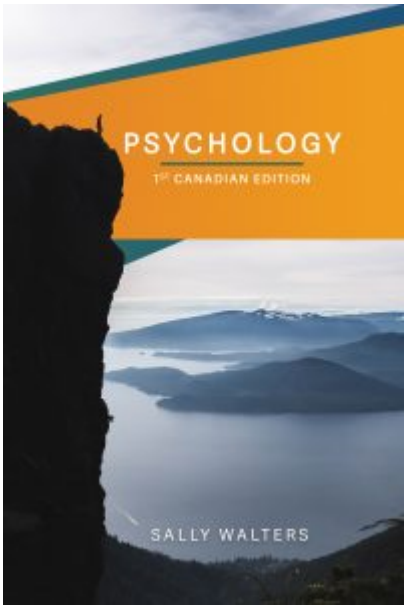
Psychology - 1st Canadian Edition


PSYCHOLOGY
1ST CANADIAN EDITION
SALLY WALTERS

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About the Book

Psychology – 1st Canadian Edition is an adaptation by Sally Walters of Charles Stangor and Jennifer Walinga's textbook, *Introduction to Psychology* – 1st Canadian Edition. For information about what was changed in this adaptation, refer to the Copyright statement at the bottom of the home page.

This edition has an explicitly Canadian focus. The previous edition has been streamlined and chapters have been added on Cognition, Memory, and Happiness and Stress. The coverage of evolutionary theory and genetics in Chapter 3 has been expanded. Wherever possible, Canadian statistics have been updated. Liberal use has been made of other open access materials, most notably, NOBA and Openstax.

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Approach and Pedagogy

SALLY WALTERS

How to use this book

Welcome to psychology – the diverse and complex study of us. If you have any interest in people and what makes them tick, and want to learn what the evidence says about human nature, this is the field for you. Before you dive into the material, here is a bit of background on the way this book is structured, and how to learn the material effectively.

Introductory psychology is usually split into two courses, because of the amount of material to cover. For example, about half of the chapters in this book would be used in the first introductory psychology course, with the other half in the second. The specific division of the course into topics varies between institutions. Many instructors cover the foundational material in Chapters 1 and 2 in both courses.

Introductory psychology as a topic is studied by an enormously diverse group of students; many will go on to degrees and careers in other areas, while some will pursue psychology. Some students take their courses in traditional classrooms, while an increasing number are studying online. Demographically, introductory psychology students are adults of all ages, walks of life, and cultural backgrounds. The intent of this textbook is to use plain language as much as possible, avoid jargon, provide up-to-date information on some of the main topics in psychology, and provide a Canadian focus.

As you will see, this textbook contains chapters that appear to be stand-alone – for example, Sensation and Perception is a separate topic from Lifespan Development. Each of the chapters, for the most part, represents a separate area of research and/or practice within psychology; all of these areas have psychologists who specialize in researching and teaching these topics. In this textbook, you are getting a snapshot of a number of specialized topics in an extremely diverse field, and you will get an understanding of how these topics relate to the history of psychology, and of how and what has evolved as the "critical" perspectives in the study human nature. There are things that link all of the chapters together, and these are discussed in Chapters 1 and 2. All psychologists, for example, use the scientific method in their research and teaching. As you work your way through the textbook, remind yourself of the foundational material in Chapters 1 and 2, and reflect on how it applies to the topics discussed in each chapter.

The textbook chapters contain:

1. **Chapter openers** — These showcase an interesting real-world example of the material in each chapter and create an interest in learning about the topic.
2. **Psychology in everyday life** — These features are designed to link the principles from the chapter to real-world applications in business, environment, health, law, learning, and other relevant domains.
3. **Research focus** — These are well-articulated and specific examples of research within the content area, each including a summary of the hypotheses, methods, results, and interpretations. This feature provides a continuous thread that reminds students of the importance of empirical research and also emphasizes the fact that findings are not always predictable ahead of time (dispelling the myth of hindsight bias).

In addition, to help students organize the material, each chapter contains **learning objectives**, **key takeaways**, and **exercises and critical thinking** activities.

Reading and active learning

The first time you read a chapter, focus on these organizational prompts and skim through the chapter to see what it includes and how it is organized. This initial reading will then help you to understand what you will be learning.

Your second reading of the chapter should be more thorough and will take a lot longer. In your second reading, you should take notes as you go. relying on reading alone to learn something is not a very effective strategy. It is much better to put material into your own words, link it to your personal experiences, and actively think about and reflect on what you are reading. This is why highlighting as you read is not a good way to learn something – everything gets highlighted and nothing gets retained.

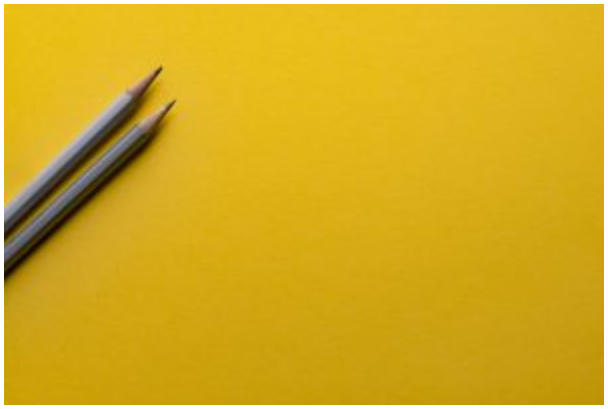


Figure 0.1 Taking notes increases retention.

It may take you more than hour to read and take notes on one chapter. This is not unusual. However, it is a good idea to work for about 45 minutes and then take a 15-minute break. This brings us to an important point: remove your cell phone from your work area and confine your interactions with it to your 15-minute break. Multitasking impedes learning. If you read while allowing your phone to send you social media notifications (and let's face it – who doesn't check them?) then you might as well not be reading at all. Your brain cannot process the material you need to learn in the chapter if you keep distracting it with Instagram or any other media. It will take longer, will increase stress, and you will make more mistakes. Instead, reward your 45 minutes of good, solid focus with a 15-minute phone break, and then repeat. Incidentally, the people who think they are good at multitasking actually perform worse than people who don't think this. Do yourself a favour, and learn to study without your phone, tablet, or distracting electronic device.

After your second reading of the chapter, review your notes, and test yourself. Construct a few questions about the chapter material and see if you can give an answer without referring to your notes. The last part is important – students often underestimate their level of knowledge because they don't test themselves without looking at the material. After you have completed this process for every chapter as you encounter it you will be in good shape for revising before the exam. Do not leave this process until the exam because it will likely overwhelm you and be very stressful. As well, it is unlikely that you will have time to cram; each chapter will take several hours.

Notetaking

Not all students learn how to take notes in high school. Indeed, you may be coming back to higher education after many years since high school! Here are a few tips on notetaking. First – you might experiment with taking notes by hand versus on a laptop or similar. Many of us are now unused to handwriting, however, the act of writing things out by hand – which can slow down your thought processes – can also facilitate learning because of this deliberation and time for reflection.

Second, don't write out what the textbook says verbatim (i.e., word for word). Instead, put it into your own words, and don't use complete sentences. Don't waste your time; use bullet points. Keep all of the information about one topic together. Draw a picture that helps to explain a concept or jog your memory – drawing is a great way to increase your memory. Use colour; for example, draw a pink circle around all of the points related to one topic, and then do the same for the next one in another colour. If you come across words you don't understand, find and write a definition into your notes. Do not proceed unless you understand the point you are taking notes on.

Finally, as you work through the chapters you will note that there are no chapter summaries. This is intentional. It is a much better learning strategy for you to construct your own chapter summary if you wish. You should be able to do this easily after your second reading of the chapter when you make notes. However, it is not essential. Chapter summaries really only give you the "headlines" without too much of the content. They are easily learned and can give a false impression of the depth and breadth of one's understanding of the chapter material.

I hope you enjoy learning about psychology!

Image Attributions

Figure 0.1: *Two Gray Pencils on Yellow Surface* by Joanna Kosinska is used under the Unsplash license.

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From Sally Walters, Adapting Author

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CHAPTER 7. PSYCHOLOGY IN OUR SOCIAL LIVES

7.0 Introduction

Psychology in Everyday Life

Binge drinking and the death of a star athlete

Jonathan Andrews was an honour roll student in southern Ontario, a football and rugby player, swimmer, environmentalist, and animal lover who, after graduating from high school, had travelled with friends to South America to explore the world and its cultures. Within his first week at Acadia University, he succumbed to binge drinking and died of blood alcohol poisoning (Obituaries: Jonathan Andrews, 2011).

Jonathan was not the first university student to fall victim to binge drinking repercussions. In 2010, two students died in alcohol-related accidents at Queen's University. Cameron Bruce fell out of a sixth-floor window of the Victoria Hall residence during orientation week. Then, in December, Habib Khan was killed after falling through a rooftop skylight at Duncan McArthur Hall. At St. Thomas University in Fredericton, rookie volleyball player Andrew Bartlett, 21, died in a fall down a flight of stairs in October 2010 after a team initiation party (MacQueen, 2012).

Queen's has banned its homecoming events since 2009, infamous for excessive partying that spilled off-campus and onto city streets. It joined universities like Western, Guelph, and Acadia in policing a ban on alcohol in residence rooms during orientation week and added a host of dry events to emphasize that a blood-alcohol level isn't essential to university life. Queen's also operates a Campus Observation Room that provides a confidential, safe, nonjudgmental place to sober up.

Acadia University students and administration began formal meetings within weeks of Andrews's death to look at alcohol policies. The provincial health ministry was commissioned to write its best-practices report. Acadia's student director sent a letter to parents of newly enrolled students outlining new alcohol restrictions and urging them to talk to their kids about drinking before students leave home, but one of the most innovative initiatives is the Red and Blue Crew, in which volunteers take a six-hour training program that teaches CPR, skills to identify medical emergencies, and techniques for defusing risky situations. Those who complete the program sport wristbands in the school colours of red and blue.

In the health ministry's report, it was concluded that it is increasingly difficult in Western society to envision having a "good time" without alcohol being a de facto requirement; therefore, the university administration and leadership plays the largest role in shifting the culture to one of responsible fun.

The subdiscipline of psychology discussed in this chapter reflects the highest level of explanation that we will consider. This topic, known as **social psychology**, is defined as the scientific study of how we feel about, think about, and behave toward the other people around us, and how those people influence our thoughts, feelings, and behaviour.

The subject matter of social psychology is our everyday interactions with people, including the social groups to which we belong. Questions these psychologists ask include why we are often helpful to other people but at other times are

unfriendly or aggressive; why we sometimes conform to the behaviours of others but at other times are able to assert our independence; and what factors help groups work together in effective and productive, rather than in ineffective and unproductive, ways? A fundamental principle of social psychology is that, although we may not always be aware of it, our cognitions, emotions, and behaviours are substantially influenced by the **social situation**, or the people with whom we are interacting.

In this chapter, we will introduce the principles of **social cognition** — the part of human thinking that helps us understand and predict the behaviour of ourselves and others — and consider the ways that our judgments about other people guide our behaviours toward them. We'll explore how we form impressions of other people, and what makes us like or dislike them. We'll also see how our **attitudes** — our enduring evaluations of people or things — influence, and are influenced by, our behaviour.

Then, we will consider the social psychology of interpersonal relationships, including the behaviours of altruism, aggression, and conformity. We will see that humans have a natural tendency to help each other, but we may also become aggressive if we feel that we are being threatened, and we will see how **social norms** — the accepted beliefs about what we do or what we should do in particular social situations, such as the norm of binge drinking common on many university campuses — influence our behaviour. Finally, we will consider the social psychology of social groups, with a particular focus on the conditions that limit and potentially increase productive group performance and decision making.

The principles of social psychology can help us understand tragic events such as the death of Jonathan Andrews, who is reported to have said to his parents that he planned on making as many friends as possible in that first week before classes. Many people might blame the tragedy on Jonathan himself, asking, for instance, "Why did he drink so much?" or "Why didn't he say no?" As we will see in this chapter, research conducted by social psychologists shows that the poor decisions Jonathan made on the night he died may have been due less to his own personal weaknesses or deficits than to his desires to fit in with, and be accepted by, the others around him — desires that led to a disastrous outcome.

References

MacQueen, K. (2012). Battling the binge: Inside the war against risky drinking on campus. *Maclean's*. Retrieved from http://www.macleans.ca/education/uniandcollege/battling-the-binge

Obituaries: Jonathan Andrews. (2011, July 12). *Calgary Herald*. Retrieved from http://www.legacy.com/obituaries/calgaryherald/obituary.aspx?pid=153605945

7.1 Social Cognition: Making Sense of Ourselves and Others

Learning Objectives

1. Review the principles of social cognition, including the fundamentals of how we form judgments about other people.
2. Define the concept of attitude, and review how attitudes are developed, how they change, and how they relate to behaviour.

One important aspect of social cognition involves forming impressions of other people. Making these judgments quickly and accurately helps us guide our behaviour to interact appropriately with the people we know. If we can figure out why our roommate is angry at us, we can react to resolve the problem; if we can determine how to motivate the people in our group to work harder on a project, then the project might be better.

Perceiving others

Our initial judgments of others are based in large part on what we see. The physical features of other people — particularly their sex, race, age, and physical attractiveness — are very salient; we often focus our attention on these dimensions (Schneider, 2004; Zebrowitz & Montepare, 2006).

Although it may seem inappropriate or shallow to admit it, we are strongly influenced by the physical attractiveness of others, and in many cases physical attractiveness is the most important determinant of our initial liking for other people (Walster, Aronson, Abrahams, & Rottmann, 1966). Infants who are only a year old prefer to look at faces that adults consider to be attractive than at unattractive faces (Langlois, Ritter, Roggman, & Vaughn, 1991). Evolutionary psychologists have argued that our belief that "what is beautiful is also good" may be because we use attractiveness as a cue for health; people whom we find more attractive may also, evolutionarily, have been healthier (Zebrowitz, Fellous, Mignault, & Andreoletti, 2003).

One indicator of health is youth. Leslie Zebrowitz and colleagues (Zebrowitz, 1996; Zebrowitz, Luevano, Bronstad, & Aharon, 2009) have extensively studied the tendency for both men and women to prefer people whose faces have characteristics similar to those of babies (see Figure 7.1). These features include large, round, and widely spaced eyes, a small nose and chin, prominent cheekbones, and a large forehead. People who have baby faces, both men and women, are seen as more attractive than people who are not baby-faced.



Figure 7.1. People with baby faces are perceived as attractive.

Another indicator of health is symmetry. People are more attracted to faces that are more symmetrical than they are to those that are less symmetrical, and this may be due, in part, to the perception that symmetrical faces are perceived as healthier (Rhodes et al., 2001).

Although you might think that we would prefer faces that are unusual or unique, in fact the opposite is true. Judith Langlois and Lori Roggman (1990) showed university students the faces of men and women. The faces were composites made up of the average of 2, 4, 8, 16, or 32 faces. The researchers found that the more faces that were averaged into the stimulus, the more attractive it was judged. Again, our liking for average faces may be because they appear healthier.

