour. The stronger the correlation between the assessment data and the target behaviour, the higher the degree of predictive validity the assessment possesses. Conversely, a weak correlation between the assessment data and the target behaviour indicates low levels of predictive validity. For example ability tests, such as GCSE exams, are used to predict success in future A-level exams.

**Hypothesis testing** refers to whether a hypothesis can be accepted, if it can then knowledge is added to the theory, if it is rejected then the theory is amended or rejected. Through this cycle of testing a theory and amending it, scientific knowledge is built up.

## Studies

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### **Classic study: Watson and Rayner (1920)**

#### **Aims**

The researchers aimed to demonstrate that classical conditioning could be used to create a fear response in a child to an innocuous stimulus (one that we would not normally expect to frighten children). By doing this, Watson and Rayner hoped to show that human behaviour could be accounted for by the process of classical conditioning.

#### **Procedures**

A laboratory experiment was carried out using a single participant: a male infant aged nine months at the start of the study. Albert Little, or 'Little Albert' as he has become known, was judged to be particularly emotionally stable. Albert was assessed on his responses to a number of objects, such as a white rabbit, various masks and cotton wool including a white rat, and he displayed no fear. In fact, he wanted to play with the rat. In classical conditioning terms, the rat was a neutral stimulus because it did not produce a

fear response. Two months later, Little Albert was again presented with the white rat. This time, when he reached for it, the researchers struck a 4-ft (1.2 m) metal bar just behind his ear, making a loud noise and frightening Albert. The sound of the bar being banged was an unconditioned stimulus because it elicited a fear response from the start. This was done seven times over the next seven weeks and each time Little Albert burst into tears. By now, Little Albert only had to see the rat and he immediately showed every sign of fear. He would cry (whether or not the hammer was hit against the steel bar) and he would attempt to crawl away. Albert's responses to the rat plus the loud noise, to the rat alone and to other white fluffy objects were noted.

### Results

In the first trial when the metal bar was struck, Albert displayed some distress, jumping violently and sticking his face into a mattress. In the second trial, Albert was suspicious of the rat, and by the next session he leaned away from the rat as soon as it was presented. When a rabbit was placed next to him, Albert cried. Seven weeks later Albert cried in response to a variety of white furry objects including a fur coat and a Father Christmas beard. This response to objects that reminded Albert of the conditioned stimulus is called 'stimulus generalisation'.

### Conclusions

This study clearly showed that it is possible to create an emotional response in humans after only a few pairings of the stimuli. Little Albert should have been deconditioned. After the study he was adopted and his adoptive mother stopped any more experiments. Conditioned responses tend to decline with time and can become extinct.

Little Albert eventually stopped crying and started playing with a rabbit although his fear response could be spontaneously recovered by repeating the original classical conditioning procedure a few times after extinction.

### Now test yourself

**18** This study was a single participant sample. Explain one problem of generalising conclusions based on such research.



**19** Identify some of today's ethical guidelines broken by the study and explain ONE of them in detail.

Answers on p. 228

### Contemporary studies: Becker *et al.* (2002)

#### Aims

Becker *et al.* wanted to evaluate the impact of the recent introduction of western television on disordered eating among ethnic Fijian adolescent girls. This was a relatively media-naive population in which disordered eating previously was thought to be rare.

Specific research questions included:

- To see if exposure to western television has stimulated disordered eating behaviour, despite local cultural practices that have traditionally supported robust appetites and body shapes.
- To determine whether disordered eating in Fiji is associated with body dissatisfaction as it is in the west.

#### Procedures

The research sample consisted of a total of 128 adolescent girls with mean age of 17 years. Sixty-three respondents participated in the study in 1995, within a month of television being introduced to the area, and 65 respondents participated in 1998, after television had been broadcast to the area for three years. Written informed consent was obtained in advance from participants and their parents.

Participants in both samples responded to a modified 26-item eating attitudes test that included questions concerning bingeing and purging behaviours. The EAT-26 has been in widespread use in a variety of cultural settings and required no translation for use in this study population because all subjects were fluent in English. Quantitative data were collected through the questionnaire where the score of 20 or above was considered high and associated with dieting and self-induced purging.

In 1998, additional survey questions elicited data on body image, dieting and potential intergenerational disparities between subjects and their parents with respect to traditions concerning diet and weight. For example, 'How important is it to you to weigh what you



would like to weigh?', 'Would it bother you if you were too thin?' and 'Would it bother you if you were too heavy?'

### Results of quantitative data

The results are shown in [Table 4.5](#).

Of the participants interviewed, 83 per cent responded that they felt television had specifically influenced their friends and/or themselves to feel differently about or change their body shape or weight and 77 per cent reported that television had influenced their own body image.

Some examples of qualitative data are given below:

- I just want to be slim because the TV characters are slim.
- Viewing affects me because sometimes I feel fat.
- I want to be like Cindy Crawford. I want to be like that ... very tall.

### Conclusions

Compared to the past, when simply 'being' was the priority, Fijian teens had become as obsessive about body image and weight as teenage girls in the west who were suffering with conditions like anorexia. Prior to this invasion of television, the Fijian female body was considered more attractive when fuller and naturally feminine, which Fijians considered ideal for child-bearing and child-rearing.

**Table 4.5 Summary of changes in findings due to introduction of TV over 3 years**

	Exposure to television	
	One month (1995)	Three years (1998)
Mean age of participants (years)	17.3	16.9
% who owned a television	41%	71%
% with high score on eating attitude	13%	30%
Vomiting used to control weight	0%	11%
Feel fat	Not asked as dieting so rare	74%

## **Bastian *et al.* (2011): Study 1**

### **Aims**

- What do people think of themselves when they have been violent?
- Do violent video games affect our perception of our and others' humanity?
- To see whether playing against an avatar rather than another player would affect the player's perception of humanity.

The research is split into two studies with Study 1 using 'Mortal Kombat' as the violent game and 'Top Spin Tennis' as the non-violent game.

### **Procedures for Study 1**

Participants were seated in front of a video screen with an X-box video game console. Although both participants were looking at the same screen, a portable dividing wall obscured their view of each other and they were instructed not to interact throughout the course of the experiment. This was to ensure the interaction between participants was fully mediated by the video game environment. Participants then proceeded to play either two-player Mortal Kombat or Top Spin Tennis for 15 minutes. After playing the video game, participants were given a questionnaire to complete. These were related to how enjoyable, exciting and frustrating the game was.

Then, on a separate scale, participants rated themselves on eight items. This was used to assess the attribution of how human they thought they were. Participants also rated the other person on the same items. A Likert scale using a 1–7 point rating was used to assess this.

### **Results for Study 1**

Mortal Kombat was rated as more enjoyable and exciting: these results are shown in [Table 4.6](#).

The mean for self-humanity was lower in the violent video game condition. The same was found for humanity ratings of their opponent: these results are shown in [Table 4.7](#).

### **Conclusions for Study 1**

Playing the violent video game of Mortal Kombat led to a lower perception of the player's own humanity and a lower perception of

humanity of the other player too.

**Table 4.6** Mean and SD scores from both violent and non-violent conditions measuring three themes within the questionnaire

Question	Condition	Mean	SD
Frustration	Violent – Mortal Kombat	3.26	1.42
	Non-violent – Top Spin Tennis	3.04	1.59
Enjoyment	Violent – Mortal Kombat	4.86	1.57
	Non-violent – Top Spin Tennis	4.35	1.39
Excitement	Violent – Mortal Kombat	4.52	1.51
	Non-violent – Top Spin Tennis	3.46	1.25

**Table 4.7** Mean and SD scores from both violent and non-violent conditions measuring attribution of humanity

Question	Condition	Mean	SD
Self-humanity	Violent – Mortal Kombat	3.74	1.02
	Non-violent – Top Spin Tennis	4.35	0.86
Opponent's humanity	Violent – Mortal Kombat	4.43	1.02
	Non-violent – Top Spin Tennis	4.93	0.82

## **Bastian *et al.* (2011): Study 2**

### **Aims**

- To overcome the limitations from Study 1, such as it might be the fact that you are in combat with another person that led to the findings – rather than the actual violence in the game.
- They thought that if the players were against a computer-generated avatar, rather than an avatar controlled by an actual player, this might help to see if it was the violence in the game that led to lowered perceptions of humanity.
- As the characters in Mortal Kombat were not human, the reduced levels of humanity may have been due to the participant seeing themselves as just another character in the game. To overcome this, Bastian *et al.* wanted to see whether a first person shooter, such as Call of Duty, would influence scores on humanity.

This time, Call of Duty was the violent game and Top Spin Tennis again the non-violent game.

## Procedures for Study 2

The major difference compared to Study 1 was that in both games rather than playing competitively against each other, players entered into a cooperative game play context where they both played as a team against computer-programmed avatars for 20 minutes.

## Results for Study 2

The results are shown in [Tables 4.8](#) and [4.9](#).

## Conclusions for Study 2

Playing a violent video game reduces perceptions of one's own humanity even when participants play the game as a first person shooter and when playing in collaboration, rather than against, another co-player.

The findings of Study 2 also suggest that these games do not necessarily make us feel bad, but might influence how human we feel.

## Overall findings

Bastian *et al.* have demonstrated that engaging in cyber violence leads people to perceive themselves as less human and supports previous observations that perpetrators of violence are dehumanised by their own brutality.

Players feel dehumanised when they engage in video game violence, even when this is directed towards computer-generated avatars. However, it is only when another player is the target of this violence that they are also dehumanised.

**Table 4.8** Mean and SD scores from both violent and non-violent conditions measuring three themes within the questionnaire

Question	Condition	Mean	SD
Frustration	Violent – Call of Duty	5.00	1.69
	Non-violent – Top Spin Tennis	3.83	1.76
Enjoyment	Violent – Call of Duty	2.70	1.94
	Non-violent – Top Spin Tennis	3.56	1.58
Excitement	Violent – Call of Duty	3.05	1.64
	Non-violent – Top Spin Tennis	3.44	1.50

**Table 4.9** Mean and SD scores from both violent and non-violent conditions measuring attribution of humanity

Question	Condition	Mean	SD
Self-humanity	Violent – Call of Duty	3.82	0.89
	Non-violent – Top Spin Tennis	4.48	0.56
Opponent's humanity	Violent – Call of Duty	4.89	0.74
	Non-violent – Top Spin Tennis	4.86	0.71

## Capafóns *et al.* (1998)

### Aims

To measure the effectiveness of systematic desensitisation as a treatment for a fear of flying.

### Procedures

Volunteer samples of 41 participants were allocated to each condition using random sampling. Twenty participants were assigned to the treatment group who would receive the systematic desensitisation. Twenty-one were assigned to the control group who did not receive any therapy. The two groups were arranged so as to make them balanced in terms of sex, age and self-reported fear level.

A number of diagnostic scales were used to assess the participant's fear of flying. These included Escala de Miedo a Volar (EMV) which measures degree of anxiety perceived in relation to different flight situations. In addition, EPAV scales were used to assess the occurrence of catastrophic thoughts, such as the wings falling off or the fear of the engine catching on fire.

A video made from a subjective perspective about a trip by plane, which begins with the traveller packing his/her case and ends with the plane touching down at its destination, was also used.

Participants were given a relaxation session where they could become acquainted with the situation and the video they were about to watch. Three minutes prior to the showing of the video, an interview was completed where measurements were taken on the EPV, EPAV scale and heart rate, temperature and muscular tension were measured.

After eight weeks, the treatment and control group were invited back to retake the questionnaire and simulated video test. The control group watched the video, but did not have systematic desensitisation therapy.

### Measures of the dependent variables

The measures taken in the pre- and post-treatment assessments were the following:

- The three EMV scales:
  - Fear during the flight: this contains nine elements related to situations that occur from the moment of take-off acceleration to touchdown.
  - Fear of flight preliminaries: this includes eight situations that are preliminary to the actual flight (going to the airport, obtaining boarding card, etc.).
  - Fear without involvement: this contains four elements related to flying in which there is no direct personal involvement (seeing an aeroplane flying, seeing one on television, etc.).
- The two EPAV scales:
  - Catastrophic thoughts: nine elements that contain highly disturbing thoughts (fear of the engines catching fire, fear of a wing falling off, etc.).
  - Physiological anxiety: ten elements that refer to disagreeable psycho-physiological manifestations (heart rate, palm temperature and muscular tension, etc.) during take-off in the simulation. Measures recorded here are divided for each subject by the baseline measures (obtained in the absence of the phobic stimulus).

### Results

The results are shown in [Table 4.10](#).

The control group who did not have any form of treatment showed no reduction in the participants' assessment of their own fear of flying or objective measures of arousal.

Yet, for the treatment group (with the exception of two participants), there was a significant reduction in the participants' self-reported levels of fear, as well as in objective physiological measures.

### Conclusions

There were no significant differences between the control group and treatment group prior to treatment. The treatment group showed significant improvement to their fear than the control group which suggests that it could be an effective treatment for the fear of flying.

**Table 4.10** Summary of measures taken before and after therapy in treatment and control groups

Mean	Pre-test		Post-test	
	Treatment	Control	Treatment	Control
EMV scale	25.6	26.05	13.25	25.81
EPAV scale	10.3	9.76	5.0	9.67
Objective measures	1.04	1.07	0.99	1.31

## Key questions

### Are violent video games more harmful than violent television programmes and films?

The extent to which media violence causes youth aggression and violence has been hotly debated for more than 50 years and it has been suggested children who witness such behaviour on screen may be more likely to cause harm to others, through verbal, relational or physical means. A frequent question now concerns the size of the effects of older forms of media violence, such as television, against the newer forms of media violence, such as video games. Theoretically, it is not even clear that one should expect to see a difference between the old and new forms of media violence. However, recent research has shown that connections between children playing violent video games can cause later aggressive behavioural problems. Video game play is active, whereas watching television is passive. People learn better when they are actively involved. Retrospect studies have also shown a 12 per cent increase in aggressive behaviour after watching violent television as well. Some parents and psychologists have said that there are children who benefit from the proficiency and coordination of playing video games, while others disagree. Critics of video games claim that watching violent television is less detrimental due to the children not physically playing out the violence.

Another view from researchers suggests that performing violent acts in video games may be more contributing to children's aggression than passively watching violent acts on television. According to this view, the



more children practise violent acts, the more likely they are to perform violent acts. However, opponents believe the fighting that kids engage in with video games is more akin to play than violence.

### **Application of concepts theories and research to explain this key question**

Violent games directly reward violent behaviour, such as by awarding points or by allowing players to advance to the next game level. In some games, players are rewarded through verbal praise, such as hearing the words 'Nice shot!' after killing an enemy. Operant conditioning would suggest that this kind of positive reinforcement increases its frequency. In television programmes, reward is not directly tied to the viewer's behaviour and so any kind of positive reinforcement is lacking here. Similarly negative reinforcement in video games, 'kill or be killed' forces the player to act aggressively in the game so as to proceed onwards, this interaction does not exist when watching television.

Konijn *et al.* (2007) concluded that players of violent video games are more likely to identify with a violent character. If the game is a first person shooter, players have the same visual perspective as the killer. If the game is third person, the player controls the actions of the violent character from a more distant visual perspective. In a violent television programme, viewers might or might not identify with a violent character depending upon whether they view them as a role model or not.

Polman *et al.* (2008) randomly assigned children to either play a violent video game or watch someone else play it. There was also a non-violent video game control condition. The results showed that boys who played a violent video game were more aggressive afterwards than were boys who merely watched.

Bandura's Bobo doll studies showed that children imitate adult behaviour, so it is possible that children may imitate what they see on television or in films. Film actors may be role models for children, so they observe and copy them. For example, the child observes a role model who they identify with, being violent and then remembers (retains) this information. The child proceeds to imitate (reproduces) the actions of the role model by engaging in a violent act and is motivated to imitate the behaviour especially if rewarded for doing so.

Some claim that violent video games are more cathartic than watching a film (i.e. they allow players to release pent up anger into harmless

channels), suggesting that exposure to violent games can actually provide a healthy release for the frightening emotions of children and young adults. This theory suggests that the emotional drive evoked by violent video game play reduces the chance of a child actually exhibiting violent behaviour; the child's fantasy play and imagined actions causes the child to have reduced urges to act out aggression in actual behaviour.

Bastian *et al.* (2011) have demonstrated that engaging in cyber violence leads people to perceive themselves as less human and supports previous observations that perpetrators of violence are dehumanised by their own brutality.

## Practical investigation

In conducting the practical investigation, you must:

- carry out two observations (one observation can be carried out if both qualitative and quantitative data are gathered in the same observation)
- ensure that observations relate to an aspect of learned behaviour, such as behaviour of different sexes, driving characteristics, age-related behaviour, politeness and helping behaviour
- ensure that observations enable the gathering of both qualitative and quantitative data (including the use of note-taking, tallying and thematic analysis)
- analyse the findings to produce results, including using a chi-squared test
- evaluate the studies in terms of validity, reliability, generalisability and credibility
- write up the results of the quantitative data, including appropriate graphs and tables
- write up the results of the qualitative analysis (thematic analysis).

## Suitable examples

- How age and sex affect driving speed.
- Investigating the differences in helpful or polite behaviour in men and women.
- Male/female differences in type of car driven.
- Male/female differences in purchases regarding electrical goods.

## Issues and debates

<b>Ethics</b>	The ethical issues involved in using animals in laboratory experiments Issues with Watson and Rayner (Little Albert) and the children in the Bandura study
<b>Practical issues in design and implementation of research</b>	Generalising from animals to humans – issues of anthropomorphism Problems with using overt and structured observations
<b>Reductionism</b>	Reducing animal behaviour to simple brain functioning Stimulus–response connections reduce all behaviour to just singular cause and effect and do not take cognition into account
<b>Comparisons between ways of explaining behaviour</b>	Different learning theories explain learning through association, reinforcement and imitation Only social learning theory takes cognition directly into account
<b>Psychology as a science</b>	The explicit focus of behaviourism on the observable behaviour that can be scientifically studied and objectively recorded
<b>Cultural and gender issues</b>	Principles of reinforcement patterns in various cultures determine what is learned Gender-appropriate behaviour is dictated by reinforcement and imitation
<b>Nature–nurture</b>	Behaviourists focus on observable and measureable, so look at nurture side of argument Behaviour such as gender role is learned rather than biologically determined
<b>Psychological understanding over time</b>	Changes in treatments for phobias from flooding to CBT Behaviourism has evolved into behaviour analysis and its principles are used in a more applied manner
<b>Social control</b>	Use of learning theories in therapy can be social

	control, including issues of power of the therapist which can be open to abuse in for example the token economy
<b>Psychological knowledge in society</b>	Using patterns of reward to shape desired behaviour in schools or prisons Introduction of film censorship and the watershed to protect children from imitating
<b>Socially sensitive research</b>	The power of the therapist over the client particularly in aversion therapy Shaping a child's behaviour through rewards could be viewed as manipulative and conformist

### Exam practice

- 1 Compare classical with operant conditioning in terms of strengths and weaknesses. [6]
- 2 Evaluate one contemporary study from learning theories. [8]
- 3 Evaluate the use of observational methods in psychology. [8]
- 4 Evaluate Bandura *et al.*'s (1961) study in terms of validity and generalisability. [8]
- 5 Evaluate the Watson and Rayner (1920) study of Little Albert. [8]
- 6 Outline how operant conditioning might explain gambling behaviour. [6]
- 7 Compare classical with operant conditioning as an explanation of learning. [6]
- 8 Evaluate ethical issues regarding the use of animals. [8]
- 9 Evaluate systematic desensitisation as a treatment for phobias. [8]
- 10 Outline what is meant by learning theories. [6]

11 Evaluate the use of content analysis in psychology.

[8]

12 Hussain has a fear of bees; every time he sees a bee he starts to panic and cries out for his mama. Using your knowledge of classical conditioning, explain how Hussain might have developed his fear of bees.

[4]

### **End of chapter summary**

You should now have an understanding of all the points below:

- the main features of classical, operant and social learning theory
- Pavlov's (1927) experiment with salivation in dogs
- Bandura's three Bobo doll experiments in (1961, 1963 and 1965)
- the acquisition, maintenance and treatment of phobias
- issues concerning individual differences and development psychology in learning theories
- methodology used such as observations and content analysis
- use of animals in laboratory experiments and ethical issues regarding the use of animals
- Chi-square statistical test
- scientific status of psychology
- the classic study by Watson and Rayner (1920) and one other contemporary study
- one key question relating to learning theories
- one practical investigation that you have carried out in relation to learning theories
- issues and debates within learning theories.

# 5 Clinical psychology

## Defining clinical psychology

Clinical psychology uses scientific theory for the purpose of understanding and preventing psychologically based distress or dysfunction and to promote wellbeing and personal development.

Clinical psychologists disagree about the causes of abnormal behaviour and will have a different view about the cause and possible treatment for each individual. However, they all aim to reduce the distress and improve the psychological wellbeing of their clients. They use psychological methods and research to make positive changes to their clients' lives and offer various forms of treatment.

## Diagnosis of mental disorders including the four 'Ds'

In an attempt to deal with this, psychologists typically consider the 'four Ds' when diagnosing mental disorders.

Social norms are based on how the current social order expects us to act; any **deviation** from this is viewed as abnormal. In any situation, we assign meaning to a person's behaviour by looking at the context in which it occurs. Much behaviour which appears normal in one context becomes abnormal if it appears in another. Highly deviant behaviours like chronic lying or stealing lead to judgements of abnormality.

**Distress** is related to dysfunction, but an individual person can experience a great deal of dysfunction and very little distress or vice versa. Behaviours and feelings that cause distress to the individual or to others around him or her are considered abnormal. The important issue here is the individual's own viewpoint and subjective feelings about distress, not so much how severe it looks to others.

**Dysfunction** is concerned with behaviour of individuals in relation to their own wellbeing or that of their social group. Some individuals are not able to integrate (fit in) to society for whatever reason. For example, one man was so scared of crowds he found himself unable to get on buses to go to work.

**Danger** can be a sign of severe psychological problems. A pattern of functioning that is marked by carelessness, poor judgement, hostility or

misinterpretations can jeopardise one's own wellbeing and that of many other people as well.

## Classification systems

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM) is the handbook used by healthcare professionals when diagnosing mental disorders. DSM-IV replaced the DSM-III-R in 1994 and was updated to DSM IV-TR in 2000, and has been in its current guise DSM V since 2013.

### Exam tip

Make sure you can cite relevant examples for each of these four definitions.

DSM IV and DSM IV-TR use a 'multi-axial' system for assessment. This means that clinicians must assess patients on five different axes or scales in order to make a full evaluation of their condition.

The DSM V has eliminated the multi-axial system of its last two predecessors and instead is focused around just three sections. Section I looks at the rationale of changes from the previous version and focuses the reader on how the three sections are organised and instructions for using DSM V. Section II contains all the main mental disorders and lists diagnostic criteria and codes. It includes schizophrenia, OCD, anorexia and depression. Section III is a sort of 'work in progress' continually evolving around other assessment measures to aid diagnosis. Any categories that need more research before they can be permanently included in section II will be found in section III. The same applies to any new diagnoses which need more investigation before they too can go into section II. These include caffeine-use disorder and internet-gaming disorder, both of which require more research or more exposure to clinical experience to determine their usefulness. The rationale behind section III is to provide enormously useful information to clinicians today which is likely to be incorporated into section II in future editions of the manual.

While the DSM focuses on mental health classification, the ICD-10 (International Classification of Diseases) has a much wider scope and covers all diseases and health-related conditions. In ICD-10, each disorder has a description of the main features, and any important associated features. Each disorder is then given a code which consists of a single letter, as in the example below for F. These are then further subclassified to represent a specific disorder. So, for example, below F40 is a phobic



anxiety disorder and F42 is OCD. These are then even further subclassified so that F40.2 is a specific phobia and F40.21 is an animal-type phobia.

- F01–F09 Mental disorders due to known physiological conditions
- F10–F19 Mental and behavioural disorders due to psychoactive substance use
- F20–F29 Schizophrenia, delusional and other non-mood psychotic disorders
- F30–F39 Mood (affective) disorders
- F40–F48 Anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders
- F50–F59 Behavioural syndromes associated with physiological disturbances and physical factors
- F60–F69 Disorders of adult personality and behaviour
- F70–F79 Intellectual disabilities
- F80–F89 Pervasive and specific developmental disorders
- F90–F98 Behavioural and emotional disorders with onset usually occurring in childhood and adolescence
- F99–F99 Unspecified mental disorder

### Now test yourself

- 1 Outline one similarity and one difference between the DSM and ICD classification systems.
- 2 Hay fever or migraines would be diagnosed in which axis according to DSM IV?
- 3 Outline one difference between the DSM-IVTR and DSM V.

Answers on p. 228

## Reliability and validity of diagnosis

Diagnosis can communicate a great deal of information, both to professionals and to the individual. If someone is diagnosed with paranoid schizophrenia, a clinical psychologist will know what symptoms to expect, and this, among other things, can be useful in identifying appropriate treatments.

Diagnosis also implies that there is some comparability among those using the same classification system. For example, according to DSM IV, diagnoses are free from biases because they use objective behaviours and

sets of symptoms agreed among practitioners. This means that professionals will have different backgrounds and beliefs, but can use the same classification system, and they should therefore be less biased.

Clearly for a classification system to be of any use at all, it must be reliable. In other words, clinicians' diagnosis of disorders must be consistent with each other, i.e. a diagnosis is considered to be reliable if more than one psychologist gives the same diagnosis to the same individual.

However, Beck *et al.* (1961) found that the agreement among diagnosticians was at about the level of chance. They gave two psychiatrists 153 patients to diagnose, but the two only agreed 54 per cent of the time suggesting that diagnosis can be highly unreliable. Similarly, Zeigler and Phillips (1961) found between 54 and 84 per cent agreements among diagnosticians.

Historically, there have been a number of problems with reliability between different cultures and different classification systems. For example, the US–UK diagnostic project (Cooper *et al.* 1972) showed American and British psychiatrists the same videotaped interview and asked them to make a diagnosis. New York psychiatrists said it was schizophrenia twice as often, whereas the London psychiatrists said it was depression twice as often.

Similarly, Lipton and Simon (1985) randomly selected 131 patients from a psychiatric hospital and attempted to re-diagnose them. This diagnosis was compared with the original diagnosis and found that of the original 89 patients who were diagnosed with schizophrenia, only 16 received this on re-evaluation. This clearly shows the unreliability of diagnosing patients, and how different psychiatrists will come up with different diagnoses.

Recent attempts to improve reliability have focused on developing **standardised interview schedules**. However, patients may vary in the detail, emphasis and type of information they give which can affect the diagnosis. For example, an individual may go to their GP reporting symptoms of depression such as lack of motivation and crying all the time. Once referred to a psychiatrist, the patient may then emphasise other symptoms, such as sleeping problems. This could result in a different and therefore unreliable diagnosis.

In order for a classification system to be useful, it must be **valid**. For example, if individuals with the same diagnosis show different symptoms, then the diagnosis has low validity. Similarly, if individuals with the same diagnosis do not respond to the same treatment, then the diagnosis has low validity. However, it is much more difficult to provide a correct diagnosis

and give a prognosis for a psychological disorder than for a physical disorder because it is not possible to observe objective signs of the disorder in the same way.

For a diagnosis to be valid, it should also be predictive. That is, it should predict a patient's prognosis and treatment. However, in 1000 cases studied by Banister *et al.* (1964), there was no clear-cut relationship between diagnosis and treatment. This means that the predictive validity of the diagnoses in the sample was low.

While diagnosis is useful in that it can enable individuals to receive treatment which they would not otherwise receive, giving a set of symptoms a name (e.g. schizophrenia), can be stigmatising to the individual. Many critics suggest that if we label someone with a category such as 'schizophrenia', we run the risk of losing sight of the fact that they are an individual. Instead we respond to them as a diagnostic category which can, in many cases, lead to discrimination. Once a person has been diagnosed with a disorder, there is a further danger that they will be treated and expected to behave like all others with that disorder. Thus, creating a self-fulfilling prophecy.

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### **Exam tip**

It is important to be able to give examples of research when asked questions about reliability and validity but try to stick to the findings only. These findings can then be used to evaluate each study against each other too.

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Labels often have negative connotations for the general public and are used as insults (e.g. calling someone a 'schizo'). Diagnostic labels related to mental illness are therefore global and such global labels become sticky and hard to remove. This means that a person becomes a schizophrenic, not a person with schizophrenia. It is important to be able to give examples of research when asked questions about reliability and validity but try to stick to the findings only. These findings can then be used to evaluate each study against each other too.

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### **Exam tip**

You will have learned about the different types of reliability and validity last year so make sure you can apply them to diagnosis in clinical psychology.

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### **Now test yourself**

4 Outline one strength and one weakness regarding validity of diagnosis using the DSM.

5 Outline one strength and one weakness regarding reliability of diagnosis using the DSM.

Answers on p. 228

## Schizophrenia

Schizophrenia is defined as ‘a psychotic disorder which involves loss of contact with reality and typically involves hallucinations and/or delusions’. The main symptoms are disturbances of thought processes, but there can also be disturbances of emotions and behaviour. Psychotic disorders tend to be characterised by delusions and disorganised speech or behaviour.

Schizophrenia includes positive symptoms, such as delusions, auditory hallucinations and thought disorder. Schizophrenia also includes negative symptoms such as losing emotional responses and apathy. Often an individual with schizophrenia will exhibit disorganised speech or actions.

Somewhere between 0.2 to 2 per cent of the population will develop schizophrenia. Some recover fully, but many suffer recurring episodes for the duration of their lifetime. Males are most likely to develop the disorder between the ages of 16 to 25, then tail off sharply. Women are most likely to develop schizophrenia in their twenties, but it tails off more gradually so that from 35 onwards, onset is higher in women than men.

### Symptoms of schizophrenia

The DSM IV-TR and ICD distinguish between **positive symptoms** and **negative symptoms**.

- **Hallucinations** are false perceptions that affect our senses and cause us to hear, see, taste, touch or smell what others do not. Most often they may hear voices in their heads which might tell them what to do and warn them of danger. The voices might talk to each other. Any attempt to prove the schizophrenic wrong and set them straight is understandably met with resistance. It is a good tactic to clarify that others do not hear, see, smell or feel what the patient is experiencing. This helps to identify it as a special experience of the patient whether he can or cannot accept it as a symptom of the illness.
- **Delusions** are false beliefs or misinterpretations of events and their significance. They are beliefs that seem strange to most people and are easy to prove wrong. The person affected might think someone is trying

to control their brain through television or that the FBI is out to get them. They might believe they are someone else, like a famous actor or the prime minister, or that they have superpowers. Similarly, they may have delusions of control – where the patient thinks their actions are controlled by outside forces, or delusions of grandeur where the patient believes they are someone grand or famous. Families and friends may consider the delusion as a result of stubbornness or stupidity. For a schizophrenic, however, the conviction is fixed and other explanations for the events experienced are not even looked at.

- **Thought insertion** is the feeling as if one's thoughts are not one's own, but rather belong to someone else and have been inserted into one's mind. An individual may not necessarily know where the thought is coming from, but will be able to discriminate between their own thoughts and those inserted into their minds. An example of this might be a patient saying 'my own thoughts might say the same thing on the matter' or more commonly a therapist will say 'the patient repeatedly complains of having disturbingly violent thoughts, which, she claims, are being sent to her by Satan'.
- **Disorganised thinking** becomes apparent in patients' speech patterns as schizophrenia progresses. Patients sometimes lose their thread during conversations and can have a hard time organising their thoughts. They may move rapidly from one unrelated topic to the other and give answers to unrelated questions. They might not be able to follow along when you talk to them. Instead, it might seem like they are zoning out or are distracted, and their speech may be completely incoherent which is associated with disorganised thinking. When they talk, their words can come out jumbled and not make sense, providing numerous irrelevant details and never getting to the point. Word salad is a typical outcome here where the words may or may not be grammatically correct, but are semantically confused to the point that the listener cannot extract any meaning from them.

### **Exam tip**

When defining schizophrenia you must try to make reference to both features and symptoms with examples of each, like those given here.

### **Typical mistakes**

Remember that features are not the same as symptoms and candidates have frequently got these mixed up in previous exam questions on both schizophrenia and their other chosen disorder.

### Now test yourself

- 6 Define the term 'psychotic'.
- 7 What is the difference between a feature and a symptom of schizophrenia?
- 8 Explain the difference between a positive and negative symptom of schizophrenia.

Answers on p. 228

## Biological explanations of schizophrenia

The biological approach to explaining schizophrenia assumes that psychological abnormality is caused by problems at the biological level of functioning. Biological explanations of schizophrenia can be examined in three ways:

- 1 Biochemical (function of neurotransmitters)
- 2 Genetic
- 3 Brain structure.

### Biochemical factors in schizophrenia

The rationale behind a biochemical theory is that if schizophrenia can be transmitted genetically, then biochemical abnormalities should be detectable in the brains of those diagnosed with schizophrenia. Subsequently, research suggests that one of the main causes of schizophrenia is thought to be due to chemical imbalances in the brain, specifically the overproduction of, among others, the neurotransmitter dopamine. It is one of the chemicals in the brain which causes neurons to fire. The original dopamine hypothesis stated that schizophrenics suffered from an excessive amount of dopamine. This causes the neurons that use dopamine to fire too often and transmit too many messages. This message 'overload' may produce many of the symptoms of schizophrenia. It is also argued that it is not excessive dopamine, but the fact that there are more dopamine receptors. More receptors lead to more firing and an overproduction of messages.

### Exam tip

Do not get these two types of anti-psychotic drugs mixed up as you will not gain credit for getting them the wrong way around in the exam.



### Now test yourself

- 9 What is the link between Parkinson's disease and schizophrenia?
- 10 Outline one weakness regarding the dopamine hypotheses.
- 11 Outline what is meant by a dopamine agonist.
- 12 Outline what is meant by a dopamine antagonist.

Answers on p. 228

## Genetic factors in schizophrenia

Studies have shown that disorders occur in some people because of an inherited vulnerability suggesting that:

- Schizophrenia tends to run in families.
- The severity of the parent's disorder influences the likelihood of the child developing schizophrenia.
- All forms of schizophrenia occur within the same family, i.e. while a person may inherit a vulnerability to schizophrenia, they will not necessarily develop the same form (e.g. paranoid, catatonic) as other family members.

Twin and family studies continue to provide reliable evidence that the degree of risk of developing schizophrenia increases with the degree of genetic relatedness.

### Exam tip

When citing research as evidence for schizophrenia, having a genetic basis you must try to include concordance rates such as in this example:

Tienari (1969) identified adopted offspring of biological mothers who had been diagnosed with schizophrenia ( $n = 112$ ). He compared this group with adopted offspring of mothers who had not been diagnosed with any mental disorder ( $n = 135$ ). The results have shown that 7 per cent of the group with schizophrenic mothers developed schizophrenia compared to only 1.5 per cent of the controls.

### Now test yourself

- 13 What is meant by the term 'concordance rate'?
- 14 Outline one strength and one weakness when using twin studies in genetic explanations.



## Structural brain abnormalities in schizophrenia

A substantial amount of research has suggested that the brain structure in people with schizophrenia is often different from those who do not have schizophrenia. Positive symptoms may be associated with abnormal dopamine activity and this could be why they respond to dopamine antagonist drugs. Negative symptoms, on the other hand, are associated with structural brain abnormalities and therefore do not respond to dopamine antagonist drugs.

The most consistent structural abnormality found in schizophrenic patients seems to be enlarged ventricles (the cavities in the brain that hold cerebrospinal fluid). This suggests either that brain tissue is being lost or that certain brain areas have failed to develop fully. However, ventricular enlargement is not found in all cases – it is more common in men and people who have had schizophrenia for some time.

A range of evidence suggests that schizophrenia is associated with abnormalities in the frontal lobes of the brain. Weinberger *et al.* (1972) compared schizophrenic and non-schizophrenic MZ twins on a task which involves this part of the brain. MRI scans revealed that the twins with schizophrenia (who also had enlarged ventricles) showed low levels of activity in certain areas of the frontal lobes.

This part of the brain is also one of the major dopamine pathways and could provide a link between structural brain research and the dopamine hypothesis.

MRI scans have been a tremendous breakthrough because they provide a live picture of the brain. These in turn show quite definite structural abnormalities in the brains of many patients with schizophrenia including decreased brain weight and enlarged ventricles.

### Exam tip

In the same way we cannot be sure dopamine causes schizophrenia. If it is only a link (correlation) between the two, then the same applies to brain structure and schizophrenia. This issue of causation runs throughout clinical psychology, so apply it where you can.

Further evidence also shows that abnormalities are present in other parts of the brain. Young *et al.* (1991) found structural differences in the brain

between schizophrenics and controls, particularly in the asymmetry of the brain. For example, in controls, the amygdala was smaller on the left than the right. However, in schizophrenic patients asymmetry was absent.

### Now test yourself

- 15 Describe four ways in which a schizophrenic's brain differs from that of a non-schizophrenic's.
- 16 It is still not clear whether structural abnormalities in the brain are a cause or a consequence of schizophrenia. Explain what this means.

Answers on p. 228

## Social explanations of schizophrenia

Members of the lower socio-economic groups are much more likely than those of the higher socio-economic groups to be diagnosed as suffering from schizophrenia. One possible explanation of this finding comes from the **social causation** theory. The high level of stress makes them more vulnerable than members of higher socio-economic classes to schizophrenia.

Numerous studies have revealed that the incidence of schizophrenia is significantly higher among the lower classes than among the middle and upper classes. High rates of schizophrenia are found in central city areas inhabited by the lowest socio-economic class. However, this relationship does not show a smooth continuous progression of prevalence as the class gets lower. Instead, there is large prevalence of schizophrenia in the lower classes compared to other social classes.

However, other theories may offer a more realistic explanation than social causation. The **social drift hypothesis** suggests schizophrenia causes reduced social status, rather than low social status causing schizophrenia. If that is the case, then schizophrenics should tend to belong to a lower socio-economic group than their parents. Turner and Wagenfeld (1967) found evidence for the social drift hypothesis when he compared schizophrenics and their fathers. In addition, the fathers also tended to belong to lower socio-economic groups than the majority (which is in line with the social causation hypothesis). In response to the confusion between social causation and social drift, Halgin and Whitbourne (1997) argue that, 'far too little research has been done to resolve the contrasting viewpoints'.

According to Sartorius (1986), the rates of schizophrenia are fairly similar across numerous cultures. This happens in spite of the fact that these cultures vary enormously in some of the factors, e.g. poverty, physical health, etc., claimed by the social causation hypothesis to be important determinants of schizophrenia.

### Typical mistakes

Many candidates have used social drift as an explanation of schizophrenia. Social drift is not a separate explanation of schizophrenia and should only be used when evaluating the social causation hypotheses above.

Today it is widely accepted that schizophrenia has a biological/genetic cause, but that your environment and social experiences can trigger and influence the development of the disorder. Current thinking has identified the communication pattern within the schizophrenic's family as being a critical variable in determining whether a relapse would occur. Specifically, it focuses on the level of **expressed emotion** (EE).

EE can be either positive or negative. Relapses into schizophrenia are usually associated with high levels of negative EE. Family intervention studies have highlighted that the family does play some role in the schizophrenic condition. In particular, therapy focusing on family structure has drawn attention to faulty communication patterns.

Cultural factors may play a role in expressed emotion. The association between high rates of negative EE and increased likelihood of relapse is replicated in many different cultures. However, cultural factors may influence rates of EE and the way EE is communicated. Cross-cultural studies have shown that Indian and Mexican-American families tend to show lower levels of negative EE than Anglo-American families.

The role of EE is not limited to families. The association between high rates of negative EE and higher rates of relapse has been demonstrated with patients living in community care. This suggests that the significant factor could be communication patterns between patients and those they live with rather than specifically with the family.

### Now test yourself

- 17 Outline the difference between social drift and social causation.
- 18 Outline the difference between positive and negative expressed emotion.

## Psychological explanations of schizophrenia

### Behavioural model

This view is primarily explained in terms of operant conditioning and observational learning. Normally people learn to attend to social cues in socially acceptable ways through reinforcements, e.g. somebody smiles (cue), in return you smile back and they start a conversation (the reward). With people with schizophrenia, the cues or reinforcements have been inappropriate and so they stop attending to the social cues and instead focus on inappropriate cues, e.g. brightness of a light in a room. The attention they receive from acting on these cues reinforces their odd behaviour. Ullman and Krasner (1969) suggest that in psychiatric institutions staff may unintentionally reinforce schizophrenic behaviour by paying more attention to those who display the characteristics of the disorder. Other patients can acquire the characteristics by observational learning.

#### Exam tip

Remember to only ever write about the findings of research when providing evidence for a given explanation. You do not need to go into lengthy detail about everything they did, just what they found/concluded is important.

#### Now test yourself

19 Evaluate the behavioural model of schizophrenia.

Answer on p. 229

### Cognitive model

Characteristic disorders in schizophrenia include thought, perception, attention and language. The cognitive model sees these as being causes rather than consequences. Frith (1979) proposes that disruption to an attentional filter mechanism could result in the thought disturbance of schizophrenia, as the sufferer is overloaded with sensory information. Studies on continuous performance and eye-tracking tasks indicate that schizophrenics do show more attentional problems than do non-schizophrenics. It is thought that for catatonic schizophrenia the only way to keep sensory information at a manageable level is to withdraw from the outside world. Perhaps reduced STM capacity could account for some schizophrenics' distractibility.

Maher (1968) sees the bizarre use of language in schizophrenia as the result of a fault in how information is processed. Maier identifies certain words as **vulnerable words**. When such words are used a person may respond in a way that is personally relevant, but that is semantically irrelevant or inappropriate.

### Exam tip

As well as using studies to evaluate the causes of a mental disorder, you can use other approaches/explanations. Briefly compare the two approaches and say if the alternative approach looks at factors, which the approach you are talking about does not consider.

## Treatments for schizophrenia

### Drug therapy

Biological treatments arise from the biological model of disorders which considers mental disorders to be an illness or a disease resulting from underlying biological factors. There are various biological treatments, the main one being drug therapy. Most people with schizophrenia take some form of medication. Drugs are administered in tablet form, or sometimes, by injection.

The most common treatment for schizophrenia uses **antipsychotic drugs**. Some of these work by reducing the effects of dopamine. An important goal of antipsychotic drugs is to reduce the amount of dopamine available or reduce the amount of dopamine receptor sites by blocking them. Phenothiazines are a class of drugs which work by blocking dopamine receptors. There is considerable evidence that these drugs can reduce positive symptoms, such as hallucinations, in many people with schizophrenia.

Typical antipsychotics were introduced in the 1950s. Examples include Chlorpromazine, Thiorizadine, Haloperidol and Trifluoperazine. They helped sedate the person and they also reduced the intensity and frequency of hallucinations and delusions among other psychotic behaviours. The drugs fit into the dopamine receptors in the brain, so blocking the dopamine and stopping it being picked up and minimising its effects. They reduce psychotic thought processes including disturbed thinking, hallucinations and delusions. They are more effective when given at the onset of schizophrenia. Clozapine, also appears to reduce the negative symptoms as

well, although there is some debate about this. Atypical antipsychotics are newer and tend to have fewer side effects. These include Risperidone, Olanzapine and Quetiapine.

### **Exam tip**

It is useful to know about the side effects of drugs as this will help add to your evaluation.

### **Now test yourself**

**20** Give examples of three typical antipsychotics.

**21** Which neurotransmitter do antipsychotics block?

**Answers on p. 229**

## **Community care treatment**

Community psychology emphasises the role of the environment both in creating problems and in helping to solve them. Problems are seen as developing from an interaction between: the individual, the social setting and the social systems. As a result, emphasis is placed on the community within which everything is occurring, both in terms of explaining and treating psychological problems.

Community psychology focuses on diversity and the differences between people, such as different cultures and a person's ecology (their particular role within their community). There is less emphasis on the inadequacy of a person or whether they fit into rigid social norms, and more on understanding the nature of the interaction between individual and community.

Traditionally, patients with schizophrenia stayed in mental hospitals, however conditions in these tended to be quite poor and emphasis tended to be on keeping these patients 'contained' rather than making them better. Also patients become so used to having everything done for them and not being able to make their own decisions that it becomes hard to live in the outside world.

Community care aims to provide an environment that will enable patients to resume a responsible place in society, e.g. day hospitals and halfway houses, where hospitalised patients can learn the skills needed for independent living. Care staff are available to provide help and support when it is needed and oversee the day-to-day living if needed, although residents are encouraged to be as independent as possible. Those suffering from schizophrenia who do need to be hospitalised are admitted to



psychiatric wards, but this is usually on a short-term basis, with the aim of getting them back into the community as soon as possible and is only used as a last resort.

### Now test yourself

22 Define the term 'institutionalisation'.

Answer on p. 229

## Anorexia nervosa

### Symptoms and features

Anorexia nervosa is an eating disorder in which a person is obsessed with weight, body shape and food intake to the point of self-imposed starvation. Anorexia symptoms frequently develop over a period of years in women and men with certain genetic, emotional or life-experience predispositions. Anorexia nervosa is interchangeable with the term anorexia, which refers to self-starvation and lack of appetite.

Anorexics maintain a low weight as a result of a preoccupation with body weight, construed either as a fear of fatness or pursuit of thinness. In anorexia, weight is maintained at least 15 per cent below that expected, or in adults body mass index (BMI) is below  $17.5 \text{ kg/m}^2$ . In younger people, the diagnosis may be made in those who fail to gain weight during the expected growth spurt of puberty, as they can become underweight without weight loss.

Starvation affects every system in the body and so physical problems occur due to the effects of starvation and the consequences of purging behaviour. This will be evident as weakness, loss of muscle strength (which also affects heart muscle), loss of bone density and impairment of linear growth. The effects on the endocrine system include infertility and reduction of minerals in the bones. The effects of purging include erosion of tooth enamel amounting to worn painful teeth which can be a considerable concern in terms of comfort, appearance and, therefore, self-esteem. Ten per cent of people affected by an eating disorder are anorexic. One in a 100 women aged between 15 and 30 are affected by anorexia and on average, the condition first develops at around the age of 16 to 17. It is estimated that between 1 and 4.2 per cent of women have suffered from anorexia in their lifetime.

### Biological explanations of anorexia



Eating disorders are not accounted for by any known physical disease, although they may be associated with a biochemical imbalance. Research in the biological field has focused on the hypothalamus. The lateral hypothalamus (LH) and the ventromedial hypothalamus (VMH) work alongside each other to provide a 'weight thermostat'. When activated, the LH produces hunger and the VMH depresses hunger. If weight falls below the set point on the 'thermostat', the LH is activated and if weight rises above the set point, the VMH is activated. Once either the LH or the VMH is activated, the hypothalamus will send messages to areas of the brain responsible for thinking and behaviours that will satisfy whichever is activated (LH or VMH).

**Amenorrhoea** can occur before weight loss, which suggests a primary disorder of low endocrine levels, again associated with a hypothalamus dysfunction. This suggests anorexic symptoms are caused by the low hormone levels. Also, the endocrine levels of anorexics of around 19 years of age are similar to those of a healthy nine-year-old.

Anorexia may also result from an imbalance of neurotransmitters in particular parts of the brain. For example, Fava *et al.* (1989) found that when anorexia develops, there are also changes in the amount of noradrenaline and serotonin present in the brain, and suggested that this might be a cause of the problem. Serotonin is a brain neurotransmitter that is involved in many behavioural functions, including depression and obsessive-compulsive disorder. Early studies found a reduction in levels of the important serotonin metabolite 5-HIAA in people with eating disorders. This would suggest that brain serotonin pathways were underactive. A reduction in receptors suggests a dysfunction of the serotonin system in eating disorders. The brain serotonin system has been implicated in personality traits associated with eating disorders, such as obsessionality, perfectionism, anxiety and depression. It is also part of the neurotransmitter system of the hypothalamus that controls feeding behaviour. Therefore, it is likely to be involved in the causes of eating disorders.

### Now test yourself

**23** Outline three weaknesses of the biological explanation for anorexia.

Answer on p. 229

## Psychological explanations of anorexia nervosa

## Family interactions

One of the more popular modern explanations for anorexia has been that its roots lie in disturbed interactions within the family. Minuchin, Roseman and Baker (1978) suggested that the family system in which the individual with anorexia lives can be marked by **enmeshment**, so it is difficult for the child to feel independent. Individual family members lack separate identities in an enmeshed family, and a child may not be able to develop independence in the way that it should. Refusing to eat is a kind of rebellion by the child which enables her to assert a kind of independence. So anorexia might be an act of rebellion in order to gain independence from an enmeshed family.

The reverse has also been found when researchers have examined the specific behaviours within the family. They have found that families with anorexics tend to show more 'ignoring' and 'walling off' behaviours, rather than the more positive ones of 'helping' and 'trusting'. It has been suggested that the eating disorders may come from having families with such negative behaviours. In this case, too little love and affection might play a part in the disorder.

Furthermore, Minuchin (1978) even suggests that the development of anorexia serves the function of preventing conflict within the family. For example, it may be the adolescent's way of preventing a marriage break-up by diverting attention onto themselves. In doing so, the hope is that joint concern for the child will bring the parents back together.

### Typical mistakes

Do not get carried away talking about the lives of celebrities in exams when answering questions on SLT and media influences on the public. Stick to the psychology!

### Now test yourself

**24** Outline one strength and one weakness of the social learning theory explanation for anorexia.

**Answer on p. 229**

## Cultural factors

Different cultures have different ideals of attractiveness which can lead to different social pressures. For example, western cultures are thought to promote the ideal of a skinny figure which creates pressure to fit into that ideal, by such extremes as developing abnormal eating disorders, such as

anorexia. Gregory *et al.* (2000) found that 16 per cent of 15–18-year-old girls in the UK are currently on a diet and that this western ideal of beauty is further promoted through social media. Anorexia is less common in non-western cultures and black populations than in a white western population. Grabe and Hyde (2006) investigated this and found that African-American females did indeed have less body dissatisfaction than Caucasian and Hispanic females. This was further supported by Pollack (1995) who found that many non-western cultures (Fiji and Caribbean) had more positive attitudes towards large body sizes as they were associated with attractiveness, fertility and nurturance. Furthermore, the issue of peer influence has been suggested as it is seen to be of great importance during adolescence. This is supported by Eisenberg *et al.* (2005) who found that dieting among friends was significantly related to unhealthy weight control behaviours (diet pills or purging).

One reason for this could be that girls internalise culturally defined standards of female beauty, including slimness. In some girls, this creates a tension between the real self and the ideal self. This leads to dissatisfaction with their own body weight and shape, which in turn leads to dieting and an obsession with food. In some vulnerable girls, this can lead to a fully-fledged eating disorder.

### Now test yourself

25 What is meant by the term 'anorexic voice'?

26 What is meant by the term 'internalise'?

Answers on p. 229

## Treatments for anorexia

### Cognitive behavioural therapy

The primary aim of treatment is to help the patient achieve and maintain a normal pattern of eating and a normal weight. First, in treating dietary restriction as a food phobia, behaviour change in eating is a primary objective. Behavioural methods, such as graduated exposure, are used to increase the patient's intake gradually, and cognitive-behavioural methods are used to reduce anxiety associated with behaviour change. Furthermore, the patient's distorted and overvalued beliefs (both positive and negative) about food and weight that support and provoke anorectic behaviours are identified and challenged with cognitive techniques. Second, in recognising anorectic behaviour as a method for coping with life stresses, treatment is

intended to identify the areas of deficient problem-solving and to cultivate new problem-solving skills.

The phases of cognitive behaviour therapy:

- 1 Behavioural phase:** The patient and therapist work together to formulate a plan for stabilising eating and eliminating symptoms. Because emotions often intensify during this phase of treatment, tools (coping strategies) for managing these feelings are developed and become an important part of the work.
- 2 Cognitive phase:** As treatment progresses, **cognitive restructuring techniques** are introduced. Thoughts and beliefs that perpetuate the problems ('I will only be happy if I can lose this weight') are identified and work aimed at developing new perspectives and ideas ('My self-worth doesn't depend on my size or shape') begins.
- 3 Maintenance and relapse prevention phase:** The final stage of CBT concentrates on reducing triggers, preventing relapse and maintaining the progress that has been made. Even though CBT is focused on the elimination of symptoms, the overall goal of the treatment is to assist the patient in making their return to a healthy and fulfilling life. So, very often, once symptoms are stabilised, treatment will expand to include other areas of concern and conflict that can help individuals move towards holistic healing and emotional wellbeing. The therapist will encourage the adoption of healthier, more realistic ways of thinking that should lead to more positive behaviour.

### Now test yourself

27 What is the primary aim of CBT?

28 What is the difference between the behavioural and cognitive phase of CBT?

27 What is meant by the fact that CBT is time limited?

Answers on p. 229

## Drug therapy

Several different categories of psychiatric medications have been shown to be beneficial, but the most widely studied are the SSRIs (selective serotonin reuptake inhibitors). Because people with anorexia nervosa are often sad and obsessional, it is logical to hope that SSRIs might help. Although they are widely prescribed for this purpose, research studies and the clinical

experience of specialists both show that SSRIs do not help low-weight patients recover. Malnutrition appears to preclude their usual benefits. The action of these drugs is mainly focused on the interaction of dopamine and serotonin systems, and often they increase appetite and weight gain in patients with major psychiatric disorders, for example, schizophrenia or bipolar disorder. Paradoxically, with anorexia antipsychotic drugs are not particularly useful in the weight recovery, but they are used to reduce other symptoms present in anorexia, such as body image alteration and fear of gaining weight. Olanzapine lessens anxiety and obsessional thinking, and some anorexic patients find they feel less paralysed due to rigid thinking and behaviour on this medication. Olanzapine significantly increases appetite, slows metabolism and alters all kinds of homeostatic physiological functions.

### Now test yourself

**30** Which antipsychotic drug is used in the treatment of anorexia?

**31** Describe how this antipsychotic drug works.

Answers on p. 229

## Unipolar depression

### Symptoms and features

Also known as clinical depression, or major depressive disorder, unipolar depression is a mood disorder, characterised by varying degrees of sadness, disappointment, loneliness, hopelessness and guilt. It is a relatively common mental health disorder, with an estimated 3.5 million sufferers in the UK. Common symptoms of unipolar depression are **lethargy**, permanent anxiety issues and problems with sleep.

The peak time for depression is between the ages of 50 and 60, although it typically occurs between 30 and 40. People who suffer any form of depression usually live shorter lives, possibly due to a link between depression and heart disease and other stress-related illnesses. Depression can exist in patients as an episode, lasting for a few months, that may never return, or it can be a condition that returns periodically or it can last a lifetime.

There is a gender difference as women are more likely to be diagnosed with depression than men, with some studies estimating that a woman is two to three times more likely to become clinically depressed than a man.

### Typical mistakes

Unipolar depression is not the same as bipolar depression. Try not to get these mixed up.

### Now test yourself

**32** What are the common symptoms of unipolar depression?

**33** Outline some features of unipolar depression.

Answers on p. 229

## Biological explanations of unipolar depression

The monoamine hypothesis proposes that depression is caused by low levels of monoamine neurotransmitters which include noradrenaline, serotonin and dopamine. Serotonin in particular has been investigated as the most successful. Antidepressant drugs work to increase the levels of serotonin in certain pathways of the brain. The monoamine neurotransmitters are especially important in regulating the function of the limbic system in the brain which controls emotion and drive states, such as appetite, and are believed to regulate mood.

Current thinking is that depression results from an imbalance in these chemicals rather than just a deficit in one, but that serotonin is particularly implicated as it acts as a controller of a variety of brain systems. Drug studies support the monoamine hypothesis. For example, Reserpine (a blood pressure treatment) is known to reduce levels of noradrenaline and also causes depressive symptoms.

One role of serotonin is to regulate other neurotransmitters; without regulation, erratic brain functioning and thinking patterns occur. Low levels of serotonin can produce low levels of the neurotransmitter noradrenaline, which is required for alertness, energy, anxiety and attention to life. Prozac is a treatment for depression which works by increasing the availability of serotonin in the brain.

A further factor is the role of certain hormones, especially cortisol (the stress hormone). This suggests that over-activity in the hypothalamo–pituitary–adrenal cortex may be responsible for the symptoms of depression. Depressive states occur more frequently in times of hormonal change, such as following child birth when the pregnancy hormones oestrogen and progesterone fall rapidly. Premenstrual depression can happen in the week before the period starts and an oestrogen–progesterone imbalance has been suggested as a causal factor. Similarly, 20 per cent of



women report feelings of depression after the birth of a child. Normally this occurs within a few days, but typically only lasts for about a week or so.

### Now test yourself

34 How do most antidepressants work?

Answer on p. 229

## Psychological explanations of unipolar depression

### Cognitive explanations

Cognitive psychology takes the view that dysfunctional behaviour is the result of irrational or faulty thinking. The approach believes that we actively process information and use cognitive processes such as attention and memory to guide our behaviour. This approach proposes that irrational or maladaptive thought processes cause dysfunctional behaviour. For example, attending to particular thoughts (e.g. destructive ones) rather than others (e.g. more positive ones) might lead to the dysfunctional behaviour of depression.

The first part of Beck's (1976) cognitive model of depression is the cognitive triad which puts forward three areas where there are negative automatic thoughts. These are negative views of the self (feeling inadequate), negative views of the world (feeling defeated) and negative views of the future (believing that your suffering will continue). A sufferer of depression tends to think life will always be that way for them, and that nothing can improve. This comes from the 'future' aspect.

The second part of the model looks at **cognitive errors**. Beck described this as the faulty thought patterns. The 'downside' is overestimated so that the most pessimistic conclusion possible is reached when in a situation.

**Schemata** make up the final part of the model. A new situation is interpreted through the use of a person's appropriate existing schemata, including self-schemata. The way to beat depression according to the cognitive model is to change the maladaptive thought interpretations by allowing for alternative thoughts and interpretations of events. If evidence is presented that there are other interpretations, an individual can change their thinking.

### Now test yourself

35 According to this approach what causes dysfunctional behaviour?

36 Name the three parts of Beck's cognitive model.



37 Give some other examples of stressors (apart from losing a job or death of a spouse).

Answers on p. 229

## Treatments for unipolar depression

### Cognitive behavioural therapy

A number of different forms of therapy have been put forward, one of the most often used is RET (rational emotive therapy) which is a form of CBT (cognitive-behavioural therapy).

Ellis (1991) came up with a working model that demonstrates how unreasonable, self-defeating thoughts can lead to maladaptive behaviour, known as the ABC model:

- A Activating event** records the objective situation, that is, an event that ultimately leads to some type of high emotional response or negative dysfunctional thinking.
- B Beliefs** where the client writes down the negative thoughts that occurred to them.
- C Consequence** where the negative thoughts in B are seen as a connecting bridge between the situation and the distressing feelings. C is next explained by describing emotions or negative thoughts that the client thinks are caused by A.

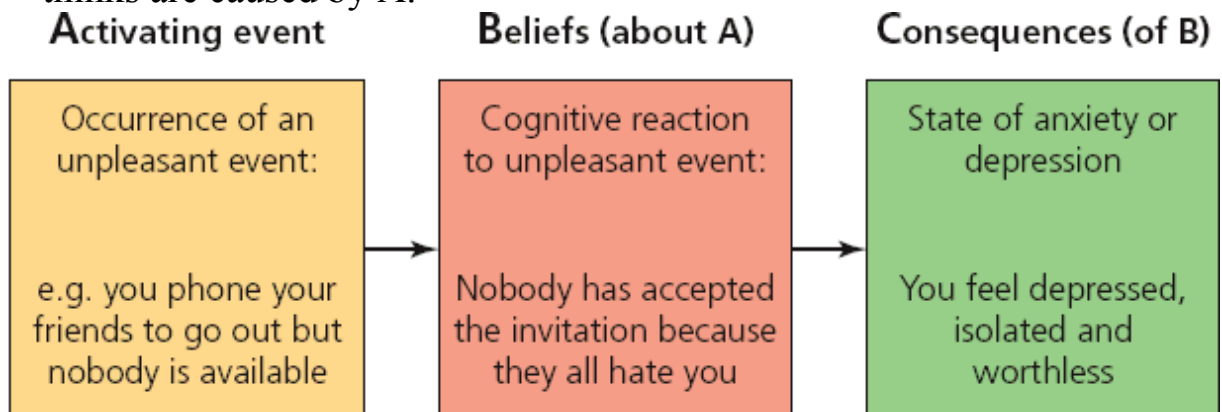
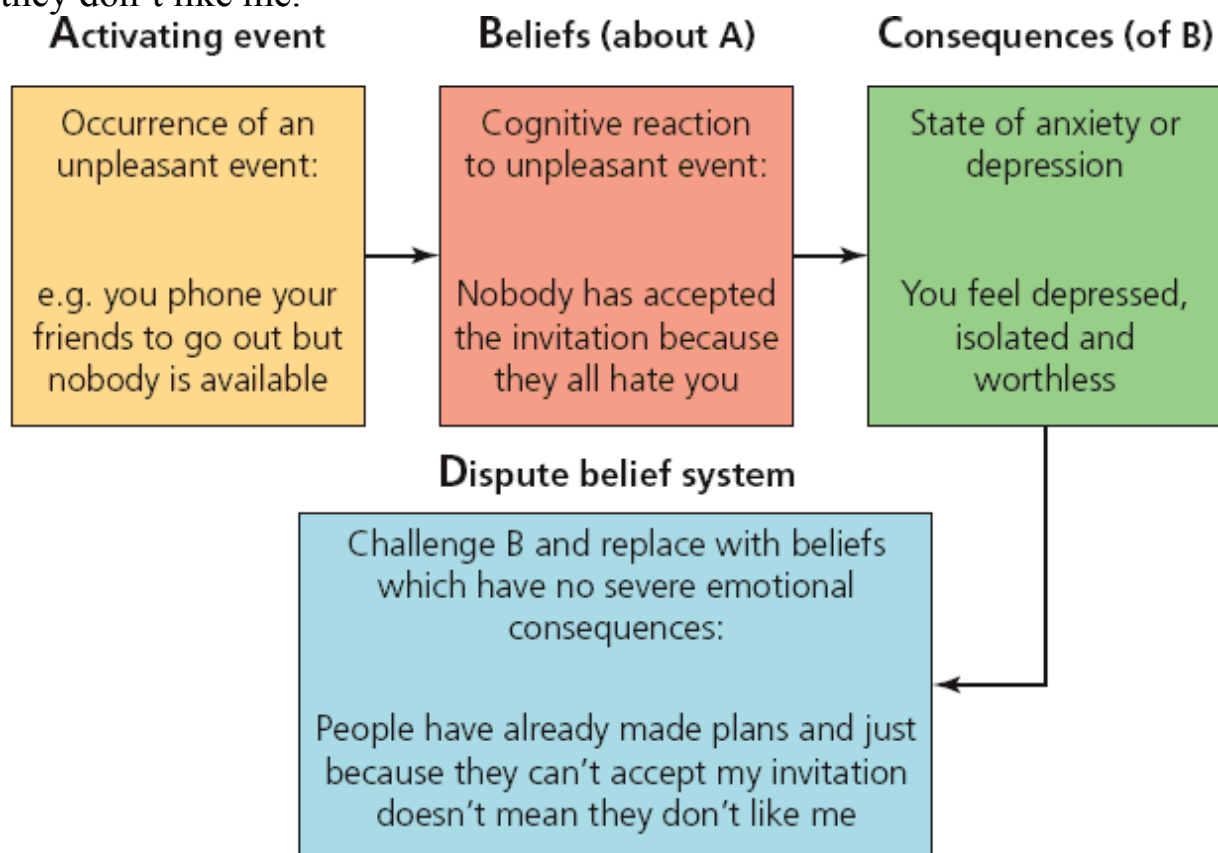


Figure 5.1 The ABC model

Ellis believes that it is not the activating event (A) that causes negative emotional and behavioural consequences (C), but rather that a person interprets these events unrealistically and therefore has an irrational belief system (B) that helps cause the consequences (C). Although RET does not disregard what has happened in the past, it tends to concentrate on the

client's current state of functioning. RET is both active and directive, involving collaboration between therapist and client. RET points out that irrational beliefs will often be obvious in how people talk to themselves. The client is encouraged to generate hypotheses to test out these false beliefs. These are then put to the test. The behaviour part of the therapy involves giving the client tasks that will help them challenge their own irrational beliefs. The idea is that the client identifies their own unhelpful beliefs and then proves them wrong. As a result, their beliefs begin to change. This helps the client to develop more rational beliefs and healthy coping strategies. Clients are then taught to replace their flawed and illogical beliefs with more realistic ones. In other words, develop a dispute-belief system. For example, 'People have already made plans, and just because they can't accept my invitation doesn't mean they don't like me.'



**Figure 5.2** A dispute-belief system

**Now test yourself**

**38** Ellis believes patients become 'habituated to their disturbed thoughts'. Explain what this means.

Answer on p. 229

## Drug therapy

Antidepressants are used to treat depression, and these drugs usually work by increasing the levels of serotonin in the brain, since some of the symptoms of depression come about due to low levels of serotonin (leading to low levels of noradrenaline).

Having been released into the synapse, serotonin and noradrenaline are quickly broken down by the enzyme monoamine oxidase. This will obviously reduce the amount of these two chemicals available. **MAOIs** (monoamine oxidase inhibitors) are reasonably effective in reducing depression, but they do produce various side effects, such as blocking the production of monoamine oxidase in the liver, leading to the accumulation of tyramine. This is dangerous, because high levels of tyramine cause high blood pressure. Accordingly, depressed patients taking MAOIs have to follow a careful diet, making sure to avoid foods containing tyramine (e.g. cheese, bananas).

**Tricyclics** block the reuptake of serotonin and noradrenaline. On the presynaptic side, there are reuptake sites that reabsorb the chemicals very quickly. Tricyclics act by blocking these sites (or channels) so again result in more of the chemical being available in the synapse for a longer period of time. Tricyclics are so called because of their three carbon ring structure. The tricyclics are less dangerous than the MAOIs, but they can impair driving to a dangerous extent, and other side effects include dry mouth and constipation.

**SSRIs** leave the serotonin to have an enhanced effect on the postsynaptic neuron without influencing other neurotransmitters, such as noradrenaline. By far the most famous of these is Fluoxetine or Prozac. Depressed patients taking SSRIs are less likely to suffer from dry mouth and constipation than those taking tricyclics, and it is harder to overdose on SSRIs. However, SSRIs conflict with some other forms of medication, and Prozac is reported to have severe effects in some people, including suicidal thoughts where none were experienced previously.

Now test yourself

39 Outline the difference between tricyclics and SSRIs.

Answer on p. 229

## Obsessive compulsive disorder (OCD)

## Symptoms and features

People with obsessive compulsive disorder (OCD) suffer with **obsessions** and **compulsions**. The compulsive rituals are performed in an attempt to prevent the obsessive thoughts or make them go away. The most common of these are checking and washing. Other compulsive behaviours include repeating, hoarding, rearranging and counting. These behaviours generally are intended to ward off harm to the person with OCD or others. Some people with OCD have regimented rituals. Performing things the same way each time may give the person with OCD some relief from anxiety, but it is only temporary.

Studies vary but the figure for prevalence ranges from 0.8 to 3 per cent in adults and 0.25 to 2 per cent in children and adolescents. Onset is most commonly in late adolescence and early twenties, but can occur at any age. Based on current estimates for the UK population, there are potentially around 741,504 people living with OCD at any one time. However, it is worth noting that a disproportionately high number, 50 per cent of all these cases, will fall into the severe category, with less than a quarter being classed as mild cases.

The World Health Organization (WHO) has actually ranked OCD in the top ten of the most disabling illnesses of any kind, in terms of lost earnings and diminished quality of life.

For a definite diagnosis, obsessional symptoms or compulsive acts, or both, must be present on most days for at least two successive weeks and be a source of distress or interference with activities. Also that at least an hour a day is spent on the thoughts and rituals, which cause distress and get in the way of daily life.

### Now test yourself

**40** Outline some features of obsessive compulsive disorder.

**Answer on p. 229**

## Biological explanations of OCD

OCD seems to be a **polygenic** condition. Family and twin studies suggest the involvement of genetic factors. The prevalence of OCD in the random population (about 2–3 per cent) is the baseline against which the concordance rates can be compared. Carey and Gottesman (1981) found that identical twins showed a concordance rate of 87 per cent for obsessive

symptoms and features compared to 47 per cent in fraternal twins. This difference suggests that genetic factors are moderately important.

Genetic explanations have focused on identifying particular genes which are implicated in OCD and two genes have been linked to OCD, including the COMT gene and SERT gene.

The SERT (serotonin transporter) gene appears to be mutated in individuals with OCD. The mutation causes an increase in transporter proteins at a neuron's membrane. This leads to an increase in the reuptake of serotonin into the neuron which decreases the level of serotonin in the synapse. The SERT gene affects the transport of the serotonin (hence 'serotonin transporter'), causing lower levels of serotonin which is associated with OCD.

The catechol O-methyltransferase (COMT) gene has been reported in previous research to be associated with OCD, particularly in males. The COMT gene is a gene that regulates the function of dopamine; in particular, clearing dopamine from synapses is a major role of COMT. It appears that this gene is also mutated in individuals with OCD; however, this mutation causes the opposite effect to the SERT mutation discussed above. The mutated variation of the COMT gene found in OCD individuals causes a decrease in the COMT activity and therefore a higher level of dopamine. One variation of the COMT gene results in higher levels of dopamine and this variation is more common in patients with OCD, in comparison to people without OCD. High levels of dopamine have been thought to influence concentration. This may explain why OCD individuals experience an inability to stop focusing on obsessive thoughts and repetitive behaviours.

Biological causes of OCD have focused on a circuit in the brain which regulates primitive aspects of our behaviour. This circuit relays information from a part of the brain called the 'orbital frontal cortex' (front part of the brain), to the thalamus which lies deeper within the brain. It also includes other regions such as the caudate nucleus of the basal ganglia. When this circuit is activated, these impulses are brought to your attention and cause you to perform a particular behaviour that appropriately addresses the impulse.

### Now test yourself

41 Define the term 'polygenic'.

42 Which two genes have been linked to OCD?

43 Outline the difference between these two genes.

44 What can an overactive prefrontal cortex lead to?

Answers on p. 229

## Psychological explanations of OCD

OCD is also more likely to develop in individuals who have a psychological vulnerability to developing such a disorder. One such vulnerability is the lack of 'perceived control' over stressful life circumstances.

We all experience varying degrees of stress and these may set the stage for the development of OCD. Importantly, it is the way individuals learn to cope with these stressors that are key, not so much the stressors themselves. Those who have perceived control tend to be resilient individuals who believe they can control, or at least influence, what happens to them. It is important to note this sense of control may, or may not be accurate. Instead, it is the person's perception about their degree of control that is important. Cognitive appraisal is another psychological vulnerability which involves **primary and secondary appraisal**. Therefore, whether an individual experiences a situation as anxiety-producing is determined by their own unique appraisals. When individuals consistently think they are in peril, and believe they lack the ability to cope with those threats, it makes them more exposed to developing OCD.

Also when individuals make errors in their cognitive appraisal, it can lead to cognitive distortions, two of which are particularly common with OCD. These are the overestimation of threat and second, the underestimation of one's ability to cope with that threat.

The former refers to a person's attitude about the likelihood, or belief, that an event will occur; it is a form of fortune-telling. For example, someone with OCD may think they will get ill if they walk into a hospital ward and this can further develop into catastrophic prediction which is a further exaggeration of possible outcomes. In this case, the individual will catastrophise that the hospital will make them ill and then they will have to stay in the hospital which could make them even more seriously unwell.

### Now test yourself

45 Give two examples of psychological vulnerability.

Answer on p. 229

## Treatments for OCD



## Cognitive behavioural therapy

Cognitive behavioural therapy (CBT) has two general aims: (1) controlling compulsive rituals and avoidance, and (2) reducing the anxiety associated with obsessions, and through this, reducing their intensity and frequency. CBT may take place in individual, group or family sessions. OCD patients can experience some relief through exposure and response prevention. This entails gradually exposing the patient to the feared obsession. For instance, if the patient is obsessed with counting, they may be shown objects with numbers for gradually increasing amounts of time. This helps the patient to learn new thought patterns and behaviours about their obsession with counting. Although this form of therapy takes a great deal of effort and practice, the reward is a much better quality of life for the patient.

**Exposure and response prevention therapy** (ERP) works under the assumption that compulsion allows obsession to stay alive by interrupting the habituation process. Habituation is what causes you to have less concern in a certain event once you have witnessed the same event over and over again. It is a form of desensitisation; for example, if your teacher let you draw posters every day in lessons you would eventually stop being excited by the prospect. In the same way, if the compulsion did not exist, the obsession would become less and less interesting until it eventually becomes extinct. Once a compulsion is fulfilled by an obsession, the person feels short-term relief of anxiety. The relief reinforces the compulsion like a prize, and it becomes an everlasting cycle. In other words without compulsion, obsession would not occur and vice versa.

CBT looks at how OCD convinces you that the obsessions and compulsions performed are necessary, in order to prevent something bad happening. All the sufferer's coping strategies have come about in the first place to make them feel safer and less anxious, when in fact they do the exact opposite; they make the person feel unsafe and scared.

### Now test yourself

46 What are the two aims of CBT?

Answer on p. 230

## Drug therapy

Selective serotonin reuptake inhibitors (SSRIs) are one type of antidepressant drug, which includes drugs like Prozac. When serotonin is released from the presynaptic cell into the synapse, it travels to the receptor



sites on the postsynaptic neuron. Serotonin which is not absorbed into the postsynaptic neuron is reabsorbed into the sending cell (the presynaptic neuron). SSRIs increase the level of serotonin available in the synapse by preventing it from being reabsorbed into the sending cell. This increases the level of serotonin in the synapse and results in more serotonin being received by the receiving cell (postsynaptic neuron). So SSRIs and tricyclic drugs reduce the uptake and slow the transmission, reducing the excitation and lowering the electric impulse bringing the observable behaviour to a more normal level.

If a patient fails to respond to an SSRI, doctors revert to clomipramine. Clomipramine is an older tricyclic antidepressant and was the first medication used to treat OCD. Although its efficiency is greater than that of other medications, it has unpleasant side effects that may make the patient uncomfortable. Sometimes an SSRI and clomipramine are combined in treatment.

Antidepressants (like anti-anxiety drugs) improve mood and reduce anxiety which is experienced by patients with OCD. Benzodiazepines (BZs) are a range of anti-anxiety drugs, which include trade names like Valium and Diazepam. BZs work by enhancing the action of the neurotransmitter GABA which in turn tells neurons in the brain to 'slow down' and 'stop firing' and around 40 per cent of the neurons in the brain respond to GABA. This means that BZs have a general quieting influence on the brain and consequently reduce anxiety, which is experienced as a result of the obsessive thoughts.

## Individual differences and developmental psychology

### Cultural effects

When diagnosing mental health, there are essentially two main problems regarding individual differences within and between cultures. First is the argument that psychiatrists in different countries will use the same classification system but in different ways – that is, give different diagnoses for the same symptoms. Second is the point that mental illnesses included in the classification systems are not universal, and there are what is called **culture bound syndromes** (CBS).

The cultural group you belong to influences your likelihood of being diagnosed with a particular disorder and the treatment you receive. It is

therefore important to know what cultural group is most important to the individual because their understanding of their problems will reflect their particular culture. The cultural group a person belongs to may influence how they view and express that illness to others. In turn, mental health professionals may misinterpret reported symptoms which could lead to inappropriate diagnosis and treatment.

For example, it is relatively rare for Asian patients to report the psychological symptoms of depression. One possible explanation for this is that people from the Asian community do not see psychological problems as something to go to the doctor with, preferring to sort such problems within the family. So while they may report physiological symptoms of depression (e.g. lack of sleep), they may not report the psychological ones. This means that the mental health professionals may end up treating the sleep disorder rather than the underlying cause, i.e. depression. Mental health professionals are therefore encouraged to be sensitive to a patient's cultural background when they make a diagnosis.

Some believe that CBSs do not exist and that different cultures may merely use different terms to describe the same disorder, in other words, disorders are **culturally relative** rather than culture bound.

For example, with regards to anorexia nervosa, it could be that there is an underlying disorder which is expressed in culturally different ways, i.e. in the west, it is expressed by not eating, whereas in Malaysia it is expressed by concerns of genital retraction syndrome.

In terms of links with developmental psychology then, schizophrenia could be said to be caused by an individual's environment and experiences.

Poverty, unemployment and poor physical health can make individuals more vulnerable to schizophrenia. Similarly, both biological explanations of schizophrenia can be used in terms of development. Our genes and neurochemical balance are influenced by many factors such as parental infection, nutrition and use of drugs.

Similarly, social experiences can activate development of the disorder. Communication pattern (in particular, levels of expressed emotion) within the schizophrenic's family is a critical variable.

The behavioural model would explain schizophrenia in terms of operant conditioning and observational learning both of which are developed from environmental influences.

Community psychology emphasises the role of the environment both in creating problems and in helping to solve them and, in this respect, our community can help develop and treat the disorder.

The same points above can be applied to anorexia where family interactions can be marked by enmeshment, or over closeness which can cause the disorder. Also with unipolar depression where social factors may play a part in the development of the disorder.

### Now test yourself

47 Define what is meant by a culture bound syndrome.

Answer on p. 230

## Methods

### Health and Care Professions Council (HCPC) guidelines for clinical practitioners

Clinical practitioners, especially those dealing with patients, need to be registered with the HCPC. This is a body that regulates psychologists and other professionals. Individuals must meet all the standards of proficiency to register with the HCPC and meet the standards relevant to their scope of practice to stay registered.

- **Character.** Registration involves being able to provide a character reference from a suitable referee to establish suitability for the role.
- **Health.** Registration involves being able to provide information about your general health especially on any issues that may affect your ability to practise.
- **Standards of proficiency.** There are specific requirements for practitioner psychologists who must comprehend the need to act in the best interests of the user in their role in the diagnostic and therapeutic process, and be familiar with requirements of the HCPC.
- **Standards of conduct, performance and ethics.** These include respecting the confidentiality of users and maintaining high standards of personal conduct. Other areas include competence, good communication and only acting within the limits of their own knowledge.
- **Standards for continuing professional development.** These include a continued need and participation in training for further development in order to keep up to date with current trends.
- **Standards of education and training.** These set out the requirements and qualifications needed in order to register. For practitioner

psychologists, a Master's degree and BPS qualification is required.

- **Standards for prescribing.** These set out the knowledge, understanding and skills that a registrant must have when they complete their prescribing training and which they must continue to meet once in practice.

## Researching mental health

### Longitudinal studies

A longitudinal study is an observational research method which takes place over a long period of time (sometimes 10–20 years) and involves tracking the same participants through a period of development. They will be visited a number of times (say every five years) for data to be collected and any changes in behaviour are recorded. Participants are given the same type of tasks each time they are visited to check on any improvements in performance. The aim is to compare the data of each test to see how the passage of time affects whatever it is being tested for.

Mental disorders can also be studied effectively by using longitudinal designs for many reasons, as there is usually some kind of progression with a disorder. Individuals with Parkinson's or unipolar depression do not just stop living once diagnosed, they have to adapt to life but continue as best they can. Similarly, longitudinal studies are useful when applied to mental disorders because the disorder means the patient often requires return trips to the hospital.

### Cross-sectional studies

Unlike longitudinal studies that look at the same participants over a long period of time, cross-sectional studies look at different participants over a short period of time. A cross-sectional study takes place at one specific moment in time, and compares different groups of people at that time. The participants are tested once, usually to find a simple relationship between one variable and another. This type of study is most common, as it can be done quickly and participants need only be tested once.

Cross-sectional studies are perfect if you want to test the experiences of those suffering from depression at different ages or across different cultures. The findings of each cohort via age or cultural background could be compared to generate the conclusions.

In the cross-sectional study to examine if there are different percentages of females diagnosed with anorexia at different ages, you may find out that the percentages are higher as the age group increases. This information does

not tell you why anorexia diagnosis increases with age, only that it does. If you combine this information with other research, you could use it to develop a hypothesis about why anorexia diagnosis increases with age. You would then need to use other research methods to test your idea.

## **Cross-cultural methods**

The rationale behind cross-cultural methodology is to understand similarities and differences across different cultural groups. In clinical psychology, cultural differences in social norms lead to misdiagnosis when psychiatrists from one culture group assess patients from another. Mental health professionals need to be sensitive to cultural diversity when making a diagnosis. Davidson and Neale (1994) found that Asian-American women are seen as more subservient/withdrawn. Emphasis may be placed on a disorder, but their culture may make their behaviour normal to them, in fact praiseworthy. By attending to such cultural factors, the clinician is able to avoid thinking that behaviour is abnormal.

Solutions can take two forms. **Etic** approaches look for similarities by studying many different cultures, generally from the perspective of an outsider. The **emic** approach focuses on individual cultures and which are typically studied from the perspective of an insider.

One problem with the etic approach here is that in order to investigate a phenomenon in another culture, researchers use the same tools (for example, tests) that they have in their own culture – this is an ‘imposed etic’. It carries the assumption that the tool is equally valid, yet we know for example from the DSM that this may not always be so.

Findings from research using an etic approach are used to draw conclusions that can be generalised across cultures (although they may not be valid).

Findings from research using an emic approach, on the other hand, are applied only to the culture from which they were derived.

## **Meta-analysis**

Meta-analysis can be thought of as ‘conducting research about previous research’. A meta-analysis is basically a study about studies in order to get an integrated result. In other words, a researcher reviews previously published studies on a topic, and analyses the various results to find general trends across the studies. Researchers pool data on a particular topic using secondary data, because the data studied are not gathered first hand. The rationale is that there is a common truth behind most scientific studies, but

which has been measured with a certain error within individual studies which a meta-analysis can hopefully address.

One of the reasons why meta-analyses are so useful is because of an all too common problem across many research studies: small sample sizes. Using a large sample size requires more resources, including funds and personnel, than a small sample size. When individual research projects do not study a significant number of subjects, it can be difficult to draw reliable and valid conclusions. Meta-studies help overcome the issue of small sample sizes because they review multiple studies across the same subject area.

### **Primary and secondary data**

Primary data means original data that have been collected by those who saw an event first hand or collected data themselves for a specific purpose. They present original thinking or new information. Secondary data are second-hand analysis of pre-existing (primary) data in a different way or to answer a different question than originally intended. Secondary data analysis uses data that were collected by someone else in order to further a study that you are interested in completing.

#### **Now test yourself**

**48** Outline one strength and one weakness of primary data.

**49** Outline one strength and one weakness of secondary data.

**Answers on p. 230**

### **The use of case studies**

Case studies are often used in clinical psychology in order to help the patient or client in difficulty. They are in-depth investigations of a single person or group and are often used in clinical situations when laboratory research is not possible or practical. Typically, data are gathered from a variety of sources by using several different methods, such as observations and interviews. The client also reports details of events from his or her point of view. The researcher then writes up the information from both sources above as the case study, and interprets the information. Today, case histories are one of the main methods of investigation in clinical psychology and psychiatry. They can give a real insight into what those who suffer with mental disorders, such as schizophrenia, often have to endure. The case study should only be used by someone with a professional qualification, such as a therapist or psychiatrist. Only a competent qualified



individual is able to conduct a case study and then provide an appropriate diagnosis and treatment.

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**Lavarenne *et al.* (2013)**

**Containing psychotic patients with fragile boundaries: a single group case study**

Lavarenne *et al.* (2013) carried out a case study on a group of schizophrenics called the Thursday group who met once a week for 45 minutes. They were classified as psychotic with 'fragile ego boundaries', meaning they had a weak sense of self and were frightened they would break apart or become part of someone else. The aim then was seeing whether the group could develop a sense of connectedness to combat feelings of being alone, and to give an insight into how the individuals formed firm boundaries which gave them support during their illness. It was believed that perhaps the group could provide the boundaries that the individuals themselves lacked.

The group was open-ended; some attended for weeks, others years. Members participated as much as they felt able. Sessions were not tape-recorded but the therapists (group leaders) used a form of coding instead to note down, for example, emotions observed; any supportive or insightful comments and verbal expressions of loneliness. Recording was done immediately after every session and an example of the type of data recorded is given below from a particular session just before the Christmas break.

One member gave out a Christmas card and calendar to help reinforce the group boundary with each other. Another member rejected these Christmas tokens as accepting the card and calendar may have damaged his sense of self. A third member suffered from sleep issues which revealed blurring between her waking/sleeping self. A fourth member talked of an 'out of body' experience where their boundary had felt extremely weak and was very scared he would not be able to get his 'spirit back into his body'. A fifth member talked of how they struggled to cope with relatives staying at a busy house at Christmas. The sixth member talked of how she coped with her fragile boundaries by restricting her food intake and focusing on others such as her daughter.



Members found living with their own type of schizophrenia difficult, but saw the group as a uniting force that could support them and act as a shield to help avert any crisis which may lead to subsequent breakdown. The group was viewed as a stabilising force to promote psychological growth and healthier ego boundaries, and eventually improved self-differentiation, and also tolerance to interpersonal proximity.

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## The use of interviews

A **clinical interview** is often called a conversation with a purpose, the purpose being to gather information about the client. Clinicians assess the information the client is willing to share, the client's ability to take turns in conversation and how organised the client's thoughts are.

Clinical interviews can be structured, asking specific questions in order to come up with or rule out a diagnosis, or unstructured, which use open questions. Structured clinical interviews have a variety of uses, including assessing patients in order to make a diagnosis based on the DSM, for research to study certain groups of people who all have the same symptoms or for clinical trials. They may be able to determine if there is more than one illness and contain standardised questions to ensure that each patient is interviewed in the same way.