Although preferences for youthful, symmetrical, and average faces have been observed cross-culturally, and thus appear to be common human preferences, different cultures may also have unique beliefs about what is attractive. In modern, Western cultures, thin is in, and people prefer those who have little excess fat (Crandall, Merman, & Hebl, 2009). The need to be thin to be attractive is particularly strong for women in contemporary society, and the desire to maintain a low body weight can lead to low self-esteem, eating disorders, and other unhealthy behaviours. However, the norm of thinness has not always been in place; the preference for women with slender, masculine, and athletic looks has become stronger over the past 50 years. In contrast to the relatively universal preferences for youth, symmetry, and averageness, other cultures do not show such a strong propensity for thinness (Sugiyama, 2005).

Forming judgments on the basis of appearance: Stereotyping, prejudice, and discrimination

We frequently use people's appearances to form our judgments about them and to determine our responses to them. The tendency to attribute personality characteristics to people on the basis of their external appearance or their social group memberships is known as **stereotyping**. Our stereotypes about physically attractive people lead us to see them as more dominant, sexually warm, mentally healthy, intelligent, and socially skilled than we perceive physically unattractive

people (Langlois et al., 2000), and our stereotypes lead us to treat people differently. The physically attractive are given better grades on essay exams, are more successful on job interviews, and receive lighter sentences in court judgments than their less attractive counterparts (Hosoda, Stone-Romero, & Coats, 2003; Zebrowitz & McDonald, 1991).

In addition to stereotypes about physical attractiveness, we also regularly stereotype people on the basis of their sex, race, age, religion, and many other characteristics, and these stereotypes are frequently negative (Schneider, 2004). Stereotyping is unfair to the people we judge because stereotypes are based on our preconceptions and negative emotions about the members of the group. Stereotyping is closely related to **prejudice** — the tendency to dislike people because of their appearance or group memberships — and **discrimination** — negative behaviours toward others based on prejudice. Stereotyping, prejudice, and discrimination work together. We may not vote for a gay person for public office because of our negative stereotypes, and we may avoid people from other religions or those with mental illness because of our prejudices.

Some stereotypes may be accurate in part. Research has found, for instance, that attractive people are actually more sociable, more popular, and less lonely than less attractive individuals (Langlois et al., 2000). Consistent with the stereotype that women are "emotional," women are, on average, more empathic and attuned to the emotions of others than men are (Hall & Mast, 2008). Group differences in personality traits may occur, in part, because people act toward others on the basis of their stereotypes, creating a self-fulfilling prophecy. A **self-fulfilling prophecy** occurs when our expectations about the personality characteristics of others lead us to behave toward those others in ways that make those beliefs come true. If I have a stereotype that attractive people are friendly, then I may act in a friendly way toward people who are attractive. This friendly behaviour may be reciprocated by the attractive person, and if many other people also engage in the same positive behaviours with the person, in the long run they may actually become friendlier.

Even if attractive people are on average friendlier than unattractive people, not all attractive people are friendlier than all unattractive people. Even if women are, on average, more emotional than men, not all men are less emotional than all women. Social psychologists believe that it is better to treat people as individuals, rather than rely on our stereotypes and prejudices, because stereotyping and prejudice are always unfair and often inaccurate (Fiske, 1989; Stangor, 1995). Furthermore, many of our stereotypes and prejudices occur out of our awareness, such that we do not even know that we are using them.

You might want to test your own stereotypes and prejudices by completing the Implicit Association Test by Project Implicit (n.d.), which serves to measure unconscious stereotyping.

We use our stereotypes and prejudices, in part, because they are easy; if we can quickly size up people on the basis of their physical appearance, that can save us a lot of time and effort. We may be evolutionarily disposed to stereotyping. Because our primitive ancestors needed to accurately separate members of their own kin group from those of others, categorizing people into "us" (i.e., the ingroup) and "them" (i.e., the outgroup) was useful and even necessary (Neuberg, Kenrick, & Schaller, 2010). The positive emotions that we experience as a result of our group memberships — known as **social identity** — can be an important and positive part of our everyday experiences (Hogg, 2003). We may gain social identity as members of our university, our sports teams (see Figure 7.2), our religious and racial groups, and many other groups.



Figure 7.2. Social identity is the positive emotions that we experience as a member of an important social group.

However, the fact that we may use our stereotypes does not mean that we should use them. Stereotypes, prejudice, and discrimination, whether they are consciously or unconsciously applied, make it difficult for some people to effectively contribute to society and may create both mental and physical health problems for them (Swim & Stangor, 1998). In some cases, getting beyond our prejudices is required by law, as detailed in the Canadian Charter of Rights and Freedoms of 1982 and the American Equal Opportunity Employment Act of 1972.

There are individual differences in prejudice, such that some people are more likely to try to control and confront their stereotypes and prejudices whereas others apply them more freely (Czopp, Monteith, & Mark, 2006; Plant & Devine, 1998). For instance, some people believe in group hierarchies — that some groups are naturally better than others — whereas other people are more egalitarian and hold fewer prejudices (Sidanius & Pratto, 1999; Stangor & Leary, 2006).

Social psychologists believe that we should work to get past our prejudices. The tendency to hold stereotypes and prejudices and to act on them can be reduced, for instance, through positive interactions and friendships with members of other groups, through practise in avoiding using them, and through education (Hewstone, 1996).

Research Focus

Prejudice and discrimination in Canada

Canada has a long history of immigration from all parts of the world. Over time, many of these groups have

experienced prejudice and discrimination, such as Japanese emmigrants during World War II and Chinese labourers building the railroads. However, immigrants to Canada and their descendants have also been the perpetrators of prejudice and discrimination, as seen in Canada's treatment of Indigenous Peoples. Canada's history of interaction with Indigenous Peoples was based on policies of colonization, whereby they were seen as inferior and were not given equal rights. For over a century, their children were removed from families and placed in residential schools where they were punished for using their native language and practising their culture and were frequently sexually and physically abused by church members and others who administered the schools. Other political policies had widespread and negative consequences for the lives of Indigenous Peoples.

In 2007, a Truth and Reconciliation Commission was established to facilitate reconciliation among former students of Residential Schools, their families, their communities, and Canadians in general (Government of Canada, 2019). As a result of the process, which involved 6500 people testifying to their experiences, a six-volume final report was created that included 94 calls to action for increasing reconciliation between Indigenous Peoples and all Canadians. Refer to the *Truth and Reconciliation Commission of Canada: Calls to Action* by the Truth and Reconciliation Commission of Canada (2015).

Social psychology has a role to play in the reduction of ethnocentrism. Understanding the psychological, social, and economic causes of prejudice and discrimination fuels research on practices that may reduce or eliminate these attitudes and behaviours. For example, intergroup contact has been found to reduce prejudice when certain conditions are met, such as institutional support, interdependence between groups, and groups have equal legal status (Pettigrew & Tropp, 2006), but contact by itself is not enough, and groups must have authentic opportunities to work together on mutually-valued goals and activities (Molina, Tropp, & Goode, 2016). Groups need to understand each other's perspectives and goals, which requires time and effort. Contact may have different effects for dominant and subordinate groups. The shift from an "us versus them" to a "we" mentality requires mutual trust and empathy. Ideally, it is coupled with a mutual recognition of past injustices.

Close relationships

One of the most important tasks faced by humans is to develop successful relationships with others (see Figure 7.3). These relationships include acquaintanceships and friendships but also the more important **close relationships**, which are the long-term intimate and romantic relationships that we develop with another person, such as in a marriage (Hendrick & Hendrick, 2000). Because most of us will want to enter into a close relationship at some point, and because close relationships are evolutionarily important as they form the basis for effective child rearing, it is useful to know what psychologists have learned about the principles of liking and loving within them.

A major interest of social psychologists is the study of **interpersonal attraction**, which is what makes people like, and even love, each other (see Figure 7.3). One important factor is a perceived similarity in values and beliefs between the partners (Davis & Rusbult, 2001). Similarity is important for relationships, both because it is more convenient (e.g., it's easier if both partners like to ski or go to the movies than if only one does) and because similarity supports our values (e.g., I can feel better about myself and my choice of activities if I see that you also enjoy doing the same things that I do).



Figure 7.3. Close relationships are characterized by responsiveness, disclosure, intimacy, equity, and passion.

Liking is also enhanced by **self-disclosure**, which is the tendency to communicate frequently, without fear of reprisal, and in an accepting and empathetic manner. Friends are friends because we can talk to them openly about our needs and goals and because they listen to and respond to our needs (Reis & Aron, 2008), but self-disclosure must be balanced. If I open up to you about the concerns that are important to me, I expect you to do the same in return. If the self-disclosure is not reciprocal, the relationship may not last.

Another important determinant of liking is **proximity**, which is the extent to which people are physically near us. Research has found that we are more likely to develop friendships with people who are nearby, such as those who live in the same dorm that we do or even with people who just happen to sit nearer to us in our classes (Back, Schmukle, & Egloff, 2008).

Proximity has its effect on liking through the principle of mere **exposure**, which is the tendency to prefer stimuli — including, but not limited to, people — that we have seen more frequently. Richard Moreland and Scott Beach (1992) studied mere exposure by having female confederates attend a large lecture class of over 100 students 0, 5, 10, or 15 times during a semester. At the end of the term, the other students in the class were shown pictures of the confederates and asked to indicate both if they recognized them and also how much they liked them. The number of times the confederates had attended class did not influence the other students' ability to recognize them, but it did influence their liking for them. As predicted by the mere exposure hypothesis, students who had attended class more often were liked more (see Figure 7.4).

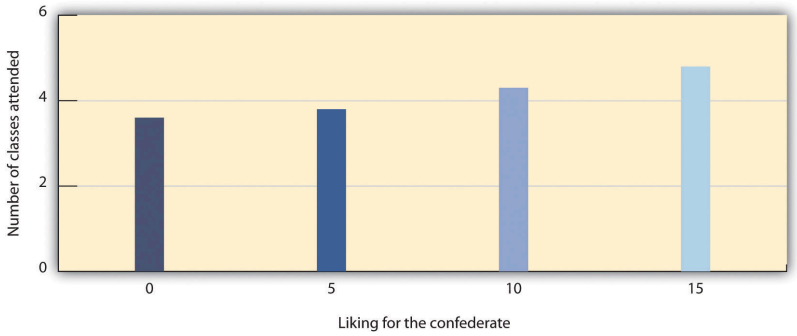


Figure 7.4. Richard Moreland and Scott Beach had female confederates visit classrooms 0, 5, 10, or 15 times over the course of a semester. Then, the students rated their liking of the confederates. As predicted by the principles of mere exposure, confederates who had attended class more often were also liked more (Moreland & Beach, 1992).

The effect of mere exposure is powerful and occurs in a wide variety of situations. Infants tend to smile at a photograph of someone they have seen before more than they smile at a photograph of someone they are seeing for the first time (Brooks-Gunn & Lewis, 1981), and people prefer side-to-side reversed images of their own faces over their normal, nonreversed face, whereas their friends prefer their normal face over the reversed one (Mita, Dermer, & Knight, 1977). This is expected on the basis of mere exposure because people see their own faces primarily in mirrors and, thus, are exposed to the reversed face more often.

Mere exposure may well have an evolutionary basis. We have an initial fear of the unknown, but as things become more familiar, they seem more similar, more safe, and thus produce more positive affect and seem less threatening and dangerous (Freitas, Azizian, Travers, & Berry, 2005). In fact, research has found that stimuli tend to produce more positive affect as they become more familiar (Harmon-Jones & Allen, 2001). When the stimuli are people, there may well be an added effect. Familiar people become more likely to be seen as part of the ingroup rather than the outgroup, and this may lead us to like them more. Leslie Zebrowitz, Matthew Bronstad, and Hoon Koo Lee (2007) found that we like people of our own racial group, in part, because they are perceived as similar to us.

In the most successful relationships, the two people begin to see themselves as a single unit. Arthur Aron, Elaine Aron, and Danny Smollan (1992) assessed the role of closeness in relationships using the Inclusion of Other in the Self Scale (see Figure 7.5). You might try completing the measure yourself for some different people that you know — for instance, your family members, friends, or significant other. The measure is simple to use and to interpret; if people see the circles representing the self and the other as more overlapping, this means that the relationship is close, but if they choose the circles that are less overlapping, then the relationship is less so.

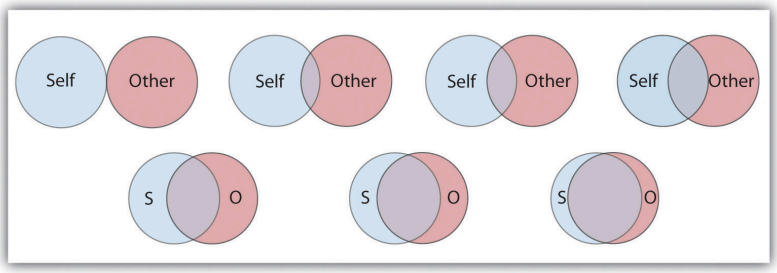


Figure 7.5. The Inclusion of Other in the Self Scale is used to determine how close two partners feel to each other. The respondent simply circles which of the seven figures he or she feels best characterizes the relationship (Aron, Aron, & Smollan, 1992).

Although the closeness measure is very simple, it has been found to be predictive of people's satisfaction with their close relationships and of the tendency for couples to stay together (Aron, Aron, Tudor, & Nelson, 1991; Aron, Paris, & Aron, 1995). When the partners in a relationship feel that they are close, and when they indicate that the relationship is based on caring, warmth, acceptance, and social support, we can say that the relationship is **intimate** (Reis & Aron, 2008).

When a couple begins to take care of a household together, has children, and perhaps has to care for elderly parents, the requirements of the relationship become correspondingly bigger. As a result of this complexity, the partners in close relationships increasingly turn to each other for help in coordinating activities, remembering dates and appointments, and accomplishing tasks. Relationships are close, in part, because the couple becomes highly **interdependent**, relying on each other to meet important goals (Berscheid & Reis, 1998).

In relationships in which a positive rapport between the partners is developed and maintained over a period of time, the partners are naturally happy with the relationship and they become committed to it. **Commitment** refers to the feelings and actions that keep partners working together to maintain the relationship (Rusbult, Olsen, Davis, & Hannon, 2001) and is characterized by mutual expectations that the self and the partner will be responsive to each other's needs (Clark & Mills, 2004). Partners who are committed to the relationship see their mates as more attractive, are less able to imagine themselves with another partner, express less interest in other potential mates, and are less likely to break up (Simpson & Harris, 1994).

People also find relationships more satisfactory, and stay in them longer, when they feel that they are being rewarded by them. When the needs of either or both of the partners are not being met, the relationship is in trouble. This is not to say that people only think about the benefits they are getting. They will also consider the needs of the other, but over the long term, both partners must benefit from the relationship.

Although sexual arousal and excitement are more important early in relationships, intimacy is also determined by sexual and romantic attraction. Indeed, intimacy is also dependent on **passion**, whereby the partners display positive affection toward each other. Happy couples are in positive moods when they are around each other; they laugh with each other, express approval rather than criticism of each other's behaviours, and enjoy physical contact. People are happier in their relationships when they view the other person in a positive or even an idealized sense, rather than a more realistic and perhaps more negative one (Murray, Holmes, & Griffin, 1996).

Margaret Clark and Edward Lemay (2010) reviewed the literature on close relationships and argued that their most important characteristic is a sense of responsiveness. People are happy, healthy, and likely to stay in relationships in which they are sure that they can trust the other person to understand, validate, and care for them. It is this unconditional giving and receiving of love that promotes the welfare of both partners and provides the secure base that allows both partners to thrive.

Causal attribution: Forming judgments by observing behaviour

When we observe people's behaviour we may attempt to determine if the behaviour really reflects their underlying personality. If Frank hits Joe, we might wonder if Frank is naturally aggressive or if perhaps Joe had provoked him. If Leslie leaves a big tip for the waitress, we might wonder if she is a generous person or if the service was particularly excellent. The process of trying to determine the causes of people's behaviour, with the goal of learning about their personalities, is known as **causal attribution** (Jones et al., 1987).

Making causal attributions is a bit like conducting an experiment. We carefully observe the people we are interested in and note how they behave in different social situations. After we have made our observations, we draw our conclusions. Sometimes we may decide that the behaviour was caused primarily by the person; this is called making a **person attribution**. At other times, we may determine that the behaviour was caused primarily by the situation; this is called making a **situation attribution.** Ultimately, we may decide that the behaviour was caused by both the person and the situation.

It is easier to make person attributions when behaviour is more unusual or unexpected. Imagine that you go to a party and you are introduced to Tess. Tess shakes your hand and says "Nice to meet you!" Can you readily conclude, on the basis of this behaviour, that Tess is a friendly person? Probably not. Because the social situation demands that people act in a friendly way (e.g., shaking your hand and saying "nice to meet you"), it is difficult to know whether Tess acted friendly because of the situation or because she is really friendly. Imagine, however, that instead of shaking your hand, Tess sticks out her tongue at you and walks away. In this case, you might infer that Tess is unfriendly because her behaviour is so contrary to what one would expect (Jones, Davis, & Gergen, 1961).

Although people are reasonably accurate in their attributions (e.g., we could say, perhaps, that they are "good enough"; Fiske, 2003), they are far from perfect. One error that we frequently make when making judgments about ourselves is to make **self-serving attributions** by judging the causes of our own behaviours in overly positive ways. If you did well on a test, you will probably attribute that success to person causes (e.g., "I'm smart" or "I studied really hard"), but if you do poorly on the test, you are more likely to make situation attributions (e.g., "The test was hard" or "I had bad luck"). Although making causal attributions is expected to be logical and scientific, our emotions are not irrelevant.

Another way that our attributions are often inaccurate is that we are, by and large, too quick to attribute the behaviour of other people to something personal about them rather than to something about their situation. We are more likely to say "Leslie left a big tip, so she must be generous" than "Leslie left a big tip, but perhaps that was because the service was really excellent." The common tendency to overestimate the role of person factors and overlook the impact of situations in judging others is known as the **fundamental attribution error** or **correspondence bias** (see Figure 7.6).



Figure 7.6. The fundamental attribution error is the tendency to make person attributions (e.g., poor people are lazy) for the behaviours of others, even where situational factors such as poor education and growing up in poverty might be better explanations, is caused by the fundamental attribution error.

The fundamental attribution error occurs, in part, because other people are so salient in our social environments. When I look at you, I see you as my focus, and so I am likely to make person attributions about you. If the situation is reversed, such that people see situations from the perspectives of others, the fundamental attribution error is reduced (Storms, 1973). When we judge people, we often see them in only one situation. It's easy for you to think that your math professor is "picky and detail-oriented" because that describes their behaviour in class, but you don't know how they act with their friends and family, which might be completely different. As well, we also tend to make person attributions because they are easy. We are more likely to commit the fundamental attribution error — quickly jumping to the conclusion that behaviour is caused by underlying personality — when we are tired, distracted, or busy doing other things (Trope & Alfieri, 1997).

An important moral about perceiving others applies here: we should not be too quick to judge other people. It is easy to think that poor people are lazy, that people who say something harsh are rude or unfriendly, and that all terrorists are insane, but these attributions may frequently overemphasize the role of the person, resulting in an inappropriate and inaccurate tendency to blame the victim (Lerner, 1980; Tennen & Affleck, 1990). Sometimes people are lazy and rude, and some terrorists are probably insane, but these people may also be influenced by the situation in which they find themselves. Poor people may find it more difficult to get work and education because of the environment they grow up in, people may say rude things because they are feeling threatened or are in pain, and terrorists may have learned through their family and in school that committing violence in the service of their beliefs is justified. When you find yourself making strong person attributions for the behaviours of others, stop and think more carefully. Would you want other people to make person attributions for your behaviour in the same situation, or would you prefer that they more fully consider the situation surrounding your behaviour? Are you perhaps making the fundamental attribution error?

Attitudes and behaviour

Attitudes refer to our relatively enduring evaluations of people and things (Albarracín, Johnson, & Zanna, 2005). We each hold many thousands of attitudes, including those about family and friends, political parties and political figures, abortion rights, preferences for music, and much more. Some of our attitudes — including those about sports, roller coaster rides, and capital punishment — are heritable, which explains, in part, why we are similar to our parents on many dimensions (Olson, Vernon, Harris, & Jang, 2001). Other attitudes are learned through direct and indirect experiences with the attitude objects (De Houwer, Thomas, & Baeyens, 2001).

Attitudes are important because they frequently, but not always, predict behaviour. If we know that a person has a more positive attitude toward Frosted Flakes than toward Cheerios, then we will naturally predict that they will buy

more of the former when grocery shopping. If we know that Charlie is madly in love with Charlene, then we will not be surprised when Charlie proposes marriage. Because attitudes often predict behaviour, people who wish to change behaviour frequently try to change attitudes through the use of **persuasive communications**. The table below presents some of the many techniques that can be used to change people's attitudes (Cialdini, 2001).

Table 7.1. Techniques that can be effective in persuading others

Technique	Examples
Choose effective communicators.	Communicators who are attractive, expert, trustworthy, and similar to the listener are most persuasive.
Consider the goals of the listener.	If the listener wants to be entertained, then it is better to use a humourous ad; if the listener is processing the ad more carefully, use a more thoughtful one.
Use humour.	People are more easily persuaded when they are in a good mood.
Use classical conditioning.	Try to associate your product with positive stimuli such as funny jokes or attractive models.
Make use of the listener's emotions.	Humourous and fear-arousing ads can be effective because they arouse the listener's emotions.
Use the listener's behaviour to modify his or her attitude.	One approach is the foot-in-the-door technique. First ask for a minor request, and then ask for a larger request after the smaller request has been accepted.

Attitudes predict behaviour better for some people than for others. People who are high in **self-monitoring**, which is the tendency to regulate behaviour to meet the demands of social situations, tend to change their behaviours to match the social situation and, thus, do not always act on their attitudes (Gangestad & Snyder, 2000). High self-monitors agree with statements such as "In different situations and with different people, I often act like very different persons" and "I guess I put on a show to impress or entertain people." Attitudes are more likely to predict behaviour for low self-monitors, who are more likely to act on their own attitudes even when the social situation suggests that they should behave otherwise. Low self-monitors are more likely to agree with statements such as "At parties and social gatherings, I do not attempt to do or say things that others will like" and "I can only argue for ideas that I already believe."

The match between the social situations in which the attitudes are expressed and the behaviours are engaged in also matters, such that there is a greater attitude-behaviour correlation when the social situations match. Imagine, for a moment, the case of Magritte, a 16-year-old high school student, who tells her parents that she hates the idea of smoking cigarettes. How sure are you that Magritte's attitude will predict her behaviour? Would you be willing to bet that she'd never try smoking when she's out with her friends?

The problem here is that Magritte's attitude is being expressed in one social situation (i.e., when she is with her parents) whereas the behaviour (i.e., trying a cigarette) is going to occur in a very different social situation (i.e., when she is out with her friends). The relevant social norms are, of course, much different in the two situations. Magritte's friends might be able to convince her to try smoking, despite her initial negative attitude, by enticing her with peer pressure. Behaviours are more likely to be consistent with attitudes when the social situation in which the behaviour occurs is similar to the situation in which the attitude is expressed (Ajzen, 1991).

Although it might not have surprised you to hear that our attitudes predict our behaviours, you might be more surprised to learn that our behaviours also have an influence on our attitudes. It makes sense that if I like Frosted Flakes I'll buy them, because my positive attitude toward the product influences my behaviour. However, my attitudes toward Frosted Flakes may also become more positive if I decide — for whatever reason — to buy some. It makes sense that Charlie's love for Charlene will lead him to propose marriage, but it is also the case that he will likely love Charlene even more after he does so.

Behaviours influence attitudes, in part, through the process of self-perception. **Self-perception** occurs when we use our

own behaviour as a guide to help us determine our own thoughts and feelings (Bem, 1972; Olson & Stone, 2005). In one demonstration of the power of self-perception, Gary Wells and Richard Petty (1980) assigned their research participants to shake their heads either up and down or side to side as they read newspaper editorials. The participants who had shaken their heads up and down later agreed with the content of the editorials more than the people who had shaken them side to side. Wells and Petty argued that this occurred because the participants used their own head-shaking behaviours to determine their attitudes about the editorials.

Persuaders may use the principles of self-perception to change attitudes. The **foot-in-the-door technique** is a method of persuasion in which the person is first persuaded to accept a rather minor request and then asked for a larger one after that. In one demonstration, Nicolas Guéguen and Céline Jacob (2002) found that students in a computer discussion group were more likely to volunteer to complete a 40-question survey on their food habits, which required 15 to 20 minutes of their time, if they had already, a few minutes earlier, agreed to help the same requester with a simple computer-related question about how to convert a file type than if they had not first been given the smaller opportunity to help. The idea is that when asked the second time, the people looked at their past behaviour, having agreed to the small request, and inferred that they are helpful people.

Behaviour also influences our attitudes through a more emotional process known as cognitive dissonance. **Cognitive dissonance** refers to the discomfort we experience when we choose to behave in ways that we see as inappropriate (Festinger, 1957; Harmon-Jones & Mills, 1999). If we feel that we have wasted our time or acted against our own moral principles, we experience negative emotions (i.e., dissonance) and may change our attitudes about the behaviour to reduce the negative feelings.

Elliot Aronson and Judson Mills (1959) studied whether the cognitive dissonance created by an initiation process could explain how much commitment students felt to a group that they were part of. In their experiment, female university students volunteered to join a group that would be meeting regularly to discuss various aspects of the psychology of sex. According to random assignment, some of the women were told that they would be required to perform an embarrassing procedure (i.e., they were asked to read some obscene words and some sexually oriented passages from a novel in public) before they could join the group, whereas other women did not have to go through this initiation. Then all the women got a chance to listen to the group's conversation, which turned out to be very boring.

Aronson and Mills found that the women who had gone through the embarrassing experience subsequently reported more liking for the group than those who had not. They argued that the more effort an individual expends to become a member of the group (e.g., a severe initiation), the more they will become committed to the group, to justify the effort they have put in during the initiation. The idea is that the effort creates dissonant cognitions (e.g., "I did all this work to join the group"), which are then justified by creating more consonant ones (e.g., "Okay, this group is really pretty fun"). Thus, the women who spent little effort to get into the group were able to see the group as the dull and boring conversation that it was. The women who went through the more severe initiation, however, succeeded in convincing themselves that the same discussion was a worthwhile experience.

When we put in effort for something — an initiation, a big purchase price, or even some of our precious time — we will likely end up liking the activity more than we would have if the effort had been less; not doing so would lead us to experience the unpleasant feelings of dissonance. After we buy a product, we convince ourselves that we made the right choice because the product is excellent. If we fail to lose the weight we wanted to, we decide that we look good anyway. If we hurt someone else's feelings, we may even decide that he or she is a bad person who deserves our negative behaviour. To escape from feeling poorly about themselves, people will engage in quite extraordinary rationalizing. No wonder that most of us believe that "If I had it all to do over again, I would not change anything important."

Key Takeaways

- Social psychology is the scientific study of how we influence, and are influenced by, the people around us.
- Social cognition involves forming impressions of ourselves and other people. Doing so quickly and accurately is functional for social life.
- Our initial judgments of others are based in large part on what we see. The physical features of other people — particularly their sex, race, age, and physical attractiveness — are very salient, and we often focus our attention on these dimensions.
- We are attracted to people who appear to be healthy. Indicators of health include youth, symmetry, and averageness.
- We frequently use people's appearances to form our judgments about them and to determine our responses to them. These responses include stereotyping, prejudice, and discrimination. Social psychologists believe that people should get past their prejudices and judge people as individuals.
- Close relationships are based on intimacy. Intimacy is determined by similarity, self-disclosure, interdependence, commitment, rewards, and passion.
- Causal attribution is the process of trying to determine the causes of people's behaviour with the goal of learning about their personalities. Although people are reasonably accurate in their attributions, they also succumb to biases such as the fundamental attribution error.
- Attitudes refer to our relatively enduring evaluations of people and things. Attitudes are determined, in part, by genetic transmission from our parents and, in part, through direct and indirect experiences.
- Although attitudes predict behaviours, behaviours also predict attitudes. This occurs through the processes of self-perception and cognitive dissonance.

Exercises and Critical Thinking

1. What kinds of people are you attracted to? Do your preferences match the factors that we have just discussed?
2. What stereotypes and prejudices do you hold? Are you able to get past them and judge people as

individuals? Do you think that your stereotypes influence your behaviour without your being aware of them?
3. Consider a time when your behaviour influenced your attitudes. Did this occur as a result of self-perception or cognitive dissonance?

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7.2 Interacting With Others: Helping, Hurting, and Conforming

Learning Objectives

1. Summarize the genetic and environmental factors that contribute to human altruism.
2. Provide an overview of the causes of human aggression.
3. Explain the situations in which people conform to others and their motivations for doing so.

Humans have developed a variety of social skills that enhance our ability to successfully interact with others. We are often helpful, even when that helping comes at some cost to ourselves, and we often change our opinions and beliefs to fit in with the opinions of those whom we care about. Yet, we also are able to be aggressive if we feel the situation warrants it.