In unstructured clinical interviews, the client may have more leeway to bring up particular subjects or guide the interview process. Emphasis is placed on open-ended questions with the focus being on the patient and not the clinician. These are sometimes referred to as 'discovery interviews' and are more like a 'guided conversation' than a strict structured interview. They are sometimes called 'informal interviews'.

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### **Vallentine *et al.* (2010)**

#### **Psycho-educational group for detained offender patients: understanding mental illness**

##### **Aims**

To study the usefulness and effectiveness of a psycho-educational group treatment programme for offender patients with types of schizophrenia in a high security hospital.

The outcome measures for Vallentine *et al.* came from using questionnaires and from structured and semi-structured interviews. The questionnaires measured variables such as whether the

patients had engaged in the therapy, had relapsed, required high or low level of care and number of violent incidents. The interviews measured the patient's relationship with the group facilitators.

### **Procedures**

The group consisted of 42 male participants who were referred for 20 sessions over a three-year period. Each of these sessions was viewed as intervention (treatment) to help prevent any relapse. Records were made of changes in medication, engagement, compliance, violent incidents and verbal comments. Semi-structured interviews were used for evaluation and data was electronically transcribed to see if there was 'significant clinical change'. Participants were either 'completers' or 'non-completers' depending on whether they stayed in the programme to the end or not.

Two types of questionnaires were used which were the CORE-OM (widely used to measure outcomes of clinical disorders) and the SCQ (30 item self-concept questionnaire asking for own perception of self-esteem).

### **Results**

From the 21 completers (others dropped out for various reasons) that were given structured interviews, all said they would recommend the group to others. Using the semi-structured interviews, the patients valued hearing other people's experiences, receiving help with understanding symptoms and treatments and getting peace of mind about the possibility of some recovery. Some said the group was unhelpful because of guilt about the past and did not like talking in a group, plus the group met early in the morning and some felt too tired in mornings. Using the two questionnaires, there was no significant clinical change between completers and non-completers. The two questionnaires together indicated that over 50 per cent of the group had improved self-esteem.

### **Conclusions**

Qualitative data from interviewing showed how all the participants said they valued the group and would recommend it. Patients valued knowing and understanding their illness and how the group

sessions helped increase confidence giving them a more positive outlook for the future.

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## Grounded theory

**Grounded theory** turns the whole research process around as it involves forming a theory based on the gathered data, as opposed to gathering data after forming a theory (which is grounded in the data).

The simple analogy is to imagine you are planting seeds. The data are the seeds, while the theory is the plant that grows. You have no idea what type of plant will grow just by looking at the seeds so you just have to water them, watch and wait.

**Coding** involves considering the data in minute detail while developing some initial categories. Essentially, each line, sentence, paragraph, etc., is read in search of the answer to the repeated question, ‘What is this about? What is being referenced here?’ Later, one moves to more selective coding which is the process of choosing one category to be the core category, and relating all other categories to that category. The essential idea is to develop a single storyline around which everything else is draped. There is a belief that such a core concept always exists.

You might think of **memoing** as extensive marginal notes and comments. Again, early in the process, these memos tend to be very open, while later on they tend to increasingly focus on the core concept.

**Integrative diagrams** can be any form of graphic that is useful at that point in theory development. They might be concept maps or directed graphs or even simple cartoons that can act as summarising devices. This integrative work is best done in group sessions where different members of the research team are able to interact and share ideas to increase insight. Clearly, the process described above could continue indefinitely. Grounded theory does not have a clear finishing point for ending a study. Essentially, the project ends when the researcher decides to quit.

## Studies

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### Classic study: Rosenhan (1973) on being sane in insane places

#### Aims

Rosenhan wanted to address the issue about whether sanity and insanity exist, and how can we tell the difference between the two? In particular, the aim was to see if the most important

characteristics that lead to diagnoses (of abnormality) reside in the patients themselves or in the environments and contexts in which observers find them. This was tested in this study with the further question: If 'normal' people attempt to be admitted to psychiatric hospital, will they be detected as being sane and, if so, how?

### Procedures

Eight sane people (two graduate students, three psychologists, a paediatrician, a painter and a 'housewife') attempted to gain admission to 12 different hospitals, in five different states in the United States. Rosenhan used a range of hospitals, old/shabby and new, research-orientated, well staffed or poorly staffed, private, federal and university funded. They telephoned for an appointment, and arrived at admissions, complaining that they had been hearing voices. They said the voice, which was unfamiliar and the same sex as themselves, was often unclear, but it said 'empty', 'hollow', 'thud'. These symptoms were chosen because they simulated an **existential crisis** which could arise from concerns about how meaningless your life is.

The **pseudopatients** gave a false name and job, but all other details they gave were true, including general ups and downs of life. After they had been admitted, the pseudopatients stopped simulating any symptoms, except possibly nervousness, fear of exposure as a fraud, and their inevitable reaction to the novelty of the situation. They took part in ward activities and spent time writing notes about ward staff and patients. Each pseudopatient had been told they would have to get out by their own devices by convincing staff they were sane.

### Results

All the pseudopatients disliked the experience and wished to be discharged immediately. Not one of the pseudopatients was detected and all but one was admitted with a diagnosis of schizophrenia. This diagnosis was made without one clear symptom of this disorder. They remained in hospital for 7 to 52 days (average 19 days), and were eventually discharged with a diagnosis of schizophrenia 'in remission'. Visitors to the pseudopatients observed 'no serious behavioural consequences', and although they were not detected by staff, many of the other

patients suspected their sanity (35 out of 118 patients voiced their suspicions).

While the pseudopatients were in the psychiatric hospitals, their normal behaviours were entirely overlooked or misinterpreted. For example, nursing records for three of the pseudopatients showed that the writing was seen as an aspect of their pathological behaviour. 'Patient engages in writing behaviour'.

In another incident, a psychiatrist pointed to a group of patients waiting outside the cafeteria half an hour before lunchtime. To a group of registrars (trainee psychiatrists), he suggested that such behaviour was characteristic of an oral-acquisitive syndrome.

However, a more likely explanation would be that the patients had little to do and were following routine, so one of the few things to anticipate in a psychiatric hospital is a meal. The overwhelming experience of hospitalisation for the pseudopatients was one of **depersonalisation** and powerlessness. The patients were deprived of many human rights, such as freedom of movement and privacy. For example, their medical records were open to all staff members, personal hygiene was monitored and many of the toilets did not have doors. Some of the ward orderlies would be brutal to patients in full view of other patients but would stop as soon as another staff member approached. This indicated that staff were credible witnesses but patients were not.

The pseudopatients kept records of the amount of time the nurses stayed in the ward offices (around 90 per cent of the time), the number of times medical staff came onto the ward, and the amount of time spent with patients by the physicians. They noted that the total time a patient spent with psychiatrists, psychologists, registrars and so forth was, on average, less than 7 minutes per day.

### **Conclusions**

Rosenhan claims that, 'it is clear we cannot distinguish the sane from the insane in psychiatric hospitals'. It also illustrated the depersonalisation and powerlessness created by psychiatric hospitals.

Rosenhan notes that, although he and the other pseudopatients had very negative experiences in the psychiatric hospitals, their

accounts do not describe the experience of real patients who did not have the comfort of believing that the diagnosis was false.

### Now test yourself

50 What was the aim of the study?

51 Who were the pseudopatients in the study?

52 Identify two behaviours that should be considered normal and explain how they were misinterpreted by the psychiatrists.

Answers on p. 230

### Contemporary studies: Carlsson *et al.* (2000)

The aim of the research is to present the current view of the relationship between schizophrenia and dopamine, also to explore an alternative view about the relationship between schizophrenia and a neurotransmitter called **glutamate**.

The research carried out by Carlsson *et al.* is a review, summing up the previous research so far and suggesting where it should go next as far as schizophrenia is concerned. It does not gather any new empirical data and as such does not follow the standard process for reporting a study.

Carlsson *et al.* refer to **hyperdopaminergia** and **hypodopaminergia**.

As the role of glutamate was also investigated, the research focused on hypoglutamatergia to see whether low levels of glutamate played a part in schizophrenia. It is used by every major excitatory information-transmitting pathway in the brain, accounting in total for well over 90 per cent of the synaptic connections in the human brain.

Carlsson *et al.* reaffirm evidence that supports the dopamine hypothesis (schizophrenic participants show more dopamine activity against controls especially in the basal ganglia). Also that patients complain most about the side-effects while their symptoms are in remission as dopamine activity is returning to normal levels. This would reinforce the point that the drugs are causing hypodopaminergia (too little dopamine).

However, Carlsson *et al.* also suggest that it is unlikely dopamine is the only dysfunctional neurotransmitter in schizophrenia and focus on glutamate in particular. Research suggests links between the



use of phencyclidine (PCP or angel dust) and psychotic schizophrenia-like symptoms, but instead of activating dopamine they stimulate glutamate receptors called NMDA. PCP blocks the receptor and is an NMDA receptor antagonist meaning reduces the amount of glutamate, so maybe this deficiency (hypoglutamatergia) has a role in schizophrenia. Miller and Abercrombie (1996) show that the release of dopamine is increased if glutamate activity is reduced (by blocking NMDA receptors).

Carlsson *et al.* also suggest a relationship between low levels of glutamate and both positive and negative symptoms of schizophrenia. Glutamate deficiency in the cerebral cortex can cause negative symptoms and failure in the basal ganglia could cause positive symptoms.

More specifically, too much dopamine or too little glutamate reduces the defensive shield of the thalamus which links to positive symptoms. Conversely, abnormal dopamine and glutamate activity here will overstimulate the thalamus, starving the cerebral cortex of stimulation which links to negative symptoms.

Carlsson *et al.* conclude that dopamine has a part to play in schizophrenia, but that other biological factors should be further researched, in particular, the role of other neurotransmitters, like GABA, acetylcholine and neuropeptides.

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## **Kroenke *et al.* (2008)**

### **Aims**

Researchers wanted to assess if the patient health questionnaire (PHQ-8) was a valid measure of depression. In particular, to see if a score on the PHQ-8 of 10 or more would indicate depression and also to see if there is a difference between diagnoses of depression using the PHQ-8 algorithm and using the PHQ-8 score of  $\geq 10$ .

### **Procedures**

A sample of 198,678 Americans took part in a mental health survey over the telephone in 2006. Telephone numbers were produced randomly by a computer and people who answered were invited to take part in a regular survey called the Behavioural Risk Factor Surveillance Survey (BRFSS) in the United States. This survey gathers data that measure current health issues and any correlates



associated with poor health. In 38 states, questions were asked about depression using the PHQ-8.

The researchers obtained the data from the BRFSS survey and analysed responses to questions about their behaviour over the previous two weeks. These questions had various themes which included poor sleep, appetite and concentration, and slow movement.

Respondents were diagnosed based on their answers using two methods: the depressive disorder based on PHQ algorithm or PHQ-8 (a score of 10+ out of 24). Respondents were also asked three health-related quality of life questions about their physical and mental health and third, whether their health limited their activities. Other data, like age, gender, ethnicity and employment status were looked at and a comparison was made between those scoring 10 or above on the PHQ-8 and other measures of depression.

### Results

9.1 per cent of respondents were judged to have a depressive disorder based on the PHQ algorithm, whereas 8.6 per cent of respondents scored  $\geq 10$  on PHQ-8.

In terms of the three health-related questions, all those classified as depressed had more days of impairment on all three mental health questions.

From the majority of those with a PHQ-8 score  $> 10$ , nearly half had major depressive disorder based on the DSM-IV and in only 3.5 per cent was there no evidence of depressive symptoms again according to DSM-IV.

### Conclusions

The PHQ-8 seems to be a good tool for measuring large population-based studies and links to depression. It is a valid yet simple questionnaire that can be easily administered.

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## Williams *et al.* (2013)

### Aims

Due to the need for specialised training of clinicians and long waiting lists to access services, few patients can readily access CBT. This has led to increasing calls for the development of novel, accessible, and cost-effective treatments for depression. One of

these is through the use of internet-based cognitive behavioural therapy (iCBT) programmes.

CBT explicitly addresses the cognitive biases thought to play a central role in depression and research has suggested that it may be possible to modify these biases directly via simple computerised training procedures, known as cognitive-bias modification (CBM). Therefore, the aim of the research was to see if a combined programme of CBM and iCBT would be effective in depression.

### **Procedures**

Participants were recruited via a clinical research unit in Sydney, Australia, and they initially completed online screening questionnaires. Successful applicants were telephoned for a diagnostic interview and 69 participants who completed an electronic informed consent were randomised to either the intervention ( $n = 38$ ) or waiting-list control (WLC) group ( $n = 31$ ). The WLC group completed iCBT after the intervention group had completed all study components.

The Beck Depression Inventory, 2nd edn (BDI-II) was used to measure the severity of depression, and distress was measured using the Kessler Psychological Distress Scale. There were also secondary measures in terms of disability, anxiety and repetitive thinking.

The CBM component consisted of seven 20-minute sessions of imagery-focused CBM completed daily over the course of one week. The iCBT component consisted of the Sadness Program, which has been evaluated in three previous trials and an effectiveness study conducted in primary care. The programme consists of six online lessons representing best practice CBT. The entire assessment and intervention was conducted online with no face-to-face contact. All patients first completed primary and secondary baseline measures followed by either the one-week CBM component or the waiting list. All patients completed the primary measures after the seven-day intervention phase, followed by either the ten-week iCBT component or the waiting list. All patients completed the baseline battery of questionnaires after ten weeks. The WLC group then commenced deferred treatment (iCBT).

## Results

Baseline measures were seen to be similar between the intervention and waiting list group based on mean scores for each measure.

The treatment group showed a reduction in both depression and distress scores after the first week of CBM training.

Both the treatment group and the WLC showed significant reductions in all primary measures by week 11. However, the treatment group showed a larger percentage in reductions (65 per cent) compared to the WLC group (36 per cent).

## Conclusions

The results suggest that internet-delivered CBM for depression can effect rapid symptom reduction over just one week, via seven 20-minute sessions and this was at least partially mediated by the trained change in imagery-based interpretive bias.

This could have implications for therapy, such as upregulation of brain areas involved in the generation of positive emotions or via increasing optimism. Results also demonstrate the feasibility of integrating CBM into an existing iCBT treatment programme for depression.

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## Scott-Van Zeeland *et al.* (2013)

### Aims

Researchers aimed to look at a number of genes which they thought might play a role in anorexia using a candidate gene approach, as the genes are candidates for contributing to disease risk.

The researchers focused on the EPHX2 gene. The gene is involved in cholesterol function and, ironically, individuals with anorexia often show high cholesterol levels that return to normal once they start putting weight back on.

### Procedures

The researchers studied DNA from 1,205 people with anorexia (the cases) and 1,948 people without the condition (the controls). They looked at the sequence of 152 candidate genes that might play a role in causing anorexia, to try to identify variations in these genes that were more common in cases than controls.

The researchers initially started with 262 white European women with early-onset severe anorexia and 80 matched controls who were not underweight. The cases had been clinically diagnosed with a history of restricting type anorexia (where a person limits their calorie intake) with or without purging (vomiting) and were an average age of 14 years when they first experienced these symptoms, had a body mass index (BMI) of 15 or less during their lifetime, and had an assessment age of 19 years or older.

Women who reported regular binge eating were not included in this sample, to ensure women in the sample were all as similar as possible (to try to ensure that participants had anorexia and not another diagnosed eating disorder such as bulimia), as this makes separating out these genes from a mixed sample difficult.

After initially looking at the candidate genes in these women, they went on to an additional phase to test their findings in 500 anorexia cases and 500 controls, and also data on a further 444 cases of anorexia or eating disturbances and 1,146 controls from previous studies. This method is known as a replication sample of looking for associations in one sample and then confirming what you find in another sample and provides further evidence that the genes identified are truly associated with the disease.

## Results

The two variants which showed the strongest association with anorexia were in the Estrogen Receptor Beta gene (ESR2). Previous studies have suggested that oestrogen and oestrogen receptors might play a role in anorexia.

They also used another form of analysis, which looked at groups of variants together, and in this analysis variants in two genes (ITPR3 and EPHX2) showed the strongest association with anorexia. When they tested these variants in their replication samples, the variants in EPHX2 and ESR2 still showed evidence of an association with anorexia.

The researchers found that one of the variants in EPHX2 was related to how BMI and cholesterol levels changed over time. The EPHX2 variants also showed some evidence of association with depressive and anxiety symptoms in women with anorexia, and appeared to affect how BMI related to depressive symptoms. The

EPHX2 gene was found to be active in some parts of the brain relating to feeding behaviours, anxiety and depression.

## Conclusions

The researchers concluded that they had identified a novel association of gene variants within EPHX2 to susceptibility to anorexia and provide a foundation for future study of this important yet poorly understood condition.

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## Guardia *et al.* (2012)

### Aims

The researchers wanted to establish whether patients with anorexia nervosa usually report feeling larger than they really are, in particular whether this flawed judgement is specifically observed when it concerns their own body or whether it is indicative of a general problem in their perceptual discrimination.

In previous work, anorexic patients judged that they could not pass through a door-like opening even when it was easily wide enough. In this respect, the researchers hypothesised anorexics would make errors in estimating their own body actions more than matched controls would.

### Procedures

Twenty-five anorexic participants and 25 control participants (students) made up the sample and were matched on age and education. The BMI and shoulder width of each group was measured to give an indication of their actual body size. Checks were made to ensure perception was clear and that there were no co-morbidities. Any changes were measured by establishing weight prior to the disorder, six months and then again one month before the study took place.

Fifty-one different openings ranging from 30 to 80 cm were projected onto a wall with a door-like aperture. They had to judge whether or not the aperture was wide enough for them to pass through (first-person perspective) and for another person present in the testing room to pass through (third-person perspective). Each participant had to imagine themselves walking through the opening and to say whether they could walk through at normal speed without turning sideways. They then had to estimate whether the

experimenter who was also in the room could pass through the opening.

### **Results**

There was a higher passability ratio (whether they thought their body could pass through the opening) in anorexic patients for the first-person perspective, but not for the third-person perspective. They also said they felt larger than they were which supports this finding. Moreover, the magnitude of the passability ratio was positively correlated not only with the extent of the patient's body and eating concerns, but also with the body weight prior to disease onset.

### **Conclusions**

The results suggest that body overestimation can affect judgements about the capacity for action, but only when they concern the patient's own body. Overestimation of the body schema might occur because the anorexic has not updated their internal body image in relation to their current emaciated body. Anorexia is likely influenced by complex interactions between genetic variants, environmental and social factors.

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## **Masellis et al. (2003)**

### **Aims**

Researchers wanted to examine the degree of difference between obsessions, compulsions and depression co-morbidity on the quality of life of individuals with OCD.

It was predicted that the severity of obsessions and compulsions would directly impact on quality of life ratings, so that the more severe these symptoms, the poorer the patient's quality of life. Also that the presence of depression would impact negatively on quality of life (QOL).

### **Procedures**

Forty-three individuals between the ages of 18 and 65, diagnosed with OCD according to DSM-IV, made up the sample. To be eligible for inclusion, participants had to be experiencing clinically significant obsessive and compulsive symptoms. Patients were excluded if they had a concurrent diagnosis of schizophrenia, bipolar disorder, or current substance use disorder.



All participants completed the Yale Brown Obsessive Compulsive Scale, which comprises ten items relating to obsessions and compulsions, rated on a five-point Likert scale ranging from 0 (no symptoms) to 4 (severe symptoms). Second, they completed the Illness Intrusiveness Rating Scale which is designed to measure objective and perceived interference of symptoms across 13 life domains considered important to quality of life. These domains include health, diet, work and ratings according to a seven-point Likert scale ranging from 1 (not very much) to 7 (very much). The final scale was the Beck Depression Inventory which is a 21-item (4-point scale), self-report instrument designed to assess depressive symptom severity.

### **Results**

Obsession severity was found to significantly predict patient QOL, whereas the severity of compulsive rituals did not impact on QOL ratings.

Comorbid depression severity was the single greatest predictor of poor QOL, accounting for 54 per cent of the variance. This confirmed that compulsions were not the main issue relating to the illness intruding on quality of life.

There was a significant positive correlation between scores on the Yale Brown Obsessive Compulsive Scale and the Illness Intrusiveness Rating Scale which meant the higher the score on one, the higher the score on the other.

### **Conclusions**

Given the importance of these symptoms, the results indicate treatments that directly target obsessions and secondary depression symptoms in OCD are necessary. However, replication of these findings is required, because firm conclusions cannot be drawn from the positive correlations as these cannot establish definitive cause and effect between the scores on each measure.

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## **POTS team including March *et al.* (2004)**

### **Aims**

To evaluate the effectiveness of CBT alone and medical management with the selective serotonin reuptake inhibitor



sertraline alone, or CBT and sertraline combined, as initial treatment for children and adolescents with OCD.

### **Procedures**

A volunteer outpatient sample of 112 patients aged 7 to 17 years with a diagnosis of OCD using DSM-IV were recruited from three academic centres in the United States. The severity of their symptoms was measured using the Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS) with a score of 16 or higher.

Participants were randomly assigned by computer to receive CBT alone, sertraline alone, combined CBT and sertraline, or pill placebo for 12 weeks. Patients assigned to medical (i.e. drugs only) management with sertraline or placebo had one child and adolescent psychiatrist throughout the study who, in addition to monitoring clinical status and medication effects, offered general support and encouragement to resist OCD. They were seen weekly for medication during the first six weeks, then every other week for a total of nine visits over 12 weeks.

The CBT-only condition consisted of 14 visits over 12 weeks and involved psycho-education, cognitive training, mapping OCD target symptoms and exposure and response (ritual) prevention. Each session included a statement of goals, review of the previous week, and terms of new information and homework for the coming week. Sessions 1, 7 and 11 included parents for the entire session. For patients in the combined-treatment group, CBT and medication management began simultaneously. CBT and medication visits were time-linked to reduce inconvenience for patients or parents and to increase compliance. All patients were assessed at baseline and at weeks 4, 8 and 12 by an independent evaluator.

### **Results**

Ninety-seven of 112 patients (87 per cent) completed the full 12 weeks of treatment. Results indicated a statistically significant advantage for CBT alone, sertraline alone and combined treatment compared with placebo.

Combined treatment also proved superior to CBT alone and to sertraline alone, which did not differ from each other. The three

active treatments proved acceptable and were well tolerated, with no evidence of treatment-emergent harm to self or to others.

## Conclusions

Patients treated with CBT either alone or in combination with medication showed a substantially higher probability of improvement, with the edge going to combination treatment over CBT alone in one site, but not in the other. Children and adolescents with OCD should begin treatment with the combination of CBT plus a selective serotonin reuptake inhibitor or CBT alone.

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## Key questions

### What are the issues surrounding mental health in the workplace?

Mental health is one of the biggest issues to the wellbeing of business and society. When staff are unhappy and put under too much pressure, they are more likely to suffer both inside and outside of work. This is detrimental for both the individual's wellbeing, as well as the company as a whole.

Employers and employees are unwilling to talk about stress, anxiety and depression openly, fearful of any association with weakness and failure. One in four adults in the UK will experience a mental health condition in any given year. The cost of mental health to the UK economy is estimated at £70bn per year, equating to 4.5 per cent of GDP. Mental ill health at work is thought to cost UK employers £26bn each year – on average £1,035 per employee.

Statistics suggest 15.2 million days of sickness absence across the UK in 2013 were caused by everyday conditions such as stress, anxiety or depression – a dramatic increase from 11.8 million days in 2010. Two-fifths of organisations saw an increase in mental health problems last year, compared with only one-fifth in 2009. Yet, despite one in six employees currently experiencing mental health issues, the report finds that businesses are not putting in place plans to ensure the mental wellbeing of their employees. This can have serious implications.

Following an inquiry into the suicides of more than 30 employees at France Telecom (now Orange) between 2008 and 2009, prosecutors in Paris have recommended that Didier Lombard, a former chief executive of the company, and six other senior managers be put on trial for psychological harassment.

## **Application of concepts theories and research to explain this key question**

Depression is the most common form of mental disorder with an estimated 120 million people world-wide suffering from it. The peak time for depression is between the ages of 50 and 60, although it typically occurs between 30 and 40. These are peak working times for adults and suggest that issues at work may cause depression and at the very least this relationship should be investigated further.

For example, Beck (1976) argues that patients with unipolar depression have lower self-esteem, and are high in self-blame. Both these symptoms can be directly linked to possible issues at work with management and or colleagues. Beck's cognitive triad puts forward three areas where there are negative automatic thoughts of the self, of the world and of the future. A sufferer of depression tends to think life will always be that way for them, and that nothing can improve. This will apply to those who believe they are inadequate, stuck in their stressful jobs and will see no hope in the future.

The model also looks at cognitive errors where the 'downside' is overestimated so that the most pessimistic conclusion possible is reached when in a situation. This would be seen in meetings at work or with bosses' decisions about changes regarding work patterns and may cause depression. Brown (1986) suggests that social support plays a role in preventing depression, and so this may be vital in the workplace where colleagues act as that support and help the individual with their problems.

The diathesis-stress model suggests an individual's diathesis must interact with stressful life events, such as those at work, in order to prompt the onset of illness. The impact of particular stressors (such as losing a job or constant battles with management and colleagues) will vary among individuals, but each stressor will have a unique impact.

OCD is also more likely to develop in individuals who have a psychological vulnerability such as a lack of 'perceived control' over stressful life circumstances. Intrusive thoughts and fear may worsen in a workplace where employees believe they have no control over any decision made whether it be strategic or operational. Those who have perceived control tend to be resilient individuals who believe they can control, or at least influence, their work life.

Cognitive appraisal is another psychological vulnerability which refers to an individual's assessment of their ability to cope with a given situation.

Someone who feels they cannot cope with anything that is in their in-tray or dreads being given responsibility by the boss, however small, will be vulnerable. When individuals consistently think they are in peril, and believe they lack the ability to cope with those threats, it makes them more exposed to developing OCD.

## Practical investigation

In conducting the practical investigation, you must:

- carry out a summative content analysis that explores attitudes to mental health
- analyse at least two sources (e.g. radio interviews, newspapers, magazines) to compare attitudes to mental health.

## Suitable examples

- Comparing how attitudes have changed over time.
- How different sources report mental health.

## Issues and debates

<b>Ethics</b>	Issues of diagnosing mental disorders such as using labelling and obtaining consent for participation in research HCPC guidelines for practitioners regarding standards of conduct and ethics
<b>Practical issues in design and implementation of research</b>	Choice between quantitative and qualitative data for clinicians balancing validity with reliability in terms of type of data gathered
<b>Reductionism</b>	Research where causes of mental disorders such as depression and OCD, etc., are isolated to neurotransmitter dysfunction, makes diagnoses not holistic and treatment purely focused on the biological level
<b>Comparisons between ways of explaining behaviour</b>	Same behaviour can be explained from different approaches typically biological and psychological Methods to categorise and diagnose mental illness also differs between ICD and DSM
<b>Psychology as a science</b>	As research typically involves biological methods and biological treatments, such as drug therapies, there is domination of the medical model which is a highly scientific model in that it uses scientific research methods such as laboratory experiments
<b>Cultural and gender issues</b>	Cultural differences in diagnosis practices (culture bound syndromes, etc.) causing bias in diagnosis and invalid treatments. Also between users of ICD and DSM systems. Gender differences in prevalence and onset of a disorder
<b>Nature–nurture</b>	Different explanations as to what causes mental disorders, biological compared to environmental factors
<b>Psychological understanding</b>	DSM changes over the last 60 years

<b>over time</b>	Changes in therapies from antipsychotics to neuroleptic drugs
<b>Social control</b>	Deviation from social norms leads to labelling which creates policies for the treatment and therapy for mental health. These can be seen as a form of social control
<b>Psychological knowledge in society</b>	Major contribution through therapies and treatments for mental health issues, in turn has led to wider acceptance of those living with the disorder
<b>Socially sensitive research</b>	Issues of labelling and stigma through research and treatment

### Exam practice

The purpose of classification systems is to provide clear descriptions of diagnostic categories in order to enable clinicians and investigators to diagnose, communicate about, study, and treat people with mental disorders.

- 1 Evaluate either DSM-IV or DSM-V approach to the diagnosis and classification of mental disorders. [12]
- 2 Evaluate the role of non-biological factors as possible causes of one mental disorder you have studied other than schizophrenia. [20]
- 3 Evaluate one contemporary study, other than Carlsson (2000), from clinical psychology. [8]
- 4 Evaluate the use of case studies as they are used in clinical psychology. [8]
- 5 Evaluate the classic study by Rosenhan (1973). [8]
- 6 Outline how cultural bias can lead to different diagnosis of mental disorders. [6]

- 7 Evaluate a biological treatment of one mental disorder other than schizophrenia. [20]
- 8 Evaluate the use of primary and secondary data as it is used in clinical psychology. [8]
- 9 Evaluate the use of longitudinal and cross-sectional methods as used in clinical psychology. [16]
- 10 Outline what is meant by Clinical psychology. [6]
- 11 Assess the diagnosis of mental health issues in terms of reliability and validity. [8]
- 12 Compare one biological and one non-biological explanation of schizophrenia. [6]
- 13 Compare two explanations for any one mental disorder you have studied. [8]

### **End of chapter summary**

You should now have an understanding of all the points below:

- diagnosis of mental disorders including the 4 Ds
- two classification systems for understanding mental health
- symptoms, features, explanations and treatments of schizophrenia
- symptoms, features, explanations and treatments of one other disorder
- individual differences through cultural effects and developmental issues
- HCPC guidelines
- methods used including longitudinal, cross-sectional, meta-analysis and cross-cultural
- primary and secondary data
- use of case studies including an example study
- use of interviews including an example study



- descriptive and inferential statistics, thematic analysis and grounded theory
  - the classic study by Rosenhan (1973)
  - the contemporary study by Carlsson *et al.* (2000), plus one other contemporary study
  - one key question relating to clinical psychology
  - one practical investigation that you have carried out in relation to clinical psychology
  - issues and debates within clinical psychology.
-

# 6 Criminal psychology

## Defining criminal psychology

Criminal psychology refers to the interdisciplines of psychology, criminology and criminal justice. It studies offenders and offending behaviour in order to improve the investigation of crime by adding a psychological component, such as in offender profiling.

Criminal psychology looks at the criminal justice processes, including the identification, judgment and developing treatment programmes for offenders. These are used in the community or in prisons to rehabilitate criminals and prevent **recidivism**. Investigating the accuracy of eyewitness testimony and examining courtroom procedures are two related areas where psychological research has been applied. Research from cognitive psychology has also been applied to helping the police develop interview techniques.

## Biological explanations of crime

### Brain injury

Recent research from the Institute of Child Health (2000) has found that brain damage inflicted on a specific area of the brain can lead to serious antisocial behaviour. Researchers examined the impact of brain damage in the ventral region of the frontal lobes caused by accidents on two young boys. The ventral part of the frontal lobes is thought to reduce the wish to act on desires – allowing for appropriate behaviour. In later research, it was found the boys were unable to control frustration or anger, could not monitor or control violent behaviour, had no insight into the consequences of their actions, and showed no concern for others. The discovery raises the possibility that brain scans could be used in future to determine which people are most likely to suffer from long-term behavioural problems following an accident.

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#### Exam tip

You can use your knowledge from biological psychology and apply it in this section, and in particular, methodology such as brain scans and their strengths and weaknesses.

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More up-to-date research by Williams *et al.* (2012) suggests around 60 per cent of young adult offenders report having suffered brain injuries, between

three and six times as many as in the population at large. These injuries affect **temperance**, social judgement and control impulses which contribute to criminality. Brain injuries were more common among young offenders and were linked to problems in adjusting to society, and in particular, that a young developing brain is more susceptible to getting injured in the first place which can have implications for mood and behaviour.

## Amygdala

It is thought that people who are excessively aggressive have problems with their amygdala. This can be because their amygdala has been damaged through stroke, **tumour** or it just did not grow correctly. Some areas of damage may lead to the amygdala reacting in an overly fearful way; other damage may lead to the amygdala not reacting to fear at all. In overtly aggressive responses, it is thought that the amygdala misinterprets information from the senses and/or cortex and responds incorrectly with overly aggressive behaviour. Research has shown that when certain areas of the amygdala are stimulated, animals and humans show extremely hostile and aggressive behaviour, while other areas provoke a more submissive response. Complete removal of the amygdala in rats shows that they have no fear response whatsoever and will walk into danger continually. Although the amygdala helps us perceive and respond to danger, and this may lead us to aggress, other parts of the brain serve to control and inhibit our aggressive tendencies. One mechanism that helps us control our negative emotions and aggression is a neural connection between the amygdala and regions of the **prefrontal cortex**.

### Now test yourself

- 1 What is the role of the amygdala?
- 2 Give one weakness of the role of the amygdala as an explanation for crime.
- 3 Outline one similarity between everyday brain injury and injury to the amygdala.

Answers on p. 230

## XYY syndrome

XYY syndrome is a genetic condition that occurs when a male's genes have an extra Y **chromosome**. Females typically have two X chromosomes (XX). Males typically have one X chromosome and one Y chromosome

(XY). Males with this genetic condition have an extra copy of the Y chromosome in each of their cells (XYY). Most people have 46 chromosomes in each cell. Males with XYY syndrome have 47 because of the extra copy of the Y chromosomes; however this mutation is only present in some cells.

One of the earliest attempts to link genetics and violent behaviour occurred during the 1960s, when researchers thought they had discovered a propensity for violence in men born with an extra Y chromosome. Early studies of XYY males suggested they were ten times more likely than XY men to be found in criminal populations. Although the studies attracted a great deal of attention at the time, further examination of XYY males revealed that they did not display any particularly violent tendencies. Furthermore, XYY males are extremely rare, and thus the syndrome could not possibly explain the frequency and prevalence of violent behaviour around the globe. Scientists agree that there is probably a genetic component to aggression because violent behaviour tends to run in families. However, with a complex behaviour like aggression, it is especially difficult to separate genetic and environmental contributions.

### Now test yourself

- 4 How many chromosomes do males with XYY have?
- 5 Give one weakness of the extra Y chromosome as an explanation for crime.
- 6 Outline other characteristics of someone with XYY syndrome.

Answers on p. 230

## Personality

Eysenck believed that people can be classified into six different types based on three dimensions of personality. He developed a psychometric test for measuring personality – the EPQ (Eysenck Personality Questionnaire) which measured people on: **Introversion**–Extraversion (E); **Emotional Stability**–Neuroticism (emotional instability) (N) and **Psychoticism** (emotional independence) (P).

**Extraverts** are difficult to condition which has been used to explain their lack of conscience – normally when we do something wrong we feel bad about it because our conscience tells us it was wrong, and then we choose not to do it again to avoid feeling bad. In those with high E scores, Eysenck believed that they do not easily learn to avoid the bad feelings. According

to Eysenck, this dimension is controlled by the ascending reticular activating system (**ARAS**) which is thought to be involved in alertness and arousal, extraverts being chronically under-aroused are more likely to be risk-seeking and engage in antisocial activity.

**Neurotics** may be more likely to become criminals as a reaction to some kind of emotional event, or as a habit they find difficult to break. Eysenck stated that this is due to differences in the activity of the limbic system which organises emotional responses. Neurotic individuals are unstable and find it hard to inhibit their behaviour, so often act impulsively and exhibit violent responses more quickly.

Eysenck (1966) later added a third trait/dimension – **psychoticism**. High P scorers are often uncaring of others, insensitive and do not feel guilt, so committing crime may be easy as they will not worry about the effects on others. As they lack empathy, they can harm or distress others without feelings of shame or remorse.

Both E and N scores are normally distributed throughout the population, while P is not. It is thought that people who have high E, N and P scores may be more likely to commit violent crime.

### **Exam tip**

Remember that personality falls under the biological explanation of crime and not from the social explanations.

### **Now test yourself**

- 7 Explain what is meant by we are born with a predisposition to become criminal.
- 8 Give one strength and one weakness of measuring personality with the EPQ.

**Answers on p. 230**

### **Typical mistakes**

Don't assume the examiner will understand all your acronyms, such as ARAS, in the same way you do. Write these out fully at least once at the start so it's clear you understand their meaning.

## **Social explanations of crime**

Labelling theory by Becker (1963) argued that being deviant is an everyday part of adolescent behaviour, but when it is labelled as criminal it causes the individual to remain antisocial. Labelling theory has been linked to

stereotypical behaviour regarding all individuals and groups, including gender and race. For example, stereotypically black males are disproportionately stopped and searched by the police. Labelling theorists argue that rather than them being involved in a higher rate of offending, they are stopped because of police stereotypes.

A person who commits an act is considered criminal/antisocial and they become labelled as such. Based on this label, the individual is treated differently by those around them. The label will become **internalised** by the individual, in particular if more than one person agrees with the label and if the label is not far from the individual's normal behaviour. This makes the individual feel there is no opportunity to change and thus fulfils the prophecy of them being a criminal by acting the way the label suggests. People behave in the way that they are expected to due to being given a certain label. As **labelling** can have positive and negative connotations, the self-fulfilling prophecy can be positive (if someone is labelled as bright), but also can be negative.

The **self-fulfilling prophecy** is based on the idea that society's reaction to deviant behaviour has important consequences for the future behaviour of that deviant person. We define certain acts, such as stealing, as criminal and the person who commits such acts is then labelled by society as a criminal. Having been labelled in this way, the person is treated by society in a way that is consistent with the criminal label (fines, imprisonment, etc.). This in turn makes the person adopt the label 'criminal' as part of their self-image and this affects their future behaviour. In short, a person adopts a criminal career as a *consequence* of being labelled a criminal. The self-fulfilling prophecy then is a prediction that comes true simply because it has been made. Research has suggested the self-fulfilling prophecy is most effective when those expecting someone to behave in a certain way, and those behaving in that way are not familiar to each other. Also that the expected behaviour is negative and not far different from the individual's normal behaviour.

Social learning theory argues that we learn criminal and antisocial behaviour through modelling behaviour learned from watching others. These involve the four stages of attention, retention, reproduction and motivation. Bandura thought that there were three aspects to motivation that make it more likely we will engage in criminal behaviour we have seen:

- 1 Vicarious learning** is not direct punishment or reward. If someone observes a successful criminal they are much more likely to copy the behaviour. If someone sees a crime as victimless, this can also increase copying.
- 2 External motivation** happens if the behaviour (crime) is rewarded by external factors such as the money received after a robbery.
- 3 Internal motivation** happens if the behaviour (crime) is motivating and satisfies a need, for example crimes such as joy riding may cause excitement to the criminal.

### Typical mistakes

Both labelling and self-fulfilling prophecy can have both positive and negative consequences, not just negative.

This theory predicts that punishment is likely to deter criminal behaviour – either direct punishment as in operant conditioning (we are fined for speeding so we take more care) or vicarious punishment in observational learning (we see somebody else pulled over for speeding so we slow down). Modelling is a key part of social learning theory as an explanation of crime; a person can directly or indirectly observe the criminal behaviour in real life or via the media so that it can be remembered or reproduced.

### Exam tip

Make sure you link any answer on social learning theory to crime and not just write about the theory in isolation. Practise using criminal examples of the four stages of the theory.

### Now test yourself

- 9** Outline the difference between external and internal motivation.
- 10** Give one strength and one weakness of social learning theory as an explanation of crime.

Answers on p. 230

## Gender differences and explanations of crime

There seems to be little in terms of gender differences when it comes to the biological explanations regarding brain injury and the role of the amygdala. However, there is obviously a big difference when it comes to the XYY syndrome which affects males only. This difference in chromosomes could interact with environmental factors in later life, such as labelling and self-fulfilling prophecy.



Some research has also found gender differences regarding personality in that males tend to score highly in psychoticism on the EPQ and females higher on neuroticism.

Similarly, there are differences in how labelling can influence violent crime with research showing that negative labelling by parents can have an impact on females and that males are more affected by formal and informal types of labelling.

### **Exam tip**

The specification mentions 'with consideration given to gender differences' when explaining crime, so don't forget to make these links.

## **Understanding the offender, offence analysis and case formulation**

### **Cognitive interview**

Traditionally, police interviews have consisted of a list of questions which have not always produced useful eyewitness accounts. The procedure has been criticised for using inappropriate questions or questions that are badly phrased and asked out of sequence. The cognitive interview technique is an attempt to improve quality of witness recall by applying psychological knowledge of how memory works and has recently been updated.

We know that recall is better if we use **retrieval cues** – these cues can be state or context.

Research has also told us that individuals distort their memories in order to fit their **schemas**, which means they may forget vital information and fill the gaps with inaccurate memories.

### **Now test yourself**

**11** What is the cognitive interview?

**12** Give one strength and one weakness of using the cognitive interview.

**Answers on p. 230**

### **Ethical interview techniques**

The key ethical issue in interviewing is that the participants should not be harmed or damaged by the interview in any way. Gray (2004) provides a few examples of ethical situations that could arise during an interview.

Informed consent must be gained before the interview and confidentiality should be assured throughout, and if the interviewee becomes distressed, the interview should be abandoned. The interviewee has the right not to answer a particular question or to terminate the interview altogether. The interview must be carried out in a transparent non-prejudiced manner and must not involve any type of **coercion**. Any recorded contribution, in written form, on tape, etc., or in notes taken from the interview by the interviewer, should be used in accordance with the wishes of the interviewee.

In relation to criminal psychology, the College of Policing (the professional body for policing) uses the PEACE framework in investigative interviewing. This is designed to help investigators use good and ethical interviewing techniques to obtain high-quality accounts from witnesses:

- 1 Planning and preparation** – The success of the interview could depend on this first step. Key issues, aims and objectives must be established here and the interview must be prepared with the needs of the investigation in mind. Characteristics of the interviewee, such as culture, age and background, must be taken into account as well as practical arrangements such as location and knowledge of any offence.
- 2 Engage and explain** – Encouraging conversation is the key to this step and this is where factors such as the interviewee's background and personal characteristics will prove useful. The reason for the interview should also be clearly explained, such as explaining why the arrest was made and objectives should be explained to the interviewee.
- 3 Account, clarification, challenge** – Obtaining an account of what occurred consists of both prompting and supporting any discussions from something as simple as 'tell me what happened'. Questions should be short, simple and open-ended, especially at the start to elicit responses, whereas forced choice, leading or multiple questions may not be effective.
- 4 Closure** – This is about accurately summarising what has been discussed and should be planned and structured so that the interview does not end abruptly which may cause some distress to the interviewee.
- 5 Evaluate** – Following the interview it should be evaluated in terms of aims and whether any further action is necessary.

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**Exam tip**

PEACE is a good acronym to remember, but just make sure you elaborate on each point.

## The use of psychological formulations

**Psychological formulations** derive from a thorough process of information gathering, followed by an analysis of that information and development of hypotheses or ideas about what caused and maintained the problems. Through the process of the assessment, hypotheses are tested where possible to improve the accuracy of the formulation.

Formulation is understood by criminal psychologists and forensic psychiatrists to be key in designing appropriate and so potentially effective treatments for offenders. The aim of formulation is to explain the individual's problems and symptoms. The specifics of the formulation will vary depending on the theoretical orientation of the case formulator. As a hypothesis, a formulation is always subject to empirical test and to revision as new information becomes available.