Helping others: Altruism helps create harmonious relationships

Altruism refers to any behaviour that is designed to increase another person's welfare, particularly those actions that do not seem to provide a direct reward to the person who performs them (Dovidio, Piliavin, Schroeder, & Penner, 2006). Altruism occurs when we stop to help a stranger who has been stranded on the highway, when we volunteer at a homeless shelter, or when we donate to a charity. In Canada, 47% of the population volunteers (Vézina & Crompton, 2012). Over 13.3 million Canadians aged 15 and over did volunteer work in 2010. They devoted almost 2.07 billion hours to their volunteer activities: a volume of work that is equivalent to just under 1.1 million full-time jobs. The number of volunteers in 2010 was significantly greater than in earlier years. The 13.3 million people who volunteered marked an increase of 6.4% over 2007 and of 12.5% over 2004.

Why are we altruistic?

Because altruism is costly, you might wonder why we engage in it at all. There are a variety of explanations for the occurrence of altruism. The table below summarizes some of the variables that are known to increase helping.

Table 7.2. Some of the variables known to increase helping

Variable	Effect
Positive moods	We help more when we are in a good mood.[1]
Similarity	We help people whom we see as similar to us, for instance, those who mimic our behaviours.[2]
Guilt	If we are experiencing guilt, we may help in order to relieve those negative feelings.
Empathy	We help more when we feel empathy for the other person.[3]
Benefits	We are more likely to help if we can feel good about ourselves by doing so.[4]
Personal responsibility	We are more likely to help if it is clear that others are not helping.
Self-presentation	We may help in order to show others that we are good people.[5]

Data source: [1] Guéguen and De Gail, 2003; [2] van Baaren, Holland, Kawakami, and van Knippenberg, 2004; [3] Batson, O'Quin, Fultz, Varnderplas, and Isen, 1983; [4] Snyder, Omoto, and Lindsay, 2004; [5] Hardy and Van Vugt, 2006.

The tendency to help others in need is, in part, a functional evolutionary adaptation (see Figure 7.7). Although helping others can be costly to us as individuals, helping people who are related to us can perpetuate our own genes (Madsen et al., 2007; McAndrew, 2002; Stewart-Williams, 2007). Eugene Burnstein, Christian Crandall, and Shinobu Kitayama (1994) found that students indicated they would be more likely to help a person who was closely related to them (e.g., a sibling, parent, or child) than they would be to help a person who was more distantly related (e.g., a niece, nephew, uncle, or grandmother). People are more likely to donate kidneys to relatives than to strangers (Borgida, Conner, & Manteufel, 1992) and even children indicate that they are more likely to help their siblings than they are to help a friend (Tisak & Tisak, 1996).



Figure 7.7. We help, in part, to make ourselves feel good, but also because we care about the welfare of others.

Although it makes evolutionary sense that we would help people to whom we are related, why would we help people to whom we are not related? One explanation for such behaviour is based on the principle of reciprocal altruism (Krebs & Davies, 1987; Trivers, 1971). **Reciprocal altruism** is the principle that, if we help other people now, those others will

return the favour should we need their help in the future. By helping others, we increase our chances of survival and reproductive success while helping increase their survival as well. Over the course of evolution, those who engage in reciprocal altruism should be able to reproduce more often than those who do not, thus enabling this kind of altruism to continue.

We also learn to help by modelling the helpful behaviour of others. Although people frequently worry about the negative impact of the violence that is seen on TV, there is also a great deal of helping behaviour shown on television. Sandi Smith and colleagues (Smith et al., 2006) found that 73% of TV shows had some altruism and that about three altruistic behaviours were shown every hour. Furthermore, the prevalence of altruism was particularly high in children's shows. Yet, just as viewing altruism can increase helping, modelling of behaviour that is not altruistic can decrease altruism. For instance, Craig Anderson and Brad Bushman (2001) found that playing violent video games led to a decrease in helping.

We are more likely to help when we receive rewards for doing so and less likely to help when helping is costly. Parents praise their children who share their toys with others and may reprimand children who are selfish. We are more likely to help when we have plenty of time than when we are in a hurry (Darley & Batson, 1973). Another potential reward is the status we gain as a result of helping. When we act altruistically, we gain a reputation as a person with high status who is able and willing to help others, and this status makes us more desirable in the eyes of others (Hardy & Van Vugt, 2006)

The outcome of the reinforcement and modelling of altruism is the development of social norms about helping, which are standards of behaviour that we see as appropriate and desirable regarding helping. The **reciprocity norm** reminds us that we should follow the principles of reciprocal altruism. If someone helps us, then we should help them in the future, and we should help people now with the expectation that they will help us later if we need it. The reciprocity norm is found in everyday adages such as "Scratch my back, and I'll scratch yours" as well as in religious and philosophical teachings such as the Golden Rule: "Do unto others as you would have them do unto you."

Because helping based on the reciprocity norm is based on the return of earlier help and the expectation of a future return from others, it might not seem like true altruism. We might hope that our children internalize another relevant social norm that seems more altruistic: the social responsibility norm. The **social responsibility norm** tells us that we should try to help others who need assistance, even without any expectation of future paybacks. The teachings of many religions are based on the social responsibility norm, such that we should, as good human beings, reach out and help other people whenever we can.

How the presence of others can reduce helping

Late at night on March 13, 1964, 28-year-old Kitty Genovese was murdered within a few yards of her apartment building in New York City after a violent fight with her killer in which she struggled and screamed. When the police interviewed Kitty's neighbours about the crime, they discovered 38 of the neighbours indicated that they had seen or heard the fight occurring, but not one of them had bothered to intervene, and only one person had called the police.

Was Kitty Genovese murdered because there were too many people who heard her cries? The following YouTube link provides additional details for analysis:

- Video: *SHOCKING! – Bystander Effect | Kitty Genovese | Social Psychology* (ProtectionNation, 2009)

Two social psychologists, Bibb Latané and John Darley (1968), were interested in the factors that influenced people to help, or not to help, in such situations. They developed a model (see Figure 7.8) that took into consideration the important role of the social situation in determining helping. The model has been extensively tested in many studies, and there is substantial support for it. Social psychologists have discovered that it was the 38 people themselves that

contributed to the tragedy, because people are less likely to notice, interpret, and respond to the needs of others when they are with others than they are when they are alone.

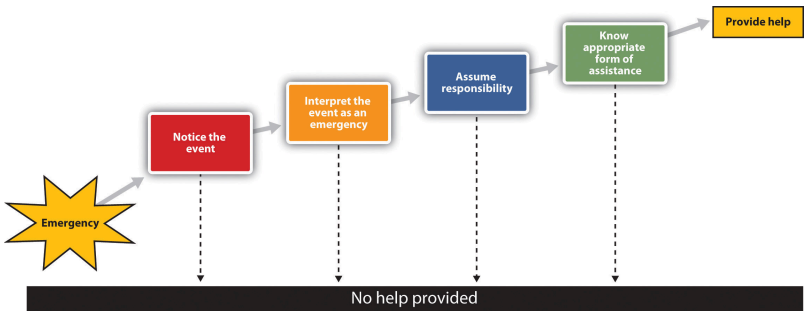


Figure 7.8. The Latané and Darley model of helping is based on the idea that a variety of situational factors can influence whether or not we help (Latané & Darley, 1968).

The first step in the model is noticing the event. Latané and Darley (1968) demonstrated the important role of the social situation in noticing by asking research participants to complete a questionnaire in a small room. Some of the participants completed the questionnaire alone, whereas others completed the questionnaire in small groups in which two other participants were also working on questionnaires. A few minutes after the participants had begun the questionnaires, the experimenters started to let some white smoke come into the room through a vent in the wall. The experimenters timed how long it took before the first person in the room looked up and noticed the smoke.

The people who were working alone noticed the smoke in about five seconds, and within four minutes most of the participants who were working alone had taken some action. On the other hand, on average, the first person in the group conditions did not notice the smoke until over 20 seconds had elapsed, and although 75% of the participants who were working alone reported the smoke within four minutes, the smoke was reported in only 12% of the groups by that time. In fact, in only three of the eight groups did anyone report the smoke, even after it had filled the room. You can see that the social situation has a powerful influence on noticing; we simply don't see emergencies when other people are with us.

Even if we notice an emergency, we might not interpret it as one. The problem is compounded when others are present because when we are unsure how to interpret events, we normally look to others to help us understand them, and at the same time, they are looking to us for information. The problem is that each bystander thinks that other people aren't acting because they don't see an emergency. Believing that the others know something that they don't, each observer concludes that help is not required.

Even if we have noticed the emergency and interpret it as being one, this does not necessarily mean that we will come to the rescue of the other person. We still need to decide that it is our responsibility to do something. The problem is that when we see others around, it is easy to assume that they are going to do something and that we don't need to do anything ourselves. **Diffusion of responsibility** occurs when we assume that others will take action, so we do not take action ourselves. The irony again, of course, is that people are more likely to help when they are the only ones in the situation than when there are others around.

Perhaps you have noticed diffusion of responsibility if you participated in an Internet users' group where people asked questions of the other users. Did you find that it was easier to get help if you directed your request to a smaller set of

users than when you directed it to a larger number of people? Patrick Markey (2000) found that people received help more quickly, in about 37 seconds, when they asked for help by specifying a participant's name than when no name was specified, which took about 51 seconds.

The final step in the helping model is knowing how to help. Of course, for many of us, the ways to best help another person in an emergency are not that clear; we are not professionals, and we have little training in how to help in emergencies. People who do have training in how to act in emergencies are more likely to help, whereas the rest of us just don't know what to do, and therefore we may simply walk by. On the other hand, today many people have cell phones, and we can do a lot with a quick call.

Human aggression: An adaptive yet potentially damaging behaviour

Aggression is behaviour that is intended to harm another individual. Aggression may occur in the heat of the moment, for instance, when a jealous lover strikes out in rage or the sports fans at a university light fires and destroy cars after an important basketball game. Alternatively, it may occur in a more cognitive, deliberate, and planned way, such as the aggression of a bully who steals another child's toys, a terrorist who kills civilians to gain political exposure, or a hired assassin who kills for money.

Not all aggression is physical. Aggression also occurs in nonphysical ways, as when children exclude others from activities, call them names, or spread rumours about them. Julie Paquette and Marion Underwood (1999) found that both boys and girls rated nonphysical aggression such as name-calling as making them feel more "sad and bad" than physical aggression did.

The ability to aggress is part of human nature

We may aggress against others, in part, because it allows us to gain access to valuable resources such as food, territory, and desirable mates, or perhaps to protect ourselves from direct attack by others. If aggression helps in the survival of our genes, then the process of natural selection may well have caused humans, as it would any other animal, to be aggressive (Buss & Duntley, 2006).

There is evidence for the genetics of aggression. Aggression is controlled in large part by the amygdala. One of the primary functions of the amygdala is to help us learn to associate stimuli with the rewards and the punishment that they may provide. The amygdala is particularly activated in our responses to stimuli that we see as threatening and fear-arousing. When the amygdala is stimulated, in either humans or in animals, the organism becomes more aggressive.

However, just because we can aggress does not mean that we will aggress. It is not necessarily evolutionarily adaptive to aggress in all situations. Neither people nor animals are always aggressive; they rely on aggression only when they feel that they absolutely need to (Berkowitz, 1993a). The prefrontal cortex serves as a control centre on aggression; when it is more highly activated, we are more able to control our aggressive impulses. Research has found that the cerebral cortex is less active in murderers and death row inmates, suggesting that violent crime may be caused at least in part by a failure or reduced ability to regulate aggression (Davidson, Putnam, & Larson, 2000)

Hormones are also important in regulating aggression. Most important in this regard is the male sex hormone testosterone, which is associated with increased aggression in both males and females. Research conducted on a variety of animals has found a positive correlation between levels of testosterone and aggression. This relationship seems to be weaker among humans than among animals, yet it is still significant (Dabbs, Hargrove, & Heusel, 1996).

Consuming alcohol increases the likelihood that people will respond aggressively to provocations, and even people who are not normally aggressive may react with aggression when they are intoxicated (Graham, Osgood, Wells, & Stockwell, 2006). Alcohol reduces the ability of people who have consumed it to inhibit their aggression because when people are intoxicated, they become more self-focused and less aware of the social constraints that normally prevent them from engaging aggressively (Bushman & Cooper, 1990; Steele & Southwick, 1985).

Negative experiences increase aggression

If you were asked about the times that you have been aggressive, perhaps you would say that many of them occurred when you were angry, in a bad mood, tired, in pain, sick, or frustrated. Indeed, we are much more likely to aggress when we are experiencing negative emotions. One important determinant of aggression is frustration. When we are frustrated, we may lash out at others, even at people who did not cause the frustration. In some cases, the aggression is **displaced aggression**, which is aggression that is directed at an object or person other than the person who caused the frustration.

Other negative emotions also increase aggression. William Griffit and Russell Veitch (1971) had students complete questionnaires in rooms in which the heat was at a normal temperature or in which the temperature was over 30 degrees Celsius. The students in the latter conditions expressed significantly more hostility. Aggression is greater on hot days than it is on cooler days and during hot years than during cooler years, and most violent riots occur during the hottest days of the year (Bushman, Wang, & Anderson, 2005). Pain also increases aggression (Berkowitz, 1993b).

If we are aware that we are feeling negative emotions, we might think that we could release those emotions in a relatively harmless way, such as by punching a pillow or kicking something, with the hopes that doing so will release our aggressive tendencies. **Catharsis** — the idea that observing or engaging in less harmful aggressive actions will reduce the tendency to aggress later in a more harmful way — has been considered by many as a way of decreasing violence, and it was an important part of the theories of Sigmund Freud.

As far as social psychologists have been able to determine, however, catharsis simply does not work. Rather than decreasing aggression, engaging in aggressive behaviours of any type increases the likelihood of later aggression. Brad Bushman, Roy Baumeister, and Angela Stack (1999) first angered their research participants by having another student insult them. Next, half of the participants were allowed to engage in a cathartic behaviour: they were given boxing gloves and had a chance to hit a punching bag for two minutes. Then, all the participants played a game with the person who had insulted them earlier in which they had a chance to blast the other person with a painful blast of white noise. Contrary to the catharsis hypothesis, the students who had punched the punching bag set a higher noise level and delivered longer bursts of noise than the participants who did not get a chance to hit the punching bag. It seems that if we hit a punching bag, punch a pillow, or scream as loud as we can to release our frustration, the opposite may occur — rather than decreasing aggression, these behaviours in fact increase it.

Viewing violent media increases aggression

The average North American watches over four hours of television every day, and these programs contain a substantial amount of aggression. At the same time, children are also exposed to violence in movies, video games, and in popular music and music videos that include violent lyrics and imagery. Research evidence makes it very clear that, on average, people who watch violent behaviour become more aggressive. The evidence supporting this relationship comes from many studies conducted over many years using both correlational designs as well as laboratory studies in which people

have been randomly assigned to view either violent or nonviolent material (Anderson et al., 2003). Viewing violent behaviour also increases aggression, in part, through observational learning. Children who witness violence are more likely to be aggressive. One example is in the studies of Albert Bandura, as shown in the video below.

The following YouTube link shows Professor Albert Bandura describing his studies on the observational learning of aggression in children:

- Video: *Bandura Original Footage* (lewisgriffin, 2009)

Another outcome of viewing large amounts of violent material is **desensitization**, which is the tendency over time to show weaker emotional responses to emotional stimuli. When we first see violence, we are likely to be shocked, aroused, and even repulsed by it. However, over time, as we see more and more violence, we become habituated to it, such that the subsequent exposures produce fewer and fewer negative emotional responses. Continually viewing violence also makes us more distrustful and more likely to behave aggressively (Bartholow, Bushman, & Sestir, 2006; Nabi & Sullivan, 2001).

Of course, not everyone who views violent material becomes aggressive; individual differences also matter. People who experience a lot of negative affect and who feel that they are frequently rejected by others whom they care about are more aggressive (Downey, Irwin, Ramsay, & Ayduk, 2004). People with inflated or unstable self-esteem are more prone to anger and are highly aggressive when their high self-image is threatened (Baumeister, Smart, & Boden, 1996). For instance, classroom bullies are those children who always want to be the centre of attention, who think a lot of themselves, and who cannot take criticism (Salmivalli & Nieminen, 2002). Bullies are highly motivated to protect their inflated self-concepts, and they react with anger and aggression when it is threatened.

There is a culturally universal tendency for men to be more physically violent than women (Archer & Coyne, 2005; Crick & Nelson, 2002). Worldwide, about 99% of rapes and about 90% of robberies, assaults, and murders are committed by men (Graham & Wells, 2001). These sex differences do not imply that women are never aggressive. Both men and women respond to insults and provocation with aggression; the differences between men and women are smaller after they have been frustrated, insulted, or threatened (Bettencourt & Miller, 1996).

Research Focus

The culture of honour

In addition to differences across cultures, there are also regional differences in the incidence and acceptance of violence. One explanation for these differences is variation in cultural norms about the appropriate reactions to threats against one's social status. These cultural differences apply primarily to men. In short, some men react more violently than others when they believe that others are threatening them.

The social norm that condones and even encourages responding to insults with aggression is known as the

culture of honour. The culture of honour leads people to view even relatively minor conflicts or disputes as challenges to one's social status and reputation and can therefore trigger aggressive responses. Work by anthropologists, historians, sociologists, criminologists, social psychologists, and others reveals several shared characteristics among cultures of honour in which actors compete for status based on physical force. One common factor is that honour is a central source of status. Honour cultures are typically antipathetic to law and legal officials: a man must stand up for himself and not rely on others to do so. Traditional honour cultures tend to be highly patriarchal, subordinating women and treating their sexuality as family property. In such cultures, a second type of honour violence may be found — men beating or even killing their female relatives for loss of chastity or other conduct that threatens male rule. These cultural beliefs are concentrated in predominately Muslim nations and among their emigrants to Western countries.

There can also be regional differences that impact the culture of honour. For example, whether a man is a farmer who grows crops or raises livestock, might affect his behaviour. Unlike crops, herds are mobile and vulnerable to theft, and it is difficult for law enforcement officials to protect them. To be successful in an environment where theft was common, a man had to build a reputation for strength and toughness, and this was accomplished by a willingness to use swift, and sometimes violent, punishment against thieves (Stewart, 1994).

In one series of experiment studying the concept of honour culture, Dov Cohen, Richard Nisbett, Brian Bowdle, and Norbert Schwarz (1996) investigated how white male students who had grown up either in the northern or in the southern regions of the United States, and been raised in a culture of honour, responded to insults. The experiments, which were conducted at the University of Michigan, involved an encounter in which the research participant was walking down a narrow hallway. The experimenters enlisted the help of a confederate who did not give way to the participant but rather bumped into him and insulted him. Compared with students with no culture of honour beliefs raised in the northern United States, students from culture of honour regions raised in the southern United States who had been bumped were more likely to think that their masculine reputations had been threatened, exhibited greater physiological signs of being upset, had higher testosterone levels, engaged in more aggressive and dominant behaviour (e.g., gave firmer handshakes), and were less willing to yield to a subsequent confederate (see Figure 7.9).

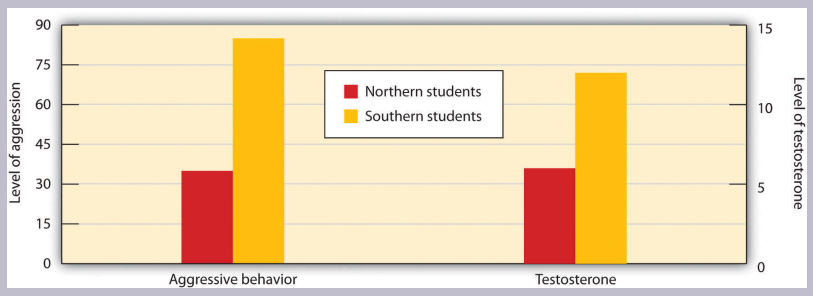


Figure 7.9. Culture of honour research shows that students from an honour culture, like the southern U.S., expressed more anger and had greater levels of testosterone after being insulted than did students from a non-honour culture, such as the northern U.S. (Cohen, Nisbett, Bowdle, & Schwarz, 1996). [Long description]

Conformity and obedience: How social influence creates social norms

When we decide on what courses to enroll in by asking for advice from our friends, change our beliefs or behaviours as a result of the ideas that we hear from others, or binge drink because our friends are doing it, we are engaging in **conformity**, a change in beliefs or behaviour that occurs as the result of the presence of the other people around us. We conform not only because we believe that other people have accurate information and we want to have knowledge, which is known as **informational conformity**, but also because we want to be liked by others, which is known as **normative conformity**.

The typical outcome of conformity is that our beliefs and behaviours become more similar to those of others around us. However, some situations create more conformity than others, and some of the factors that contribute to conformity are shown in the table below.

Table 7.3. Variables that increase conformity

Variable	Description	Example
Number in majority	As the number of people who are engaging in a behaviour increases, the tendency to conform to those people also increases.	People are more likely to stop and look up in the air when many, rather than few, people are also looking up.[1]
Unanimity	Conformity reduces sharply when any one person deviates from the norm.	In line-matching research, when any one person gave a different answer, conformity was eliminated.[2]
Status and authority	People who have higher status, such as those in authority, create more conformity.	Conformity in obedience studies was greatly reduced when the person giving the command to shock was described as an "ordinary man" rather than a scientist at Yale University.[3]

Data source: [1] Milgram, Bickman, and Berkowitz, 1969; [2] Asch, 1955; [3] Milgram, 1974.

At times, conformity occurs in a relatively spontaneous and unconscious way, without any obvious intent of one person to change the other or an awareness that the conformity is occurring. Robert Cialdini, Raymond Reno, and Carl Kallgren (1990) found that university students were more likely to throw litter on the ground themselves when they had just seen another person throw some paper on the ground, and Clara Michelle Cheng and Tanya Chartrand (2003) found that people unconsciously mimicked the behaviours of others, such as by rubbing their face or shaking their foot, and that this mimicry was greater when the other person was of high social status versus low social status.

Muzafer Sherif (1936) studied how norms develop in ambiguous situations. In one experiment, university students were placed in a dark room with a single point of light and were asked to indicate, each time the light was turned on, how much it appeared to move. The movement, which is not actually real, occurs because of the saccadic movement of the eyes. Each group member gave their response on each trial aloud and each time in a different random order. Sherif found a conformity effect (see Figure 7.10). Over time, the responses of the group members became more and more similar to each other such that after four days they converged on a common norm. When the participants were interviewed after the study, they indicated that they had not realized that they were conforming.

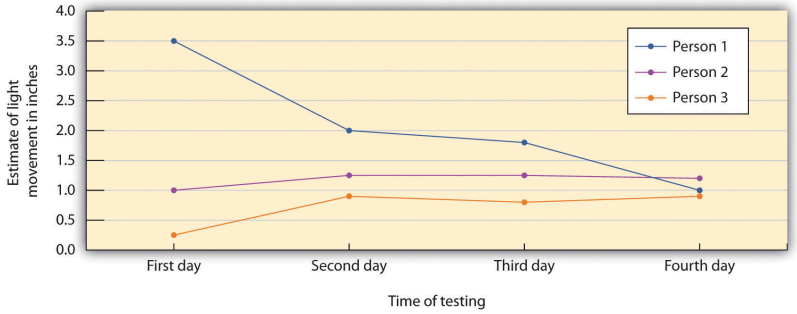


Figure 7.10. The participants in the studies by Muzafer Sherif initially had different beliefs about the degree to which a point of light appeared to be moving. You can see these differences as expressed on the first day. However, as they shared their beliefs with other group members over several days, a common group norm developed. Shown here are the estimates made by a group of three participants who met together on four different days (Sherif, 1936).

Not all conformity is passive. In the research of Solomon Asch (1955), the judgments that group members were asked to make were entirely unambiguous, and the influence of the other people on judgments was apparent. The research participants were male university students who were told that they were to be participating in a test of visual abilities. The men were seated in front of a board that displayed the visual stimuli that they were going to judge. The men were told that there would be 18 trials during the experiment, and on each trial they would see two cards. The standard card had a single line that was to be compared to the three lines on the test card, which varied in length between about 5 and 25 centimeters (see Figure 7.11).

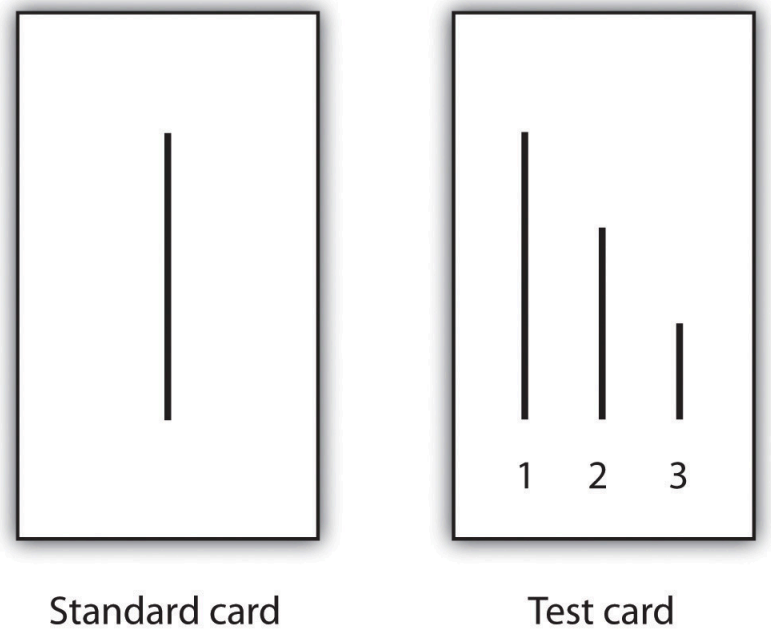


Figure 7.11. The standard card has a single line that was to be judged, and the test card has three lines that varied in length between about 5 and 25 centimetres.

On each trial, each person in the group answered out loud, beginning with one end of the group and moving toward the other end. Although the real research participant did not know it, the other group members were actually not participants but rather experimental confederates who gave predetermined answers on each trial. Because the real participant was seated next to last in the row, they always made their judgment following most of the other group members. Although on the first two trials the confederates each gave the correct answer, on the third trial, and on 11 of the subsequent trials, they all had been instructed to give the same wrong choice. For instance, even though the correct answer was Line 1, they would all say it was Line 2. Thus, when it became the participant's turn to answer, they could either give the clearly correct answer or conform to the incorrect responses of the confederates.

Remarkably, in this study about 76% of the 123 men who were tested gave at least one incorrect response when it was their turn, and 37% of the responses, overall, were conforming. This is indeed evidence for the power of conformity because the participants were making clearly incorrect responses in public. However, conformity was not absolute; in addition to the 24% of the men who never conformed, only 5% of the men conformed on all 12 of the critical trials.

The following YouTube link provides a demonstration of Asch's line studies:

- Video: *The Asch Experiment* (cooolway, 2008)

The tendency to conform to those in authority, known as **obedience**, was demonstrated in a remarkable set of studies performed by Stanley Milgram (1974). Milgram designed a study in which he could observe the extent to which a person who presented himself as an authority would be able to produce obedience, even to the extent of leading people to cause harm to others. Like many other researchers who were interested in conformity, Milgram's interest stemmed in part from his desire to understand how the presence of a powerful social situation — in this case, the directives of Adolph Hitler, the German dictator who ordered the killing of millions of Jews and other "undesirable" people during World War II — could produce obedience.

Milgram used newspaper ads to recruit men, and in one study to recruit women, from a wide variety of backgrounds to participate in his research. When the research participant arrived at the lab, they were introduced to a man who was ostensibly another research participant but who actually was a confederate working with the experimenter as part of the experimental team. The experimenter explained that the goal of the research was to study the effects of punishment on learning. After the participant and the confederate both consented to be in the study, the researcher explained that one of them would be the teacher, and the other the learner. They were each given a slip of paper, asked to open it, and indicate what it said. In fact, both papers read "teacher," which allowed the confederate to pretend that he had been assigned to be the learner and, thus, to assure that the actual participant was always the teacher.

While the research participant, now the teacher, looked on, the learner was taken into the adjoining shock room and strapped to an electrode that was to deliver the punishment. The experimenter explained that the teacher's job would be to sit in the control room and read a list of word pairs to the learner. After the teacher read the list once, it would be the learner's job to remember which words went together. For instance, if the word pair was "blue sofa," the teacher would say the word "blue" on the testing trials, and the learner would have to indicate which of four possible words — "house," "sofa," "cat," or "carpet" — was the correct answer by pressing one of four buttons in front of them.

After the experimenter gave the teacher a mild shock to demonstrate that the shocks really were painful, the experiment began. The research participant first read the list of words to the learner and then began the testing. The shock apparatus was in front of the teacher, and the learner was not visible in the shock room (see Figure 7.12). The experimenter sat behind the teacher and explained that each time the learner made a mistake, the teacher was to press one of the shock switches to administer the shock. Moreover, the switch that was to be pressed increased by one level with each mistake, so that each mistake required a stronger shock.