Formulations serve multiple functions and serve as a structure to organise information about an offender based on their biological, social and environmental circumstances. It also provides a blueprint guiding possible treatment for the offender that will lead to a successful outcome. The formulation therefore enables the psychologist to anticipate future events, for example, and to prepare for them. A formulation serves as a gauge for measuring changes which may come from goals included in the formulation or from relief of problems identified in the formulation.

If a psychological formulation is to serve the above functions, it should meet certain goals. First, it should be accurate and fit the offender for whom it is constructed. One way to assess accuracy of an individual formulation is to evaluate the offender's response to a formulation-consistent intervention and to compare those responses to how the offender responds to formulation-inconsistent interventions. If the offender responds as the formulation predicts, one has evidence of its accuracy.

A second goal of formulation is that it should contribute to the treatment beyond what would have been achieved in the absence of a formulation. A third goal of formulation is that it should be simple yet sufficiently comprehensive. The formulation should provide a structure to optimally and efficiently represent enough information about the offender to benefit treatment.

A final goal of formulation is to strike the right balance between description and explanation. Research has shown that it is difficult to achieve good reliability when formulations are based on psychological constructs that are too distant from the experience and behaviour of the offender. On the other hand, if a formulation is to be genuinely explanatory, it must do more than summarise biographical information about an offender.

### Now test yourself

13 What is the aim of psychological formulation?

14 What are the four goals of psychological formulation?

Answers on p. 230

## Treatments for offenders

### Cognitive behavioural therapy

CBT aims to improve cognitive functioning and these programmes work on the basis that if you change the cognitive patterns of criminals, then they will change their behaviour. Two forms of CBT used specifically with offenders are Reasoning and Rehabilitation therapy and Enhanced Thinking Skills.

Reasoning and Rehabilitation therapy targets **moral development**, encourages creative thinking, and teaches offenders to take a social perspective on life. It focuses on medium- to high-risk offenders, especially those who exhibit antisocial behaviours or have committed violent crimes. The programme aims to reframe thoughts and alter their behaviours by teaching them **lateral thinking** and **social skills**. These force offenders to address a problem from different perspectives and attempt to understand another person's point of view. Social skills focus on conflict resolution and skills on assertiveness and negotiation.

Enhanced Thinking Skills is another cognitive behavioural treatment which aims to boost pro-social behaviour by working on interpersonal skills and self-control. This programme aims to identify and alter the elements of thinking associated with criminal behaviour. Points such as flexible thinking, impulse control, social perspective, values and moral reasoning and solving inter-personal problems are all covered. This is the prison service's most widely used programme and applicable to a large proportion of offenders.

### Social skills training

The rationale for social skills training (SST) is that offenders have poor social skills that either make them more likely to end up in situations where offending is possible (e.g. being unable to resist peer pressure) or which tend to exacerbate bad situations (e.g. managing potentially aggressive encounters poorly). They act so violently because they lack any other methods of dealing with conflict.

These skills must be acquired in order for us to function in society, and many offenders are often lacking these skills, so by improving the skills we are aiming to improve competence in social interactions.

There is no specific list of social skills to be learnt but the idea is that they develop the skills that make them less likely to reoffend, for example micro-skills (eye contact, appropriate distance during discussions, etc.) and macro-skills (assertiveness, negotiation, etc.).

The training is based on social learning theory and typically involves the following process:

- Identification of social skills – a questionnaire is given to find out what skills offenders already possess.
- Modelling, instruction, role play and rehearsal is used in order to teach the offenders relevant skills. They then attempt to re-enact these skills themselves in various arranged situations.
- They will then receive feedback on their performance with the emphasis being on social reinforcement, such as praise. Offenders are given praise when skills are learnt and repeated successfully.
- They are also given homework assignments that allow the clients to apply the skills that they have learnt to a variety of situations or real-life settings if they are not **incarcerated**.

### Now test yourself

**15** Outline the difference between Reasoning and Rehabilitation therapy and Enhanced Thinking Skills.

**16** Give some examples of macro- and micro-skills with social skills training.

Answers on p. 230

## Anger management

Anger management is a cognitive behavioural technique based on a model by Ray Novaco (1975) which seeks to change both behaviour and thinking, unlike behaviour modification which only changes behaviour. It is used to

help individuals control and manage their anger in order to help them make good choices as opposed to being driven to aggressive ones.

Therapists from this approach believe that problems, such as anger, anxiety or depression, are caused by faulty cognitions, and so to change behaviour is not enough – people need to change their thinking first.

Anger management can be used in prisons, and offenders may take part voluntarily or as part of their sentence. Although it focuses on one emotion, it can be applied to many offenders and can be used in prison or in the community, while the offender is on probation. It is usually conducted in small groups and a course will include about ten sessions. The aim is to identify triggers which may cause aggressive outbursts. By preventing aggression, the likelihood of crimes being committed is lessened.

It is believed that anger has three elements: (1) Physiological (increased heart rate); (2) Behavioural (shouting or throwing objects); and (3) Cognitive (are you looking at me?).

All three elements need to be addressed to effect permanent change using the following steps:

- **Cognitive preparation:** offenders examine their own patterns of anger: the types of situations that make them angry and the thought processes that accompany their anger. They may identify irrational thinking processes that lead to or maintain heated outbursts.
- **Skills acquisition:** skills are developed to help the offender manage their anger. These might include relaxation, avoidance or social skills, such as assertiveness and conflict resolution.
- **Application practice:** these skills are then applied in a controlled and non-threatening environment. This could include role-play so safety is ensured of typically angry situations with other offenders.

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### Exam tip

You can use Howells *et al.* (2005) as both your contemporary study and as one study that considers the effectiveness of anger management.

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### Now test yourself

- 17 What is the aim of anger management?
- 18 Increased blood pressure would be an example of which element of anger?
- 19 Give a different example of a behavioural element of anger.



## Biological treatments

### Hormone and drug treatments

Biological treatments have been used historically in the treatment of sexual offenders to reduce their sexual drive and to prevent recidivism. The studies of these biological interventions have reported low recidivism rates of about 5 per cent following long periods of study.

Medications used to treat sex offenders act by limiting the sexual drive. The aim of treatment here is not to create an **asexual** individual, but rather one who has a reduced sexual drive and no deviant sexual urges or fantasies.

There are two types of medication: those which work by suppressing testosterone (anti-androgens), and those that reduce sexual drive by other mechanisms (antipsychotics and serotonergic antidepressants (SSRIs)). SSRIs work for some sex offenders with recurrent urges, because their behaviour has similar patterns to people with obsessive compulsive disorder for which SSRIs are often prescribed. The drug treatment of sex offenders with **anti-androgens** and hormonal agents is successful in reducing recidivism rates through the reduction of sexual behaviour. There is empirical evidence from Bradbury and Kaye (1999) that these drugs have a differential effect on the sexual arousal patterns of paedophiles suppressing the paedophilic arousal and enhancing the arousal toward adult consensual sexual activity.

Another drug, called leuprorelin, has been used with prisoners in the UK and has been coined a form of chemical ‘castration’. The scheme is entirely voluntary and reduces the prisoners’ testosterone levels to those of prepubescent children. Chemical castration requires a high degree of supervision and offenders have to keep taking the pills to lower their libido. The drugs reduce testosterone, so reduces sex drive. Prisoners are released into the community and report regularly to outpatient clinic where they are tested regularly. They may commit other crimes, but their repeat offending for sex offences is completely zero. These drugs essentially reduce the urges they have and all the pain associated with things that make them offenders. It is used in small numbers in controlled conditions, for people who otherwise would never leave prison – violent sex offenders, as well as paedophiles. It is not an alternative to therapeutic issues, but it takes out the



urge that manifests itself in sexual violence. It takes away the thing that makes them violent because the testosterone is completely reduced.

### Now test yourself

20 Which hormone does chemical castration reduce?

21 Chemical castration, in turn, reduces which instinct?

22 Leuprorelin has been used with which types of groups?

Answers on pp. 230–1

## Improved diet

Violent behaviour may be attributable at least in part to nutritional deficiencies. The UK prison trial at Aylesbury jail (Gesch *et al.* 2002) showed that when young men there were fed multivitamins, minerals and essential fatty acids, the number of violent offences they committed in the prison fell by over a third.

Gesch *et al.* set out to test the hypothesis that changes in diet could reduce the incidence of recorded offences by young offenders inside prison. The trial had a double-blind procedure and the control group were given **placebos** up to a nine-month period. The supplements were randomly distributed to 159 male offenders aged between 18 and 21 years. The only systematic difference between the active and the control groups was the content of the capsules. Antisocial behaviour was measured by reports made to the governor and other minor reports. The results of the Aylesbury trial show that when the nutrients were provided, there was a 26 per cent reduction in the rate of recorded disciplinary incidents and a 37 per cent reduction in the rate of more serious offences including violence reported to the governor among the group receiving the supplements. The supplements given to the offenders broadly represented 100 per cent of the recommended daily intake of vitamins, minerals and essential fatty acids. 80 per cent of the essential fatty acids provided in the trial were omega-6 and 20 per cent were omega-3.

Industrial societies where omega-3 consumption has remained high and omega-6 low because people eat fish, such as Japan, have low rates of murder and depression.

Essential fatty acids are called essential because humans cannot make them but must obtain them from the diet. The synapses, where nerve cells connect with other nerve cells, contain high concentrations of the omega-3 fatty acid DHA. Communication between the nerve cells depends on

neurotransmitters, such as serotonin and dopamine, docking with receptors in the nerve cell membrane.

Omega-3 DHA is very long and highly flexible and so helps make the membrane itself elastic and fluid so that signals pass through it properly. However, if the wrong fatty acids are included into the membrane, the neurotransmitters cannot dock correctly. Previous research has shown the detrimental effects of poor **synaptic transmission**. Low serotonin levels are known to predict an increased risk of suicide, depression and violent and impulsive behaviour, and dopamine is what controls the reward processes in the brain.

The bottom line is that if children are left with low dopamine as a result of early deficits in their own or their mother's diets, then serotonin levels may be low, meaning they cannot reduce their impulses or control their emotional responses.

### Exam tip

You can use Gesch *et al.* (2002) as an example of a study to consider the effectiveness of biological treatments.

### Now test yourself

23 What is meant by the double-blind procedure?

24 An increased risk of suicide is associated with which neurotransmitter?

Answers on p. 233

## Factors influencing eyewitness testimony

Eyewitness testimony is the evidence given in court or in police investigations by someone who has witnessed a crime or accident.

Eyewitness testimony is often a vital factor taken into account by juries in deciding whether defendants are guilty or not guilty, so we need to have some idea of how reliable these testimonies really are.

### Exam tip

If asked to define eyewitness testimony, try to give a relevant criminal example rather than a generic answer.

## Attention

One thing that may affect our attention is the presence or absence of a weapon. It seems that when a weapon is involved, we tend to focus on that rather than the criminal's face.

Clifford and Scott (1978) demonstrated that people's recollection of non-violent events was superior to their memory of violent events. Violence seems to interfere with recall, causing witnesses to focus on one aspect of the situation to the detriment of more general observation.

This is known as **weapon focus** which allows the witness to provide a great deal of detail about the weapon used, but virtually nothing about the user of the weapon.

Although research shows there is a weapon effect, we are not sure why it occurs. Possible explanations for this include:

- Weapons are a more dramatic part of the scene and draw attention away from the person committing the crime.
- Weapons are threatening and therefore become central information which we remember accurately, whereas the criminal's face is peripheral and less well remembered.
- It is unusual to see a weapon so that is why we focus on it, for example, when a gun was replaced by a stick of celery in a bank raid, witnesses focused on the celery rather than the face of the bank robber.

## **Post-event information**

One of the main factors affecting the accuracy of memory for an event seems to be what happens after the event has taken place. The memories laid down seem to be quite fragile and subject to distortion by post-event information. Loftus (1992) called this 'misinformation acceptance' where people accept misleading information after an event and absorb it into their memory.

There is a greater tendency to accept post-event information as the time increases since the event happened. This has important implications for the ways in which the police and lawyers question individuals in criminal investigations. Loftus and her colleagues used an experimental technique where participants are shown a film of an event such as a road traffic accident. They are then exposed to some kind of post-event information (often in the form of leading questions) and are then tested for their memory of the original event. Similar results have been found outside the laboratory where leading questions have caused eyewitnesses to remember seeing a fictitious tape recorder stolen from a bag.

Yuille and Cutshall (1986) made use of a local shooting and robbery in Vancouver, and found that the accuracy of recall did not decline even after five months. The shooting took place in view of several witnesses, who

were later traced by the researchers. The level of accuracy was impressive when compared with the original police reports. Misleading questions had no effect on accuracy of recall. Those deeply affected by the event were most accurate. So when an event is personally meaningful (real), rather than being an experimental video clip like Loftus, then eyewitness memory is good.

### **Exam tip**

The work of Loftus uses both laboratory and field experiments which have their own strengths and weaknesses you can draw upon and contrast with each other.

### **Now test yourself**

**25** Which type of experiments are being used in the Loftus (1992) and Yuille and Cutshall (1986) studies?

**26** Which one of these experiments is less likely to cause poor eyewitness recall?

**Answers on p. 231**

## **Factors influencing jury decision-making**

In an ideal world, a jury would be made up of unbiased and unprejudiced people, intelligent enough to understand the evidence given. In the real world, however, research has shown that certain characteristics of the defendants, such as attractiveness, gender and race, influence jury verdicts.

### **Attractiveness**

Research has shown that, in general, attractive defendants are treated better than unattractive ones in gaining acquittal, lighter sentences and the sympathy of the jury. However, this is not the case if they used their attractiveness to aid their crime. One reason for this might be the stereotypes that people hold about the appearance of criminals and non-criminals. Unattractive people are deemed more likely to be criminals and so receive harsher sentences, whereas attractive people are seen as less likely to be criminals and so receive lighter sentences. This fact is not lost on lawyers who advise their defendants to improve their appearance as much as possible.

Research from Castellow *et al.* (1990) demonstrates the effect of physical appearance on jury decision-making. Results showed that a guilty judgment was most likely when a female secretary was attractive and the male boss

was unattractive, which supports the idea that juries make judgements about the motives and character of the defendant based on appearance.

## Gender

Cruse and Leigh (1987) asked participants to act as a jury in a mock trial where a relationship has ended because of physical assault. The defendant was alleged to have attacked the victim with a knife. One group of participants was told that 'Jack Bailey' was accused of knifing 'Lucy Hill': 43 per cent of jurors found him guilty. The other group was told that 'Lucy Hill' was accused of knifing 'Jack Bailey': 69 per cent of jurors found her guilty. How can we explain these differences?

One interpretation is that the woman was more likely to be judged guilty because she violated her gender role (women do not physically assault people). As such, she was more likely to be viewed in negative terms, and therefore more likely to be guilty.

## Race

In the United States, African-American defendants are more likely to be found guilty than are white American defendants. They are also more likely to receive the death penalty. Baron and Byrne (1994) suggest three reasons for this:

- 1 Racial bias by juries.
- 2 African-Americans commit more crimes.
- 3 White-Americans have greater income to pay for better lawyers.

**Stereotyping** has been shown to influence the recall and interpretation of information. Duncan (1976) showed white participants a film without sound of two men talking intensely, and then one of the men shoved the other. When it was a black man pushing a white man, 75 per cent of participants perceived the push as violent behaviour, but for the other way around only 17 per cent saw it as violent behaviour.

The O.J. Simpson trial (1994) was viewed as a race-related trial by many. Stahly and Walker (1997) who worked for the legal defence team noted the psychological processes at work. They highlighted group identity and the '**availability heuristic**'. For example, white Americans saw the obvious guilt of Simpson because of the physical evidence against him, while the African-Americans saw police misconduct.

## Pre-trial publicity

Pre-trial publicity can be very influential and difficult for juries to ignore. Examples of this would include the media attention given to cases

including: the beating of Rodney King, the outcome of which (not guilty) led to the LA riots; O.J. Simpson with the death of his ex-wife; more recently Timothy McVeigh, the Oklahoma bomber, who appealed against the death sentence on the grounds that pre-trial publicity influenced jurors against him. In such high profile cases, it is almost impossible for jurors to remain neutral and psychological research seems to back this up.

Padwar-Singer and Barton (1974) gave one group of participants newspaper cuttings about a defendant's criminal record to read compared with another group, which read no such details. Both groups then listened to tapes of the trial and were asked to give verdicts. Results showed that 78 per cent of participants who read about the defendant's criminal record delivered a guilty verdict compared to only 55 per cent of the participants not exposed to his criminal record.

In another study, jurors were surveyed in a case where defendants were accused of distributing marijuana (Moran and Cutler, 1991). Results showed that the more prior knowledge jurors had about the case, the more likely they were to return a guilty verdict.

It can be said that the opinions of jurors may be influenced by pre-trial publicity in newspapers, radio and television. Is it possible to eliminate these effects? One solution is to select juries who have not been affected by publicity. Hollin (1989) suggests that this is not a practical solution especially as juries are supposed to be representative of the community as a whole.

### **Typical mistakes**

There are a number of factors that influence jury decision-making and you do not need to know them all. Try to focus on three in depth and include research behind them, otherwise you will end up showing breadth rather than depth.

### **Now test yourself**

- 27** Explain how the Castellow study refutes research that shows attractive defendants are treated better than unattractive ones in gaining release.
- 28** What is meant by pre-trial publicity?
- 29** Outline the difference between normative and informational conformity
- 30** How does witness order differ from persuasion techniques?



## Individual differences and developmental psychology

Personality seems to be a factor in criminal behaviour as demonstrated by Eysenck and the EPQ. His work on the four dimensions of personality has shown how criminal behaviour tends to be linked with extraversion, neuroticism and psychoticism.

Morley and Hall (2003) cite impulsivity and aggression as two personality traits that can be shown to have an association with criminal behaviour. Holmes believes antisocial behaviour between the ages of 9 and 15 years can be correlated strongly with impulsivity and that aggression in early childhood can predict antisocial acts and delinquency. One statistic shows that between 70 and 90 per cent of violent offenders had been highly aggressive as young children (Holmes *et al.*, 2001).

Self-fulfilling prophecy has highlighted both individual differences and the role of developmental psychology as some individuals are given a label and others are not. Yet not everybody conforms to the label they have been given and may do the opposite to prove that person wrong. Negative labels can have a variety of effects that cannot always be predictable. In many schools, pupils are organised into ability groups based on their perceived ability. However, these show some effects only with younger children, some only with older ones, some show effects with urban children while others show the exact opposite (Rogers, 1982).

Similarly, a young person by definition is developing beliefs about themselves and is susceptible to others' opinions of them. Their sense of self will be highly influenced by labels and associated connotations at a younger age than maybe when they are adults.

Social learning theory can account for how we may develop criminal behaviour from imitating role models or prolonged exposure to certain peers. It is based on the assumption that offending is a set of behaviours that are learned in the same way as other behaviours. In this way these behaviours are developed through interaction with a number of social factors. The theory emphasises the family and the peer group as a potential source of criminal behaviours and raises the possibility that some types of antisocial behaviour may be developed from media sources like television, films and videogames.



### Now test yourself

31 Which two personality traits have been shown to have an association with criminal behaviour?

Answer on p. 231

## Methods

Psychologists have questioned the reliability of eyewitness testimony – how the witness is questioned and the stress they are under may affect their memory. For legal reasons, it is not usually possible to study real witnesses, so psychologists use experiments to investigate this issue.

In laboratory experiments into eyewitness testimony, such as Loftus and Palmer's, the independent variable may be the presence of a leading question in an interview and the dependent variable may be the accuracy of the witness's statement. The hypothesis was that eyewitness testimony would be affected when leading questions were present in interviews.

Field experiments in eyewitness testimony will follow the same steps as the laboratory experiment, are based on a hypothesis and have a researcher-manipulated independent variable which is measured against a dependent variable. The difference between laboratory experiments and field experiments is that rather than taking place in tightly controlled settings, field experiments take place in the participant's natural settings.

An incident is set up by a researcher in a natural environment/in the field for a witness to experience. Participants will view a real person/event rather than watching a film. The manipulated variable concerns a factor that affects witnesses (e.g. weapon focus, leading questions, etc.). The variable that is measured typically involves amount or quality of recall about the incident. The researcher tries to control as many factors as possible within the field setting. They will only be aware they are in a study at the end when testing their memory. The aim of field experiments is to assess the real-life behaviours of the participants, as opposed to cause-and-effect relationships.

Case studies are particularly useful in revealing the origins of criminal behaviour. In fact some forms of therapy rely on building up a long and detailed case history as an aid to understanding and helping the offender. Case studies allow psychologists to look at people in situations which we could not possibly have engineered, such as serious crimes such as murder. Case studies usually provide an in-depth picture producing rich data usually

through conducting interviews with an individual or small group. Like other research methodologies within psychology, the case study must produce valid and reliable results in order to be useful for the development of future research.

### Typical mistakes

Just because you already covered these methods last year, does not mean you should assume the examiner knows you understand them. Importantly, these methods are being used in the context of criminal psychology so make sure you refer to this in all your answers.

### Now test yourself

- 32 Which from laboratory and field experiments and case studies has the greater control of variables?
- 33 Which of these methods is the most scientific in explaining criminal behaviour?
- 34 Which of these methods would give more qualitative data than the others?

Answers on p. 231

## Issues of reliability, validity, objectivity, credibility and ethics

### Reliability

Loftus and Palmer (1974) used a laboratory experiment with control over what participants watched and answered so the procedure is standardised. The same health and safety videos were used and timings were kept the same which means the procedure made the study replicable as it can be repeated accurately. Extraneous variables, such as the weather, were controlled as it was set in a lecture hall so there was consistency between the conditions for all participants so it is reliable. Furthermore, similar studies have found that verbs do affect recall so the study findings are consistent.

Yuille and Cutshall (1986), on the other hand, cannot be repeated as it was based on a naturally occurring gun shop robbery which cannot be recreated exactly. The witnesses were real and at various vantage points, so the procedure was not standardised. Only 13 witnesses could be investigated which limits reliability of the findings because of possible participant

variables/bias in the sample. The witnesses were called upon several months later, so may have been subject to media coverage which could have affected their original testimony. Plus the incident was very traumatic, so the findings may not apply to all incidents of EWT as it was a one-off so cannot be repeated to test the reliability of the findings.

However, the coding units used by the researchers to compare their interviews with police transcripts used rigorous scoring and were highly objective and reliable. Also, as the researchers were replicating the police interviews to a great extent and they found very similar details/results, the study could be said to be reliable.

### **Validity**

Loftus and Palmer's (1974) experiment is in an artificial environment for eyewitness recall with regard to car accidents; this lack of ecological validity is not a true measure of natural behaviour of a witness. An event that is staged does not truly reflect spontaneous events that a real witness might experience and may lack the emotionality of a real criminal event, so are not valid as a representation of real life. Real witnesses experience an event in natural surroundings with uncontrolled variables which means it would not be possible to apply the findings to a real-life setting. Giving participants a questionnaire does not reflect the level of consequence experienced by a real witness. This lack of realism can lead to participants trying to guess the aims of the study and alter their behaviour, so they do not behave naturally.

Yuille and Cutshall (1986) is a real event with real witnesses which is true to life unlike laboratory studies. The shooting was naturally occurring so has greater ecological validity as witnesses and events were real.

### **Objectivity**

Both laboratory and field experiments can be said to have objectivity as they use scientific principles searching for cause and effect conclusions. There should also be no experimenter effects to be objective and careful controls must be put in place to ensure replication and both experimental methods have these in place. The work by Loftus in particular can be said to be objective as she maintains control over variables, such as timing and length of the film shown, and has produced quantitative data from her experiments which give scientific credibility.

On the other hand, it could be argued case studies lack objectivity as working closely with an offender or small group will inevitably

compromise this and must incur a subjective element, be it deliberate or not.

## **Credibility**

Credibility refers to the believability and reliability of information from a source. Scientific information that comes from a reputable journal has a higher credibility level than information found on the internet. Credible research in a criminal psychology study must be objective, replicable and valid. If any of these three is missing or the opposite is found to be true, then credibility is diminished.

Trustworthiness and expertise have also become synonymous with being credible and both do involve a subjective element. However, if the methodology and procedures used to establish findings follow the scientific path, then credibility ensues. In this respect, both laboratory and field experiments are a slightly more credible way of researching criminal psychology than case studies, as the former follow scientific protocol and the latter less so.

Looking at the work of Loftus again, we could argue she is a trustworthy expert in her field who uses scientific procedures to try to establish objective, replicable and valid data. Her work is therefore credible.

Looking at the work of Loftus again, we could argue she is a trustworthy expert in her field who uses scientific procedures to try and establish objective, replicable and valid data. Her work is therefore credible.

### **Now test yourself**

**35** Which study from those above would be deemed the most reliable?

**36** Which study from those above would be deemed the most valid?

**37** Define the term 'objectivity'.

**Answers on p. 231**

## **Ethics**

Both Loftus and Palmer (1974) and Yuille and Cutshall (1986) gained participant consent to take part in the research both knowing parts of the procedure, such as viewing a video/reliving an event. However, Yuille and Cutshall offered greater information and this was demonstrated by participants opting out of reliving the event due to stress.

Participants were protected in Yuille and Cutshall's study as they were not forced to view an incident, it was naturally occurring, unlike Loftus and Palmer where participants were shown a possibly distressing car crash video incident.

Both Yuille and Cutshall (1986) and Loftus and Palmer (1974) deceived participants about the use of the leading questions. Participants were unaware of the placement of the misleading questions 'smashed/bumped' and 'yellow/blue quarter panel'.

## Studies

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### Classic study: Loftus and Palmer (1974)

Loftus and Palmer aimed to investigate the effect of leading questions on the accuracy of speed estimates in a car crash using two experiments.

Films of traffic accidents were presented in a random order to participants who then had to give a general account of what they had just seen and then answer more specific questions about the accident, including 'About how fast were the cars going when they hit each other?' acted as the independent variable, since it was manipulated in five conditions. Nine participants heard the sentence with the verb 'hit' in it, and then the remaining participants were asked the same question, but with either the verb 'smashed', 'collided', 'bumped' and 'contacted' instead of 'hit'. The estimated speed was the dependent variable. The results indicate that not only are people poor judges of speed, but they are systematically and significantly affected by the wording of a question.

Experiment two followed the same procedure as experiment one but also involved asking, 'Did you see any broken glass?' The results show that the verb smashed not only increases the estimates of speed, but also the likelihood of seeing broken glass that was not actually present. This indicates that information from the original memory is merged with information after the fact, producing one distorted memory.

### Typical mistakes

When evaluating this study, do not just give general points such as 'it has low ecological validity'. This is a common mistake as that comment could be applied to any laboratory experiment. You must

try to evaluate the context of the study, such as the artificial setting and video of the car crash means real emotions were not involved, so the study lacks ecological validity.

### Now test yourself

**38** 'Did you see any broken glass?' is an example of what type of question?

Answer on p. 231

### Contemporary studies: Bradbury and Williams (2013)

Ideally, juries constitute an impartial, representative cross-section of the community and any potential bias is considered and hoped to be quite minimal. However, research has shown this may not be the case, especially where race and ethnicity are concerned.

#### Aims

To see whether jurors of the same race as the defendant will be more likely to vote to find not guilty, and in particular to test the following hypotheses:

- Hypothesis 1 Black defendants will be more likely to be convicted by juries composed of a higher number of white jurors.
- Hypothesis 2 Black defendants will be more likely to be convicted by juries composed of a higher number of Hispanic jurors.

#### Procedures

The data for the study were collected for trials held in 2000 and 2001 across four states in the United States, where juries were deadlocked or had been unable to come to any final decision regarding the outcome for the defendant. Black defendants were examined, as they comprised approximately 60 per cent of all defendants across the jurisdictions. The dependent variable was whether or not a trial resulted in a conviction and the independent variable was the racial make-up of the jury.

Variables were used to measure the strength of the prosecutor's case which included a quantity of evidence which measured a number of exhibits and witnesses that the prosecutor presented during the trial. Also strength of case which assessed each jury

member's view of the case, ranging from consistently weak to consistently strong. Length of the trial and how long the jury deliberated for were also variables that were measured to test the strength of the prosecution.

## Results

The researcher's hypotheses were both significant albeit at different levels of probability.

Hypothesis 1 Black defendants will be more likely to be convicted by juries composed of a higher number of white jurors was **statistically significant** at  $p < 0.1$ .

Hypothesis 2 Black defendants will be more likely to be convicted by juries composed of a higher number of Hispanic jurors was statistically significant at  $p < 0.10$ .

## Conclusions

Findings suggest that lawyers for black defendants can increase the odds of exoneration by seeking out black jurors. Due to the lack of previous research on Hispanic jurors, the results focusing on these jurors should be seen as tentative especially given the weak level of significance in the results.

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## Valentine and Mesout (2009)

For ethical reasons, participants cannot be subjected to the same stress that a victim of crime may experience. However, it is important to understand what effect such stress may have that may affect the testimony of witnesses of crime, particularly as fear or stress is one of the major differences between the experience of participant witnesses in artificial experiments and the victims of real crimes.

## Aims

To see whether when put in a situation which causes anxiety, the consequent stress levels can cause a reduction in eyewitness recall.

## Procedures

The experiment was designed to test eyewitness memory in an everyday situation that posed some individual threat, without the participants being aware that eyewitness memory was going to be tested later.



Fifty-six volunteers (29 female, 27 male) with a mean age of 31 years were offered a reduction in the admission price to the London Dungeon to complete some questionnaires.

The first exhibit in the tour of the London Dungeon is the Horror Labyrinth which is a maze of floor to ceiling mirrored walls set among Gothic vaults. The exhibit is dark and crowded with a purpose to disorientate those who come in. One particular actor in the labyrinth was known as the scary person as he was dressed in a dark robe and wore make-up creating a very pale facial skin colour with wounds. His role was to step out in front of the participant and then block their path to prevent them passing. The participants' average baseline heart rate was measured as soon as they gave their informed consent. It was then measured again while the participant was walking slowly in the labyrinth with other visitors. This measurement included them meeting the scary person. The participant was pointed out to the actor to ensure that she or he encountered the scary person while walking slowly around the labyrinth for approximately seven minutes. These two average heart rates were then correlated with a state anxiety score to measure any changes.

About 45 minutes after leaving the labyrinth, the participant completed the state anxiety questionnaire. This consisted of 20 statements, such as 'I was tense' and 'I felt frightened', which were rated on a rating scale. They were instructed to read each statement and to circle the response which best described 'how you felt when you were in the labyrinth'.

They then completed the trait anxiety questionnaire which also had 20 statements, such as 'I feel nervous and restless', 'I have disturbing thoughts', 'I feel inadequate', again rated on a scale. They were instructed to read each statement and to circle the response which best described 'how you generally feel'.

Then they completed a questionnaire on their memory for the 'scary person', which included a free recall and cued recall (e.g. age, height, clothing, etc.). Finally participants were shown a nine person photograph line-up, which included the picture of the 'scary person' placed randomly. After choosing a picture, participants rated their

confidence in their choice on a scale of 0 to 100 per cent confidence.

## Results

The mean baseline heart rate was 74.7 bpm and mean heart rate while in the labyrinth was 86.9 bpm.

State anxiety was reliably higher for females (52.8) than for males (45.3).

There was no difference in trait anxiety between males (36.3) and females (37.3), the mean being 36.8.

Those with lower state anxiety were more accurate when reporting information about the scary person and vice versa. Males were more accurate than females and those who correctly identified the right photo showed a higher level of confidence in their choice.

## Conclusions

The study has demonstrated that a physiological measure of arousal (increased heart rate) is closely associated with a subjective report of anxiety.

There was a reliable association between sex and state anxiety, with females reporting higher state anxiety in the labyrinth than did males, suggesting we should take the emotional state of the witness into account.

### Now test yourself

**39** Why is this study more ethical than studying real victims of crime?

Answer on p. 231

### Howells *et al.* (2005)

There is evidence that anger management can be effective with offenders, particularly violent offenders and these interventions are now a common form of rehabilitative activity.

### Aims

- To see whether anger management is more effective than no treatment in producing change.
- To see whether improvement can be predicted from pre-treatment characteristics of the offender, such as readiness to participate in the programme.

### Procedures

A total of 418 male offenders with a mean age of 28.8 years was drawn from referrals to prison and community correction facility-based anger management programmes in South Australia and Western Australia. Of the 418 initial participants, 285 completed the post-intervention assessment, 78 completed the two-month follow-up (the majority of whom (93 per cent) attended prison-based programmes), and 21 completed the six-month follow-up assessment.

Control participants were chosen from the same pool as those that made up the intervention group, but were on the waiting list to begin the programme rather than engaged in the programme. In this respect, participants were not randomly allocated to intervention/control conditions.

The intervention group completed measures immediately before and after the anger management programme and then again two and six months later. They followed a cognitive approach to a behaviour change programme which included exercises on **cognitive restructuring**, assertion and **relapse prevention**. These ran for ten sessions of two hours each.

The effectiveness of the anger management programme was evaluated through changes from pre-treatment to post-treatment comparisons for those prisoners receiving the anger management programme and the waiting list offenders, for all key outcome variables.

## **Results**

The trend of relative progress in the treatment group compared to the control group was not statistically significant, and therefore could not be taken as evidence of a consistent improvement due to the anger management programme.

The results, however, did show that the prisoners who undertook the anger management programme showed significantly greater improvement in anger knowledge than did the prisoners in the control group.

## **Conclusions**

The results support the view that readiness was an important characteristic. Offenders who were motivated and prepared to work on their anger issues showed greater improvements on a range of

anger measures. Equally, those who were poorly motivated showed less or no change.

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## Key questions

### Is eyewitness testimony too unreliable to trust?

Eyewitness testimony plays a key role in courtroom trial. When there is no evidence to apprehend the accused, eyewitness testimony becomes an effective tool in apprehending the culprit. Although the use of eyewitness testimony by juries is considered as the most valuable tool, critics say it is questionable because the majority of witnesses fail to provide accurate information of the incident.

Eyewitness testimony refers to the recalled memory of a witness to a crime or incident. This is recorded in a police statement or given as verbal testimony to be used as evidence in a court of law. Defendants are often convicted on the basis of eyewitness testimony alone and yet it seems that eyewitness testimony is not always reliable. This can have important consequences, such as an innocent individual may be convicted or blamed wrongly. The aftermath of the shooting of Jean Charles de Menezes at Stockwell tube station is a prime example.

On the day Mr Menezes was killed, a picture was quickly painted by eyewitnesses of a suspect who had vaulted over a ticket barrier, ran away from police, and had worn a bulky jacket that could have concealed a device. According to later evidence, however, Mr Menezes was wearing a light denim shirt or jacket, walked through the barriers having picked up a free newspaper, and only ran when he saw his train arriving. It has left many scratching their heads as to how the witnesses could have got it so wrong.

### **Application of concepts theories and research to explain this key question**

Reconstructive memory is when an individual witnesses an event, they may not remember all the details or be able to describe the full event. In order to make sense of this information, they might rely on schemas to fill in the gaps which are likely to be based on assumptions and beliefs about an individual or situation, e.g. the perpetrator was male. This explanation is supported by Bartlett's study War of the Ghost which showed how participants adapted the story into something more relevant to their culture. Bartlett believed that memory is an imaginative reconstruction based on

assumptions and beliefs about a given person, object or situation, and this can lead to inaccuracies in recall. We use all the information we have available to us when reconstructing memories including our existing schemas, sometimes leading to stereotyped recollections.

Post-event information that is not in the original memory but becomes incorporated into it when recalled is also a factor in whether eyewitness memory is unreliable. Loftus conducted a series of laboratory experiments using leading questions to investigate the effect of such information on the accuracy of recall. Loftus and Palmer showed that memories are often reconstructions based on subsequent information and can cause false or distorted recall, e.g. the word 'smashed' made participants believe the cars were going faster. This showed that witness memory can be seriously altered by post-event information in the form of misleading questions.

Yuille and Cutshall (1986) carried out a field study interviewing people who had witnessed a robbery. They found that the witnesses' memories remained accurate even after some time had passed, which goes against Loftus' laboratory findings. This suggests that perhaps witnesses in court may be less affected by reconstructive memory and leading questions than suggested by theories of the cognitive approach.

The distraction of witnesses is another problem with eyewitness testimony. Stress and anxiety plays a huge role as it can distract the witness's concentration. A study done by Clifford and Scott (1978) has found that people who saw a movie of a violent attack could not remember much information about the event compared to the 'control group who saw a less stressful movie'.

The weapon focus effect also plays a role whereby when a weapon is involved in a crime, the witness's concentration moves toward the weapon. It is not unusual for a witness to be able to describe more on the weapon compared to the attacker itself when there is a weapon involved in the event. So, when a weapon or stress is involved, the witness is unable to be aware of the other details as their attention is concentrated fully on the weapon and anxiety. This can lead to poor memory recall later on.

Therefore, distraction of witness is also a factor to be taken account of in the unreliability of eyewitness testimony.

The cognitive interview has been developed to try to maximise the memory cues available to witnesses. Its aim is to maximise the range of retrieval cues available without introducing post-event information that might distort

the memory. Witnesses are asked to recall events from different perspectives and in a different order to help with recall. This has been used to interview eyewitnesses and suspects and has proved a very effective tool to aid accurate recall. This has enabled police and other investigation agencies to arrive at the truth and has helped juries convict or acquit with more confidence.

However, Milne (1997) found that the cognitive interview did not seem to lead to the recall of more material than other techniques did – this calls into question whether a cognitive interview would be effective in increasing the accuracy of testimony. Ethically, it becomes difficult to study the memories of real eyewitnesses, as any further questioning can affect their memories (and therefore the case and verdict), making true experimentation into the area difficult – especially if using the cognitive interview technique causes distress, cues should not always be used to make witnesses relive the experience.

## Practical investigation

In conducting the practical investigation, you must:

- conduct a questionnaire, interview or case study
- gather qualitative and/or quantitative data, but must involve quantitative data for analysis. You can turn qualitative data into quantitative data for analysis purposes
- include inferential statistical testing as appropriate such as chi-squared, Mann-Whitney U, Wilcoxon or Spearman's rho
- include research question/hypothesis, research method, sampling, ethical considerations, data collection tools, data analysis, results, discussion
- consider strengths and weaknesses of the practical research exercise and possible improvements.

## Suitable examples

- Application of the cognitive interview to a peer in order to recall a specific event in their life.
- View a crime/courtroom drama and record the presented reasons for why the defendant may have committed the crime of which they are accused.

## Issues and debates

<b>Ethics</b>	Effects of unreliability of jury decision-making and of eyewitness testimony Using field experiments to test eyewitness unreliability with possible lack of debriefing
<b>Practical issues in design and implementation of research</b>	Having to use mock juries and artificial situations because of not being able to manipulate real trial situations and so problems with a general lack of realism
<b>Reductionism</b>	Using controlled scientific methodology to test issues around eyewitness testimony Using biological explanations to oversimplify criminal behaviour
<b>Comparisons between ways of explaining behaviour</b>	Different explanations for criminal behaviour drawing on biology, learning theories and social psychology
<b>Psychology as a science</b>	Using controlled scientific methodology to test issues around criminality which can be mostly replicated and tested for reliability due to strict controls
<b>Cultural and gender issues</b>	Issues that might affect jury decision-making when looking at characteristics of the defendant
<b>Nature–nurture</b>	Biological versus social/learning explanations for criminal behaviour
<b>Psychological understanding over time</b>	Changes in treatments over time up to and including hormone and improved diet Recent developments in the cognitive and ethical interviewing techniques
<b>Social control</b>	The power of a therapist, a forensic psychologist, or the person controlling the treatment
<b>Psychological knowledge in society</b>	Warning about unreliability of eyewitness testimony; warning about issues that might affect jury decision-making to help with future knowledge and research



**Socially sensitive research**

Looking at causes for criminal behaviour in socially sensitive areas, such as socio-economic status, race, age, gender

**Exam practice**

- 1 Explain what advice could be given to the police regarding interviewing eyewitnesses of crimes. [12]
- 2 Evaluate the self-fulfilling prophecy as an explanation of crime. [12]
- 3 Evaluate one contemporary study from criminal psychology. [8]
- 4 Evaluate the use of case studies as they are used in criminal psychology. [8]
- 5 Evaluate the classic study by Loftus and Palmer (1974). [8]
- 6 Evaluate the cognitive interview as it is used in criminal psychology. [8]
- 7 Evaluate the use of laboratory and field experiments as used in criminal psychology. [16]
- 8 Outline what is meant by criminal psychology. [6]
- 9 Using psychological research, give one strength and one weakness of social skills training. [4]
- 10 Compare one cognitive behavioural and one biological treatment of offenders. [6]
- 11 Compare biological and social explanations of crime. [6]
- 12 **Governor Gwanzura has recently had problems in managing the behaviour of his prisoners. The prison service has recommended using CBT as a technique to control behaviour.**

Evaluate the effectiveness of one cognitive behavioural treatment you have studied. You must refer to how Governor Gwanzura might implement this treatment with his prisoners in your answer.

[16]

### **End of chapter summary**

You should now have an understanding of all the points below:

- biological and social explanations of crime
- cognitive interview and ethical interview techniques
- use of psychological formulation to understand offending behaviour
- one cognitive behavioural and one biological treatment for offenders
- factors influencing eyewitness testimony and jury decision-making
- individual differences, such as personality and labelling
- issues around developmental psychology, such as social learning theory
- methods used including laboratory and field experiments and case studies
- sample selection and techniques
- issues of reliability, validity, objectivity, credibility and ethics in research
- data analysis of qualitative and quantitative data
- ethical and HCPC guidelines
- the classic study by Loftus and Palmer (1974) plus one other contemporary study
- one key question relating to criminal psychology
- one practical investigation that you have carried out in relation to criminal psychology
- issues and debates within criminal psychology.

# 7 Child psychology

## Defining child psychology

Child psychology is part of developmental psychology (or lifespan development) and includes the study of infancy, childhood and adolescence. Child psychology focuses mainly on how our early experiences with a caregiver affect our social, emotional and cognitive development. The main focus is on the early relationship, between the infant and primary carer. In other words, child psychologists study the bond or **attachment** that is formed between an infant and the carer.

### Exam tip

Make sure you include the term 'bond' in any definition of attachment.

Child psychologists attempt to make sense of every aspect of child development, including how children learn, think, interact and respond emotionally to those around them, make friends, understand emotions and their own developing personalities, temperaments and skills.

## Attachment, deprivation and privation

Attachment can be seen almost like an invisible piece of string that connects the child with a caregiver. A child's first attachment is considered to be a template for all future relationships, including friendships, romantic and work relationships. If a child does not develop a strong, secure and healthy bond with their primary caregiver, this is highly likely to impact on their future relationships.

### Bowlby's work on attachment

Attachment is an instinctive survival mechanism. Bowlby argues that because the newborn human is entirely helpless at birth, babies are genetically programmed to behave towards their mothers in ways that ensure their survival. Human babies use **species-specific behaviours** to shape and control the behaviour of their caregivers.

At the same time, the mother also inherits a genetic blueprint which programmes her to respond to the child. The result of these genetic programmes is attachment. Young animals and humans might be motivated by anxiety to stay near to the parents and so survive long enough to reproduce. Evidence for bonding is that when a human infant reaches

crawling age and is able to move away from its caregiver (around 6–7 months), it experiences **separation anxiety** and stranger fear. These anxieties help to keep the baby close to its caregiver and persuade the caregiver to remain close by the child. Both these behaviours are likely to aid survival of the baby, and both are part of attachment.

According to the idea of natural selection, any genetically driven behaviour that improves an organism's chances of survival is likely to persist because more of the organisms with genes producing that behaviour will survive and have a better chance of passing on the gene.

### **Evolutionary basis**

Bowlby's interest in **ethology** led him to look for similarities between human and animal development. He realised that attachment occurred across most species and suggested this was because attachment offered evolutionary advantages. Specifically, young animals were vulnerable, but if they stay close to their parents their risk of starvation and from predators is reduced. In this way the individual and the species increase their survival chances.

### **Critical period**

Bowlby argued for the existence of a **critical period** during which the interaction between mother and infant produces attachment. In Bowlby's view, mothering is almost useless if delayed until after 2½–3 years for all children and useless for most children if delayed until after 12 months.

### **Monotropy**

**Monotropy** is a concept, named by Bowlby, describing the phenomenon in which a mother appears to be able to bond with only one infant at a time. Bowlby believed the attachment to the mother was qualitatively different from any other. Although Bowlby did not dispute the formation of multiple attachments, he saw attachment to the mother as being unique in that it is the first to appear and the strongest of all. 'Mother love in infancy is as important for mental health as are vitamins and proteins for physical health.' Certainly in Bowlby's view, the father is of no direct emotional significance to the young baby, but only of indirect value as an emotional and economic support for the mother.

### **Bowlby's maternal deprivation hypothesis**

The maternal deprivation hypothesis stated that if a baby was unable to develop a 'warm, intimate, and continuous relationship with his mother (or

permanent mother-substitute)', then the child would have difficulty forming relationships with other people later on and would be at risk of behavioural disorders.

### **Exam tip**

Don't forget to focus on the fact that Bowlby believes in the attachment being 'continuous' and anything that makes it discontinuous, such as separation from the caregiver, can have negative consequences.

There are three important things to note:

- 1** The importance of a continuous relationship between a child and mother. Relationships that are discontinuous (i.e. where there are separations) become unstable and less predictable, which disrupts the development of the relationship.
- 2** Bowlby suggested that the development of this continuous relationship must occur during a critical period. If a child experienced repeated separations before the age of 2½ years, then it would be likely to become emotionally disturbed. Bowlby felt that there was a continuing risk of disturbance up to the age of five years. After that age, children are better able to cope with separation.
- 3** Bowlby did not suggest that the relationship had to be with the child's mother; but suggests it would most likely be the mother. The term 'maternal' was used to describe mothering from a mother 'or any mother-substitute'. He did believe that a child needed to form a relationship with one primary caregiver for healthy emotional development to take place (monotropy).

### **Exam tip**

There are numerous pieces of research that support Bowlby and also criticise him. Use these when evaluating his work on attachment.

### **Now test yourself**

- 1** Explain the difference between 'privation of attachment' and 'deprivation of attachment'.
- 2** According to Bowlby, what are the two major consequences of maternal deprivation?
- 3** Is there an evolutionary basis to attachment?
- 4** Give one criticism of the critical period.

**5** Give one criticism of monotropy.

**Answers on p. 231**

## **Ainsworth's work on attachment**

The aim of the Strange Situation was to produce a method for assessing the quality of an attachment; both comfort seeking and exploration behaviour are indicators of the quality of an attachment. So the Strange Situation method places a baby in a situation of mild stress to encourage them to seek comfort and of novelty to encourage exploration behaviour. A method of controlled observation was developed. This involved observing babies with their mothers during a set of eight predetermined activities.

### **Typical mistakes**

Do not focus purely on the eight stages of the Strange Situation and neglect the rest of the procedure. Make sure you understand issues regarding the sample and attachment types too.

Observers recorded the behaviours of both babies and mothers, noting the following:

- Separation anxiety: the unease the baby showed when left by the mother
- The baby's willingness to explore
- Stranger anxiety: the baby's response to the presence of a stranger
- Reunion behaviour: the way the mother was greeted on return.

The observational record led Ainsworth and Bell to classify the babies into three attachment types:

Type B Securely attached (66 per cent). One group of babies tended to explore the unfamiliar room; they were subdued when their mother left and greeted her positively when she returned. The babies showed moderate avoidance of the stranger, although were friendly when the mother was present. The mother's caring style was described as sensitive.

Type A Avoidant-insecure (22 per cent). A second group did not interact with their mother while investigating the toys and room; they did not seem concerned by her absence and showed little interest in her when she returned. These babies also avoided the stranger, but not as strongly as they avoided the mother on her return. It was observed that these mothers sometimes ignored/rejected their babies.

Type C Resistant-insecure (12 per cent). A third group showed intense distress, particularly when their mother was absent, but they rejected her when she returned. These babies showed ambivalent behaviour towards the stranger, similar to the pattern of resistance and interest shown to the mother on her return. These mothers appeared to behave ambivalently/inconsistently towards their babies.

### Typical mistakes

Listing the three types of attachment is not enough. Try to make links to the parents' caring style too, such as a sensitive parenting leads to a securely attached child.

### Exam tip

Many of the findings in this topic are correlational and so we cannot infer cause and effect. For example, we cannot say that a sensitive parent will cause the child to be securely attached; there may be other factors such as having older siblings, etc.

### Now test yourself

- 6 Outline the behaviour of a securely attached child during the Strange Situation.
- 7 Define 'controlled observation'.
- 8 How does the Strange Situation suffer from the problem of causation?



- 9 Would the study be considered ethnocentric?
- 10 Identify and explain one ethical issue regarding the Strange Situation.

Answers on p. 231

## Short-term effects of deprivation

Bowlby looked at the distress experienced by children who were deprived (short-term) of their main attachment figure, often because either the child or the caregiver had to go into hospital. He characterised this distress as having three stages – protest, despair and detachment.

- 1 **Protest.** The initial reaction is crying, screaming, kicking and generally struggling to escape, or clinging to the mother to prevent her leaving. This is an outward and direct expression of everything the child feels – anger, fear, bitterness and so on.
- 2 **Despair.** The struggling and protest eventually give way to calmer behaviour. The child may seem to have become apathetic, but internally still feels all the anger and fear that were previously displayed. The child keeps such feelings ‘locked up’ and wants nothing to do with other people, appearing depressed and sad. The child may no longer anticipate the mother’s return and barely reacts to comfort of others, preferring itself to comfort itself by rocking, thumb sucking and so on.
- 3 **Detachment.** If the separation continues, the child begins to respond to people again but will tend to treat everyone alike and rather superficially. However, if reunited with the mother at this stage, the child may well have to relearn the relationship with her and may even ‘reject’ her (as she rejected her child).

There is often an interchangeable use of the words ‘separation’ and ‘deprivation’. Bowlby believed that separation threatened the attachment relationship and led to emotional deprivation. However, research done by James and Joyce Robertson in England between 1948 and 1952, showed that separation need not lead to emotional deprivation. These concerned children, mostly between 18 months and three years old, who went into hospital or residential nurseries, for periods of from a few days to several weeks. One of the most important observations was of John (aged 17 months) who was put into a fairly typical residential nursery for nine days while his mother had a second child in hospital. John had started by being loving and seeking companionship. Over the nine-day **separation** he had

changed to being distressed, despairing and finally to becoming emotionally detached.

In contrast, several other children were filmed while they were cared for by Joyce Robertson, a foster mother, in her own home. She arranged for the children to visit their mothers in hospital and to bring things from home with them, thus maintaining emotional bonds with home during separation. These children ate and slept well while staying in foster care, and welcomed their parents at the end of their stay. It would appear, from the Robertsons' research, that separation need not lead to deprivation as long as separation is minimised and substitute emotional care is provided. A mother and child may be separated but if substitute emotional care is provided, then deprivation may be avoided.

### Long-term effects of deprivation

Richards (1995) reports that compared with children of similar social backgrounds whose parents remain married, those whose parents divorce show consistent but small differences throughout childhood. They also have different life courses as they move into adulthood. The differences include:

- lower levels of academic achievement and self-esteem
- a higher incidence of conduct and other problems of psychological adjustment during childhood
- earlier social maturity with some transitions to adulthood (such as leaving home) typically occurring at earlier ages
- a tendency in young adulthood to more changes of job, lower socio-economic status and indications of a higher frequency of depression and lower scores on measures of psychological wellbeing.

Parental death is a special kind of separation because, unlike divorce, it is unlikely that there was a history of **discord**, although in some cases the period prior to death may have been difficult. Parental death may be associated with feelings of helplessness and an increased risk of depression rather than delinquency (as is the case for separation and divorce).

For example, Bifulco *et al.* (1992) studied a group of 249 women who had lost their mothers before they were 17 years old either through separation (for more than a year) or death. The group as a whole had twice the normal rate of depression and anxiety disorders in adulthood. However, there was a particularly high rate of depression among those whose mothers had died before they reached the age of six years. This was not true where separation occurred before the age of six. Second, there is a difference between

permanent deprivation (even where there is substitute maternal care from a father, grandparent or step-parent) and separation.

Spitz and Wolf (1946) studied 100 apparently normal children who became seriously depressed after staying in hospital. The children generally recovered well if the separation lasted less than three months. Longer separations were rarely associated with complete recovery.

Goldfarb (1943) showed how children who had lived in institutions for their first three years of life were less rule-abiding, less sociable, and less intelligent (as measured by IQ tests) than a comparable group who had been fostered.

### **How negative effects of deprivation can be reduced**

Effects of short-term deprivation can be reduced through having a replacement attachment figure that can provide for the emotional needs. Similarly, more contact from the replacement figure alongside their attention and stimulation can reduce these negative effects.

Avoiding separation before the first two years of life so that strong bonds can be formed and a safe base established for a template for future relationships, has been proven to help.

Providing a member of staff to support each child helped to improve children's wellbeing in orphanages (Skodak and Skeels, 1945). This is supported by another early study by Skeels and Dye (1939) who compared the development of one group of orphans raised in a home for women who were mentally retarded (where the women there gave them attention) with a control group who remained in the original institution. After 18 months, the IQs of the control group had fallen from an average of 87 to 61 points, whereas the average IQs had risen in the group who were transferred to the home from 64 to 92 points. Skeels (1966) assessed the children 20 years later and claimed that the effects were still apparent. This was credited to the emotional care they received from the adults that reduced the emotional deprivation experienced in the institution.

For longer-term deprivation, such as death or divorce, ensure an attachment figure is available who can help maintain the routine for the children.

Talking to older children or having children as houseguests with older children has also been suggested will help overcome these negative effects. Obviously, the age of the child and how long the **deprivation** lasts may affect the chances of any success.

**Now test yourself**

- 11 How do Spitz and Wolf (1946) support Bowlby's work on attachment?
  - 12 How does Goldfarb (1943) support Bowlby's work on attachment?
  - 13 How can the effects of short-term deprivation be reduced?
  - 14 How can the effects of long-term deprivation be reduced?
- Answers on pp. 231–2

## Privation

Research that looks at cases of extreme **privation** includes Koluchova (1972, 1976) and the Czech twins and the case of Genie (Curtiss, 1977). Both cases provide vital evidence in determining whether the effects of privation can be reversed.

### Are the negative effects of privation reversible?

If good care can help children recover from their experiences, it might be concluded that the effects of early privation can be overcome, and that there is no critical period for this recovery. If, however, they did not recover, then it seems as if there might be a critical period for forming attachments and for being stimulated and socialised.

The case of the twins suggests there is not a critical period for emotional and cognitive development. It seems that the effects of severe early privation were overcome by the careful nurturing they received when adopted. As the twins were over the age of two years when they started to receive the extra quality care, it looks as if there is no critical period when a child must receive extra stimulation to reverse the effects of privation or deprivation. This suggests that children who are rescued early enough (perhaps before the age of eight) can recover and, second, that where a child has had some social contact (in other words they are deprived rather than privated) the effects are reduced. The Czech twins had each other, whereas Genie had a life of deprivation and privation.

The difficulty with both case studies (though Genie especially) is that the children were only really studied and tested after they were taken into care by the authorities. We do not actually know what they were like from birth, in particular whether they had any developmental problems which could have affected their later development. The twins that Koluchova studied were in an institution for the first eleven months of their lives, when they had been thought to be normal. However, Genie had not been tested early

on, so it was not clear whether she started off with problems in the first place. There is some evidence that her brain did not function normally, although it was never fully researched at the time. Most of the evidence is therefore unreliable because it was collected **retrospectively** and was subjective.

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### **Exam tip**

Answers on reversibility must not just list effects or describe studies but discuss reversibility itself using the factors above.

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Some suggest that as the boys were twins, they had each other to attach to and so the case is not a clear example of privation. In addition, they had spent some time in an institution, before returning to their family – again their time in the institution may have laid the foundations for normal development, despite their experiences on returning home. However, as they did not experience ‘normal’ interactions between people, we can still argue that the boys suffered privation. It is hard to say they experienced deprivation because they never had and lost any early attachment figures.

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### **Typical mistakes**

If describing Genie or the Czech twins, remember these are case studies so it is not necessarily a good idea to try to write aims, procedures, results and conclusions. Instead use case detail and case analysis for each.

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It is important to understand that the care the boys received from the sisters was above average and it is this that Koluchova thought was the main reason for their improvement.

Genie is probably a clearer example of privation, having been locked in her room since before she was two years old until her discovery at 13 years. During that time the minimal interactions she had with her parents were not what we would regard as normal, and there is no evidence that she had and then lost such attachments.

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### **Exam tip**

Genie is a good study to use for evaluating Bowlby’s work on attachment as she both supports him (was never able to fully develop normal language skills) and criticises him (did actually start to form attachment bonds with the researchers).

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### **Now test yourself**

- 15 Suggest some factors which may influence the severity of privation.
- 16 What conclusions can we reach about the existence of a critical period?
- 17 Why is it unwise to conclude that early experience is the only factor which explains the difficulties these children had?

Answers on p. 232

## Day care

Day care is a form of care for infants and children, offered by someone other than close family, taking place outside the home. Children spend part or all of the day in care, but return home at night. This is distinct from a residential nursery, where children are looked after for a short term, such as a week, and sleep there as well. Day care also differs from institutional care, which refers to long-term, 24-hour care.

### Research into day care

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#### Melhuish (1990)

##### Aims

Researchers were interested in the relative progress – both social-emotional and intellectual – made by children who remained in full-time maternal care and those who experienced different forms of day care. They were also interested in what factors differed between alternative forms of day care and may have contributed to any differences in the development of the children.

##### Methods

Two hundred and fifty first-born children from two-parent families were followed from birth to three years. All the mothers were in full-time work before they had a child and 75 per cent returned to work before the baby was nine months old. Of the children in day care, 30 per cent were cared for by a relative, 50 per cent by a child minder and 20 per cent at a nursery. At 18 months and three years, the four groups of children were all assessed on their social-emotional development (by several measures including an adaptation of the Strange Situation), and on their intellectual and language development, using observation and interviews with the carers. The day-care environments were also assessed for factors that might contribute to the child's level of development, including



adult:child ratio, stimulating environment, age, training and experience of the adult carers.

## Results

The results are shown in [Table 7.1](#).

**Table 7.1** Summary of social emotional development experienced in different forms of day care and maternal care.

Effect	Group 1 Mothers	Group 2 Relative	Group 3 Childminder	Group 4 Nursery
Vocalisation	Most vocal	Less	Less still	Least vocal
Aggression	Least aggressive			Most aggressive
Affection	Most affectionate			Least affectionate
Secure attachment	No difference	No difference	No difference	No difference

Some measurements did not vary across the different environments. The amount of crying, playing and physical contact with adults was the same for children cared for by their mother, another relative, a child minder or a nursery. However, there were some differences in the children's behaviour. The amount of vocalisation in 18-month-olds was greatest with the mothers, than with a relative, less with a child minder and least of all in nurseries. On measures of aggression, children in nurseries came out highest and those with mothers lowest. This was reversed for affection, being greatest with mothers and least in nurseries. No differences emerged in the proportion of children showing secure attachments to their mothers between the four groups. At three years, the children with their mothers showed the most affection, but those in nurseries the best social skills.

Considerable variations in the quality of care were noted. The nurseries looked at in the study were characterised by low levels of responsiveness to children's communications and a low adult:child ratio. The nursery staff were younger than the carers in the other conditions and much less likely to have children of their own. The nurseries also had a high turnover of staff, meaning that children did not have consistent adults with whom they could form an attachment.

## Conclusions

On most, though not all measures, the children in nurseries did less well than the others. Perhaps, however, the real message of this study is not that there is anything wrong with nurseries per se, but



that good care of young children is associated with good responsiveness to the child, a high staff:child ratio, experienced staff and a low staff turnover, whatever the type of childcare. Psychologists have carried out research into the effects of day care on both the cognitive and social development of children. Social development concerns the growth of a child's abilities to interact with others and behave in a pro-social manner. Findings are summarised below.

### Effects of day care on cognitive development

#### Negative effects

- Lower reading and maths skills if in day care before the age of three
- Creates 'insecure' children due to no secure base for exploration (less able to explore their world confidently which may hinder cognitive development)
- Poorer cognitive development due to less stimulation (quiet behaviour is usually rewarded by childminders encouraging passive under-stimulated children).

#### Positive effects

- High quality care can improve academic performance, e.g. greater language abilities; higher scores on reading and maths compared to children who have never been in day care
- Increased cognitive development for disadvantaged preschool children.

### Effects of day care on social development

#### Negative effects

- More insecurely attached showing more distress (as assessed in the Strange Situation). Separation can affect a child's attachment by disrupting their continuous relationship with a caregiver
- The longer children stay in day care, the more aggressive they become.

#### Positive effects

- More sociable and popular when child goes to school
- Cope better in social situations (independent and helpful)
- More opportunities for social interaction, e.g. children in day care more likely to have to learn negotiation skills.

Clearly, the findings are contradictory suggesting it is too simplistic to assume all day care will have the same effects on all children. Researchers now recognise that we need to consider a number of factors when assessing the effects of day care.

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### What makes good and poor quality day care?

One possible factor is the quality of home life. Day care appears to have a negative effect for secure children, but had a positive influence for insecure children. However, we might be able to explain this in terms of the fact that insecurely attached children needed compensatory care, and therefore benefited from day care, whereas the securely attached children did not require this extra attention and separation from good-quality care was detrimental.

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#### Exam tip

Make sure you can evaluate research into day care so have a few strengths and weaknesses for each piece of research you look at.

The type and quality of day care provided is another important determining factor. Two things need to be considered, one is staffing and the other is the level of stimulation given to the children:

- Nursery care, while having a stimulating environment and qualified staff, tend to have a lower staff:child ratio and a higher turnover of staff. Thereby limiting the ability of children to form attachments.
- The majority of childminders in this country are not in fact registered with the social services. Yet research has shown that many unregistered childminders provide poor care.

Stimulation is important for cognitive development. It is possible that children in day care receive less stimulation. For example, Bryant *et al.* (1980) found that childminders tended to reward quiet behaviour, thereby encouraging passivity and under-stimulation. On the other hand, day care may provide a more stimulating environment, especially for children from disadvantaged backgrounds.

How long is spent in day care seems to be a factor influencing the experience. In an early study, Belsky and Rovine (1988) found that children who spent more than 20 hours per week in day care were more insecurely attached (as assessed in the Strange Situation) than home-cared children. This has led many people to conclude that day care is harmful, findings from the National Institute of Child Health and Human Development

(NICHD, 2001) support this. They found that those children who spent more than ten hours per week in day care were more aggressive when they reached school age, both at home and in school. Such aggressiveness may be due to insecure attachment.

Most research that has found negative effects of day care has looked at children whose carer returned to work in the child's first year. There is almost no evidence that day care in older children has any harmful effects. It depends on whether we look at the short- or the long-term consequences of day care. There is evidence that shows children are not harmed by day care. Harvey (1999) suggests that children of women who work outside the home suffer no permanent harm because of their mother's absence.

Harvey's study came to a different conclusion than some earlier studies of the same group of children. The new work examined the children at a later age, i.e. at 12 years of age. This suggests that problems detected in children of working mothers at three and four years may have gone away by the time the children were 12.

### Now test yourself

- 18 Identify two findings of research into the effects of day care on children's psychological development.
- 19 Outline one problem associated with studying the effects of day care on children's psychological development.
- 20 What were the two aims of the study by Melhuish?
- 21 Is the Strange Situation a valid and reliable method of assessing the children's social-emotional development?
- 22 What criticisms can be made of the methods used to assess intellectual and language development?
- 23 Do you think the effects were a direct result of the environment the children were brought up in?

Answers on p. 232

## Cross-cultural research into attachment types

The work by Ainsworth has suggested different child-rearing practices may cause different patterns of attachment. This has been further researched in a number of different cross-cultural studies.

Takahashi (1986) used the Strange Situation procedure on Japanese babies to establish whether Ainsworth and Bell's three attachment types are valid across different cultures. The participants in this study were 60 middle-class

Japanese babies, and their mothers. The babies and mothers were observed in the Strange Situation method and the findings were that 68 per cent of the babies were classified as securely attached. There were no babies classified as avoidant-insecure and 32 per cent were classified as resistant-insecure.

When the observational data were examined in more detail however, differences emerged. The Japanese babies were much more disturbed after being left alone. In fact, the 'baby alone' step was stopped for 90 per cent of the participants because the babies were so distressed. If the babies had not become so distressed, many more of them (possibly more than 80 per cent) would have been classified as securely attached.

The findings suggest that there are cross-cultural variations in the way babies respond to separation and being left alone. This difference may be due to the fact that Japanese babies experience much less separation, for example they generally sleep with their parents until over two years of age, are carried around on their mothers' backs and bathe with parents. Japanese babies are almost never left alone. This means that, for them, the Strange Situation was more than mildly stressful, and thus the behaviours observed were reactions to extreme stress – not the original aim of the Strange Situation.

The findings also highlight a second cross-cultural variation – the total lack of avoidant behaviour in this sample. This can also be explained in cultural terms. Japanese children are taught that such behaviour is impolite and they would be actively discouraged from displaying it.

Sagi *et al.* (1985) studied the Israeli kibbutzim where people live in a communal fashion, on a type of collective farm. In order to return to work and start contributing to the commune again, the mothers of newborn babies only stay with them for a few weeks. During this time, intense bonding behaviour occurs (lots of cuddling, playing, etc.). The mother goes back to work for just an hour or two a day while the babies are looked after by a non-family member (a trained nurse called a **metapelet**). Gradually, the mother increases the number of hours she works and the metapelet increases her time with the baby. When such children are put into a Strange Situation (done with both the parent and the metapelet), they tend to become very upset with half classified as resistant/insecure, while 37 per cent seem to be securely attached.

Germany also has a low percentage of securely attached children when the Strange Situation is used. Of the German children, 49 per cent were avoidant-insecure, and 33 per cent were securely attached.

**Table 7.2** Summary of cultural findings showing different attachment types.

Attachment type	United States	Japan	Israel	Germany
Secure	66%	68%	37%	33%
Avoidant	22%	0%	13%	49%
Resistant	12%	32%	50%	18%

Mary Ainsworth carried out a study in Uganda from which the Strange Situation test developed. Ainsworth visited the Ugandan participants one afternoon every three weeks identifying three different patterns of attachment among the Ugandan people: securely attached, insecurely attached or not-yet-attached. Those children who were not-yet-attached had mothers who used less physical contact and were not around so much as those whose children had secure attachments. Ainsworth concluded that mothers who were more responsive early on had babies who cried less and used more vocalisations and gestures.

### Now test yourself

- 24** Outline one strength of the study by Takahashi in terms of ethics.
- 25** What reasons can explain the lower percentage of securely attached babies in Germany?
- 26** Does this mean these children are worse off than those found in the United States?

Answers on p. 232

## Autism

Autism is a condition that children develop rather than a disease and affects around 700,000 people in the UK – that is more than 1 in 100. It is more prevalent in boys than girls with five times as many males as females diagnosed with autism. The proportion of males as opposed to females diagnosed with autism varies across studies, but always shows a greater proportion of males. Fombonne *et al.* (2011) found a mean of 5.5 males to 1 female in their research review.

It is characterised by a lack of responsiveness to others and an inability to form attachments, even with parents. **Atypical** social interactions are such that people with autism would often find it difficult to understand others' mental states and emotions, and respond accordingly.

Repetitive behaviour is very common in that people with autism might repeat certain words or actions over and over, usually in a rigid rule-governed manner. Difficulty communicating, a preference for order and organisation and resistance to change are also other typical symptoms.

## **Explanations of autism**

According to the main researcher in this area, Simon Baron-Cohen, autism could result from an exaggeration of the normal male brain. Baron-Cohen believed that the autistic brain is an extreme form of the typical male brain. Baron-Cohen believes there are three common brain types: Type E is called the female brain where **empathising** is stronger than **systemising**. Type S is called the male brain where systemising is stronger than empathising. Others are equally strong in their systemising and empathising, known as the 'balanced brain'. The central claim of this theory is that on average, more males than females have a brain of type S, and more females than males have a brain of type E.

It is believed these differences in male and female brains are caused by the presence of the male hormone testosterone while the foetus is developing. At eight weeks, the male embryo releases testosterone and causes a male brain to develop which is distinctly different from a female brain.

Baron-Cohen believes that autism is an extreme form of this male brain.

Research has shown that autistic children are far superior to even boys at the male-orientated tasks. Also brain differences show that girls are better at social and communication skills. Autism is characterised by a lack of social skills, and it occurs more frequently in males. It could be these differences that can explain autism.

Falter (2008) tested 28 autistic children and 31 'normal' children on mental rotation and figure-**disembedding** tasks. It was found that children with autism outperformed the 'normal' children.

Baron-Cohen (2003) found on a self-report that generally females score more highly on empathy questions and males on systemising questions. The empathiser intuitively figures out how people are feeling, and how to treat people with care and sensitivity. The systemiser intuitively figures out how things work or what the underlying rules are controlling a system.



An alternative non-biological explanation comes from the theory of mind. This refers to the innate ability of one person to sense the state of mind of another (e.g. showing empathy) and to be able to see the world through another person's eyes, another person's point of view. Many autistic individuals do not understand that other people have their own plans, thoughts and points of view. Furthermore, it appears that they have difficulty understanding other people's beliefs, attitudes and emotions. Interestingly, people with autism have difficulty comprehending when others do not know something. It is quite common, especially for those with savant abilities, to become upset when asking a question of a person to which the person does not know the answer.

So people with autism do not have a theory of mind. They do not understand that people have their own thoughts about the world. This has serious implications for social interaction. Baron-Cohen has researched this social-cognitive explanation of autism and he believes children with autism have '**mind blindness**'.

Baron-Cohen (1985) devised a study to test the theory of mind – *The Sally Ann Task*.

The aim of the Sally Ann task was to discover if autistic children have the ability to understand other people's points of view and to work out what others believe about a situation. The participants were 20 autistic children (average age 12), 14 **Down syndrome** children (average age 11) and 27 'normal' children (average age four years).

During the task the children were asked three questions:

- 1 'Where will Sally look for her ball?' – Belief question.
- 2 'Which doll is Sally and which doll is Anne?' – Naming question (control).
- 3 'Where is the ball really?' – Reality question (control).

The results showed that all children answered the 'control' questions correctly: 85 per cent of the Downs and normal children answered the belief question correctly compared to only 20 per cent of autistic children. The autistic children seemed to not have developed a theory of mind.

### Now test yourself

- 27 Outline two features of autism.
- 28 Identify the names of the two explanations for autism.
- 29 Explain the difference between the type E and type S brain.



**30** How does the Sally Ann task support the idea of theory of mind?

Answers on p. 232

## Therapies for helping children with autism

Applied Behaviour Analysis (ABA) focuses on the principles such as positive reinforcement that explain how learning takes place. When behaviour is followed by some sort of reward, the behaviour is more likely to be repeated. ABA has developed many techniques for increasing useful behaviours and reducing those that may cause harm or interfere with learning. ABA principles and techniques can foster basic skills, such as looking, listening and imitating, as well as complex skills such as reading, conversing and understanding another person's perspective. Behaviour analysts examine the causes and the consequences of behaviour. They then develop interventions based on this information.

ABA programmes for children with autism have two main components:

- 1** Building skills which build on the child's strengths with emphasis on communication, social interaction and play skills.
- 2** Behaviour management which replaces inappropriate behaviours with alternatives that serve the same function for the child. For example, if the child shows irritability when trying to get their needs met, instructing the child how to ask for things would be a much more appropriate replacement behaviour.

In action, ABA would involve giving the child with autism a question along with the correct response, or a strong 'hint' at what the response should be. The child is then rewarded (sweet or praise, etc.) for repeating the right answer; anything else is ignored or corrected very neutrally. As their response becomes more reliable, the 'clues' are withdrawn until the child can respond independently. In this respect, it is a form of the token economy using operant conditioning principles. An example of this procedure is given below:

*Teacher* Hi, Rachel, are you excited about your birthday?

*R* [No response]

*Teacher* Are you excited about your birthday? Say, Yeah, I want to open my ...

*R* Yeah, I want to open my presents!

*Teacher* [smile] Me too! What presents did you ask for?

*R* I asked for presents.

*Teacher* What presents did you ask for? Say, For my birthday, I asked for ...

*R* I asked for a camera. For my birthday.

*Teacher* Cool! [Small tickle] Are you excited about your birthday?

*R* Yeah, I want a camera.

*Teacher* [Bigger tickle] A new camera! That's great! I've got a new camera with cool stickers on!

*R* I will put stickers on my camera too!

*Teacher* Rachel, that's so great! [Great big tickle].

An alternative therapy is called 'Floortime', which is based on the developmental individual-difference relationship-based model (DIR). As its name suggests, Floortime encourages parents to engage children literally at their level – by getting on the floor to play. It is thought that this interaction will help children reach milestones in their emotional development.

Children with autism can get frustrated when coping with their developmental difficulties and families can react just as rigidly when they actually should be flexible and open to help, which can cause conflict within the family on all sides. Most standards of autistic therapy and education are based on adult-led experiences where the adult is showing or telling the child what to do. Unfortunately, many children with autism can become resistant to this or get very used to being shown or told the answer to the problem, and become reliant on that process.

In Floortime, therapists and parents engage children through the activities each child enjoys and participate in the child's games, following the child's lead. Therapists teach parents how to direct their children into increasingly complex interactions. This process, called 'opening and closing circles of communication', remains central to the Floortime approach.

To follow the child's lead means to take the cue from the child, because a child's interests are the window to his/her emotional life. From there, parents can join the child in a shared world. The rationale here is that a child feels closer to someone who shows respect for the child's interests and participates in them. Once a child enjoys having parents participate with them, parents can then begin to help the child toward greater development. Floortime sessions emphasise back-and-forth play interactions. This establishes the foundation for shared attention, engagement and problem solving. Parents and therapists help the child maintain focus to sharpen interactions and abstract, logical thinking. For example, if the child is tapping a toy truck, the parent might tap a toy car in the same way. To encourage interaction, the parent might then put the car in front of the child's truck or add language to the game.

Floortime aims to help children reach six developmental milestones crucial for emotional and intellectual growth. They are:

- 1 Regulation and interest in the world, through having shared attention with a parent
- 2 Engagement and relating, through developing a special bond with preferred caregivers and distinguishing inanimate objects from people
- 3 Two-way intentional communication, involving reciprocal interactions between child and caregiver, such as smiles and tickles
- 4 Continuous social problem solving, using gestures to indicate needs and getting a caregiver to help with a problem
- 5 Symbolic play, using words and pictures to communicate an intention or idea
- 6 Bridging ideas, which is the foundation of logic, reasoning, emotional thinking and a sense of reality.

### Now test yourself

- 31 ABA follows the principles of which conditioning theory?
- 32 Building skills and behaviour management are two components of which programme?
- 33 Give one strength and one weakness of using Floortime.

Answers on p. 232

## Individual differences and developmental psychology

Individual differences in personality or strength of attachment can affect a child's experience of day care. Pennebaker *et al.* (1981) reported that shy children find the day-care situation quite threatening and are likely to find it a less beneficial experience. Bowlby's theory proposed that attachment should provide a secure base. Children who are insecure are less able to explore their world confidently and this may hinder their cognitive development. This is supported by research. For example, Hazen and Durrett (1982) found that securely attached young children were more independent explorers of their environment and were also more innovative in their approach to problem-solving.

Chess and Thomas (1956) defined nine characteristics of **temperament** in children. These included activity level, adaptability and mood. The children's 'score' on these traits classified them as 'easy', 'slow to warm up' and 'difficult'. By understanding the temperament of a child, figuring out how best to create an environment for optimal growth and development is much easier and more productive. If the child's nature or temperament is in harmony with its attachment patterns with the caregiver, the child should flourish.

The effects on development of attachment are highlighted by Bowlby (1944) with his famous 44 thieves study. He wanted to see whether frequent early separations were associated with a risk of behavioural disorders. In particular, he wanted to explore whether maternal deprivation led to a disorder termed '**affectionless psychopathy**'. The findings support the maternal deprivation hypothesis as they suggest a link between early separations and later social and emotional maladjustment. Bowlby concluded that maternal deprivation – being deprived of one's mother during the first five years of life – could seriously affect the child's social development, producing **juvenile delinquency**.

Cockett and Tripp (1994) found those children living in intact families where there was **marital discord** were still better off than those from **reordered families**. Therefore, it seems that parental separation and divorce causes more problems for development than discord alone, and that the more disruption a child suffers, the worse the adjustment.

Rutter *et al.* (1998) aimed to see the extent to which good care could make up for poor early institutional experiences, and to compare Romanian adoptees with a group of British adoptees in order to observe some of the effects of deprivation. On arrival in the United Kingdom, the Romanian

children were developmentally delayed. This suggests that continuing poor developmental experiences are associated with poor recovery, but that recovery is possible when a child has improved care during childhood.

## Methods

### Cross-cultural research

The **universality** of children's behaviour can be checked to see if it is based on nature or nurture. Differences in different cultures suggest the children's behaviour is due to nurture, whereas constant findings suggest culture unaffected development and that there are biological rather than environmental causes.

Using the Strange Situation, Grossman looked at children in Germany, while Miyake studied in Japan. The findings of two studies like this can then be compared. Conducting research in other countries such as these ensures better generalisability of findings. It is also a good way of reducing any **ethnocentric** bias in research and may give better understanding of the impact of culture on behaviour, such as different child-rearing styles, coming from different cultural practices.

Cross-sectional studies are used within child psychology in order to enable comparison of the behaviour or abilities of two or more different groups of children, with each group covering a different age range. This makes it less expensive to carry out the study and results are gained faster, as the investigator does not have to wait for the children to get older. It is often used when the research aim is to compare developmental levels at various ages or backgrounds. Many children at different ages are studied in groups according to their age, and the results on the same sets of measures are compared for the groups.

Longitudinal studies tend to follow a group of children across time. This could be a relatively short period of several months, or in some cases for decades. As a result, the same children are seen at all of the ages being studied. The Child of Our Time series is one example of a longitudinal study, with a relatively small group of children. The Millennium cohort study is an example of a large-scale longitudinal investigation, following a much larger number of children who were also born at the beginning of this century.

A great deal of cross-cultural research is carried out through meta-analysis which involves analysing data from other studies. Van IJzendoorn and

Kroonenberg (1988) is a good example of a meta-analysis using cross-cultural research.

### Typical mistakes

You should not write about these methods in isolation without any links to child psychology. Try to refer to the Strange Situation, for example, when talking about cross-cultural methods.

### Now test yourself

**34** Outline one strength and one weakness of cross-sectional studies.

**35** Outline one strength and one weakness of cross-longitudinal studies.

Answers on pp. 232–3

## Ethical issues when researching with children

In 1989, governments worldwide promised all children the same rights by adopting the UN Convention on the Rights of the Child (UNCRC). This changed the way children are treated from just kids given care and charity to human beings with a distinct set of rights.

The 54 Articles in the convention cover all aspects of a child's life and set out how adults and governments must work together to make sure all children can enjoy all their rights. There are four principal articles in the convention, however, that are essential to children's rights. These are Non-discrimination (Article 2), Best interest of the child (Article 3), Right to life, survival and development (Article 6) and Right to be heard (Article 12). Article 12 states that all who are capable of forming their own views, have a right to express those views freely in all matters affecting them, with the views of the child being given due weight in accordance with their age and maturity. This right of participation was not always historically part of the guidelines when working with children.

Article 9 states children must not be separated from their parents unless it is in their best interests. Children whose parents have separated have the right to stay in contact with both parents, unless this might hurt the child. This has clear links with deprivation in child psychology and relates to both death and divorce as part of long-term deprivation.

Article 19 states that governments must do all they can to ensure that children are protected from all forms of violence, abuse, neglect and bad treatment by their parents or anyone else who looks after them.

Article 21 states that if a child is adopted, the first concern must be what is best for the child. All children must be protected and kept safe, whether they are adopted in the country where they were born or in another country. This has links with attachment and nature–nurture in terms of behaviour shown and whether it is from the biological or adoptive parents. It is clear that some of these points link directly with child psychology and the focus on participation and protection is a key one. Full participation is ideally required, but at the same time full protection must be enabled. Involving children is important because it actually helps them understand child protection at the same time. Whether they decide to participate or not in research can form **equilibrium** with their right to be protected.

## Studies

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### Classic study: van IJzendoorn and Kroonenberg (1988)

#### Aims

To investigate if any universal attachment styles are the same across cultures or whether they vary between cultures.

#### Procedures

The researchers carried out a meta-analysis combining the findings of 32 other studies in eight different countries involving almost 2,000 children. The sample included both **individualist** (United States, United Kingdom, Sweden, Netherlands and Germany) and **collectivist** (China, Japan, Israel) cultures.

#### Results

It was found that secure attachment was the most common type of attachment in all cultures and that average findings were consistent with Ainsworth's original research, with six out of eight countries producing findings that were proportionally consistent with Ainsworth and Bell.

The lowest percentage of secure attachments was shown in China (50 per cent) with the remaining children falling into the other categories equally.

Japan and Israel revealed a higher incidence of resistant than avoidant children.

Results showed that individualistic countries that support independence, such as Germany, had high levels of anxious avoidant, whereas countries that are more culturally close



(collectivist), such as Japan, had quite high levels of ambivalent resistant.

### Conclusions

The overall consistency in secure attachment types leads to the conclusion that there may be universal (innate) characteristics that underpin infant and caregiver interactions. However, the significant variations of insecure attachments demonstrate that universality is limited.

Israeli children were reared in a Kibbutz (communal living) so were used to being separated from their mother. As a result, they do not show anxiety when their mother leaves. However, they are not used to strangers so get distressed when left alone with the stranger.

This explains the high percentage of resistant behaviour.

The German study highlights a high percentage of avoidant behaviour, typical of independent children. This is not surprising given that Grossmann *et al.* (1985) say that German parents seek 'independent, non-clingy infants, who do not make demands on parents, but obey their commands'.

### Now test yourself

**36** Why is it important to look at different attachment types across different cultures?

**37** Outline one weakness of the study by van IJzendoorn and Kroonenberg.

Answers on p. 233

### Contemporary studies: Cassiba *et al.* (2013)

#### Aims

This is the first study with meta-analytic data on attachment distributions from Italy and as such aimed to investigate whether the majority of Italian infants and adults are classified as secure. Also, as the country is majority Catholic, a secondary aim was to see whether there would be a higher incidence of **unresolved attachment types** due to the Catholic belief in a continued existence.

Finally, the researchers wanted to establish if there were any gender differences in attachment types.

#### Procedures

A meta-analysis was carried out by using a key word search through PsycINFO. These included 'attachment', 'Italian', and 'Strange Situation procedure'. Other research findings were obtained from Italian journals and publications. This resulted in 17 studies being chosen through 23 samples and a total of 627 participants using the Strange Situation procedure. A further 50 studies gave 72 samples and 2,258 participants using other research findings that used the Adult Attachment Interview (AAI). The researchers also looked at clinical (where there are mental health issues) and non-clinical (without mental health issues) samples.

The results were measured against the US non-clinical norm of attachment: type A (21 per cent), type B (67 per cent) and type C (12 per cent).

## Results

The results are shown in [Table 7.3](#).

**Table 7.3** Summary of results measured against the us baseline norm of attachment.

	Type A Avoidant	Type B Secure	Type C Resistant
USA baseline norm	21%	67%	12%
Italian non-clinical	28%	44%	6%
Italian clinical	40%	32%	28%

Securely attached children formed the highest percentage (53 per cent), followed by type A (33 per cent) and type C (14 per cent) in the non-clinical samples. Italian children showed more type A avoidant behaviour (33 per cent) as compared to the US sample (21 per cent).

Italian children from the clinical samples had fewer secure attachments (32 versus 67 per cent), but more insecure attachments as compared to the US non-clinical sample.

There was a low percentage of unresolved attachment types based on the Italian AAI.

There were also no significant gender differences in attachment types.

## Conclusions

Differences between Italian and American child-rearing practices may explain the higher percentage of type A attachments in the Italian samples. Child development is viewed as largely a natural process in Italy in which adults play little role, whereas in the United States responsibility in promoting their children's development comes from the mother. Consequently, American mothers consider child developmental successes as a result of their parenting efforts, but Italian mothers tend to be less concerned about their outlay in parenting.

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### **Gagnon-Oosterwaal *et al.* (2012)**

In the years following international adoption (IA), children present more behaviour problems than their non-adopted peers. When compared to non-adopted children, they usually show more **externalising** and **internalising** problems.

#### **Aims**

The aim of this longitudinal study was to examine the effect of pre-adoption adversity and **parenting stress** on children's behaviour problems.

#### **Procedures**

Ninety-five children and their mothers participated in the study, ages ranged from 4 to 18 months. Children were adopted mostly from orphanages (92 per cent), with the rest from foster care. Children's health and developmental status was evaluated soon after arrival in their adoptive country. Their behavioural problems were assessed at age seven years, using a self-report measure, the Dominic Interactive (DI) which is a computerised self-report questionnaire used to assess the most frequent behaviour problems in children and has an average running time of 15 minutes. Children are given Yes/No type questions indicating whether they feel, think or act like Dominic, who is the main character in all the pictures presented.

The Child Behaviour Checklist (CBCL) was completed by the mothers to assess child behaviour problems. Parenting stress was measured to assess the stress experienced by parents in relation to their parenting role.

#### **Results**

Internationally adopted children scored higher on internalising symptoms such as specific phobias (32.6 versus 7.3 per cent) and separation anxiety (22.1 versus 17.1 per cent) than non-adopted children. This trend was reversed for depression (6.3 versus 12.2 per cent) and general anxiety (10.5 versus 17.1 per cent) where the non-adopted children came out higher.