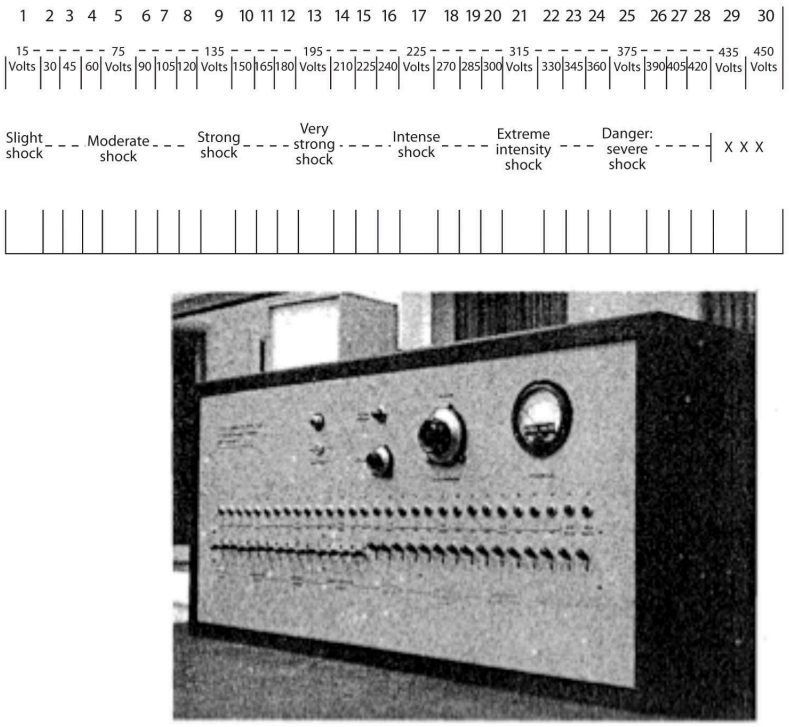


Figure 7.12. Materials used in Milgram's experiments on obedience (Milgram, 1974).

Once the learner — who was, of course, actually the experimental confederate — was alone in the shock room, he unstrapped himself from the shock machine and brought out a tape recorder that he used to play a prerecorded series of responses that the teacher could hear through the wall of the room.

The teacher heard the learner say "ugh!" after the first few shocks. After the next few mistakes, when the shock level reached 150 volts (V), the learner was heard to exclaim, "Let me out of here. I have heart trouble!" As the shock reached about 270 V, the protests of the learner became more vehement, and after 300 V, the learner proclaimed that he was not going to answer any more questions. From 330 V and up, the learner was silent. At this point the experimenter responded to participants' questions, if any, with a scripted response indicating that they should continue reading the questions and applying increasing shock when the learner did not respond.

The results of Milgram's research were themselves quite shocking. Although all the participants gave the initial mild levels of shock, responses varied after that. Some refused to continue after about 150 V, despite the insistence of the experimenter to continue to increase the shock level. Still others, however, continued to present the questions and to administer the shocks, under the pressure of the experimenter, who demanded that they continue. In the end, 65% of the participants continued giving the shock to the learner all the way up to the 450 V maximum, even though that shock was marked as "danger: severe shock" and no response had been heard from the participant for several trials. In other words, well over half of the men who participated had, as far as they knew, shocked another person to death, all as part of a supposed experiment on learning.

In case you are thinking that such high levels of obedience would not be observed in today's modern culture, there is fact evidence that they would. Milgram's findings were almost exactly replicated, using men and women from a wide variety

of ethnic groups, in a study conducted in the first decade of this century at Santa Clara University (Burger, 2009). In this replication of the Milgram experiment, 67% of the men and 73% of the women agreed to administer increasingly painful electric shocks when an authority figure ordered them to. The participants in this study were not, however, allowed to go beyond the 150 V shock switch.

Although it might be tempting to conclude that Burger's and Milgram's experiments demonstrate that people are innately bad creatures who are ready to shock others to death, this is not in fact the case. Rather, it is the social situation, and not the people themselves, that is responsible for the behaviour. When Milgram created variations on his original procedure, he found that changes in the situation dramatically influenced the amount of conformity. Conformity was significantly reduced when people were allowed to choose their own shock level rather than being ordered to use the level required by the experimenter, when the experimenter communicated by phone rather than from within the experimental room, and when other research participants refused to give the shock. These findings are consistent with a basic principle of social psychology: the situation in which people find themselves has a major influence on their behaviour.

Further argument of the power of role expectations was given in the infamous Stanford Prison Experiment. Phil Zimbardo and colleagues (Haney, Banks, & Zimbardo, 1973; Zimbardo, n.d.) designed a study that randomly assigned young male university students to the roles of prisoner or guard in a simulated prison located in the basement of a building at Stanford University. The study was set to run for two weeks. The "prisoners" were picked up at home by real police officers and subjected to a variety of humiliating procedures designed to replicate real-life arrest procedures. The "guards" were given uniforms, nightsticks, and mirror sunglasses and were encouraged to act out their roles authentically. Within a short period of time, the prisoners began to experience mental and physical distress, while some of the guards became punitive and cruel. The study had to be ended in only six days.

The Stanford experiment results have been widely reported for nearly 50 years as evidence that situational requirements can be powerful in eliciting behaviour that is out of character. However, a recent investigation of the archives of the Stanford Prison Experiment by Le Texier (2019) has called into question these conclusions. Le Texier reported that the prison guards in fact were given specific instructions about the treatment of the prisoners; the guards were not told that they were also subjects; the prisoners were not allowed to leave; and several other methodological/ethical problems that require us to rethink the Zimbardo's conclusions. Given the prominence that the Stanford Prison Experiment has held in psychology and also in popular culture, it is surprising that Le Texier is the first to do a thorough examination of all of the archival material. Le Texier also interviewed 15 of the original participants. The Stanford Prison Experiment is most useful as a tool for pointing out how biased research can lead to unjustified conclusions; you are encouraged to visit the Stanford Prison Experiment website (Zimbardo, n.d.), and then to read Le Texier's (2019) reexamination of its conclusions.

Do we always conform?

The research that we have discussed to this point suggests that most people conform to the opinions and desires of others, but it is not always the case that we blindly conform. For one, there are individual differences in conformity. People with lower self-esteem are more likely to conform than are those with higher self-esteem, and people who are dependent on and who have a strong need for approval from others are also more conforming (Bornstein, 1993). People who highly identify with a group, or who have a high degree of commitment to a group, are also more likely to conform to group norms than those who care less about the group (Jetten, Spears, & Manstead, 1997). Despite these individual differences among people in terms of their tendency to conform, however, research has generally found that the impact of individual difference variables on conformity is smaller than the influence of situational variables, such as the number and unanimity of the majority.

We have seen that conformity usually occurs such that the opinions and behaviours of individuals become more similar to the opinions and behaviours of the majority of the people in the group. However, and although it is much more unusual, there are cases in which a smaller number of individuals is able to influence the opinions or behaviours of the larger group — a phenomenon known as **minority influence**. Minorities who are consistent and confident in their opinions may, in some cases, be able to be persuasive (Moscovici, Mugny, & Van Avermaet, 1985).

Persuasion that comes from minorities has another, and potentially even more important, effect on the opinions of majority group members: it can lead majorities to engage in fuller, as well as more divergent, innovative, and creative thinking about the topics being discussed (Martin, Hewstone, Martin, & Gardikiotis, 2008). Charlan Nemeth and Julianne Kwan (1987) found that participants working together in groups solved problems more creatively when only one person gave a different and unusual response than the others, demonstrating minority influence, in comparison to when three people gave the same unusual response.

It is a good thing that minorities can be influential; otherwise, the world would be pretty boring indeed. When we look back on history, we find that it is the unusual, divergent, innovative minority groups or individuals, who — although frequently ridiculed at the time for their unusual ideas — end up being respected for producing positive changes.

Another case where conformity does not occur is when people feel that their freedom is being threatened by influence attempts, yet they also have the ability to resist that persuasion. In these cases, they may develop a strong emotional reaction that leads people to resist pressures to conform, known as **psychological reactance** (Miron & Brehm, 2006). Reactance is aroused when our ability to choose which behaviours to engage in is eliminated or threatened with elimination. The outcome of the experience of reactance is that people may not conform at all, in fact moving their opinions or behaviours away from the desires of the influencer. Consider an experiment conducted by James Pennebaker and Deborah Sanders (1976), who attempted to get people to stop writing graffiti on the walls of campus restrooms. In the first group of restrooms, they put a sign that read "Do not write on these walls under any circumstances" whereas in the second group they placed a sign that simply said "Please don't write on these walls." Two weeks later, the researchers returned to the restrooms to see if the signs had made a difference. They found that there was significantly less graffiti in the second group of restrooms than in the first one. It seems as if people who were given strong pressures to not engage in the behaviour were more likely to react against those directives than were people who were given a weaker message.

Reactance represents a desire to restore freedom that is being threatened. A child who feels that their parents are forcing them to eat asparagus may react quite vehemently with a strong refusal to touch the plate, and an adult who feels that they are being pressured by a car salesperson might feel the same way and leave the showroom entirely, resulting in the opposite of the salesperson's intended outcome.

Key Takeaways

- Altruism is behaviour that is designed to increase another person's welfare, particularly those actions that

do not seem to provide a direct reward to the person who performs them. The tendency to help others in need is partly a functional evolutionary adaptation and partly determined by environmental factors.

- Although helping others can be costly to us as individuals, helping people who are related to us can perpetuate our own genes. Some helping is based on reciprocal altruism, which is the principle that if we help other people now, they will return the favour should we need their help in the future.
- We also learn to help through modelling and reinforcement. The result of this learning is norms about helping, including the reciprocity norm and the social responsibility norm.
- Research testing the Latané and Darley model of helping has shown the importance of the social situation in noticing, interpreting, and acting in emergency situations.
- Aggression is physical or nonphysical behaviour that is intended to harm another individual. Aggression has both genetic and environmental causes. The experience of negative emotions tends to increase aggression.
- Viewing violence tends to increase aggression.
- The social norm that condones and even encourages responding to insults with aggression is known as the culture of honour.
- Conformity, the change in beliefs or behaviour that occurs as the result of the presence of the other people around us, can occur in both active and passive ways. The typical outcome of conformity is that our beliefs and behaviours become more similar to those of others around us.
- The situation is the most powerful determinant of conformity, but individual differences may also matter. The important influence of the social situation on conformity was demonstrated in the research by Sherif, Asch, and Milgram.
- Minority influence can change attitudes and change how majorities process information.

Exercises and Critical Thinking

1. Consider a time when you were helpful. Was the behaviour truly altruistic, or did you help for selfish reasons?
2. Consider a time when you or someone you know was aggressive. What do you think caused the aggression?
3. Should parents limit the amount of violent TV shows and video games that their children are exposed to? Why or why not?
4. Is conformity a good thing or a bad thing for society? What determines whether it is good or bad? What role do you think conformity played in Jonathan Andrews's death?

Image Attributions

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Figure 7.12. Used under a CC BY-NC-SA 4.0 license.

Long Descriptions

Figure 7.9. Culture of honour research:

	Northern students	**Southern students**
Level of aggression	34	84
Level of testosterone	6	12

[Return to Figure 7.9]

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7.3 Working With Others: The Costs and Benefits of Social Groups

Learning Objectives

1. Summarize the advantages and disadvantages of working together in groups to perform tasks and make decisions.
2. Review the factors that can increase group productivity.

Just as our primitive ancestors lived together in small social groups, including families, tribes, and clans, people today still spend a great deal of time in groups (see Figure 7.13). We study together in study groups, we work together on production lines, and we decide the fates of others in courtroom juries. We work in groups because groups can be beneficial. A rock band that is writing a new song, or a surgical team in the middle of a complex operation, may coordinate their efforts so well that it is clear that the same outcome could never have occurred if the individuals had worked alone. However, group performance will only be better than individual performance to the extent that the group members are motivated to meet the group goals, effectively share information, and efficiently coordinate their efforts. Because these things do not always happen, group performance is almost never as good as we would expect, given the number of individuals in the group, and may even in some cases be inferior to that which could have been made by one or more members of the group working alone.



Figure 7.13. Working groups are used to perform tasks and make decisions, but are they effective?

Working in front of others: Social facilitation and social inhibition

In an early social psychological study, Norman Triplett (1898) found that bicycle racers who were competing with other bicyclers on the same track rode significantly faster than bicyclers who were racing alone, against the clock. This led Triplett to hypothesize that people perform tasks better when there are other people present than they do when they are alone. Subsequent findings validated Triplett's results, and experiments have shown that the presence of others can increase performance on many types of tasks, including jogging, shooting pool, lifting weights, and solving problems (Bond & Titus, 1983). The tendency to perform tasks better or faster in the presence of others is known as **social facilitation.**

However, although people sometimes perform better when they are in groups than they do alone, the situation is not that simple. Perhaps you remember an experience when you performed a task (e.g., playing the piano, shooting basketball free throws, giving a public presentation) very well alone but poorly with, or in front of, others. Thus, it seems that the conclusion that being with others increases performance cannot be entirely true. The tendency to perform tasks more poorly or more slowly in the presence of others is known as **social inhibition**.

Robert Zajonc (1965) explained the observed influence of others on task performance using the concept of physiological arousal. According to Zajonc, when we are with others we experience more arousal than we do when we are alone, and this arousal increases the likelihood that we will perform the **dominant response**, the action that we are most likely to emit in any given situation (see Figure 7.14).

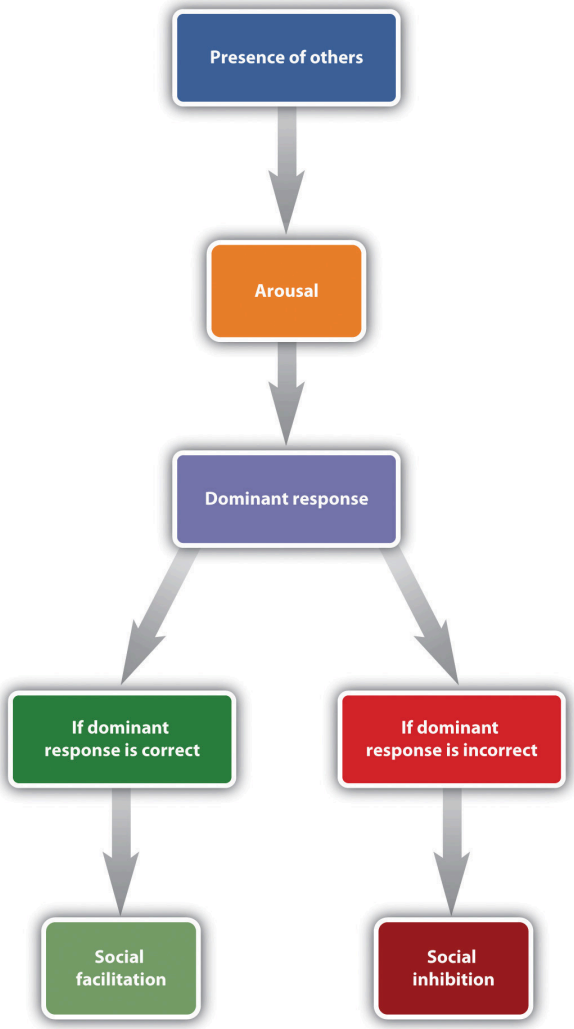


Figure 7.14. Drive-arousal model of social facilitation. [Long description]

The most important aspect of Zajonc's theory was that the experience of arousal and the resulting increase in the occurrence of the dominant response could be used to predict whether the presence of others would produce social facilitation or social inhibition. Zajonc argued that when the task to be performed was relatively easy, or if the individual had learned to perform the task very well (e.g., pedaling a bicycle), the dominant response was likely to be the correct response, and the increase in arousal caused by the presence of others would create social facilitation. On the other hand, when the task was difficult or not well learned (e.g., giving a speech in front of others), the dominant response is likely to be the incorrect one, and thus, because the increase in arousal increases the occurrence of the incorrect dominant response, performance is hindered.

A great deal of experimental research has now confirmed these predictions. A meta-analysis by Charles Bond and Linda Titus (1983), which looked at the results of over 200 studies using over 20,000 research participants, found that the presence of others significantly increased the rate of performing on simple tasks and also decreased both rate and quality of performance on complex tasks.

Although the arousal model proposed by Zajonc is perhaps the most elegant, other explanations have also been proposed to account for social facilitation and social inhibition. One modification argues that we are particularly influenced by

others when we perceive that the others are evaluating us or competing with us (Baron, 1986). In one study supporting this idea, Michael Strube, Margo Miles, and William Finch (1981) found that the presence of spectators increased joggers' speed only when the spectators were facing the joggers, so that the spectators could see the joggers and assess their performance. The presence of others did not influence joggers' performance when the joggers were facing in the other direction and thus could not see them.

Working together in groups

The ability of a group to perform well is determined by the characteristics of the group members (e.g., are they knowledgeable and skilled?) as well as by the **group process** — that is, the events that occur while the group is working on the task. When the outcome of group performance is better than we would expect given the individuals who form the group, we call the outcome a **group process gain**, and when the group outcome is worse than we would have expected given the individuals who form the group, we call the outcome a **group process loss**.

One group process loss that may occur in groups is that the group members may engage in **social loafing**, a group process loss that occurs when people do not work as hard in a group as they do when they are working alone. In one of the earliest social psychology experiments, Max Ringelmann (1913; reported in Kravitz & Martin, 1986) had individual men, as well as groups of various numbers of men, pull as hard as they could on ropes while he measured the maximum amount that they were able to pull. Although larger groups pulled harder than any one individual, Ringelmann also found a substantial process loss (see Figure 7.15). In fact, the loss was so large that groups of three men pulled at only 85% of their expected capability, whereas groups of eight pulled at only 37% of their expected capability. This type of process loss, in which group productivity decreases as the size of the group increases, has been found to occur on a wide variety of tasks.

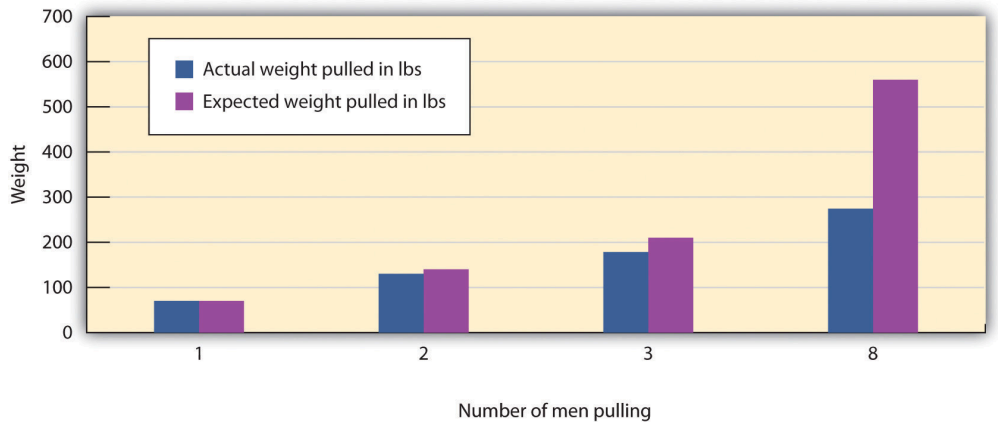


Figure 7.15. Group process loss. [Long description]

Ringelmann found that although more men pulled harder on a rope than fewer men did, there was a substantial process loss in comparison to what would have been expected on the basis of their individual performances.

Group process losses can also occur when group members conform to each other rather than expressing their own divergent ideas. **Groupthink** is a phenomenon that occurs when a group made up of members who may be very

competent and thus quite capable of making excellent decisions nevertheless ends up, as a result of a flawed group process and strong conformity pressures, making a poor decision (Baron, 2005; Janis, 2007). Groupthink is more likely to occur in groups whose members feel a strong group identity, such as the Stanley Cup riots of 1994 and 2011 in Vancouver, when there is a strong and directive leader and when the group needs to make an important decision quickly. The problem is that groups suffering from groupthink become unwilling to seek out or discuss discrepant or unsettling information about the topic at hand, and the group members do not express contradictory opinions. Because the group members are afraid to express opinions that contradict those of the leader, or to bring in outsiders who have other information, the group is prevented from making a fully informed decision (see Figure 7.16).

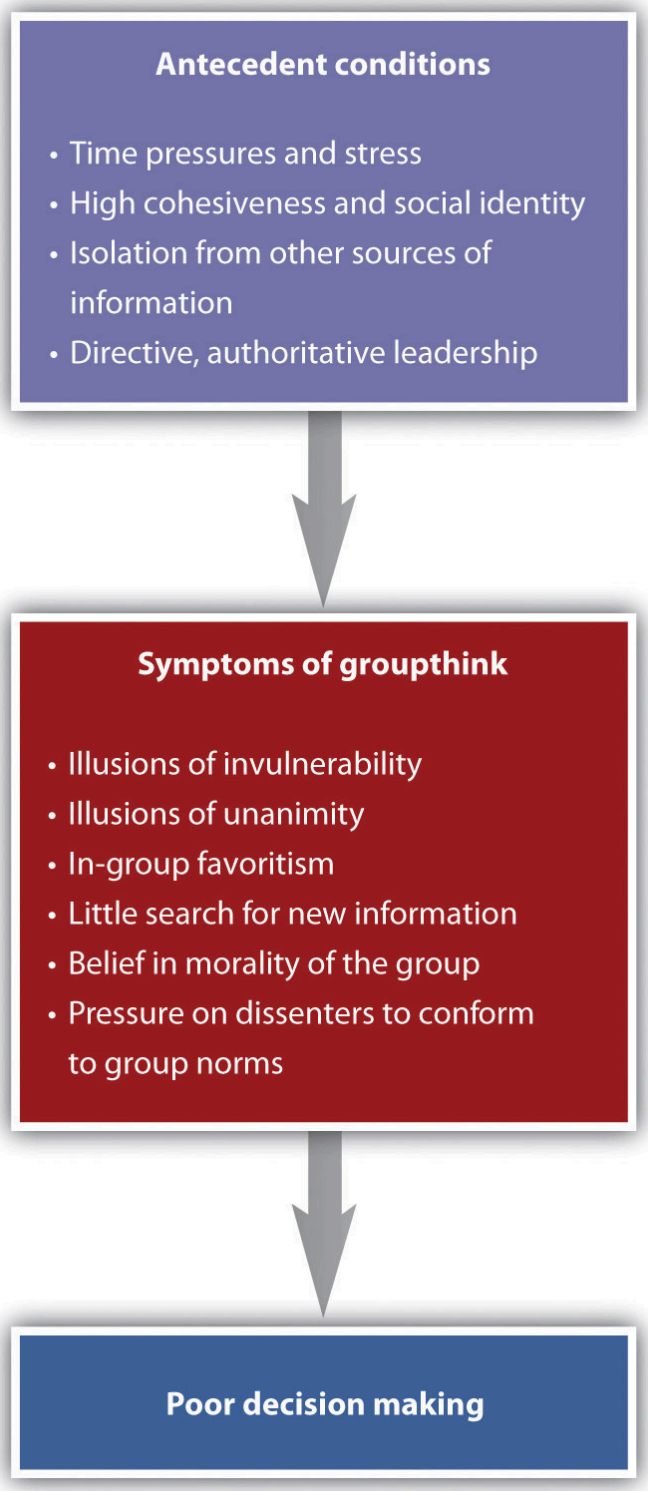


Figure 7.16. Causes and outcomes of groupthink. [Long description]

It has been suggested that groupthink was involved in a number of well-known and important, but very poor, decisions made by government and business groups, including the crashes of two Space Shuttle missions in 1986 and 2003. Analyses of the decision-making processes in these cases have documented the role of conformity pressures.

As a result of the high levels of conformity in these groups, the group begins to see itself as extremely valuable and important, highly capable of making high-quality decisions, and invulnerable. The group members begin to feel that they are superior and do not need to seek outside information. Such a situation is conducive to terrible decision making and resulting fiascoes.

Psychology in Everyday Life

Do juries make good decisions?

Although many other countries rely on judges to make judgments in civil and criminal trials, the jury is the oldest and most fundamental institution of the judicial system in Canada and the United States. The notion of a "trial by one's peers" is based on the assumption that average individuals can make informed and fair decisions when they work together in groups, but given the potential for group process losses, are juries really the best way to approach these important decisions?

As a small working group, juries have the potential to produce either good or poor decisions, depending on the outcome of the characteristics of the individual members as well as the group process. In terms of individual group characteristics, people who have already served on juries are more likely to be seen as experts, to be chosen as the jury foreman, and to give more input during the deliberation. It has also been found that status matters; jury members with higher-status occupations and education, males rather than females, and those who talk first are more likely be chosen as the foreman, and these individuals also contribute more to the jury discussion (Stasser, Kerr, & Bray, 1982).

However, although at least some member characteristics have an influence on jury decision making, group process plays a more important role in the outcome of jury decisions than do member characteristics. Like any group, juries develop their own individual norms, and these norms can have a profound impact on how they reach their decision. Analysis of group process within juries shows that different juries take very different approaches to reaching a verdict. Some spend a lot of time in initial planning, whereas others immediately jump into the deliberation. Some juries base their discussion around a review and reorganization of the evidence, waiting to make a vote until it has all been considered, whereas other juries first determine which decision is preferred in the group by taking a poll and then, if the first vote does not lead to a final verdict, organize their discussion around these opinions. These two approaches are used quite equally but may in some cases lead to different decisions (Davis, Stasson, Ono, & Zimmerman, 1988).

Perhaps most importantly, conformity pressures have a strong impact on jury decision making. When there are a greater number of jury members who hold the majority position, it becomes more and more certain that their opinion will prevail during the discussion (see Figure 7.17). This does not mean that minorities can never be persuasive, but it is very difficult for them to do so. The strong influence of the majority is probably due to both informational conformity (i.e., that there are more arguments supporting the favoured position) and normative conformity (i.e., the people on the majority side have greater social influence).

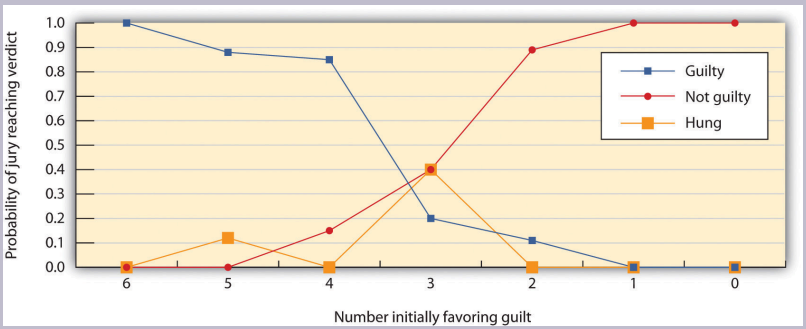


Figure 7.17. This figure shows the decisions of six-member mock juries that made "majority rules" decisions. When the majority of the six initially favoured voting guilty, the jury almost always voted guilty; when the majority of the six initially favoured voting innocent, the jury almost always voted innocent. The juries were frequently hung — that is, could not make a decision — when the initial split was three and three (Stasser, Kerr, & Bray, 1982).

Given the potential difficulties that groups face in making good decisions, you might be worried that the verdicts rendered by juries may not be particularly effective, accurate, or fair. However, despite these concerns, the evidence suggests that juries may not do as badly as we would expect. The deliberation process seems to cancel out many individual juror biases, and the importance of the decision leads the jury members to carefully consider the evidence itself.

Using groups effectively

Taken together, working in groups has both positive and negative outcomes. On the positive side, it makes sense to use groups to make decisions because people can create outcomes working together that any one individual could not hope to accomplish alone. In addition, once a group makes a decision, the group will normally find it easier to get other people to implement it because many people feel that decisions made by groups are fairer than those made by individuals.

Yet, groups frequently succumb to process losses, leading them to be less effective than they should be. Furthermore, group members often do not realize that the process losses are occurring around them. For instance, people who participate in brainstorming groups report that they have been more productive than those who work alone, even if the group has actually not done that well (Nijstad, Stroebe, Lodewijkx, 2006; Stroebe, Diehl, & Abakoumkin, 1992). The tendency for group members to overvalue the productivity of the groups they work in is known as the **illusion of group productivity**, and it seems to occur for several reasons. For one, the productivity of the group as a whole is highly accessible, and this productivity generally seems quite good, at least in comparison to the contributions of single individuals. The group members hear many ideas expressed by themselves and the other group members, and this gives the impression that the group is doing very well, even if objectively it is not. On the affective side, group members receive a lot of positive social identity from their group memberships. These positive feelings naturally lead them to believe that the group is strong and performing well.

What we need to do, then, is to recognize both the strengths and limitations of group performance and use whatever techniques we can to increase process gains and reduce process losses. The table below presents some of the techniques that are known to help groups achieve their goals.

Table 7.4. Techniques that can be used to improve group performance

Technique	Example
Provide rewards for performance	Rewarding employees and team members with bonuses will increase their effort toward the group goal. People will also work harder in groups when they feel that they are contributing to the group goal than when they feel that their contributions are not important.
Keep group member contributions identifiable	Group members will work harder if they feel that their contributions to the group are known and potentially seen positively by the other group members than they will if their contributions are summed into the group total and thus unknown.[1]
Maintain distributive justice (equity)	Workers who feel that their rewards are proportional to their efforts in the group will be happier and work harder than will workers who feel that they are underpaid.[2]
Keep groups small	Larger groups are more likely to suffer from coordination problems and social loafing. The most effective working groups are of relatively small size — about four or five members.
Create positive group norms	Group performance is increased when the group members care about the ability of the group to do a good job (e.g., a cohesive sports or military team). On the other hand, some groups develop norms that prohibit members from working to their full potential and thus encourage loafing.
Improve information sharing	Leaders must work to be sure that each member of the group is encouraged to present the information that he or she has in group discussions. One approach to increasing full discussion of the issues is to have the group break up into smaller subgroups for discussion.
Allow plenty of time	Groups take longer to reach consensus, and allowing plenty of time will help keep the group from coming to premature consensus and making an unwise choice. Time to consider the issues fully also allows the group to gain new knowledge by seeking information and analysis from outside experts.
Set specific and attainable goals	Groups that set specific, difficult, yet attainable goals (e.g., "improve sales by 10% over the next six months") are more effective than groups that are given goals that are not very clear (e.g., "let's sell as much as we can!").[3]
	Data source: [1] Szymanski and Harkins, 1987; [2] Geurts, Buunk, and Schaufeli, 1994; [3] Locke and Latham, 2006.