With externalising symptoms oppositional (22.1 versus 12.2 per cent) and conduct disorders (13.7 versus 7.3 per cent) scored higher for the international adopted children.

There was also a significant correlation between the mother's and the child's self-report data for externalising problems (but not internalising problems).

Parental stress was also correlated against scores on behavioural problems and the children's health and developmental status.

### **Conclusions**

A child's potential for behavioural problems can be linked to their health and developmental status.

An adopted child's condition is related to parenting stress and in turn the child's behavioural problems. Reducing any parental stress therefore may play an important role in the wellbeing of internationally adopted children.

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### **Li et al. (2013)**

#### **Aims**

To investigate the effects of high- versus low-quality child care during two developmental periods (infant–toddlerhood and preschool). A number of hypotheses were predicted which led to an overall prediction that high-quality child care during both the infant–toddler and preschool stages would be related to higher cognitive, language and pre-academic performance at the end of the preschool period than any other child care quality grouping during the two periods.

#### **Procedures**

Data from the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development was used to study child care quality effects on child cognitive, language and pre-academic skills. This was a longitudinal study

carried out in 1991 across ten states in the United States using a total of 1,364 families.

Beginning at one month after the children's birth, families were studied for extensive data collection by means of observations, interviews, questionnaires and child assessments.

Early childhood was divided into two stages, the infant–toddler and the preschool years, and low- and high-quality child care was the focus. This enabled comparison outcomes of four groups of children who received different combinations of quality care during the two stages.

Quality of child care was measured using the Observational Record of the Care-giving Environment (ORCE). Two separate measures were used to assess the children's development at the end of each stage and other measures, such as gender, temperament and family income, were taken at varying intervals.

### **Results**

Findings showed that cognitive, language and pre-academic skills prior to school entry were greatest among children who experienced high-quality care in both the infant–toddler and preschool stages. These same skills were somewhat lower among children who experienced high-quality child care during only one of these stages, and lowest among children who experienced low-quality care during both periods.

### **Conclusions**

High quality of care early on is more beneficial if it is followed by preschool high-quality care too. There are implications for educators in that funding might be better spent to support the preschool stage if there is a limit on how much can be spent.

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## **Key questions**

### **What issues should parents take into account when deciding about day care for their child?**

It is estimated that in the UK more than 600,000 mothers of preschool children are in paid employment. According to a US census reported in 1994, over 60 per cent of mothers who had children less than two years old were in employment. Although some of these children will be cared for by fathers or other close relatives, the majority will be cared for in some form

of nursery or crèche or be placed with a childminder. Usually, children are placed in child care because both parents are working. However, now and again, parents are advised by a professional to register their child in day care because this environment will help their child's development. While parents are usually the best caregivers for their children, circumstances often require that some parents seek part-time or full-time day care services. Parents should carefully choose the most appropriate day-care provider based on their child's age and individual needs. Since a day-care provider steps into a 'substitute caregiver' role, they will inadvertently affect a child's development. Factors such as the amount of time a child spends in day care, the provider's investment in the child's care beyond merely 'babysitting' and the overall quality of care will determine whether those effects on the child's development are positive or negative.

The National Institute of Child Health and Human Development (NICHD) conducted a comprehensive study between 1991 to 2007 observing and recording the effects of day care on over 1,000 preschool-age children. The Study of Early Child Care and Youth Development (SECCYD) revealed key areas of child development influenced by day-care providers and experiences.

Some young children, when left with a day-care provider, exhibited a range of negative emotions and behaviours, including crying and clinging to parents, screaming or hiding from the provider after the parents have left. Such children frequently developed insecure attachment issues and separation anxiety. Other children adjusted more readily and eagerly joined their peers, barely acknowledging their parents' departure. These children demonstrated more security, less separation anxiety and greater preparedness for eventually entering school.

### **Application of concepts theories and research to explain this key question**

The time children spend in day care is associated with negative effects in social development. More hours in day care during a child's early years is associated with less social competence and cooperation, more problem behaviours, negative mood, aggression and conflict. Sammons *et al.* (2003) demonstrate that if a child spends more than 20 hours a week, then it increases antisocial behaviour. This increases significantly if the amount of time increases to 40 hours. This demonstrates that the longer a child spends in day care, the more likely they are to become aggressive. Belsky and

Rovine (1988) found that children who spent more than 20 hours per week in day care were more insecurely attached (as assessed in the Strange Situation) than home-cared children.

The Effective Provision of Preschool Education (EPPE) project by Sylva *et al.* (2003) found day care can increase sociability and independence in children. The EPPE project findings also tell us about the positive effect day care can have upon peer relations, namely that preschool was associated with greater cooperation, conformity and sociability with children. High-quality care was most effective where staff have qualifications and an equal value is placed on social and educational development.

The quality of day care varies enormously, but there is general agreement on what counts as quality. According to Clarke-Stewart (1984), particularly important are:

- A planned daily programme of activities that are appropriate for the developmental level of the child and are designed to promote cognitive and social development
- Caregivers with specialised training in child care (particularly in health and safety)
- Adequate and nutritious meals
- A health record for each child
- Opportunities for parents to observe the setting and to discuss the child's needs before and during time at the centre
- Small group size and low student-to-staff ratios (e.g. for 1–2-year-olds, 6–12 per group).

Until recently, the conclusion about the effects of day care on cognitive development was that it had little impact on children from advantaged families, but was beneficial to disadvantaged children. However, research by Andersson (1992) conducted in Sweden has apparently demonstrated that even middle-class children can benefit, especially if day care begins at a very young age. The findings of the study showed an association between age of entry into child care and cognitive development. Those children who had spent longest in day care had better school performance than those who had only a short time in day care or those who were cared for at home. The age at which day care commences is another issue parents should consider. Most research that has found negative effects of day care has looked at children whose carer returned to work in the child's first year.



However, Li *et al.* (2013) found that if infants were given high-quality care early on, this could lead to better short-term memory skills up to 54 months, even if the child subsequently received poor-quality care. Suggesting early day care can be beneficial for memory skills. There is almost no evidence that day care in older children can have any harmful effects.

## Practical investigation

In conducting the practical investigation, you must:

- conduct one study using a questionnaire, interview or observation
- gather qualitative and/or quantitative data, but must involve quantitative data for analysis (can turn qualitative data into quantitative data for analysis purposes)
- include inferential statistical testing as appropriate, such as chi-squared, Mann-Whitney U, Wilcoxon or Spearman's rho
- include a research question/hypothesis, research method, sampling, ethical considerations, data collection tools, data analysis, results and discussion
- consider strengths and weaknesses of the practical research exercise and possible improvements.

## Suitable examples

- Interview of an adult to look for a relationship between strong attachment experiences and strong adult relationships.
- Interview of a parent of a child under three years of age around positive experiences when using day care for their child.

## Issues and debates

<b>Ethics</b>	Balancing participation and protection rights and the UNCRC Is the case of Genie a scientific project or therapy to help her get better?
<b>Practical issues in design and implementation of research</b>	In meta-analyses, with special issues about comparing results from different studies; in observations and getting objective data
<b>Reductionism</b>	Reducing behaviour to the Strange Situation in order to test attachment types
<b>Comparisons between ways of explaining behaviour</b>	Ainsworth's and Bowlby's theories about attachment; evolution ideas about attachment
<b>Psychology as a science</b>	Looking at how cross-cultural research can answer questions about nature–nurture, so looking at what is universal in child development Lack of controls and generalisability throughout child psychology means less scientific
<b>Cultural and gender issues</b>	Cross-cultural findings about attachment types and cultural differences in child rearing
<b>Nature–nurture</b>	Bowlby and attachment being an instinctive innate process What cross-cultural studies say about the universality of attachment types
<b>Psychological understanding over time</b>	Bowlby's work has been followed up with more recent studies on maternal deprivation linking to issues around day care Changes in explanations for autism
<b>Social control</b>	How findings about day care and parenting styles/attachments can be used as a form of control, such as making working mothers feel guilty for leaving children in day care treatment, therapy and behaviour around the issue of autism

<b>Psychological knowledge in society</b>	Therapy for problem behaviour; pros and cons of day care and advice to parents; advice regarding looked-after children
<b>Socially sensitive research</b>	Parenting styles of some mothers may be causing insecure attachments, so issues of guilt may arise Research into developmental issues, such as autism; research into issues around child development such as socio-economic status; research around adoption and the effects of privation

### Exam practice

- 1 To what extent are the effects of privation reversible? [16]
- 2 Evaluate Bowlby's work on attachment. [12]
- 3 Evaluate one contemporary study from child psychology. [8]
- 4 Evaluate the use of observations as they are used in child psychology. [8]
- 5 Evaluate the classic study by IJzendoorn and Kroonenberg (1988). [8]
- 6 Evaluate the Strange Situation as a procedure to measure attachment type. [12]
- 7 To what extent does psychological research suggest any link between attachment type and caring style? [16]
- 8 Outline what is meant by child psychology. [6]
- 9 Describe the characteristics of autism. [4]
- 10 Compare one biological and one non-biological explanation of autism. [6]

- 11 Describe one piece of research which illustrates cross-cultural differences in parenting. [6]
- 12 A local authority wishes to review its provision for children in day care. Based on psychological research, explain what advice you would give to the local authority. [6]

### **End of chapter summary**

You should now have an understanding of all the points below:

- Bowlby's and Ainsworth's work on attachment
- the Strange Situation procedure
- research into short- and long-term deprivation and how negative effects can be reduced
- research into privation and whether effects can be reduced
- research into day care
- cross-cultural research into attachment types and nature–nurture issues
- features, explanations and therapies for autism
- issues around individual differences within child psychology and developmental psychology
- methods used; observations and questionnaires/interviews and cross-cultural research
- ethics of researching with children and the UNCRC (1989)
- data analysis of qualitative and quantitative data
- the classic study by van IJzendoorn and Kroonenberg (1988) plus one other contemporary study
- one key question relating to child psychology
- one practical investigation that you have carried out in relation to child psychology
- issues and debates within child psychology.

# 8 Health psychology

## Defining health psychology

Health psychology focuses on the interaction of mind and body, and looks at how a person's emotions, thoughts, behaviours, and social interactions influence his or her physical wellbeing. Health psychology is also about applying psychological knowledge to the promotion and maintenance of good health, as well as the avoidance of illness.

## Issues around drug taking

Drug taking which leads to drug abuse is a major public health problem that impacts society on multiple levels.

In physical **addiction**, the body adapts to the substance being used and steadily requires larger amounts to mimic the effects originally produced by lesser doses.

Addiction is a state that results when a person takes a drug, such as alcohol or nicotine, that can be enjoyable but the sustained use of which becomes uncontrollable and interferes with normal life.

**Tolerance** means that to have the same effect more and more of the substance is needed. Neurons become accustomed to operating with an elevated level of neurotransmitters so their sensitivity to the chemicals in the synapse decreases. It therefore takes more of the substance to produce the same reaction in the neurons as experienced earlier on.

Repeated use may lead to **physical dependence** because the individual believes they cannot manage without it. It becomes an adaptive state identifiable by intense physical disturbance when the use of the drug is suspended. An individual may feel compulsion to keep taking drugs in order to avoid withdrawal symptoms and for the user to feel normal.

With **psychological dependence**, the drug is psychologically necessary for normal functioning. An individual may feel compelled to take a substance even when they are not physically dependent on it. It becomes a compulsion to take a drug for the pleasant effects it has, such as feelings of exhilaration or self-confidence. It may lead to misuse, as compulsion can result in uncontrolled drug taking. It does not produce withdrawal effects.

### Typical mistakes

Don't get physical and psychological dependency mixed up.

**Withdrawal** is also known as ‘abstinence syndrome’ and is the term for physical symptoms that arise upon reduction, or removal, of the drug it has become dependent on. As the brain tries to work normally, it has to compensate for the lack of the drug it has got used to working with. This is a compensatory mechanism and it is this that produces the symptoms of withdrawal.

The individual may experience physically painful and unpleasant symptoms as the effects of the drug wear off. These may include vomiting, shaking, headaches and convulsions, although these effects vary from drug to drug.

### Now test yourself

- 1 Having to take more of a substance in order to get the same effects is known as ...?
- 2 Which type of dependence does not produce withdrawal?
- 3 Withdrawal is also known as ...?

Answers on p. 233

## Explanations of drug addiction

A biological explanation of drug addiction is able to explain why it is that an individual continues to use a drug even though they may wish to stop. Drug use affects brain chemistry by changing the availability of neurotransmitters, which then affects an individual’s behaviour or mood. The brain adapts to functioning with raised levels of neurotransmitters caused by the action of drugs. Without the drug, the levels of neurotransmitters are too low for normal function. This leads to the symptoms of withdrawal, as the brain tries to compensate for the new lower levels. Restoration of levels (through taking the drug) leads to restoration of function. The user becomes physically dependent on the drug in order to function normally.

One biological explanation of drug addiction is a biochemical explanation called the reward deficiency syndrome which focuses on a deficiency in the dopamine system. Individuals take drugs to produce pleasant effects due to chemical action. Some individuals have a defective D2 dopamine receptor and lack a sufficient number of dopamine receptors in their brains to produce pleasure naturally. The dopamine system is responsible for pleasure and positive emotions.

Those suffering from reward deficiency syndrome are unable to produce a feeling of wellbeing and consequently often self-medicate with substances

that help raise the levels of ‘feel good’ chemicals in their system. These substances often include alcohol and nicotine.

Furthermore, tolerance leads to the need for increasing dose sizes to achieve the same effect. One reason for this is that the drug causes either a reduction in number of receptor sites on the **postsynaptic membrane** of neurons or a reduction in their sensitivity to the drug.

### **Exam tip**

You can use your existing knowledge of synaptic functioning from biological psychology to help with your understanding of neurotransmitters.

## **Alcohol**

Alcohol is a drink containing ethanol. It is available for legal consumption in most countries. It is a **psychoactive** drug that has a depressant effect and can reduce attention and slow reaction speed.

### **Mode of action**

Alcohol makes **GABA** more effective and so depresses activity in the brain. GABA is an inhibitory neurotransmitter whose job is to make it difficult for messages to be transmitted from the pre- to post-synaptic neuron. It slows neural activity so is therefore referred to as a depressant. Alcohol further depresses activity in the brain by making GABA even more effective, slowing down the speed with which messages are transmitted between neurons. This relaxes us, makes us feel more confident, but also inhibits our ability to behave in a socially acceptable way.

### **Exam tip**

Remember mode of action means how the drug works at the synapse so use your knowledge from biological psychology here.

Alcohol also stops nerve endings at noradrenaline synapses working as effectively and this reduced **noradrenaline** uptake affects our ability to focus and concentrate. Alcohol anaesthetises the nerve endings of noradrenaline synapses so they become less effective. Alcohol slows down reflex reactions due to suppression of noradrenaline function. This explains why the ability to respond in an emergency is impaired, even when the amount of alcohol in the body is quite low.

### **Effects**



Alcohol reduces the effectiveness of the brain's inhibitory mechanisms. This initially leads to feeling relaxed. Smaller levels of alcohol dilate blood vessels, which makes users feel warm and look flushed. This is accompanied by mild euphoria which is positively reinforcing. A reduction in anxiety is a negatively reinforcing effect of alcohol consumption. It causes loss of motor co-ordination and impairs judgement and decision-making, slows reaction time and affects speech.

Alcohol reduces people's inhibitions because it targets areas linked with social control. Behaviour is initially relaxed and confident, but this can develop into extreme behaviour if large amounts of alcohol are consumed. Activity in the frontal lobe is depressed which can affect motor skills and co-ordination. Alongside this, dehydration occurs due to a change in the hormone controlling urination. This is the main cause of hangovers, sometimes causing the brain to lose up to a fifth of its weight. Large amounts lead to nausea and vomiting, loss of consciousness and even death.

## **Tolerance**

Because alcohol acts as a depressant suppressing the activity of cells in the brain, a process of upregulation kicks in to try to compensate for the presence of alcohol and return the brain to its normal working state. This means that to obtain the same effect as experienced when alcohol is first drunk, the drinker has to drink more, or stronger, alcohol. Alcohol consumption stimulates the body to produce an enzyme that breaks down alcohol more quickly, in just a few weeks a drinker will need to drink more to achieve the same effect. Psychologically tolerance is achieved as a result of practice, with the individual becoming used to the effects of alcohol and better able at appearing sober.

## **Dependency**

Physical dependency based on the tolerance created by alcohol abuse might be the biggest factor for some types of drinkers. This is characterised by indiscriminate drinking even including pure alcohol; however, all types of drinker will be affected by psychological dependency due to the positive and negatively reinforcing effects of alcohol. Their behaviour is characterised by relief at finding a drink and prioritising access to alcohol. Often alcohol is used as a prop to deal with other problems; sustained use will also lead to physical dependency.

Physical dependency often means that there is a lack of concern shown for the type of alcohol consumed; sometimes people can even drink industrial

alcohol which can cause death. Drinking will begin early in the day to stop withdrawal symptoms, such as irritability or shaking. The drink will alleviate the symptoms and so encourage continued use of alcohol. Physical need is constant so many alcoholics are unable to stop until they pass out. Psychological dependency is shown by the feeling that certain situations cannot be coped with without a drink, relief when finding a drink, and access to alcohol is prioritised over activities such as socialising, hygiene and eating. Excessive amounts may be consumed due to problems in personal lives and alcoholism may be used as a ‘coping strategy’. In more extreme cases, the drinker feels the need to drink to help cope with all sorts of situations and will become very anxious when drink is not available.

## **Withdrawal**

Symptoms appear within 8–12 hours (in heavy drinkers symptoms can last as long as a week) and include shaking, cramp, nausea, sweating, irregular heartbeat and vivid dreams. In severe cases, the DTs (**delirium tremens**) occur: the brain gets used to the increased effectiveness of the GABA and its slowing down of the brain’s activity. When this increased GABA is withdrawn, the brain becomes over-stimulated and the fight–flight mechanism operates at too high a level producing hallucinations, tremors and delusion. This can have serious consequences, including seizures, as a result of sudden withdrawal of alcohol, which are treated as a medical emergency and may result in death.

### **Now test yourself**

- 4 Outline three short-term effects of alcohol.
- 5 Outline three long-term effects of alcohol.
- 6 Name the process which compensates for the presence of alcohol and returns the brain to its normal working state.
- 7 Why would some alcoholics start drinking early in the day?

**Answers on p. 233**

## **Heroin**

Heroin is an opiate so is derived from the opium poppy and is a chemically altered form of **morphine**.

### **Mode of action**

Heroin acts like a massive release of **endorphins** into the brain, flooding the endorphin receptors on the dendrites. During everyday activity, a moderate amount of endorphin is naturally produced, causing the release of

dopamine, which produces a feeling of wellbeing. Receptors are stimulated and levels of endorphins are increased during stress and pain. By locking onto the receptors that transmit information about pain, they block the brain's ability to register pain. The synapses are swamped by these chemicals causing an exaggerated response in the neurones over many more brain areas than would be affected by the naturally occurring substances. Heroin is transformed into morphine in the brain, which then prevents the release of GABA whose role is to stop the release of dopamine. So the effect of heroin is to boost the release of dopamine which leads to feelings of elation reported by heroin users.

## **Effects**

Heroin depresses most of the body's activity, so breathing becomes slower and shallower, heart rate slows and the user feels relaxed and sleepy. The slowing of breathing is particularly important as it is this side-effect that is often responsible for deaths from overdoses. Peripheral blood vessels dilate causing the user to feel flushed, warm and sweaty. Other effects include constipation and nausea because heroin slows the movement of food through the intestines.

Time seems to slow down and the analgesic effect gives a feeling of calm accompanied by a 'rush' feeling. The rush happens at around seven seconds after injection and within a few minutes if heroin is snorted or smoked. The probabilities of developing infections or collapsed veins are typical long-term effects and contaminants from the drug may affect the body, such as clogging blood vessels.

## **Tolerance**

Because heroin swamps the brain with large amounts of the simulated neurotransmitters, a process called downregulation causes neurones to adapt their normal working state to function with high levels of the chemicals produced by taking heroin, and so they become less sensitive. More drug is therefore needed to have the same effect as previous encounters and the user has to increase the frequency and/or amount of drug used to get the same hit. Dosage rates can increase tenfold within 3–4 months.

Tolerance for the euphoria and pain killing effects develop very quickly as the brain reduces its natural output of endorphins to compensate for the flood of endorphins produced by the heroin. Regular users take an amount that would kill a non-user. Eventually no amount of the drug will achieve the resulting high and the individual will continue taking the drug to delay

withdrawal symptoms. At this point the person is addicted because they need the drug for normal functioning.

## **Dependency**

Physiological dependence develops very quickly. Even the first fix can produce mild withdrawal symptoms. As tolerance builds, the brain gets used to larger doses and without them quickly goes into a state of withdrawal. Therefore, more heroin has to be taken to avoid the more and more severe withdrawal symptoms. Heroin becomes necessary for normal functioning as the neurones no longer fire when only the naturally occurring neurotransmitters are present as they have adapted to the high levels produced by the drug.

As physiological dependency increases, so does psychological dependence. The heroin user is driven to reproduce the feelings of satisfaction produced by the drug and avoid discomfort associated with withdrawal. This can lead the addict to be less concerned with maintaining contact with family and friends as their focus of life becomes finding the next fix.

When not taking the heroin, the user tends to feel increasingly confused, anxious, restless and possibly paranoid. The need for this fix can become overwhelming with some users willing to steal to attain money for this.

## **Withdrawal**

Withdrawal symptoms start 6–12 hours after the last fix and symptoms peak after 26–72 hours. Most symptoms are over in a week. The severity of withdrawal symptoms experienced is directly related to the level of addiction. Symptoms are produced by the body's attempts to compensate for the presence of heroin in the system; their normal operating settings are changed. Stopping the drug means that the settings are now wrong and the body needs to adjust. While this is happening, the heroin user will feel dysphoria, agitation, cramping and nausea (the opposite of many of the effects of having the drug in their system).

First the person becomes agitated, restless and aggressive. They alternate between feeling hot and cold and the skin develops goose bumps (cold turkey). Breathing becomes short and jerky. Some users also have what can be called 'itchy blood', which leads to compulsive scratching. Other symptoms are cramps, vomiting and diarrhoea, sweating, shaking and twitching of the limbs.

**Now test yourself**

8 Which neurotransmitter naturally produces a feeling of wellbeing?

9 Outline three short-term effects of heroin.

10 Why does tolerance for heroin develop quickly?

Answers on p. 233

## Nicotine

Nicotine comes from the dried leaves and stems of tobacco plants and is one of more than 4,000 chemicals found in the smoke from tobacco products. It is the primary component that acts on the brain. Smokeless tobacco products (for example, snuff and chewing tobacco) also contain many toxins as well as high levels of nicotine.

### Mode of action

Nicotine causes the levels of the neurotransmitter **acetylcholine** to rise by blocking the acetylcholine receptors. The lungs rapidly absorb nicotine and it is then passed across cell membranes and then enters the blood. Nicotine is absorbed through the skin and mucosal lining of the nose and mouth or in the lungs (through inhalation). Nicotine can reach peak levels in the bloodstream and brain rapidly, depending on how it is taken. Cigarette smoking results in nicotine reaching the brain within just ten seconds of inhalation. The brain feels the effect of the nicotine first and stimulates the production of glucose which raises blood sugar levels and so inhibits appetite.

### Effects

When a person smokes a cigarette, the body responds immediately to the chemical nicotine in the smoke. Nicotine causes a short-term increase in blood pressure, heart rate and the flow of blood from the heart. It also causes the arteries to narrow. Carbon monoxide reduces the amount of oxygen the blood can carry. Relaxation and mild euphoria are common effects of smoking and can also help to improve attention and problem-solving skills.

Some people think that smoking is one of the ways to lose their body weight by reducing appetite, but in reality smoking is not the correct way for weight loss. It has been noticed that after quitting smoking, the smokers put on weight; this is because quitting smoking helps in getting back their appetite in normal status. In such case, body weight should be maintained and controlled by a healthy diet and not by smoking.

## **Tolerance**

Repeated exposure to nicotine results in the development of tolerance.

Nicotine is metabolised fairly rapidly, disappearing from the body in a few hours. Therefore, some tolerance is lost overnight and smokers often report that the first cigarettes of the day are the strongest and/or the 'best'.

Tolerance progresses as the day develops and later cigarettes have less effect. There is a daily cycle as tolerance develops rapidly during the day, then drops again overnight.

## **Dependency**

The increased production of acetylcholine causes physiological dependence quickly, just as tolerance is reached quickly. As levels of nicotine in the blood reduce, signs of irritability increase. The body has adapted to operating with nicotine levels present and the only way to feel 'normal' is to boost levels back up.

There is psychological dependence as well in that the individual will get used to the oral stimulation and without it they would have to substitute, such as eating more. If smoking gives a reward, which can be, for example, feeling calmer, then the behaviour is likely to be repeated to repeat the reward. If the effect after a puff of cigarette smoke is quick, this is believed to act as a strong reinforcer for taking the drug again. This links to operant conditioning and the power of reward as a reinforcer of behaviour. This can make breaking the habit more difficult as the smoker feels 'lost' in some situations without a cigarette in their hand.

## **Withdrawal**

Ending of nicotine use is followed by a withdrawal period that may last a month or more and includes symptoms such as irritability, sleep disturbances, craving, cognitive and attentional deficits and increased appetite. Symptoms generally peak within the first few days and may subside within a few weeks, though for some people, they may persist for months or longer.

An important and poorly understood component of the nicotine withdrawal syndrome is craving, an urge for nicotine that has been described as a major obstacle to successful abstinence and may persist for six months or longer. While the withdrawal syndrome is related to the pharmacological effects of nicotine, the severity of withdrawal symptoms can also be affected by psychological experiences.

Learning explanations of drug addiction argue that there is a psychological explanation for drug addiction and that addiction is behaviour, rather than a disease. It is possible to use operant conditioning to explain substance misuse and in particular the concepts of positive and negative reinforcement. Drugs that are injected or smoked pass very quickly into the brain and therefore have an almost instant effect. Their reinforcing properties therefore are particularly powerful as the user is learning the association between the drug-taking behaviour and the positively reinforcing experience of desired feelings.

The concept of positive reinforcement can also explain why a user can be addicted to a drug even when they are aware of the unpleasant effects, such as damaging the users' health. These risks are long term, whereas the effects of positive reinforcement are short term. Therefore, a heroin user is more powerfully affected by the immediate rewards than by the delayed consequences of withdrawal, imprisonment or even death.

Although positive reinforcement can explain the early stages of drug-taking, the concept of negative reinforcement can be used to explain the maintenance of drug-taking. Negative reinforcement refers to the strengthening of behaviour by removing something unpleasant. Dependent users may be reinforced to continue using a drug in order to avoid the unpleasant withdrawal symptoms, such as nausea, anxiety and depression. For example, as the effects of heroin wear off, it can be very unpleasant for the user who then learns that taking more of the heroin has the effect of removing these unpleasant experiences.

Social learning theory would suggest drug addiction is learned via role models and high status drug users will have more of an impact on the individual. Vicarious learning is a key part to social learning theory. Seeing family and friends enjoy smoking (despite the initial bad experience) rewards individuals vicariously and so they decide to smoke too.

It is often thought that parents and peers have an effect on the use of drugs. Positive reinforcement occurs when there is a reward for being part of a group. Group activity means that behaviour is likely to be repeated.

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### **Exam tip**

Use your knowledge from learning theories to apply concepts such as imitation and conditioning to explaining addiction.

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### **Now test yourself**



- 11 Which organ does nicotine first reach?
- 12 Outline three short-term effects of nicotine.
- 13 Why are the first cigarettes of the day viewed as the best?
- 14 What has been described as a major obstacle to successful abstinence?

Answers on p. 233

## Treatments for drug addiction

### Cognitive behaviour therapy for heroin and alcohol addiction

In its use to treat alcohol and heroin addiction, CBT has two main components: functional analysis and skills training. With functional analysis, working together, the therapist and the patient try to identify the thoughts, feelings and circumstances of the patient before and after they drank or used heroin. This helps the patient determine the risks that are likely to lead to a relapse. Functional analysis can also give the person insight into why they drink or use heroin in the first place and identify situations in which the person has coping difficulties. Skills training focuses on someone who is at the point where they need professional treatment for their alcohol or heroin dependence, where chances are they are using alcohol or heroin as their main means of coping with their problems. The goal of cognitive behaviour therapy is to get the person to learn or relearn better coping skills. The therapist tries to help the individual unlearn old habits and learn to develop healthier skills and habits. The main goal of cognitive behaviour therapy is to educate the alcohol or heroin addict to change the way they think about their substance abuse and to learn new ways to cope with the situations and circumstances that led to their drinking or drug episodes in the past.

Individuals in CBT learn to identify and correct problematic behaviours by applying a range of different skills that can be used to stop drug abuse and to address a range of other problems that often co-occur with it. A central element of CBT is anticipating likely problems and enhancing patients' self-control by helping them develop effective coping strategies. Specific techniques include exploring the positive and negative consequences of continued drug use, self-monitoring to recognise cravings early and identify situations that might put one at risk for use, and developing strategies for coping with cravings and avoiding those high-risk situations. Research

indicates that the skills individuals learn through cognitive-behavioural approaches remain after the completion of treatment. Current research focuses on how to produce even more powerful effects by combining CBT with medications for drug abuse and with other types of behavioural therapies. A computer-based CBT system has also been developed and has been shown to be effective in helping reduce drug use following standard drug abuse treatment.

### **Exam tip**

CBT is commonplace in clinical psychology so you can apply the basic principles to health psychology too.

### **Now test yourself**

**15** Which are the two goals of CBT?

**Answer on p. 233**

## **Aversion therapy for treating alcohol and nicotine addiction**

This treatment is based on classical conditioning. Aversion therapy is a form of behaviour therapy in which an **aversive** stimulus is paired with an undesirable behaviour in order to reduce or eliminate that behaviour. Aversive stimuli include emetic drugs, such as disulfiram, which blocks the metabolism of alcohol and produces noxious effects like vomiting and nausea.

Patients who are physically addicted to alcohol and currently drinking may experience severe withdrawal symptoms and may have to undergo **detoxification** before treatment starts. The procedure would be fully explained to the patient, who would give informed consent.

Typically, the patient will be hospitalised and receive regular aversion therapy sessions as part of a treatment programme that includes psychological and social counselling. During the treatment sessions, the patient is given an emetic intravenously under close medical supervision. Within a few minutes, they begin to feel sick. To get them to associate the emetic with the sight, smell and taste of alcohol, the patient is then asked to take a sip of an alcoholic drink of their own choice without swallowing. This process is repeated over a period of 30–60 minutes as nausea and vomiting occur. Therapy may include aversive booster sessions administered over a period of 6–12 months, or over the patient's lifetime. It works by changing the association between the substances (alcohol) from

being reinforcing to being punishing. It stops the change of alcohol to acetic acid (harmless) leaving the person with acetaldehyde (poison) in their system; it is this that causes the unpleasant effects. If the person has learned that alcohol has a positive effect on their mood and wellbeing, this therapy gets them to unlearn this association and to replace it with alcohol having a negative effect on their mood and wellbeing.

The same process is used with those with a nicotine addiction, however instead of been administered with an emetic drug, such as disulfiram, they are given a mild electric shock every time they take a puff from a cigarette which causes nausea. Smokers are given electric shocks (UCS) when they take a puff from a cigarette (originally the NS), i.e. cigarettes paired with electric shocks; the electric shocks reflexively cause pain (UCR). After several pairings, even the sight or smell of cigarettes (CS) leads to a negative emotional response (CR), i.e. an aversion.

### **Exam tip**

Aversion therapy is compulsory, so make sure you understand it in depth. You can apply it to more than one drug too.

### **Now test yourself**

- 16 Why is the patient told not to swallow the drink?
- 17 What role do emetic drugs play in aversion therapy?
- 18 What would be the UCS and NS in aversion therapy with an alcoholic?

**Answers on p. 233**

## **Treating heroin addiction with methadone**

Drug treatment means prescribing heroin or a substitute that works in the same way. Methadone is a synthetic opiate and replaces heroin at the synapse and removes withdrawal symptoms. The idea is that methadone is enough to take away painful withdrawal symptoms, which helps the individual to give up the drug. One reason for continuing to use heroin is to get rid of withdrawal symptoms, which is negative reinforcement (getting rid of something unpleasant). So without the withdrawal symptoms, giving up the drug is more likely. Methadone has been used since 1964 and is prescribed officially. It is a maintenance programme, which means it is a way of controlling heroin addiction. Methadone does not affect normal functioning, so those taking it are not 'drugged'.

It is given orally, making it safer than an injection of heroin. It lasts longer, about 24 hours, and so avoids the fluctuations of the rush of euphoria followed by withdrawal effects experienced with heroin. Methadone also blocks the effects of heroin at the synapse and so if heroin is also taken, it will not produce its euphoric effects. Addicts are assessed and prescribed a daily dose of methadone. Initially, the addict must drink the dose under supervision of a pharmacist. When considered trustworthy, they are allowed to take some doses home to self-administer.

Once the treatment has stabilised, detoxification can begin. The amount of methadone is slowly reduced over time. Medical checks are undertaken regularly to monitor the dosage and to carry out urine tests to check that no other drugs are being taken. Drug treatment is the main way of treating heroin dependence.

### **Treating nicotine addiction with hypnotherapy**

Hypnosis involves the therapist putting the client into a relaxed state, usually by making the client comfortable and speaking to them in a quiet manner. They begin by asking the client to picture a relaxing scene of their choice and may then count to ten, getting the client to relax at each number. The client is thus able to centre clearly on what the therapist says without being side-tracked by other thoughts or anxieties. The therapist makes suggestions to the client that they no longer wish to smoke and that they find smoking unpleasant. Hypnotherapists normally conduct a session lasting between one and two hours. The ideas implanted in the unconscious continue to influence behaviour once normal consciousness is restored.

#### **Now test yourself**

**19** Why is methadone deemed safer than heroin?

**20** Outline one strength of using urine tests to monitor the patient.

**Answers on p. 233**

### **Anti-drug campaigns**

Alcohol-related harm remains one of the biggest health problems facing the UK, with over 10 million adults drinking more than the recommended guidelines. Alcohol is a contributor to 60 different diseases and its excessive consumption is a significant cause of premature death in the UK. It costs the NHS £3.5 billion each year, while alcohol-related crime costs an estimated £11 billion each year.

Approximately 2.6 million children in the UK are living with parents who are drinking dangerous amounts, while over 700,000 live with dependent drinkers. There is a clear link between the price of alcohol and the level of alcohol-related harm, so it goes without saying that the most effective way to reduce harm is to control price and availability.

Alcohol Concern has a number of different campaigns which are all designed to reduce the harm caused by alcohol misuse, raise awareness and encourage behaviour change.

Their campaigns involve trying to encourage policy changes at a national level around alcohol. This includes showing politicians the evidence base supporting the need for minimum unit pricing and persuading the government that alcohol needs to be treated as a public health issue.

Alcohol Concern is a leading member of the Alcohol Health Alliance UK and strives to make changes to the law regarding alcohol.

They also work to empower young people to think critically about the role alcohol may play in their own lives and to support them to take action – through It's The Drink Talking and the Youth Alcohol Advertising Council. On top of that, there are campaigns to raise awareness and behaviour change like Alcohol Awareness Week and Dry January. The aim of these campaigns is to develop new conversations about alcohol and to support people to make positive changes.

Alcohol Concern has been working to try to introduce minimum unit pricing of 50p for alcoholic drinks. Minimum pricing would mean that there is a baseline price for alcohol, below which it could not be sold. This campaign targets high strength alcoholic drinks that is sold very cheaply – drinks that are often consumed by the heaviest drinkers, as well as by younger drinkers. Moderate drinkers will feel little effect from minimum pricing.

One of the many campaigns is called Dry Humour Night which is a comedy night with a difference. Since there is no alcohol, you get all of the laughter, and none of the hangover.

The first night in September 2014 completely sold out the Leicester Square Theatre, with people queuing on the night hoping for returns. Since then, they have run two more nights with some of the best acts in the country, including Jo Brand. They have volunteered their time to help make a huge difference to the cause and show it is not only possible, but actually pretty easy to have a night out without alcohol.

The Theory of Reasoned Action suggests that an individual's behaviour is determined by their intention to engage in the behaviour, which in the case of alcohol use is a result of the individual's:

- attitudes: an individual's beliefs about the attributes and outcomes of using alcohol (or quitting), weighted by their evaluations of these attributes or outcomes.
- subjective norms: an individual's beliefs regarding important others' approval or disapproval of alcohol use (normative beliefs), weighted by their motivation to comply with these important others' wishes.
- perceived behavioural control: an individual's perceived control over alcohol use in the presence or absence of facilitators and barriers to quitting.

In general, according to this model, the more positive the attitude and the subjective norms are (towards stopping), and the greater the perceived control is, the stronger the individual's intention will be to terminate alcohol use.

The Health Belief Model assumes that people are largely rational in their thoughts and actions, and will take the best health-supporting action if they feel that it is possible to address a negative health issue, such as alcohol addiction. They need to have a positive expectation that taking the proposed action will be effective in addressing the issue, and actually believe they are able to take the proposed action. The model suggests there are a number of constructs to persuade individuals to stop drinking:

- 'Perceived susceptibility' is the person's assessment of the likelihood of them getting the given condition, in this case alcohol addiction. If, for example, they are younger and believe that alcoholism afflicts mainly older people, then they will be less likely to act to protect themselves.
- 'Perceived severity' is the person's view of how severely they would be impacted if they were affected by the alcoholism. Duration is important: a short stay in hospital may be preferable to longer-term issues.
- 'Perceived barriers' are the person's perceptions of the difficulties they would encounter in taking the proposed actions to help stop drinking. These may be addressed through various means of support, from financial through reassurance and assistance.
- 'Cues to action' are the prompts that are needed to move the person into the state where they are ready to take the prescribed action and include

practical ways of helping them, such as marked calendars and email reminders.

- ‘Self-efficacy’ is the person’s confidence and belief in their own ability to take the given action.

If they think ‘I cannot do this’ or even ‘I would find it difficult’, then they may well shy away from action, even if they believe the action is essential or otherwise worthwhile. This self-belief can be bolstered with encouragement, hand-holding, training and other support.

### **Exam tip**

When evaluating any anti-drug campaign, it is useful to look at its effectiveness in terms of target audience and whether its original aims were met.

## **Individual differences and developmental psychology**

Health psychology, like clinical psychology, focuses on our brains all working in the same way leaving little room for individual differences. Yet an individual’s personality may affect their drug-taking behaviour.

Similarly, there will be differences in how drugs affect each individual and even how, for example, in treatments such as aversion therapy the use of disulfiram might not work for everyone.

Learning explanations of drug addiction all point to how the environment develops our propensity to take drugs. Reinforcement, imitation and conditioning all affect an individual’s development through rewards and associations, as well as through observational learning. Adolescence is a critical period in the development of any drug-taking and peer pressure is a key factor. Developmental psychologists, such as Mundt *et al.* (2012), have studied these initial steps of drug use from adolescence to adulthood which has important implications for developing programmes to help those at risk.

## **Methods**

### **Use of animal laboratory experiments to study drugs**

Animals are used in drug research, because if drugs have similar ‘reinforcers’ for animals as they do for humans, then animals can act as models for developing ways of minimising drug misuse in humans.

The independent variable might be the use of a certain drug, and the dependent variable being the various effects that drug might have on



appetite, etc. They can be used in carefully controlled conditions in order to isolate cause and effect in a way that would be unethical for humans use. Some research involves **ablation** studies or invasive techniques to deliver drugs and measure effect of drugs on behaviour.

Animal studies often investigate drug use by allowing the animal to ‘self-administer’ – this means that they are trained to press a button or lever to dispense small doses of the drug. This allows researchers to study factors related to drugs like dependence and withdrawal. For example, Meisch (2001) gave monkeys the opportunity to self-administer drugs and found that animals will administer certain drugs such as opioids and stimulants themselves, suggesting they do have addictive properties. Monkeys also took in more of the drug than water, further illustrating their addictive properties.

Dependence can be measured using animals by having a long thin box (a ‘shuttle box’), with a level administering drugs at each end. The floor between the animal and the box is electrified. If an animal is dependent on a drug, they will run across a stronger current than animals that are not dependent.

Withdrawal can be measured using animals by removing the drug, or giving the animals a different drug that ‘blocks’ the original drug. Different animals respond differently to withdrawal, e.g. when mice are withdrawing from cocaine they ‘jump’ and when rats are withdrawing from heroin they shake. An alternative way of measuring animals’ reactions to drugs is to measure their brain activity before, during or after receiving a drug using electrodes in the animal’s brain.

One other way is to use a ‘place-preference’ technique, where there are two rooms available to an animal, one where drugs are available and the other where no drugs are available. Sensors pick up which room the animal spends most time in, in order to see if the drug is preferable to them.

Schramm-Sapyta *et al.* (2008) investigated the possible origins of alcohol abuse. Adolescent rats were placed in cages for 16 hours a day for three consecutive days with the only liquid available being alcohol (equivalent to the strength of strong beer). Afterwards, the rats were given a choice between water and alcohol. Rats given alcohol as adolescents consumed more alcohol more frequently than rats not given such early exposure.

## Typical mistakes

Make sure you only talk about animal experiments which use drugs not just general ones such as Pavlov from last year.

### Now test yourself

21 Wrongly generalising results from animal experiments to humans is known as ...?

Answer on p. 233

## Ethics of using animals to study drugs

When using animals, the researcher must consider the appropriate housing, care, food, routines and handling of the animals, as well as considering their similarity to humans. They must have similar basic brain structures in order for the study to be considered generalisable, for example what we find out about drugs in animals must apply to humans. There are ethical issues such as asking how many monkeys were used (the researchers should use a limited number) and how the animals were cared for (a licence is needed, and caging should be suitable, for example). There is still the fact that many animals feel pain so they are distressed and as this would not be done to humans, there are many that feel it is not ethical to use such procedures with animals. However, others argue the knowledge found can sometimes be used to benefit animals as well, which makes it more ethical.

The least number of animals should be used in animal research to minimise suffering to the least amount of animals. If procedures cause pain to the animal, anaesthetic can be used to alleviate pain. The benefits of the research should outweigh the costs to the animals involved. The choice of species should be carefully considered to reduce the degree of suffering experienced by procedures.

### Exam tip

Try to separate out ethical and practical issues with using animals and humans when evaluating both.

## Human drug studies

Adoption studies are designed to examine the influence of nature and nurture on some aspects of behaviour, in this case addictive behaviour. Studies of this type identify children who were adopted away from biological parents who were substance abusers and placed with an adoptive family who did not have this problem. They would be assessed later in life as to whether they became substance abusers and their results would be

compared to a sample of people whose biological parents were not substance abusers. For example, Cloninger (1987) aimed to unify the literature investigating the link between genetic make-up and becoming an alcoholic. Researchers construct family trees of large families with addiction as a first step to understanding whether or not it is passed down from parent to child by way of genes. Adoption studies add to this by controlling for the effect of learning within the family.

Understanding the role of genes in addiction is beneficial as the effectiveness of addiction medications vary from person to person due to differences in genetic make-up. In the future, genetic tests could be used to determine which genetic variation a patient has and prescribe the best addiction medication for that individual.

Surveys are another method using humans to study drugs and involve asking people questions, either through a questionnaire or an interview. It gathers self-report data about people's habits, behaviour and opinions and can be longitudinal and follow up the same participants over time to chart any changes. Questions can focus on possible causes of addiction and can investigate attitudes towards treatments and check on rates of relapse or recovery. Participants are asked questions, for example, about their smoking habits, their family, their friendships and other information. Surveys can also uncover the breadth of an issue, such as how many in a population use/abuse substances like alcohol, so can be used to produce statistics that help to allocate resources and funding. Surveys provide qualitative and quantitative data, dependent on the type of questions asked (open or closed), for example Blattler *et al.* (2002) carried out a study see the effects of maintenance programmes for users of heroin.

### **Ethics of using human participants to study drugs**

When using humans, the British Psychological Society (BPS) guidelines must be followed and these include getting consent. However, the individual may not be able to actually give informed consent due to being under the influence of the drug being investigated. Similarly, the participant's privacy and confidentiality must be maintained which may cause an issue if the participant has disclosed any information regarding any illegal activities. This may cause a moral conflict for the researcher in their role as a responsible citizen with a duty to society and the participant concerned.

Protection of the participant is important and may be broken if any distress is caused while they are part of the research. Any repressed memories that are brought up during questioning about the origins of the addiction may prove painful, so much so that the participant may even relapse as the same cues have suddenly re-emerged that started them on the addiction in the first place. Conversely, some believe the more participants talk about their drug use the more cathartic it is for them and so helps speed up possible recovery. All this needs to be weighed up in the mind of the researcher.

### **Typical mistakes**

Don't use human ethical guidelines when evaluating animal research and vice versa.

### **Cross-cultural research**

Culture plays a central role in forming the expectations of individuals about potential problems they may face with drug use. For many social groups, this may provide a protective factor. An example is the use of alcohol by the ancient Aztecs before any contact with white settlers. Their use of alcohol was heavily regulated and was only for ceremonial purposes. Non-ceremonial use of alcohol was strictly forbidden under penalty of death. A related situation is that of the immigrant who has moved from his homeland to a new country. Immigrants leave the protective environment of their family behind and are faced with a new set of cultural norms and values. This has been seen in Hispanics who have moved to the United States. Sensitivity to changes in culture has been described in these women who often assume the drinking behaviour of the dominant society and, as a result, they increase their use of alcohol.

Members of different ethnic and cultural groups show preferences for different types of alcoholic beverages, which may, in turn, affect access and relative alcohol content/exposure. Individuals, who drink in social groups and in situations where there are linked activities, adjust their consumption rates and rhythms to others in the group and/or to the linked activities rather than follow an individually determined pattern of consumption. Some cultures abhor any alcohol use, for example, among non-drinking adolescents; religion often plays a central role in life. Muslim and non-western immigrant teenagers are very likely to be abstainers.

Treatments for alcoholism or drug abuse problems are increasingly focusing on the development of culturally and ethnically sensitive options. The

involvement of values and traditions into treatment that are specific to cultural groups may provide some benefit to individuals undergoing therapy. Issues such as discrimination and persecution are not to be undervalued in the individual's background and development of a treatment plan. These issues can play an important role in self-efficacy, attitudes and involvement of family and friends, communication, therapist style and motivation.

## **Nature and nurture**

Dopamine, twin studies and adoption studies, all go a long way towards understanding addiction. However, what about adopted children of alcoholics who do not become alcoholics? Obviously, our environment has a role as well. If one child is raised in a house where addiction is rife, and one is raised never seeing a drug in their life, it is obvious who is more likely to be an addict. After all, you cannot be an addict if you never get high and to get high, you need access to drugs, which means there have to be drugs in your environment.

This leads to another problem when it comes to 'inheriting' addiction. If you are raised by drug addicts, you might become one just by seeing so many drugs as learning theories would dictate. When this is the case, it is not easy to tell whether nature or nurture was the decisive factor. There have also been cases of addiction/abuse where a change in environment was able to make all the problems go away. In the 1960s and 1970s, thousands of soldiers in Vietnam became heroin addicts. They were experiencing traumatic events, but Vietnam was also a major producer of opium and heroin. However, when they came back to the United States, most veterans were able to clean up.

## **Studies**

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### **Classic study: Olds and Milner (1954)**

#### **Aims**

Olds and Milner were interested in investigating the pleasure and pain centres of a rat's brain and to see if animals will stimulate themselves over a long period of time if permitted to do so.

#### **Procedures**

Implanted electrodes which do not interfere with the health or free behaviour into 15 male rats. Each rat was tested in a Skinner box which delivered alternating current to the brain. The rats were given

a total of 6–12 hours of acquisition testing, and 1–2 hours of extinction testing.

During acquisition, the stimulator was turned on so that a response produced electrical stimulation; during extinction, the stimulator was turned off so that a response produced no electrical stimulation.

Each rat was given a percentage score denoting the proportion of his total acquisition time given to responding. The rat ignored food, water and even the presence of rats in the cage. It only wanted to enjoy the constant high to what was its pleasure centre.

### Results

Rats spent more than 75 per cent of their acquisition time responding (pressing the lever) when the septal area of the brain was being stimulated by the electrode. In comparison, only 22 per cent of their extinction time was spent here, demonstrating that stimulation of the septal area acts as a primary reward.

### Conclusions

The researchers concluded that the existence of pleasure centres primarily in the septal areas leads to a behaviour where the rat is rewarding itself. These are all located in the lower centre of the brain and are the first direct evidence of a reward area in the brain.

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### Exam tip

You can use this study as an example of a laboratory experiment that uses animals.

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### Contemporary studies: Mundt et al. (2012)

Early adolescent alcohol use is a major public health challenge. One quarter of all adolescents begin drinking alcohol by 13 years of age.

### Aims

The aim is to look at adolescent friendships and alcohol use. In particular, do adolescents select friends with similar alcohol use? Also, do adolescents adjust their alcohol consumption in correspondence with the alcohol consumption level of their friends?

### Procedures

A total of 2,563 students were used using existing data from a longitudinal survey between 7th and 11th grade US students enrolled between 1995 and 1996. The sample was originally



chosen using stratified sampling and all students and their parents were interviewed. Data regarding who were their best friends were collected alongside expectations for the future and questions about risk behaviours, such as alcohol use, were posed. One year later, the cohort was asked follow-up questions, including ones about alcohol consumption over the previous year.

### Results

Friendship nominations between two students who shared the same alcohol use frequency were 95 per cent times more likely than between otherwise identical students with differing alcohol use frequency.

Students were more likely to choose as friends others of similar age, gender and ethnicity.

### Conclusions

The findings suggest that peer selection plays a major role in alcohol-use behaviour among adolescent friends.

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## Dixit et al. (2012)

### Aims

To see whether there was a difference in alcohol use among populations from different backgrounds. In particular, whether increased alcohol use was associated with **demographics** such as age and religion.

### Procedures

The cross-sectional survey was conducted over a period of a year among 848 individuals, all age 15 years or above, equally selected from urban and rural health training areas. Random household and random selection of two members of each household took place. Structured interviews regarding information about family members and then about issues with alcohol took place. Two categories were formed by the researchers which were current alcohol user (used alcohol in the past month) and ever user (ever used alcohol in their lifetime).

### Results

Prevalence for alcohol use was 13.4 per cent (including both current and ever user).



Forty-three (5.07 per cent) of study subjects were current alcohol users and 71 (8.37 per cent) were categorised as ever users for alcohol.

Alcohol use was found significantly associated with lower socio-economic status, religion (Hindu drinkers compared to Muslim abstainers), parental alcohol use and rural residence.

### **Conclusions**

More vulnerable groups should be targeted to help regarding issues with alcohol. Children must be treated carefully in schools, enabling them to decide upon healthy life style and avoiding risk behaviours.

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### **Pengpid et al. (2012)**

#### **Aims**

To examine the effects of a brief alcohol intervention to reduce alcohol use by hazardous or harmful drinkers among hospital outpatients in South Africa.

#### **Procedures**

A total of 1,419 outpatients were screened for alcohol problems using an Alcohol Use Disorder Identification Test (AUDIT) and those identified as hazardous or harmful drinkers were randomised into an experimental or control group. The experimental group received one brief counselling session on alcohol risk reduction, while the control group received a health education leaflet. They were offered 6- and 12-month follow-up appointments where they were reassessed.

#### **Results**

Of the 1,419 screened for alcohol misuse who agreed to participate in the trial, 392 (27.6 per cent) screened positive for hazardous or harmful use on the AUDIT and 51 (3.6 per cent) had an AUDIT score of 20 or more.

Among the 282 (72 per cent) hospital outpatients who also attended the 12-month follow-up session, the time effects on the AUDIT scores were significant which meant they had reduced their alcohol use to a less harmful level. No difference was found between the groups showing that the intervention and leaflet had no effect on them.

#### **Conclusions**

Given the lack of difference in outcome between control and intervention group, alcohol screening and the provision of an alcohol health education leaflet may in itself cause reduction in drinking.

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## Key questions

### Why is it important to prevent drug abuse?

Early use of drugs increases a person's chances of developing addiction. Drugs change brains and this can lead to addiction and other serious problems. So, preventing early use of drugs or alcohol may go a long way in reducing these risks. If we can prevent young people from experimenting with drugs, we can prevent drug addiction. The simplest and most cost-effective way to lower the human and societal costs of drug abuse is to prevent it in the first place. Accidents, addiction, criminal involvement, damaged relationships, impaired judgement, and lost educational or employment opportunities are common among those who currently use illegal drugs.

According to Public Health for England (2013), the overall cost of drug addiction to the NHS is a huge £15.4 billion pounds and the total cost to society is £21 billion. Preventing drug abuse is one of the best investments we can make in our country's future and will help safeguard our society. When research-based substance use prevention programmes are properly implemented by schools and communities, use of alcohol, tobacco and illegal drugs is reduced. Such programmes help teachers, parents, and health care professionals shape youths' perceptions about the risks of substance use.

The British Heart Foundation link heart problems and heart attacks with smoking and have funded an intensive anti-smoking campaign in order to improve people's health. There are many other campaigns about not taking drugs, such as Alcohol Concern, and all have the same message regarding the benefits of prevention.

### **Application of concepts theories and research to explain this key question**

Learning theories can be used to help prevent drug abuse as we know individuals learn to associate drug-taking with negative stimuli. So an awareness of this can help prevent someone starting down the path of addiction. These classical conditioning principles, however, are better

served through direct experience, such as aversion therapy. This may even be naturally occurring in a case where an individual has an initial negative reaction by associating a particular drug with a bad experience or in the case of alcohol 'never again'.

Olds and Milner (1954) would suggest drugs produce rewards in the brains of rats which are very hard to resist. Rewards and reinforcements are operant conditioning principles and we know that, unlike rats, humans are able to consider and choose between different rewards mechanisms. We know that for some individuals drugs may promote a better social life, so if the opposite was promoted we may help with prevention. Highlighting the rewards of abstaining or using legal highs in moderation would counter the attraction of excessive drug-taking using operant conditioning principles. Social learning theorists would recommend celebrity endorsement in anti-drug campaigns to counter any seen enjoying a drug-fuelled lifestyle. Role models, such as Robert Downey Jr, who have been through addiction, act as important role models for young people and the theory states that we imitate this type of role model who we look up to. Similarly, other potential role models such as parents and peers play an important role if abuse is to be prevented. If an individual observed through vicarious reinforcement someone getting rewarded for abstaining or punished for not, it may help in prevention.

Since we know young people progress more rapidly to problem use, targeting prevention programmes such as Above the Influence and Reality Check to that particular population makes sense. The longer we can delay the onset of illicit drug use, the better. The more we can prevent cigarette smoking and minimise alcohol use through such programmes, the more we can delay or prevent illicit drug use. Third, the better the medical community becomes at recognising and treating depression, as well as personality disorders, the better our chances of decreasing illicit drug use.

## Practical investigation

In conducting the practical investigation, you must:

- conduct a questionnaire, interview or a content analysis
- gather qualitative and/or quantitative data, but must involve quantitative data for analysis (you can turn qualitative data into quantitative data for analysis purposes)
- include inferential statistical testing, as appropriate, such as chi-squared, Mann-Whitney U, Wilcoxon or Spearman's rho

- include research question/hypothesis, research method, sampling, ethical considerations, data collection tools, data analysis, results and discussion
- consider strengths and weaknesses of the practical research exercise and possible improvements.

### **Suitable examples**

- Content analysis of pop music/television programmes, e.g. references to drugs.
- Content analysis of newspaper articles/news comparing references to alcohol and nicotine.

### **Issues and debates**

<b>Ethics</b>	The use of animals and humans when researching drugs and drug treatments, like aversion therapy, importance of cost–benefit analysis
<b>Practical issues in design and implementation of research</b>	Generalising from findings from animal studies to human behaviour is anthropomorphic Studying drug action in the brain is hard to access holistically Issues around getting valid and honest information from drug users
<b>Reductionism</b>	When considering the use of methods such as experiments using animals tend to isolate variables Biological explanations ignore the situation and context on drug-taking
<b>Comparisons between ways of explaining behaviour</b>	Different explanations for drug misuse, from learning and biological perspectives
<b>Psychology as a science</b>	Biological explanations for drug misuse and animal experiments gives control, reliability and objectivity using medical techniques Brain-scanning techniques and general development of technology However self-reports and rating scales are more subjective so less scientific
<b>Cultural and gender issues</b>	Dixit <i>et al.</i> (2012) looked at patterns of alcohol use in India and similarly Pengpid <i>et al.</i> (2012) in South Africa How some substances are more disapproved of than others across different cultures
<b>Nature–nurture</b>	Drug-taking as a learned (nurture) response as opposed to biological explanations for drug misuse

<b>Psychological understanding over time</b>	Rise of understanding about drug misuse and explanations for drug misuse Changes in anti-drug campaigns as a result of this understanding How deep brain stimulation has evolved from Olds and Milner (1954) to the present day
<b>Social control</b>	Treating drug misuse as criminal and requiring treatment can be open to abuse
<b>Psychological knowledge in society</b>	Helping inform health campaigns to discourage drug abuse Using understanding of drug misuse to develop treatments, such as aversion therapy
<b>Socially sensitive research</b>	Asking about drug 'habits' when people are vulnerable is sensitive, as is any disclosure which might be embarrassing for the individual

### Exam practice

- 1 Outline psychological strategies behind one anti-drug campaign you have studied. [6]
- 2 Compare the mode of action for heroin and alcohol. [6]
- 3 Evaluate one contemporary study from health psychology. [8]
- 4 Evaluate the use of animal experiments to study drugs. [8]
- 5 Evaluate the classic study by Olds and Milner (1954). [8]
- 6 Evaluate aversion therapy as a treatment for drug addiction. [12]
- 7 Assess the extent to which anti-drug campaigns are successful in raising awareness for health issues, such as drug addiction. [16]
- 8 Outline what is meant by health psychology. [6]

- 9 Describe how any two drugs can lead to physiological dependence. [6]
- 10 Compare one biological and one learning explanation of drug addiction. [6]
- 11 Assess the effectiveness of any two treatments for drug addiction. [16]
- 12 An Area Health Authority (AHA) is planning a health promotion campaign targeted at reducing smoking in young people. Using your knowledge of health psychology, explain what advice you would give to the AHA. [6]

### **End of chapter summary**

You should now have an understanding of all the points below:

- issues around drug-taking
- one biological and one learning explanation for alcohol, heroin and nicotine addiction
- two treatments each for alcohol, heroin and nicotine addiction, including aversion therapy
- one anti-drug campaign and psychological strategies behind it
- issues around individual differences within health psychology and developmental psychology
- use of animals in laboratory experiments to study drugs, including ethics
- two research methods using humans to study drugs, including ethics
- use of cross-cultural research, including nature–nurture issues
- data analysis of qualitative and quantitative data, including inferential statistics
- the classic study by Olds and Milner (1954) plus one other contemporary study
- one key question relating to health psychology
- one practical investigation that you have carried out in relation to health psychology



- issues and debates within health psychology.
-

# 9 Psychological skills

This chapter is a **synoptic** section which reviews everything covered in the preceding chapters so far. You are required to draw upon all your existing knowledge in order to apply these psychological skills.

The focus of this chapter is reviewing methods, studies, and issues and debates that you have learned in all the other topics. These are the synoptic essentials that you must try to use to demonstrate you have a firm understanding of the course.

## Methods

You will have learned about a number of methods throughout the course from surveys in social psychology to cross-cultural methods in clinical psychology. Your own practical investigations will have also used some of these methods and this knowledge of methodology will be required in this synoptic part of the course. A summary of all the methods looked at is given in the table.

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### Exam tip

Don't forget thematic analysis and grounded theory when looking at methods to analyse qualitative data.

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**Table 9.1 Summary of methods used across each topic area.**

<b>Social psychology</b>	Self-reporting data; questionnaires and interviews
<b>Cognitive psychology</b>	Field and laboratory experiments; case studies of brain-damaged patients
<b>Biological psychology</b>	Correlations; brain-scanning techniques; twin and adoption
<b>Learning theories</b>	Observations; content analysis; animal experiments
<b>Clinical psychology</b>	Longitudinal; cross-sectional; cross-cultural; meta-analysis; case studies; interviews
<b>Criminal psychology</b>	Field and laboratory experiments
<b>Child psychology</b>	Observations; questionnaires and interviews; cross-cultural
<b>Health psychology</b>	Animal laboratory experiments; human drug methods; cross-cultural

## Synoptic review of studies

This section focuses on all the classic studies covered in each topic and you may be asked to draw upon and compare them against each other or in terms of issues and debates.

You may be asked to compare any permutation of these classic studies and in any way, such as methodology, procedure, strengths and weaknesses or against issues and debates. An example of a comparison between two classic studies is given below for Sherif *et al.* (1954/1961) and Watson and Rayner (1920).

### **Comparison of Classic Studies: Sherif *et al.* (1954/1961) and Watson and Rayner (1920)**

<b>Aim</b>	<p>Similarity – both induced artificial elements and then tried to remove them (however, the latter was successful in Sherif, but not in Watson and Rayner)</p> <p>Difference – one aimed to see if prejudice could be implemented and subsequently reduced and the other whether a phobia could be artificially induced</p>
<b>Method/Procedure</b>	<p>Difference – Watson and Rayner was deemed more scientific as baseline measures were used to test before and after using controlled conditions, whereas Sherif had fewer controls and element of subjectivity in the researchers' note-taking, making it less scientific</p> <p>Similarity – both studies emphasise the role of nurture in behaviour as Sherif shows how groups are formed from environmental influences such as competition and Watson and Rayner demonstrate how association from environmental stimuli leads to learning</p> <p>Difference – one was set in a real-life environment in the United States, Robbers' Cave Park, while the other was held in an artificial environment in a laboratory</p>
<b>Evaluation</b>	<p>Similarity – both could be said to be reductionist as Sherif attributes behaviour down to competition over resources and Watson and Rayner to single instances of learning and reflexive responses. Both ignoring other factors, such as social learning theory and operant conditioning</p> <p>Similarity – findings from both studies can have issues of social control and may be open to abuse. Sherif has shown how prejudice can occur through competition which may lead to in-groups and out-groups and so racism and</p>

discrimination in society. Watson and Rayner have shown how a phobia can be artificially induced and also how aversion therapy may be used to treat behaviours deemed undesirable by society

Difference – Watson and Rayner’s study was under controlled conditions so more able to be replicated and tested for reliability due to standardised procedures, whereas Sherif had fewer controls over variables due to the real-life setting

Similarity – both studies have an application to society in terms of reducing prejudice and explaining the acquisition of phobias so can be used to help individuals and society as a whole

Similarity – both have ethical issues around distress and protection of the participants which could have both short- and long-term impacts on the participants. We know Little Albert generalised his fear to other objects and the boys in Sherif’s study may have taken on board aggressive behaviour

### **Exam tip**

Try to come up with a similar table for other possible combinations of classic study comparisons.

The following table acts as a starting point in reviewing synoptically, the classic studies in terms of issues and debates. Try to add to the detail in some boxes and complete any blank ones.

	<b>Sherif <i>et al.</i> (1954/1961)</b>	<b>Baddeley (1966b)</b>	<b>Raine <i>et al.</i> (1997)</b>	<b>Watson and Rayner (1920)</b>
<b>Ethics</b>		Few ethical issues, competence and confidentiality were good	Issues of consent and psychological harm	
<b>Practical issues in design and implementation of research</b>	Field experiment difficult to replicate due to lack of controls	May have been individual differences between the participants	Used matched controls as far as possible but cannot ever be exact	Wanted Little Albert to be deconditioned but were unable to as he was taken away
<b>Reductionism</b>	Reduces prejudice down to just competition and ignores other factors		Ignores environmental factors in violent behaviour; reduces it to brain dysfunction	
<b>Comparisons between ways of explaining behaviour</b>			Biological explanation for violent behaviour through brain dysfunction	
<b>Psychology as a science</b>		Laboratory experiment with good controls and replicability and so reliability and objective		Clear controls with good baseline measures to enable comparisons with later testing of the phobia
<b>Cultural and gender issues</b>	The study used American boys, so issues of ethnocentrism			
<b>Nature–nurture</b>			More nature than nurture as brain functioning may cause aggressive behaviour	More nurture as associations made were all environmental
<b>Psychological understanding over time</b>		Additions to the working memory model has helped move research forward over time		Same principles have been used over time but within different therapies
<b>Social control</b>	How hostility may arise over competition for resources		Linking brain regions to violence may be open to abuse when controlling violent offenders	Conditioning can be open to abuse as society deems it may be necessary for some but not others
<b>Psychological knowledge in society</b>	Reducing conflict in society by using superordinate goals	Helping those with memory problems, such as dementia		
<b>Socially sensitive research</b>			Issues of pleading not guilty due to insanity takes away blame from the individual	
	<b>Rosenhan (1973)</b>	<b>Loftus and Palmer (1974)</b>	<b>van IJzendoorn and Kroonenberg (1988)</b>	<b>Olds and Milner (1954)</b>
<b>Ethics</b>	Followed guidelines for the patients such as informed consent but did deceive the hospital staff			
<b>Practical issues in design and implementation of research</b>	Although all gave the same standardised symptoms, there may have been individual differences in behaviour			
<b>Reductionism</b>	Patients' symptoms reduced to voices in the head and writing behaviour			
<b>Comparisons between ways of explaining behaviour</b>	Primarily based around the medical (biological) model of explaining and treating mental illness			
<b>Psychology as a science</b>	Less scientific due to fewer controls in hospital setting and use of qualitative data			
<b>Cultural and gender issues</b>	No differences found between male and female participants in the study			
<b>Nature–nurture</b>	More nurture as diagnosis was based around culture and societal norms rather than biology			
<b>Psychological understanding over time</b>	May be even more relevant in today's society in demonstrating dangers of misdiagnosis			
<b>Social control</b>	Participants felt helpless and had no control, were deindividuated as such			
<b>Psychological knowledge in society</b>	Huge implications for helping psychiatrists understand difficulties in defining abnormality			
<b>Socially sensitive research</b>	Issues of labelling and stigma when not in fact insane			

This table considers issues around evaluating the classic studies. Again, try to add to the detail in some boxes and complete any blank ones.

Evaluation	Generalisability	Reliability	Credibility	Validity	Objectivity/subjectivity
Sherif <i>et al.</i> (1954/1961)	All American male sample, so issues of ethnocentrism	Lack of control over all variables may mean less chance of replication		Real-life setting, so reflective of natural behaviour	
Baddeley (1966b)			High, as scientific procedures used with objective data		Objective as standard word recall test
Raine <i>et al.</i> (1997)		Good scientific controls used enabling possible replication			Objective as standard recording from PET scans were used
Watson and Rayner (1920)	Only based on one child who may not represent how others may have responded due to varying temperament		High, as principles of classical conditioning are still used in current therapy		
Rosenhan (1973)	Used a number of hospitals, but all in United States, so issues of ethnocentrism			High, as real hospitals with real staff, so natural environments	
Loftus and Palmer (1974)					
van IJzendoorn and Kroonenberg (1988)					
Olds and Milner (1954)					

## Issues and debates

The table highlights the issues in debates in relation to each topic area.

	Social	Cognitive	Biological	Learning
Ethics	<p>Issues of informed consent, causing psychological harm and right to withdraw within obedience research</p> <p>The necessity of creating these conditions in order for studying prejudice and obedience</p>	<p>Case studies of brain damaged patients, such as HM, raise issues of confidentiality and informed consent</p>	<p>Studying aggression and issues around links to brain damage</p> <p>Use of brain scanning techniques and protection of participant</p> <p>Issues of confidentiality and informed consent especially within adoption studies</p> <p>Ethical issues with the use of animals within biological psychology</p>	<p>The ethical issues involved in using animals in laboratory experiments</p> <p>Issues with Watson and Rayner (Little Albert) and the children in the Bandura study</p>
Practical issues in design and implementation	<p>Practical issues when researching prejudice such as social desirability</p> <p>Issues with interviews/self-reports when measuring obedience and prejudice</p> <p>Importance of sampling participants into conditions (Burger 2009 and Sherif <i>et al.</i> 1954/1961)</p>	<p>Much of cognitive research relies on laboratory experiments so raises issues around ecological validity, mundane realism in the tasks carried out by participants, control and operationalisation of variables</p> <p>How can we actually measure memory?</p>	<p>Issues around cost and equipment when scanning and measuring the complexity of the brain</p> <p>Cause and effect when trying to infer conclusions from studying such a complex organ</p> <p>Difficulty in finding samples of MZ and DZ twins and establishing whether samples are valid</p>	<p>Generalising from animals to humans – issues of anthropomorphism</p> <p>Problems with using overt and structured observations</p>
Reductionism	<p>Reducing behaviour down to an equation in Social Impact Theory</p> <p>Risk of drawing reductionist conclusions from data drawn from self-reports and interviews</p> <p>Measuring prejudice attitudes by questionnaires can reduce the complexity of behaviour</p>	<p>Studying memory in a laboratory is not the same as studying memory in the real world so ignores the importance of the environment and other variables which can affect cognitive processes</p> <p>Breaking up areas of cognition, such as memory and forgetting, and less importance is placed on the interconnections between parts of the brain, in favour of individual parts responsible for memory</p>	<p>Focusing on aggression when studying the brain means reducing behaviour to individual structures like the prefrontal cortex of amygdala, this view neglects the whole person/other environmental factors for behaviour so less valid</p>	<p>Reducing animal behaviour to simple brain functioning</p> <p>Stimulus-response connections reduce all behaviour to just singular cause and effect and do not take cognition into account</p>



	Social	Cognitive	Biological	Learning
Comparisons in explaining behaviour	Issues of personality, culture, gender and situation in explaining both obedience and prejudice  Use of two different theories to explain prejudice and obedience behaviour	Four models of memory show different ways of explaining memory either through a series of structures or the way memory is processed	Comparing Freud's ideas and biological explanations of aggression  Role of evolution against hormones when explaining aggression	Different learning theories explain learning through association, reinforcement and imitation  Only social learning theory takes cognition directly into account
Psychology as a science	Controls over variables in lab experiments can lead to replicability and reliability  However, bias in questionnaires can lead to issues of validity	One of the most scientific perspectives, as it adopts the scientific method in explaining how we process information. Experiments and controls mean replicability and reliability which are cornerstones of the scientific method™	Synaptic transmission; brain-scanning techniques; all objective and scientific help increase credibility. However, some methods, such as correlations and psychodynamic explanations of aggression, reduce the scientific status	The explicit focus of behaviourism on the observable behaviour that can be scientifically studied and objectively recorded
Culture and gender	Obedience not found to be influenced by gender  However, are cultural differences (collectivistic versus individualistic) in obedience	Sebastián and Hernández-Gil (2012) found differences in digit span length among Spanish and English speakers  How memory is reconstructed based on cultural differences or gender stereotypes	Hormonal differences between males and females possibly influencing behaviour, such as aggression	Principles of reinforcement patterns in various cultures determine what is learned  Gender appropriate behaviour is dictated by reinforcement and imitation
Nature-nurture	Role of authoritarian personality and upbringing in obedience and prejudice  Links from Cohrs (2012) study on prejudice and RWA/SDO suggest prejudice is more nurture than nature	HM would suggest that the hippocampus plays an important inherent role in forming new memories so sides with the nature argument  However, reconstructive memory emphasises how our learned schema and experiences have helped our memories develop through interaction with the environment	The focus on brain structure/CNS/hormones/neurotransmitters and brain localisation in aggression are all on the nature side of the debate	Behaviourist focus on observable and measurable, so look at nurture side of argument  Behaviour, such as gender role, is learned rather than biologically determined
	Social	Cognitive	Biological	Learning
How psychological understanding has developed over time	Changes from Milgram (1960s) and the replication work of Burger (2009) into obedience  Similarly, Cohrs [2012] further examined the work of Adorno (1950) on personality and prejudice	Baddeley's work studying short- and long-term memory later led to the working memory model. This model was later added to [episodic buffer] and has illustrated how knowledge about behaviour is built over time  More recent research into EWT has added to existing findings from the last half a century about the debate around the reliability of witnesses	Development of scanning techniques up to fMRI and development of older methods such as trepanning to CAT or MRI	Changes in treatments for phobias from flooding to CBT  Behaviourism has evolved into behaviour analysis and its principles are used in a more applied manner
Social control	Making people obey authority and socialising them into an agentic state from a young age  Knowledge of how to induce and reduce prejudice within individuals and groups	The use of EWT and manipulation using leading questions in courtroom situations	Using knowledge of brain function to control individuals, such as Raine <i>et al.</i> and aggression, could lead to unfair labelling and treatment and even unnecessary therapy  Prefrontal lobotomies have been used to control anti-social behaviour in the past  Chemical castration of males to block male hormones used with sex offenders	Use of learning theories in therapy can be social control, including issues of power of the therapist which can be open to abuse in, for example, the token economy
Psychological knowledge within society	Reduction of prejudice  Explaining football violence/acts of terrorism/cult behaviour/historical atrocities	Use of psychological knowledge to help with dementia and dyslexia  Helping aid revision techniques for students preparing for exams  To help with the debate whether EWT is reliable or not	Understanding explanations of aggression to help with treatments and possible predictions of risk  Understanding, explaining and treating drug addiction	Using patterns of reward to shape desired behaviour in schools or prisons  Introduction of film censorship and the watershed to protect children from imitating
Socially sensitive research	Prejudice links to racism and the impact of research on participants and the groups they represent	Issues of memory loss due to dementia and how the study of this is socially sensitive for the individual and their families	Linking biology to behaviour such as aggression, homosexuality or intelligence is socially sensitive for those involved as it has implications for the rest of society	The power of the therapist over the client particularly in aversion therapy  Shaping a child's behaviour through rewards could be viewed as manipulative and conformist

**Exam tip**

Use the table for a list of methods used and corresponding studies that employ that method.

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Study	Research method
Milgram (1963) Burger (2009) Baddeley (1966b) Sebastián and Hernández-Gil (2012) Steyvers and Hemmer (2002) Loftus and Palmer (1974) Bastian et al. (2011) Guardia et al. (2012)	Laboratory experiment
Schmolck et al. (2012)	MRI and CT scans
Li et al. (2013)	fMRI
Sherif et al. (1954/1961) Yarmey (2004) Gesch et al. (2002)	Field experiment
Reicher and Haslam (2006)	Experimental case study
Watson and Rayner (1920)	Case experiment
Blakemore (1988), Clive Wearing and HM	Case studies, brain-damaged patients
van de Oever et al. (2008) Olds and Milner (1954)	Animal laboratory experiment
Rosenhan (1973) Yuille and Cutshall (1986) Valentine and Mesout (2009)	Field study
Carlsson et al. (2000)	Review of secondary data
Ainsworth (1978) Bandura et al. (1961)	Structured/controlled observation
Grossman et al. (1985) Miyake et al. (1985) Takahashi (1986) Sagi et al. (1985)	Cross-cultural studies
Brown et al. (1986) Vallentine et al. (2010)	Interview

Capafóns et al. (1998) Mundt et al. (2012) Dixit et al. (2012)	Interview/self-report
Cohrs et al. (2012) Kroenke et al. (2008) Williams et al. (2013) Masellis et al. (2003) POTS team (2004) Howells et al. (2005) Pengpid et al. (2012) Becker et al. (2002)	Questionnaire/self-report
Gottesman and Shields (1966) Brendgen et al. (2005)	Twin study
Ludeke et al. (2013) Heston (1966) Leve et al. (2010)	Adoption study
Bradbury and Williams (2013)	Content analysis
Madon et al. (2003)	Correlation
NICHD (1991) EPPE (2003) ERA (1990) Gagnon-Oosterwaal et al. (2012) Li et al. (2013)	Longitudinal study
van IJzendoorn and Kroonenberg (1988) Cassiba et al. (2013)	Meta-analysis
Curtiss (1977) Koluchova (1972) Lavarenne et al. (2013)	Case study
Raine et al. (1977)	PET scan
Scott-Van Zeeland (2014)	Gene variation
Pavlov (1927)	Animal experiments

**Exam tip**

Note some of these studies use more than one method and have been classified as such in various books, for example Bandura et al. (1961) is a laboratory experiment in some and a controlled observation in others.

### Exam practice

- 1 To what extent is it better for psychologists to use animals rather than humans in research? [12]
- 2 With reference to both social and clinical psychology to what extent can psychology be called a science? [20]
- 3 Evaluate the ethical issues involved in the use of human participants in psychological research. [12]
- 4 Evaluate two topics in psychology other than the biological and cognitive topics. [20]
- 5 Choose two research methods, other than case-study and interview, and evaluate them in psychological research. [20]
- 6 With regards to its methodology, evaluate whether psychology should be called a science. [12]
- 7 Using any two classic studies assess how far they show that psychology understanding has developed over time. [12]
- 8 Assess how both biological psychology and learning theories have contributed to psychological knowledge within society. [20]
- 9 Evaluate the ethical issues of Sherif and Rosenhan in relation to each other. [12]
- 10 Assess how clinical psychology has contributed to psychological understanding within society. [12]

### Summary

You should now have an understanding of all the points below:

- all methods used in the whole course
- types of data and hypotheses; sampling techniques and experimental/research designs
- control issues: counterbalancing, order effects, experimenter effects, social desirability, demand characteristics, participant variables, situational variables, extraneous variables, confounding variables, operationalisation of variables
- measures of central tendency, frequency tables, graphs (bar chart, histogram, scatter diagram), normal distribution (including standard deviation), skewed distribution, sense checking data, measures of dispersion (range, standard deviation)
- levels of measurement and appropriate choice and knowledge of how to use statistical tests
- levels of significance, use of critical value tables, one- and two-tailed testing
- observed and critical values
- methodological issues: validity (internal, predictive, ecological), reliability, generalisability, objectivity, subjectivity (researcher bias), credibility
- analysis of qualitative data (thematic analysis and grounded theory)
- conventions of published psychological research: abstract, introduction, aims and hypotheses, method, results, discussion; the process of peer review
- ethical issues in research using humans and animals
- draw on and compare studies from the classic study section throughout the qualification
- review synoptically the classic studies of psychology in terms of issues and debates
- use principles of understanding, evaluation and synopticity on unseen material
- issues and debates.

**Now test yourself answers**



## Chapter 1

- 1 In order to avoid chaos and disorder, we have to give up some of our free will to follow certain rules, otherwise there would be disorder through disobedience.
- 2 The agentic state is where we give up our free will to follow the orders of others in authority; we become their 'agents'. It is in the agentic state that we obey. In the autonomous state, we are freethinking and able to make our own decisions for which we are fully responsible.
- 3 The theory states that we are socialised into an agentic state from a young age and, as children, we learn to obey our parents and teachers and act as agents following social rules.
- 4 Social Impact Theory offers more of an explanation than Agency Theory as its formula can work in all situations, whereas Agency is rather circular as it claims we obey authority as we are agents of authority.
- 5 65 per cent of participants were in the agentic state following orders from the experimenter who acted as the authority figure.
- 6 Individualistic cultures are those that stress the needs of the individual over the needs of the group as a whole. Collectivistic cultures, in contrast, emphasise the needs and goals of the group as a whole over the needs and wishes of each individual.
- 7 Very harsh control or authority, holding intolerant views or practices.
- 8 Slippery slope.
- 9 Prejudice means to prejudge. It is an attitude which can be either positive or negative towards certain groups or individuals.
- 10 It explains why football violence occurs in that fans believe themselves to be the in-group and the opposing fans to be the out-group.
- 11 It underestimates the importance of individual differences. Some people have a much greater tendency than others to favour in-group over out-group, depending on their personality.
- 12 Adorno's theory is better than Social Identity Theory in explaining individual differences in prejudice. Some people show more prejudice than others. Adorno says prejudice is more likely among those individuals who have a prejudiced personality because of their strict upbringing.
- 13 Generally questionnaires collect large amounts of standardised data relatively quickly and conveniently, which is easy to quantify and

analyse. People may not respond truthfully to questions, may genuinely not be able to remember details, or wish to give socially acceptable responses.

**14** The items in Adorno's original F-Scale were very much tied up with the social and political situation of the 1940s and 1950s. Events at the time can lead to certain views, so the scale in its original form is probably not of much use today.

**15** Students who do more than five hours of revision a day will score higher grades in their psychology exam.

**16** A great deal of data, both qualitative and quantitative, can be gathered quickly and cheaply from different groups and gain a large sample. However, it can be subject to things like social desirability bias where people want to seem good and even leading questions in interviews.

**17** Random – the advantages are that your sample should represent the target population and eliminate sampling bias, but the disadvantage is that it is very difficult to achieve (i.e. time, effort and money).

Stratified – gathering such a sample would be extremely time consuming and difficult to do (disadvantage). This method is rarely used in psychology. However, the advantage is that the sample should be highly representative of the target population and therefore we can generalise from the results obtained.

Opportunity – this is a quick and easy way of choosing participants (advantage), but may not provide a representative sample, and could be biased (disadvantage).

Volunteer – ethical as participants have chosen to take part. More motivated to try to do well so may respond to demand characteristics.

**18** The range only takes account of the highest and lowest scores, but the SD takes every score in the distribution into account.

**19** Mean – it uses all the scores so is the most powerful of all measures of central tendency. It is influenced by extreme scores or when there is a skewed distribution.

Median – not as influenced by extreme scores as is the mean. Does not use the arithmetic values of all scores and therefore cannot be used for further calculation.

Mode – easy to spot and not affected by extreme scores. There may be more than one and not particularly useful on small sets of data.

- 20** Shows how much data are clustered around a mean value, so it gives a more accurate idea of how the data are distributed. It does not give you the full range of the data and it can be hard to calculate.
- 21** Means participants are not naive, and may affect results and limits what can be studied. If a study is done enough times, everyone may know about it because so many participants have been debriefed, so it is impossible to replicate!
- 22** They thought they were responding to an advert about memory and learning when in fact it was about obedience; they thought the drawing of the lots was fair when it was in fact rigged; they thought the shocks were real when they were not and finally they thought Mr Wallace was sitting next door when in fact it was a tape recording.
- 23** The sample used was an all-American one which did not take into account other cultures or classes.
- 24** Lack of informed consent and the right to withdraw. Also protection of participants as the boys were unaware another group was in the park and conflict did arise between them.

## Chapter 2

- 1  $7 \pm 2$  (5–9 items) capacity and 15–30 seconds duration.
- 2 STM's capacity can be enlarged if separate pieces of information were combined into a larger piece of information. This is an example of chunking, e.g. a phone number can be easily remembered if it is chunked together such as 01709-814-341 as opposed to 01709814341.
- 3 MSM shows that there is a unitary short-term store that processes all the information, whereas the working memory has many short-term stores that process information differently as directed by the central executive.
- 4 Episodic memory represents our memory of experiences and specific events, whereas semantic memory is a more structured record of facts, meanings, concepts and knowledge.
- 5 Dyslexia is primarily associated with trouble reading, but it can also affect writing, spelling and even speaking. The most commonly recognised symptom of Alzheimer's disease is an inability to acquire new memories and difficulty in recalling recently observed facts.
- 6 Laboratory experiments take place in an artificial setting and in a controlled environment. They involve the deliberate manipulation of one variable while trying to keep all others constant. The researcher manipulates the independent variable and measures the dependent variable. Laboratory experiments are investigating cause and effect, while trying to test a given hypothesis.
- 7 Independent measures.
- 8 Independent measures.
- 9 Repeated measures.
- 10 Anterograde amnesia is the inability to form new memories because information cannot pass from STM to LTM due to damage of the hippocampus.
- 11 Retrograde amnesia is the inability to recall information from before the accident or event that caused the amnesia. However, the past can be relearned through family and friends who can help fill in these memories. Anterograde amnesia is viewed as more destructive because, even though the patient may remember some past events, they cannot form any new memories.
- 12 A MTL patient suffers from damage to the medial temporal lobe only whereas a MTL+ patient suffers from medial temporal lobe damage and anterolateral temporal cortex damage.

**13**  $7 \pm 2$  (5–9 items).

**14** To act as a comparison control group in order to see the effects of those with Alzheimer's.

## Chapter 3

- 1** Axon – the part of the neuron that takes information away from the cell body towards the axon terminals.  
Axon terminals – the hair-like ends of the axon which pass information on to another neuron.  
Dendrites – extensions that receive messages from other neurons to take to the cell body in order to trigger an action potential.
- 2** The speed of conduction of an action potential along an axon is influenced by both the diameter of the axon and the axon's resistance to current leak.
- 3** A node of Ranvier is a natural gap in the myelin sheath along the axon. If nodes of Ranvier were not present along an axon, the action potential would spread very slowly.
- 4** Molecules of the neurotransmitter that do not bind to receptors in the postsynaptic neuron are taken up again by the presynaptic neuron, a process called 'reuptake'. These are then eventually destroyed within the neuron so it can return to its resting potential.
- 5** The temporal lobe is located just above the ears and is involved in hearing, language processing and memory, whereas the occipital lobe is located at the back of the head and is involved in processing visual information, such as colour, shape and motion.
- 6** The corpus callosum is the part of the mind that allows communication between the two hemispheres of the brain.
- 7** Serotonin seems to have a calming inhibitory effect on neuronal firing in the prefrontal cortex. Therefore, low levels of serotonin may disrupt the calm inhibited firing of neurones, with the result that individuals are less able to resist the impulse to be aggressive.
- 8** The life instinct is often called Eros or the Libido which is our main source of energy for life and is concerned with survival and sexual reproduction. The death instinct, however, is often known as Thanatos. Thanatos is a wish for a return to Nirvana (a state where everything you need is provided for, e.g. being in your mother's womb).
- 9** Freud thought the human mind was a bit like an iceberg. The tip which shows above the water is the conscious part. The unconscious part is much larger, and is hidden from view. In between these two parts is the preconscious.
- 10** Displacement.

- 11 Displacement.
- 12 Catharsis.
- 13 To protect the ego from temporary threat or trauma, and to help us to cope with issues we may have and to deal with the stress caused by the conflicting demands of id and superego.
- 14 Interval.
- 15 Ordinal.
- 16 Nominal.
- 17 Interval.
- 18 Nominal.
- 19 Chi-square.
- 20 Chi-square.
- 21 Spearman's.
- 22 Mann-Whitney.
- 23 CAT can help reveal whether a behavioural problem has a physical basis. However, CAT scans produce poor quality images.  
PET can tell us which part of the brain is responsible for particular behaviours, for example, when moving our hands, just the front part of the brain is active. However, it involves the use of radioactive material, so must not be overused on the same participant.  
fMRI has high spatial resolution. 2–3 mm is typical, but resolution can be as good as 1 mm. However, some dispute over whether or not it actually measures what it claims to measure, e.g. increased levels of oxygen, could be in preparation for neural activity, not because of it.



## Chapter 4

- 1 Food.
- 2 Pavlov stopped pairing the food and the bell together. The bell was presented on a few occasions, but without food at the same time.
- 3 Neutral stimulus.
- 4 Extinction is when the conditioned behaviour dies out over time as the NS and UCS have stopped being paired together. Discrimination is when the participant realises the UCS is becoming different to the original UCS that was used to condition the behaviour. In Pavlov, this would be sounding a different bell to the original one.
- 5 Stimulus generalisation.
- 6 By giving rewards such as stickers or team points for showing good work in class.
- 7 By removing the threat of detention or extra homework for showing good work in class.
- 8 A treat such as a snack given for putting paw on the door handle. Then another treat for pulling the handle down and a final treat for pulling handle all the way down and pushing door open.
- 9 Through giving a token every time a full week's attendance was completed by the student. The tokens could then be exchanged for shopping vouchers or free lunch in the canteen.
- 10 1961 aggression and non-aggression; 1963 real life and filmed aggression; 1965 vicarious reinforcement through reward or punishment.
- 11 This was to increase the likelihood of aggression being displayed.
- 12 Because it might have been this frustration that caused the children to act aggressively rather than the imitation of the role model.
- 13 One strength of flooding is that the therapy has been successfully used with agoraphobics and success has been maintained nine years later. In general, flooding produces results as effective (sometimes even more so) as systematic desensitisation. However, flooding is rarely used and is not an appropriate treatment for every phobia. It should be used with caution as some people can actually increase their fear after therapy, and it is not possible to predict when this will occur.
- 14 Two strengths of time sampling are it takes less time than keeping a running record of everything that happens. You can record data on many participants at once. Two weaknesses are the context of behaviour

not noted; does not focus on the causes and consequences of the behaviour. Second, it is also limited to behaviours that occur frequently and not rare behaviours that might also be important.

- 15 Two strengths of event sampling are it can be used to study infrequent behaviours and note them each time they occur. Second, you can note the cause and consequences of the behaviour you are observing, unlike time sampling. Two weaknesses are it focuses on only one or a few behaviours and second, does not have as much detail as continuous running record would.
- 16 Data are nominal; design is independent and it is a test of difference not relationship.
- 17 The results would be significant so we can accept the experimental hypotheses and reject the null as results are less than 5 per cent due to chance.
- 18 This means it is difficult to generalise the findings because the sample is not representative. Little Albert was a young child in an institution. We cannot assume that other children or adults would learn in the same way. This is illustrated by Watson and Rayner being unable to replicate their findings.
- 19 The study is unethical as it gives an infant a phobia which could stay with him for life. It may not be ethical to subject participants to procedures which cause distress. It is questionable whether what the researchers were trying to do outweighs the negative effects for Albert.

## Chapter 5

- 1 While the DSM focuses on mental health classification, the ICD has a much wider scope and covers all diseases and health-related conditions. However, both systems are used by health care professionals when diagnosing mental disorders.
- 2 Axis 3 – General medical conditions.
- 3 The DSM V does not have the multiaxial system which was in DSM IV-TR.
- 4 Banister *et al.* (1964) – there was no clear-cut relationship between diagnosis and treatment. This means that the predictive validity of the diagnoses in the sample was low. However, Kim-Cohen *et al.* (2005) undertook a longitudinal study of conduct disorder in five-year-olds and did find validity in the results.
- 5 Reliability ensures some comparability among those using the same classification system. This means that professionals will have different backgrounds and beliefs but can use the same classification system, and they should therefore be less biased. However, there is a great deal of research, such as Cooper *et al.* (1972), that demonstrates the lack of reliability.
- 6 Losing touch with reality.
- 7 A ‘feature’ is a statistic or fact, such as onset or prevalence. A ‘symptom’ is something the individual suffers from, such as hallucinations.
- 8 Positive symptoms are behaviours which are additional to normal behaviours and negative symptoms are behaviours which appear to be absent from normal behaviours.
- 9 The drugs that are used to treat schizophrenia cause symptoms similar to Parkinson’s disease, which is known to be caused by low levels of dopamine.
- 10 The problem with the dopamine hypothesis is that it focuses purely on one level of explanation and ignores everything else that’s happening. Human behaviour very rarely arises from just one single cause – there are almost always multiple factors all working together to produce an effect. Family influence may be important in the development of schizophrenia and other psychosocial stressors may also play their part.
- 11 Dopamine agonists increase dopamine levels in the brain.
- 12 Dopamine antagonists lower dopamine levels in the brain.

- 13 Concordance rates show the likelihood of both twins having the same disorder.
- 14 Studies using twins can help identify trends in families. Once such trends have been identified, researchers are then able to carry out DNA testing to try to isolate the genes involved. However, twin studies do have problems with their designs. For example, a 50 per cent concordance rate in schizophrenic MZ twins masks other possible causes.
- 15 Enlarged ventricles; low levels of activity in certain areas of the frontal lobes; decreased brain weight and enlarged ventricles and lack of symmetry in the brain.
- 16 It is still not clear whether structural abnormalities in the brain are a cause or a consequence of schizophrenia. In other words, does having structural abnormalities cause individuals to develop schizophrenia or does having schizophrenia result in developing structural abnormalities in the brain? The latter point is supported in that some structural abnormalities, such as enlarged ventricles, only appear to be present in chronic patients, i.e. those who have suffered from schizophrenia for a long time.
- 17 Social drift suggests schizophrenia causes reduced social status. Social causation theory states that low social status causes schizophrenia.
- 18 Negative EE means being hostile and critical and positive EE means displaying warmth and positive comments.
- 19 The behaviourist explanation has been useful in therapy and can modify schizophrenic behaviour, e.g. if hospital staff consistently ignore bizarre behaviour and reinforce normal behaviour. However, this does not mean that a schizophrenic's thought patterns have been changed. The approach fails to explain how schizophrenic behaviours can be acquired when people have had no opportunity to observe them.
- 20 Chlorpromazine, thiorizadine, and trifluoperazine.
- 21 Dopamine.
- 22 Having everything done for you and not being able to make your own decisions such that it becomes hard to live in the outside world.
- 23 It is difficult to establish whether a biochemical imbalance in the hypothalamus causes anorexia, or whether anorexia causes a biochemical imbalance.

It can be argued that twin studies operate on the assumption that both twins have an identical environment and this may not be the case. The fact that MZ twins can be discordant for anorexia, suggests that the environment plays a significant role in the expression of the disorder. These explanations are of little help for anorexics as they are not useful in offering possibilities for treatment. Clinicians are then left having to seek out other possible causes, which may in turn have issues for reliability and validity of diagnosis and treatment.

**24** Social Learning Theory has helped provide an understanding of the disorder and has been invaluable in informing the debate over media influences. It recognises that there is a short cut to learning in that rather than having to learn through trial and error/experience, we can learn through observation.

The approach does not explain excess dieting or individual differences. Most of us in the west are exposed to thin models, but only a small percentage actually develops anorexia. Similarly, many people are influenced by social pressures into dieting, but do not take this to extremes and become anorexic.

**25** The anorexic voice is a continuous conversation of harsh and over-criticising thoughts.

**26** The integration of attitudes, values, standards and the opinions of others into one's own identity or sense of self.

**27** To help the patient achieve and maintain a normal pattern of eating and a normal weight.

**28** Behavioural phase – the patient and therapist work together to formulate a plan for stabilising eating and eliminating symptoms.

Cognitive phase – as treatment progresses, cognitive restructuring techniques are introduced.

**29** Meaning that a person with anorexia will go into treatment for a specific period of time with specific goals in mind.

**30** Olanzapine.

**31** Olanzapine significantly increases appetite and slows metabolism.

**32** Lethargy (lack of will or energy), permanent anxiety issues and problems with sleep (including waking early or continually through the night and difficulty getting to sleep).

**33** Women are more likely to be diagnosed with depression than men, with some studies estimating that a woman is two to three times more likely

to become clinically depressed than a man. Depression affects all age groups, but tends to occur more in young people than older people and more likely to start in early adolescence.

- 34 By increasing levels of serotonin.
- 35 This approach proposes that irrational or maladaptive thought processes cause dysfunctional behaviour.
- 36 Cognitive triad, cognitive errors and schemata.
- 37 Moving house, changing careers, major illness.
- 38 That these thoughts can become a habit as we think of them over and over again.
- 39 Tricyclics block the reuptake of serotonin and noradrenaline; SSRIs block reuptake, but only impact on serotonin pathways.
- 40 Prevalence ranges from 0.8 to 3 per cent in adults and 0.25 to 2 per cent in children and adolescents. Onset is most commonly in late adolescence and early twenties but can occur at any age. Based on current estimates for the UK population, there are potentially around 741,504 people living with OCD at any one time.
- 41 More than one gene is involved.
- 42 COMT gene and SERT gene.
- 43 The SERT gene affects the transport of the serotonin causing lower levels of serotonin which is associated with OCD. The COMT gene is a gene that regulates the function of dopamine in particular clearing dopamine from synapses.
- 44 Can cause an exaggerated control of primal impulses.
- 45 Perceived control and cognitive appraisal.
- 46 Controlling compulsive rituals and avoidance and reducing the anxiety associated with obsessions.
- 47 A disorder that appears confined to members of a particular culture and which does not occur elsewhere.
- 48 Primary data are a reliable way to collect data because the researcher can do it again as they know the procedures, how the data were collected and analysed. However, the data have to be gathered from scratch, which involves finding a large enough population. This usually makes it more costly and time consuming.
- 49 It saves time and expense that would otherwise be spent collecting data. However, secondary data have limitations and should be carefully evaluated to determine the appropriateness for the problem at hand.

- 50** Can the sane be distinguished from the insane?
- 51** Two graduate students, three psychologists, a paediatrician, a painter and a housewife.
- 52** Writing behaviour and waiting outside the cafeteria half an hour before lunchtime.



## Chapter 6

- 1 It is part of the limbic system within the brain, which is responsible for emotions, survival instincts and memory.
- 2 One criticism of these links between neurotransmitters and aggression is that they can be described as reductionist. The complexity of human behaviour means that biological explanations are insufficient on their own to explain the many different aspects of human aggression.
- 3 Both have links with negative emotions and aggression.
- 4 47.
- 5 It is impractical to test the genes of the male population to determine if they have the XYY. This means it is difficult to ever know its true prevalence.
- 6 They are overly aggressive, lack empathy, have reduced intelligence and may suffer from learning difficulties.
- 7 We might have an innate tendency to become criminal within us.
- 8 Research findings are inconsistent as to whether high scores on the EPQ cause criminality and so this makes any accurate relationship difficult.
- 9 External motivation is rewards by external factors, such as the money received after a robbery. Internal motivation happens if the behaviour is motivating and satisfies a need.
- 10 Has evidence from research, such as Williams (1986) who found that over a two-year period aggression rose steadily in a community where television had just been introduced, while in a similar community where there already was television there was no increase. One possible interpretation of this is that the children learned to behave aggressively from models in the television programmes they watched. However, the theory has little to say about the conditions under which violence and criminality are learned. It also underplays the role of cognition in criminal behaviour. For example, it is not clear why people behave criminally at all if the vast majority of models and reinforcements should promote non-criminal behaviour.
- 11 Cognitive interview technique is a questioning technique used by the police to enhance retrieval of information from the witness' memory.
- 12 The technique is more structured than the standard technique. The police have found it appropriate for crime-related interviews in order to gather the detail required for a useful testimony. However, Koehnken et al. (1999) found more detailed recall increases the chances of making

mistakes; witnesses recalled more incorrect information when interviewed with the cognitive interview.

- 13 The aim of formulation is to explain the individual's problems and symptoms.
- 14 First, it should be accurate and fit the offender for whom it is constructed. A second goal of formulation is that it should contribute to the treatment beyond what would have been achieved in the absence of a formulation. A third goal of formulation is that it should be simple yet sufficiently comprehensive. A final goal of formulation is to strike the right balance between description and explanation.
- 15 Reasoning and Rehabilitation therapy targets moral development, encourages creative thinking, and teaches offenders to take a social perspective on life. Enhanced Thinking Skills aims to boost prosocial behaviour by working on interpersonal skills and self-control.
- 16 Micro-skills – eye contact, appropriate distance during discussions.  
Macro-skills – assertiveness, negotiation, etc.
- 17 The aim is to identify triggers which may cause aggressive outbursts.
- 18 Physiological.
- 19 Verbal or physical abuse.
- 20 Testosterone.
- 21 Sex drive.
- 22 Violent sex offenders, as well as paedophiles.
- 23 One in which neither the participants nor the experimenters know who is receiving a particular treatment/drug.
- 24 Serotonin.
- 25 Laboratory and field experiments.
- 26 Loftus.
- 27 83 per cent found a guilty verdict which supports the idea that if they used their attractiveness to aid their crime it would have the opposite effect.
- 28 Publicity about the trial in the media before the trial has even begun.
- 29 'Normative' applies when the individual outwardly conforms to avoid rejection by the group, but inwardly disagrees. 'Informational' applies when the individual conforms to the group because they simply do not know what to do.
- 30 When using 'witness order', lawyers present witnesses in the sequence most likely to persuade the jury, so may leave their best witness until

last to try to finish on a dramatic note. Persuasion techniques present the most important information first – the primacy effect is more effective than giving it later as it will be forgotten.

- 31** Impulsivity and aggression.
- 32** Laboratory.
- 33** Laboratory.
- 34** Case studies.
- 35** Loftus and Palmer (1974).
- 36** Yuille and Cutshall (1986).
- 37** Impartial, detached and neutral.
- 38** Leading question.
- 39** As it took place in a naturally occurring situation and received informed consent of participants.

## Chapter 7

- 1 'Privation' means the child never had the chance to form an attachment in the first place, but 'deprivation' is about losing the attachment after it has been formed.
- 2 Difficulty forming relationships with other people later on and would be at risk of behavioural disorders.
- 3 Although it seems logical that as attachment occurs in most species, it must be evolutionary and enhance survival chances, there is no direct evidence for this. However, evolution is generally accepted as an influence on a baby's behaviour and this part of Bowlby's theory is not generally regarded as controversial.
- 4 Few accept Bowlby's view that there is a critical period for the development of attachment. An alternative view suggests that instead of a critical period when attachment has to be achieved, there is a maternal-sensitive period during which the bond is most likely to occur. However, this view also receives little support now with recent research suggesting that bonding can take place several months after birth.
- 5 Rutter has reported that several indicators of attachment can be shown for a variety of attachment figures other than the mother. In addition, research conducted by Schaffer and Emerson, showed that while not all the child's attachments are of equal strength, multiple attachments seem to be the rule rather than the exception, and that the mother is not always or necessarily the main attachment.
- 6 Plays independently when the mother is present in the room and uses the mother as a safe base to explore. Displays distress when the mother leaves the room and seeks comfort when the mother returns to the room.
- 7 The researcher decides where the observation will take place, at what time, with which participants, in what circumstances and uses a standardised procedure and are likely to be carried out in a psychology laboratory.
- 8 We can only infer the link between caring style and attachment type, but cannot say one causes the other. Securely attached children may be so due to some other factor apart from having a sensitive mother.
- 9 It would be unreasonable to make generalisations about all baby behaviour on the basis of this sample. The study and its findings are

restricted to middle-class American babies, i.e. the study and its findings are culturally biased.

- 10 The children do get very upset when the mother leaves the room, and many are upset when a stranger is present. Ethical guidelines, for example, not causing distress, need to be considered when such studies are carried out.
- 11 Longer separations were rarely associated with complete recovery as the attachment bond became discontinuous rather than continuous.
- 12 The lack of an attachment figure will have caused these traits as opposed to the fostered group who formed an attachment bond.
- 13 Through having a replacement attachment figure that can provide for emotional needs. Similarly more contact from the replacement figure alongside their attention and stimulation can reduce these negative effects.
- 14 Help maintain the routine and talking to older children.
- 15 Previous bonds, age rescued, any health issues, quality of care.
- 16 If good care can help it might be concluded that there is no critical period for this recovery. If, however, they did not recover, then it seems as if there might be a critical period for forming attachments and for being stimulated and socialised. The case of the twins suggests there is not a critical period for emotional and cognitive development.
- 17 The children were only really studied and tested after they were taken into care by the authorities. We do not actually know what they were like from birth, in particular whether they had any developmental problems which could have affected their later development.
- 18 Lower reading and maths skills if in day care before age 3. Creates 'insecure' children due to no secure base for exploration (less able to explore their world confidently which may hinder cognitive development).
- 19 Clearly the findings are contradictory suggesting it is too simplistic to assume all day care will have the same effects on all children. Researchers now recognise that we need to consider a number of factors when assessing the effects of day care.
- 20 To investigate social-emotional and intellectual development from those in and not in day care. What factors differed between alternative forms of day-care and may have contributed to any differences in the development of the children.

- 21 The procedure may in fact be measuring a child's temperament due to the anxious situation it finds itself in, rather than its ability to interact with others. It is also a contrived (too planned) situation involving eight deliberate steps which are more artificial than real life.
- 22 Observations and interviews may be open to interpretation and lead to bias in assessing intellectual and language development. Carers may differ in their opinions of a young child's abilities. Crying, playing and physical contact are difficult behaviours to observe and measure resulting in some level of subjectivity.
- 23 The effects themselves may not have been a direct result of the environment the children were brought up in. There were clear variations in the quality of care especially in the nurseries which meant the children in this group did not have parity with the other groups.
- 24 Takahashi showed greater sensitivity to the ethical rights of the babies by stopping those observations where babies became too distressed. However, the study itself was not stopped, even though it became obvious that extreme distress was likely.
- 25 German families may place more emphasis on encouraging independence. In Germany, there is a larger interpersonal distance, and babies are weaned from body contact early in life. German mothers aim to develop an independent non-clinging baby who obeys the commands of its parents.
- 26 It could be concluded that cultural differences led to different attachment patterns, but not that children from other cultures were worse off than those in the United States (which saying they are not so securely attached seems to imply).
- 27 Affects around 700,000 people in the UK, which is more than 1 in 100. It is more prevalent in boys than girls with five times as many males as females diagnosed with autism.
- 28 Extreme male brain and theory of mind.
- 29 Type E is called the female brain where empathising is stronger than systemising. Type S is called the male brain where systemising is stronger than empathising.
- 30 Those with autism pointed to the basket where the hidden ball really was rather than where Sally (from her point of view) believed it to be.
- 31 Operant conditioning.
- 32 ABA.

- 33 Provides social and emotional instruction in a natural setting, but children who lack joint attention and imitation or who have severe ritualistic and challenging behaviours may be less responsive.
- 34 Cross-sectional studies are usually relatively inexpensive and allow researchers to collect a great deal of information quite quickly. Data are often obtained using self-report surveys and researchers are often able to amass large amounts of information from a large pool of participants. Generally require a large number of participants, so it is more likely that there will be small differences among participants. While such differences might seem minor, they can influence the study's findings. Also, groups can be affected by cohort differences that arise from the particular experiences of a unique group of people.
- 35 It allows researchers to look at changes over time, so longitudinal methods are particularly useful when studying development and lifespan issues. However, longitudinal studies require enormous amounts of time and are often quite expensive. Because of this, these studies often have only a small group of participants, which makes it difficult to apply the results to a larger population.
- 36 So we see if a particular behaviour is universal to everyone, or just applicable to that particular culture.
- 37 Most of the data came from individualistic cultures and China was the only collectivistic culture.



## Chapter 8

- 1 Tolerance.
- 2 Psychological dependence.
- 3 Abstinence syndrome.
- 4 Feeling relaxed, reduction in anxiety and slows reaction time.
- 5 Nausea, vomiting and even death.
- 6 Upregulation.
- 7 To prevent withdrawal symptoms.
- 8 Dopamine.
- 9 Breathing becomes slower, heart rate slows, feels relaxed and sleepy.
- 10 The brain reduces its natural levels of endorphins.
- 11 The brain.
- 12 Relaxation, improved attention and problem-solving skills.
- 13 Tolerance progresses as the day develops and later cigarettes have less effect.
- 14 Withdrawal syndrome known as craving.
- 15 To get the person to learn or relearn better coping skills. To change the way they think about their substance abuse and to learn new ways to cope.
- 16 To get them to associate the emetic with the taste of alcohol.
- 17 They block the metabolism of alcohol and produces noxious effects like vomiting.
- 18 UCS is the emetic drug and NS is the alcohol.
- 19 It is given orally, making it safer than an injection of heroin.
- 20 They are objective.
- 21 Anthropomorphism.

# Glossary

**ablation** Slicing bits of brain to observe changes to the tissue.

**acetylcholine** A neurotransmitter released by nerves that is essential for communication between nerves.

**action potential** The message by which a nerve impulse travels down an axon.

**addiction** A physical or psychological need for a habit-forming substance.

**affectionless psychopathy** A condition where those affected cannot exhibit care, concern, empathy or affection for other people. They show very little remorse, guilt or shame for their actions.

**agentic** The agentic state is where we give up our free will to follow the orders of others in authority; we become their 'agents'.

**Alzheimer's disease** A progressive, degenerative and ultimately fatal brain disease, in which cell-to-cell connections in the brain are lost.

**amenorrhoea** The loss of the menstrual cycle.

**amygdala** A limbic system structure that is involved in many of our emotions and motivations, particularly those that are related to survival. It also controls the way we react to certain stimuli, or an event that causes an emotion, that we see as potentially threatening or dangerous.

**anterograde amnesia** The inability to form new memories.

**anti-androgen** A drug that blocks the action of male sex hormones.

**antipsychotic drug** A drug that is used to treat psychotic disorders.

**ARAS** A system that triggers the release of hormones and neurotransmitters.

**asexual** A individual who has as a lack of sexual attraction to others or the lack of interest in sex.

**attentional** A process of observational learning where we can only learn through observation if we pay attention to the model's action.

**atypical** Not typical or representative of a group.

**autonomous** In the autonomous state, we are freethinking and able to make our own decisions for which we are fully responsible.

**aversive** Causing a strong feeling of dislike or disgust.

**axon** The part of the neuron that takes information away from the cell body towards the axon terminals.

**axon terminals** The hair-like ends of an axon, which pass information on to another neuron.

**behaviour shaping** Reinforcements becoming increasingly selective, meaning they are only given for behaviours which more closely resemble those that we are looking for.

**CAT scan (computerised axial tomography)** A series of x-ray beams passed through the head, creating cross-sectional images of the brain showing the structure, but not the function.

**catharsis** An emotional release linked to a need to relieve unconscious conflicts.

**cell body** Part of the cell that contains the nucleus and mitochondria which provide the neuron with energy.

**central nervous system** The body's system for decision-making and coordination.

**cerebellum** The cerebellum is extremely important for being able to perform everyday voluntary tasks, such as walking and writing. It is also essential to being able to stay balanced and upright.

**cerebral cortex** Area of the brain that can be divided into two hemispheres – the left and the right hemispheres. The left hemisphere is associated with verbal processing, such as speech and grammar, and mathematics, while the right hemisphere is involved with nonverbal processing, such as spatial perception, visual recognition and emotion.

**chromosomes** A threadlike structure found in the nucleus of most living cells, carrying genetic information in the form of genes.

**clinical interview** A dialogue between psychologist and patient that is designed to help the psychologist diagnose and plan treatment for the patient.

**coding** A process for both categorising qualitative data and for describing the implications and details of these categories.

**coercion** Using force or leverage to make someone adopt a set of beliefs.

**cognitive errors** Errors that result from an individual giving selective attention to the negative side of a situation, ignoring the positive aspects.

**cognitive restructuring** A process of learning to identify and dispute irrational or maladaptive thoughts.

**cognitive restructuring techniques** Techniques aimed at recognising and changing problem thinking patterns.

**collectivist** Emphasis of the needs and goals of the group as a whole over the needs and wishes of each individual.

**Compulsion** The anxiety produced by these thoughts leading to an urgent need to perform certain rituals or routines.

**concordance** The likelihood that, if one twin has a certain trait, the other twin will also have the same trait.

**conscious** The conscious part of the mind is what we are aware of (thoughts, ideas and emotions) at any one point in time. It consists mostly of the ego.

**controls** Conditions that are kept the same in order to minimise the effects of variables other than the independent variable on the dependent variable.

**corpus callosum** Part of the brain responsible for transmitting neural messages between both the right and left hemispheres. If this becomes damaged then the individual cannot link messages between the two hemispheres.

**correlation coefficient** The correlation coefficient is a mathematical representation of to what degree the two results are related or linked.

**correlation** The relationship between two variables. The researcher measures the variables without manipulating them.

**covert observations** Made when the researcher pretends to be an ordinary member of the group and observes in secret.

**critical period** A time period when an aspect of development has to be achieved.

**culturally relative** The same disorders may exist in different cultures, but the symptoms shown will differ according to an individual's cultural upbringing.

**culture bound syndromes** Disorders that appear to be confined to members of a particular culture and which do not occur elsewhere.

**danger** One of the four 'Ds'. When an individual exhibits behaviours and feelings that pose a threat to themselves or others.

**deductive approaches** Theory-driven approaches to research, where the researcher will have an idea of the themes they are looking for before analysing the data.

**defence mechanisms** Mechanisms that protect the ego from temporary threat or trauma, and to help us to cope with issues we may have.

**delerium tremens** A condition typical of withdrawal in alcoholics, involving tremors and hallucinations.

**demand characteristic** A subtle cue that makes participants aware of what the experimenter expects to find or how participants are expected to behave.

**demographics** Statistical data relating to the population and particular groups within it.

**dendrites** Extensions that receive messages from other neurons to take to the cell body in order to trigger an action potential.

**dependent variable (DV)** The variable measured by the researcher. It is so called as it is dependent on the way the experimenter manipulates the independent variable.

**depersonalisation** A mental state in which a person feels detached or disconnected from his or her personal identity or self.

**deprivation** The breaking or loss of an emotional bond after an attachment has been formed.

**desensitisation** Brought about through relaxation techniques taught before facing up to a phobic object.

**detoxification** The process of removing toxic substances.

**deviance** One of the four 'Ds'. Departure from how society expects us to behave. One of the four 'Ds'.

**directional (one-tailed)** A type of hypothesis which states the kind of difference between two conditions or groups of participants.

**discord** Disagreement, strife and conflict.

**disembedding** Locating a previously seen figure in a new larger one.

**displacement** The redirection of an aggressive impulse onto a powerless substitute target.

**distress** One of the four 'Ds'. The extent to which the individual perceives their own behaviour and/or emotions as upsetting and accounts for the negative feelings of individuals with psychological disorders.

**Down syndrome** A condition of mental retardation and associated physical disorders caused by an extra chromosome.

**dysfunction** One of the four 'Ds'. A psychological state prevents us from effectively satisfying our social/and occupational roles.

**dyslexia** A condition primarily associated with problems with reading.

**ecological validity** The degree to which the behaviours observed and recorded in a study reflect the behaviours that actually occur in natural settings.

**ego** Part of the personality that is in touch with the real world. It is rational and logical.

**emic** Investigating cultural uniqueness.

**empathising** The drive to identify another person's emotions and thoughts.

**empiricism** The idea that knowledge only comes from sense data through seeing, touching, tasting, hearing or smelling.

**encoding** Information is learning by perceiving information and relating it to past knowledge.

**endocrinology** The scientific study of the interaction between hormones and behaviour.

**endorphin** A chemical naturally released in the brain to reduce pain.

**enmeshment** Over-involvement of parents with the child.

**episodic memory** Memory of experiences and specific events, from which we can reconstruct the actual events that took place at any given point in our lives.

**equilibrium** The state of balance or stability.

**ethnocentric** Belief that one's own group (e.g. ethnic, social, cultural) is the most important and superior to that of others.

**ethology** The science of animal behaviour.

**etic** The assumption that there are universals in human behaviour and that cultural influences may or may not produce variations upon these.

**existential crisis** An event when an individual questions the very foundations of their life and whether it has any meaning, purpose or value.

**exposure and response prevention therapy** A behavioural approach to help explore alternative ways to respond to obsessional thoughts or doubts.

**expressed emotion** The attitudes expressed by family members when talking about and to the person with schizophrenia.

**externalising** Demonstrating violent or disobedient behaviour.

**extravert** A personality type characterised by being sociable and craving excitement and change, and thus they can become bored easily. They tend to be carefree, optimistic and impulsive.

**falsification** When it is proposed that theories should be able to be proved wrong.

**fatigue effect** Decline in performance as the research participant becomes tired or bored while performing a sequence of tasks.

**field experiments** Experiments that take place in a natural environment; as such they are carried out in the field.

**fMRI** A technique for measuring brain activity. It uses magnetic and radio waves that pass through the body when the person lies in the large cylinder.

**frontal lobe** An area of the brain involved in the control of voluntary muscles, intelligence and personality and where we can carry out higher

mental processes, such as planning.

**GABA** This functions as the major chemical messenger that slows and stops chemical reactions throughout the central nervous system.

**genotypes** The ways in which our genes govern our behaviour.

**glutamate** A neurotransmitter that nerve cells use to send signals to other cells and exists in large quantities in the nervous system.

**grounded theory** The process of gathering the data first without a hypothesis and then analysing it to come up with a theory.

**hormones** Organic chemical messengers produced and released by specialised glands called endocrine glands.

**hyperdopaminergia** A condition of having too much dopamine activity.

**hypodopaminergia** A condition of having too little dopamine activity.

**hypothesis** An intelligent guess or prediction as to what a researcher is likely to discover.

**hypothesis testing** The process of making predictions within the scientific method, about behaviour under certain conditions.

**id** The id exists from birth and is the most basic, primitive part of the personality. It can be thought of as being the 'true unconscious'.

**inductive approach** In an inductive approach the themes identified are strongly linked to the data, the process of coding occurs without trying to fit the data into a pre-existing model or frame.

**in vitro** Through imagination.

**in vivo** Real life experience.

**incarceration** To be put in jail or imprisoned.

**independent variable (IV)** The variable that the researcher manipulates.

**individualist** Focus on the rights and concerns of each person.

**integrative diagrams** Diagrams used to pull all of the detail together, to help make sense of the data with respect to the emerging theory.

**internal validity** The degree that we are successful in eliminating confounding variables within the study itself.

**internalised** To accept or absorb an opinion or belief, so it becomes part of your character.

**internalising** Demonstrating withdrawal anxiety and depression.

**Introvert** A personality type characterised by being reserved and reflective.

**juvenile delinquency** Participation in illegal behaviour by individuals younger than the statutory age.



**labelling** How the self-identity and behaviour of individuals may be determined or influenced by the terms used to describe or classify them.

**laboratory experiments** Experiments that take place in an artificial setting and in a controlled environment.

**lateral thinking** A method of problem solving that uses creative and indirect methods.

**lethargy** A lack of will or energy.

**MAOIs (monoamine oxidase inhibitors)** Antidepressants that prevent the action of monoamine oxidase so results in higher levels of serotonin and noradrenaline in the synapse which leads to a reduction in depressive symptoms.

**marital discord** Disagreement and lack of harmony between couples.

**memoing** A process for recording the thoughts and ideas of the researcher as they evolve throughout the study.

**mental retardation** A condition diagnosed usually in infancy that includes below-average general intellectual function and a lack of the skills necessary for daily living.

**metapelet** A woman who cares for children, especially on kibbutzim in Israel; foster mother.

**midbrain** The midbrain is an area of the brain that is in the middle of two other regions: the forebrain and the hindbrain.

**mind blindness** The inability to read others' intentions which could explain their lack of social skills.

**monotropy** A strong innate tendency to become attached to one particular individual (usually the mother).

**moral development** The process through which children develop proper attitudes and behaviours towards other people in society, based on social and cultural norms, rules and laws.

**moral strain** When an individual may feel uncomfortable and feel what they are doing is wrong, but carry out the immoral act for the greater good.

**morphine** A powerful analgesic (painkiller)

**motivational** A process of observational learning where whether we continue to do what has been observed depends on our motivation.

**myelin sheath** The fatty substance that surrounds the axon to protect the nerve fibres and helps speed up the rate of transmission.

**naturalistic observation** Studying the spontaneous behaviour of participants in natural surroundings.

**negative reinforcer** The removal of a threat or punishment after the desired behaviour has been performed.

**negative symptoms** Behaviours which appear to be absent from normal behaviours, e.g. loss of drive.

**neurotic** A personality type characterised by a tendency to be anxious, worried and moody.

**neurotransmitters** Chemical messengers that act between the neurones in the brain.

**node of Ranvier** Gap in the myelin sheath.

**non-directional (two-tailed)** A type of hypothesis which predicts that there will be a difference between two conditions, but does not state the kind of difference.

**non-participant observation** A research technique whereby the researcher watches the participants with their knowledge, but without taking an active part in the situation under scrutiny.

**noradrenaline** A neurotransmitter which boosts attention and boosts the fight-or-flight mechanism.

**nucleus** Part of the neuron that contains chromosomes (genetic material).

**null hypothesis** A hypothesis stating that there will be no difference between conditions/variables and any difference will be due to chance factors.

**objectivity** All sources of bias are minimised and that personal or subjective ideas are eliminated.

**obsessions** Recurring and distressing thoughts and fears.

**occipital lobe** An area of the brain. Damage to the occipital lobe may cause cross-eyeing and blindness partly or entirely of the visual field. Similar to how the temporal lobe makes sense of auditory information, the occipital lobe makes sense of visual information so that we are able to understand it.

**operant conditioning** Behaviours being learned through rewards and punishments.

**overt observations** Observations when the researcher tells the group he or she is conducting research (i.e. they know they are being observed).

**parenting stress** The aversive psychological reaction to the demands of being a parent.

**parietal lobe** An area of the brain that is involved in attention and motor control, processing spatial location, and in perceiving pain, touch and temperature.

**participant observation** A variant of natural observations but here the researcher joins in and becomes part of the group they are studying to get a deeper insight into their lives.

**PET scan (positron emission tomography)** Scans that measure brain activity following an injection of radioactive material which emits positrons.

**phenotypes** The ways in which our genes interact with the environment.

**physical dependence** A physical need for the drug because the body has adapted to the high amounts of certain chemicals and cannot operate normally without them.

**placebo** A substance that has no therapeutic effect, used as a control in testing new drugs.

**polygenic** Where a number of genes are involved in development.

**positive reinforcers** These may be primary (i.e. the reinforce is a naturally occurring phenomenon, like food or sleep, which directly satisfies some physical need) or secondary (i.e. things we have learned can be worth having, such as money).

**positive symptoms** Behaviours which are additional to normal behaviours, e.g. hearing voices.

**postsynaptic membrane** The part of the postsynaptic cell that receives a signal from the presynaptic cell.

**practice effect** Improvement in performance due to repeated practice with a task.

**preconscious** The preconscious part of the mind consists of material which we are not currently aware of, but could potentially be aware of. It holds our memories which are still accessible but not currently in our conscious mind. It consists of the ego and superego.

**predictive validity** Testing a group of participants for a certain construct, and then comparing them with results obtained at some point in the future.

**prefrontal cortex** An area of the brain that deals in planning complex cognitive behaviour, personality expression, decision making and moderating social behaviour.

**primary appraisal** An individual's personal assessment of whether or not a situation is relevant to their wellbeing.

**Privation** A complete lack of emotional care, meaning the child never had the chance to form an attachment in the first place. Such a lack of emotional

care results in no attachments being formed and may result in permanent harm to emotional and social development.

**pseudopatients** False patients, usually researchers pretending to be patients.

**psychoactive** A chemical substance that changes brain function.

**psychological dependence** The need to take a drug not for physical reasons, but for psychological reasons, such as support and feeling calmer.

**psychological formulation** A psychological formulation is a structured approach to understanding the factors underlying criminal behaviour in such a way that it informs the changes needed and the mechanisms and treatments for such change to occur.

**psychoticism** A personality pattern showing a lack of empathy and aggressive and reclusive behaviour.

**punishment** Causing some kind of physical or mental distress by either giving some unpleasant stimulus (like a smack) or withholding a pleasant one (like not being allowed to go out for a week).

**recidivism** A person's relapse into criminal behaviour.

**reconstructive memory** The idea that remembering the past requires an attempt to reconstruct the events experienced previously.

**recreational drugs** Substances that alter brain functioning, which can change an individual's mood and perception.

**reductionism** The belief that every single process in nature can be broken down into its constituent parts and can be described scientifically.

**relapse prevention** An approach with the goal of identifying and preventing high-risk situations.

**reliability** When a method is replicated and consistency of results is achieved.

**reordered families** Families which have parents separated or divorced.

**replicability** Where researchers should be able to replicate a study in exactly the same way with high levels of control using a standardised procedure.

**reproduction** A process of observational learning where we attempt to reproduce or imitate what has been observed, dependent on our physical capability and skill.

**resting potential** The potential maintained by the inactive neuron.

**retentional** A process of observational learning where having observed the model, we must remember what happened. We store both a visual image, to

be later viewed in our ‘mind’s eye’ and a verbal description of the model’s actions.

**retrieval cues** Stimuli that help give you a certain memory.

**retrieval** Retrieving information and accessing it when needed.

**retrospective** Looking back in time and using data from the past.

**reuptake** The process whereby molecules of the neurotransmitter that do not bind to receptors in the postsynaptic neuron are taken up again by the presynaptic neuron.

**schema** A pattern of thought or behaviour that organises categories of information.

**schemata** Built-up experiences of the world, which involves developing positive and negative beliefs and attitudes to interpret the world.

**schwann cells** Cells that produce myelin. They are located within the myelin sheath.

**Secondary appraisal** An individual’s assessment of their ability to cope with that situation.

**Self-fulfilling prophecy** When someone unknowingly causes a prediction to come true, due to the simple fact that they expect it to come true.

**semantic memory** General factual knowledge, shared with others and independent of personal experience.

**separation anxiety** The unease a child shows when separated from the mother.

**separation** Being physically apart from one’s caregiver, especially one’s mother figure.

**social causation** Suggestion that members of the lowest socio-economic groups tend to experience more stressful lives, because of poverty, unemployment, poor physical health, etc.

**social drift hypothesis** Individuals who develop schizophrenia are more likely to lose their jobs and so their socioeconomic status becomes reduced.

**social forces** An element of society that impacts the individual.

**social skills** Any skills that facilitate interaction and communication with others.

**species-specific** Behaviours that are unique to certain species.

**SSRIs (Selective Serotonin Re-uptake Inhibitors)** Antidepressants that slow down the re-absorption of serotonin by the presynaptic vesicles.

Consequently, more of the neurotransmitters are left in the synapse, and so

serotonin activity increases at the postsynaptic receptors. This is linked to arousal and improved mood.

**stability** The state of being calm and unworried.

**standardised interview schedules** The set of symptoms which must be enquired about, defining them precisely and giving instructions on assessing their severity.

**statistically significant** The likelihood that a relationship between two or more variables is caused by something other than random chance.

**stereotyping** A thought that can be adopted about specific types of individuals or certain ways of doing things.

**storage** Storing information, keeping and maintaining it over time.

**structured observations** Set up to record behaviours that may be difficult to observe using naturalistic observation.

**superego** A part of the personality that will help us know what is right and not right for us, and what we may and may not do.

**superordinate goals** Mutually desirable goals that cannot be obtained without the participation of two or more groups.

**synapses** Small junctions between neurons where neurotransmitters are released and passed from the end of one neuron to the dendrite of the receiving neuron.

**synaptic transmission** The process by which neurotransmitters are released by the presynaptic neuron and bind to and activate the receptors of the postsynaptic neuron.

**synoptic** Understanding and making the links across different topic areas.

**systematic** Gradually facing up to the phobic object throughout a hierarchy of exposure (least fearful to most fearful).

**systemising** The drive to analyse, explore and construct a system.

**tallying** Making a mark each time a particular behaviour occurs.

**temperament** Aspects of an individual's personality, such as introversion or extroversion, which are often regarded as innate rather than learned.

**temperance** Abstinence from drinking alcohol.

**temporal lobe** Damage to the temporal lobe leads to failure to store new information and problems in understanding what others are saying to us.

**thalamus** An area of the brain that sorts and relays incoming information to the different parts of the forebrain. The hypothalamus monitors pleasurable activities, such as eating and drinking, and is mainly responsible for motivational behaviour.



**thanatos** A wish for a return to Nirvana (a state where everything you need is provided for, e.g. being in your mother's womb).

**availability heuristic** The tendency to recall only certain information when making a decision.

**limbic system** A group of structures in the brain associated with our emotions and urges and is made up of the amygdala and the hippocampus.

**thematic analysis** Pinpointing, examining and recording patterns (or 'themes') within data.

**tolerance** The way the body continues to adapt to a substance.

**tomograph** A tomograph is an x-ray showing a layer of tissue at some specific depth. An axial tomograph is one made by rotating the subject around an axis, which means twirling the subject or twirling the machine.

**tricyclics** Antidepressants that slow down the re-absorption of serotonin and noradrenaline by the presynaptic vesicles. Consequently, more of the neurotransmitters are left in the synapse, and so serotonin and noradrenaline activity increase at the postsynaptic receptors. This is linked to arousal and improved mood.

**tumour** A swelling caused by an abnormal growth of tissue, whether benign or malignant.

**unconscious** The unconscious part of the mind consists of material which we can never have direct access to, contains repressed memories and unconscious conflicts. It consists of the *ego*, *superego* and *id*.

**universality** Something that can be applied everywhere across all children and all cultures.

**unresolved attachment types** Typical of unresolved loss, such as trauma or abuse.

**valid** The extent to which it reflects an actual disorder (and possible cause) and enable a suitable treatment to be identified.

**validity** Data being true to real life and representing what they have claimed to represent.

**vicarious learning** How an individual learns by watching others being rewarded or punished.

**vicarious reinforcement** Reinforcement that is received by the model rather than the learner.

**vulnerable words** Words that have multiple meanings to the individual.

**weapon focus** Where the individual concentrates on the weapon in hand and ignores other details about the crime.



**withdrawal** Miserable symptoms that are experienced when someone stops using a substance on which they have become physically or psychologically dependent.