Reinforcement in social dilemmas

The basic principles of reinforcement, reward, and punishment have been used to help understand a variety of human behaviours (Bandura, 1977; Miller & Dollard, 1941; Rotter, 1945). The general idea is that, as predicted by principles of operant learning and the law of effect, people act in ways that maximize their outcomes, where **outcomes** are defined as the presence of reinforcers and the absence of punishers.

Consider, for example, a situation known as the **commons dilemma**, as proposed by the ecologist Garrett Hardin (1968). Hardin noted that in many European towns there was at one time a centrally located pasture, known as the commons, which was shared by the inhabitants of the village to graze their livestock, but the commons was not always used wisely. The problem was that each individual who owned livestock wanted to be able to use the commons to graze their own animals. However, when each group member took advantage of the commons by grazing many animals, the commons became overgrazed, the pasture died, and the commons was destroyed.

Although Hardin focused on the particular example of the commons, the basic dilemma of individual desires versus the benefit of the group as a whole can also be found in many contemporary public goods issues, including the use of limited

natural resources, air pollution, and public land. In large cities, most people may prefer the convenience of driving their own car to work each day rather than taking public transportation, yet this behaviour uses up public goods, like the space on limited roadways, crude oil reserves, and clean air. People are lured into the dilemma by short-term rewards, seemingly without considering the potential long-term costs of the behaviour, such as air pollution and the necessity of building even more highways.

A **social dilemma**, such as the commons dilemma, is a situation in which the behaviour that creates the most positive outcomes for the individual may in the long term lead to negative consequences for the group as a whole. The dilemmas are arranged in such a way that it is easy to be selfish, because the personally beneficial choice, such as using water during a water shortage or driving to work alone in one's own car, produces reinforcements for the individual. Furthermore, social dilemmas tend to work on a type of time delay. The problem is that, because the long-term negative outcome (e.g., the extinction of fish species or dramatic changes in the earth's climate) is far away in the future and the individual benefits are occurring right now, it is difficult for an individual to see how many costs there really are. The paradox, of course, is that if everyone takes the personally selfish choice in an attempt to maximize his or her own outcomes, the long-term result is poorer outcomes for every individual in the group. Each individual prefers to make use of the public goods for himself or herself, whereas the best outcome for the group as a whole is to use the resources more slowly and wisely.

One method of understanding how individuals and groups behave in social dilemmas is to create such situations in the laboratory and observe how people react to them. The best known of these laboratory simulations is called the **prisoner's dilemma game** (Poundstone, 1992). This game represents a social dilemma in which the goals of the individual compete with the goals of another individual or sometimes with a group of other individuals. Like all social dilemmas, the prisoner's dilemma assumes that individuals will generally try to maximize their own outcomes in their interactions with others.

In the prisoner's dilemma game, the participants are shown a **payoff matrix** in which numbers are used to express the potential outcomes for each of the players in the game, given the decisions each player makes. The payoffs are chosen beforehand by the experimenter to create a situation that models some real-world outcome. Furthermore, in the prisoner's dilemma game, the payoffs are normally arranged as they would be in a typical social dilemma, such that each individual is better off acting in their immediate self-interest, yet if all individuals act according to their self-interests, then everyone will be worse off.

In its original form, the prisoner's dilemma game involves a situation in which two prisoners — we'll call them Frank and Malik — have been accused of committing a crime. The police believe that the two worked together on the crime, but they have only been able to gather enough evidence to convict each of them of a more minor offense. In an attempt to gain more evidence, and thus be able to convict the prisoners of the larger crime, each of the prisoners is interrogated individually, with the hope that they will confess to having been involved in the more major crime in return for a promise of a reduced sentence if they confesses first. Each prisoner can make either the **cooperative choice**, which is to not confess, or the **competitive choice**, which is to confess.

The incentives for either confessing or not confessing are expressed in a payoff matrix (see Figure 7.18). The top of the matrix represents the two choices that Malik might make — to either confess that he did the crime or not confess — and the side of the matrix represents the two choices that Frank might make — also to either confess or not confess. The payoffs that each prisoner receives, given the choices of each of the two prisoners, are shown in each of the four squares.

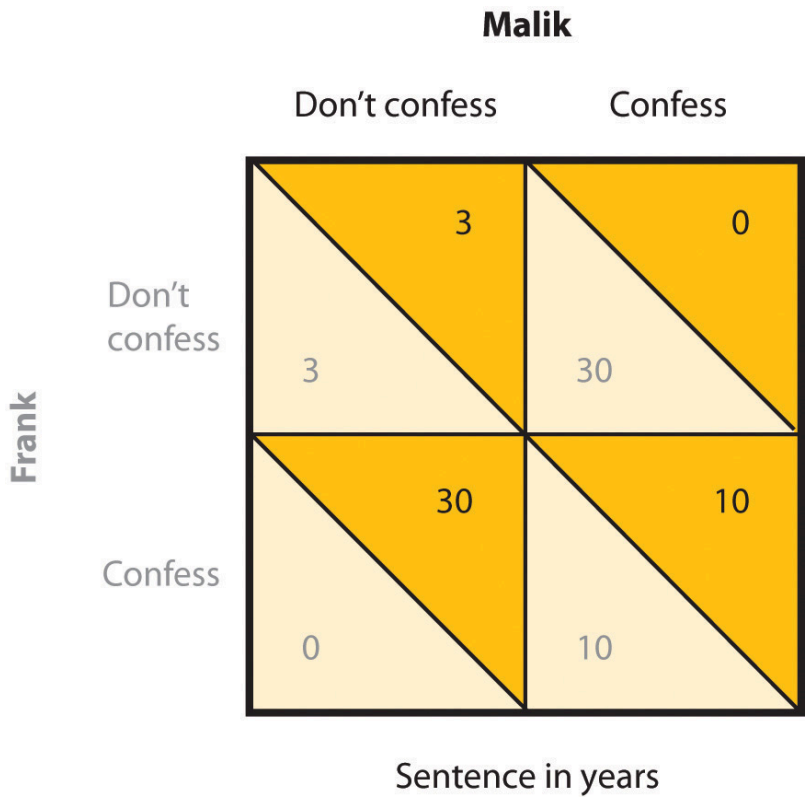


Figure 7.18. In the prisoner's dilemma game, two suspected criminals are interrogated separately. The matrix indicates the outcomes for each prisoner, measured as the number of years each is sentenced to prison, as a result of each combination of cooperative decisions (i.e., not confess) and competitive decisions (i.e., confess). Outcomes for Malik are in black, and outcomes for Frank are in grey. [Long description]

If both prisoners take the cooperative choice by not confessing, which is the situation represented in the upper left square of the matrix, there will be a trial, the limited available information will be used to convict each prisoner, and they each will be sentenced to a relatively short prison term of three years. However, if either of the prisoners confesses, turning "state's evidence" against the other prisoner, then there will be enough information to convict the other prisoner of the larger crime, and that prisoner will receive a sentence of 30 years, whereas the prisoner who confesses will get off free. These outcomes are represented in the lower left and upper right squares of the matrix. Finally, it is possible that both players confess at the same time. In this case, there is no need for a trial, and in return, the prosecutors offer a somewhat reduced sentence of 10 years to each of the prisoners.

The prisoner's dilemma has two interesting characteristics that make it a useful model of a social dilemma. For one, the prisoner's dilemma is arranged in such a way that a positive outcome for one player does not necessarily mean a negative outcome for the other player. If you consider again the payoff matrix shown above, you can see that if one player takes the cooperative choice to not confess and the other takes the competitive choice to confess, then the prisoner who cooperates loses, whereas the other prisoner wins. However, if both prisoners make the cooperative choice, each remaining quiet, then neither gains more than the other, and both prisoners receive a relatively light sentence. In this sense, both players can win at the same time.

Second, the prisoner's dilemma matrix is arranged so that each individual player is motivated to take the competitive choice because this choice leads to a higher payoff regardless of what the other player does. Imagine for a moment that you are Malik, and you are trying to decide whether to cooperate (i.e., not confess) or to compete (i.e., confess). Imagine

that you are not really sure what Frank is going to do. Remember, the goal of the individual is to maximize outcomes. The values in the matrix make it clear that if you think that Frank is going to confess, you should confess yourself to get 10 rather than 30 years in prison. It is also clear that if you think Frank is not going to confess, you should still confess to get no time in prison rather than three years. So, the matrix is arranged so that the "best" alternative for each player, at least in the sense of pure reward and self-interest, is to make the competitive choice, even though in the end both players would prefer the combination in which both players cooperate to the one in which they both compete.

Although initially specified in terms of the two prisoners, similar payoff matrices can be used to predict behaviour in many different types of dilemmas involving two or more parties and including choices of helping and not helping, working and loafing, and paying and not paying debts. For instance, we can use the prisoner's dilemma to help us understand roommates living together in a house who might not want to contribute to the housework. Each of them would be better off if they relied on the other to clean the house. Yet, if neither of them makes an effort to clean the house, which would be the cooperative choice, the house becomes a mess, and they will both be worse off.

Key Takeaways

- The performance of working groups is almost never as good as we would expect, given the number of individuals in the group, and in some cases may even be inferior to the performance of one or more members of the group working alone.
- The tendency to perform tasks better or faster in the presence of others is known as social facilitation. The tendency to perform tasks more poorly or more slowly in the presence of others is known as social inhibition.
- The ability of a group to perform well is determined by the characteristics of the group members as well as by the events that occur in the group itself, known as the group process.
- One group process loss that may occur in groups is that the group members may engage in social loafing. Group process losses can also occur as a result of groupthink — that is, when group members conform to each other rather than expressing their own divergent ideas.
- Taken together, working in groups has both positive and negative outcomes. It is important to recognize both the strengths and limitations of group performance and use whatever techniques we can to increase process gains and reduce process losses.

Exercises and Critical Thinking

1. Think of a social dilemma other than one that has been discussed in this section, and explain people's behaviour in it in terms of principles of learning.
2. Consider a time when you worked together with others in a group. Do you think the group experienced group process gains or group process losses? If the latter, what might you do now in a group to encourage effective group performance?

Congratulations on completing Chapter 7! Remember to go back to the section on Approach and Pedagogy near the beginning of the book to learn more about how to get the most out of reading and learning the material in this textbook.

Image Attributions

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Long Descriptions

Figure 7.14. The presence of others causes arousal which produces a dominant response. If the dominant response is correct, there is social facilitation. If the dominant response is incorrect, there is social inhibition.

[Return to Figure 7.14]

Figure 7.15. Group process loss:

Number of men pulling	Actual weight pulled	Expected weight pulled
1	80 pounds	80 pounds
2	140 pounds	145 pounds
3	180 pounds	205 pounds
8	275 pounds	560 pounds

[Return to Figure 7.15]

Figure 7.16. Causes and outcomes of groupthink that can lead to poor decision making:

Antecedent conditions

- Time pressure and stress
- High cohesiveness and social identity
- Isolation from other sources of information
- Directive, authoritative leadership

Symptoms of groupthink

- Illusions of invulnerability
- Illusions of unanimity
- In-group favouritism
- Little search for new information
- Belief in morality of the group
- Pressure on dissenters to conform to group norms

[Return to Figure 7.16]

Figure 7.18. The prisoner's dilemma:

If both Malik and Frank don't confess, they each get three years in prison. If only one of them confesses, the confessor gets no years in prison while the person who did not confess gets 30 years in prison. If they both confess, they each get 10 years in prison.

[Return to Figure 7.18]

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CHAPTER 8. COGNITION

8.0 Introduction

Cognition is defined as the processes of acquiring and using knowledge. The cognitive approach became the most important school of psychology during the 1960s, and the field of psychology has been enormously influenced by this approach. Cognitive psychologists are interested not just in the content of our thoughts, but in the processes of thinking: reasoning, problem-solving, interpreting, imagining, and so on. The study of these mental processes, and how they relate to our feelings and behaviour, is the focus of cognitive psychology.

The cognitive school was greatly influenced by the development of the computer, and although the differences between computers and the human mind are vast, cognitive psychologists have used the computer as a model for understanding the workings of the mind.

Consider the differences between brains and computers:

- In computers, information can be accessed only if one knows the exact location of the memory. In the brain, information can be accessed through spreading activation from closely related concepts.
- The brain operates primarily in parallel, meaning that it is multitasking on many different actions at the same time. Although this is changing as new computers are developed, most computers are primarily serial, meaning they finish one task before they start another.
- In computers, short-term, random-access memory is a subset of long-term, read-only memory. In the brain, the processes of short-term memory and long-term memory are distinct.
- In the brain, there is no difference between hardware, such as the mechanical aspects of the computer, and software, such as the programs that run on the hardware.
- In the brain, synapses, which operate using an electrochemical process, are much slower but also vastly more complex and useful than the transistors used by computers.
- Computers differentiate memory in the hard drive from processing in the central processing unit, but in brains, there is no such distinction. In the brain, but not in computers, existing memory is used to interpret and store incoming information, and retrieving information from memory changes the memory itself.
- The brain is self-organizing and self-repairing, but computers are not. If a person suffers a stroke, neural plasticity will help them recover. If we drop our laptop and it breaks, it cannot fix itself.
- The brain is significantly bigger than any current computer. The brain is estimated to have 25,000,000,000,000,000 (25 million billion) interactions among axons, dendrites, neurons, and neurotransmitters, and that doesn't include the approximately 1 trillion glial cells that may also be important for information processing and memory.

Although cognitive psychology began in earnest at about the same time that the electronic computer was first being developed, and although cognitive psychologists have frequently used the computer as a model for understanding how the brain operates, research in cognitive neuroscience has revealed many important differences between brains and computers. For more on this, neuroscientist Chris Chatham (2007) wrote "10 Important Differences Between Brains and Computers," which you might want to check out along with the responses to it.

8.1 The Elements of Cognition

Learning Objectives

1. Understand the problems with attempting to define categories.
2. Understand typicality and fuzzy category boundaries.
3. Learn about theories of the mental representation of concepts.
4. Learn how knowledge may influence concept learning.
5. Understand how we use schemas to mentally represent knowledge.

Consider the following set of objects: some dust, papers, a computer monitor, two pens, a cup, and an orange. What do these things have in common? Only that they all happen to be on my desk as I write this. This set of things can be considered a **category**, a set of objects that can be treated as equivalent in some way. However, most of our categories seem much more informative; they share many properties. For example, consider the following categories: trucks, wireless devices, weddings, psychopaths, and trout. Although the objects in a given category are different from one another, they have many commonalities. When you know something is a truck, you know quite a bit about it. The psychology of categories concerns how people learn, remember, and use informative categories such as trucks or psychopaths.



Figure 8.1. Although you've likely never seen this particular truck before, you know a lot about it because of the knowledge you've accumulated in the past about the features in the category of trucks.

The mental representations we form of categories are called **concepts**. There is a category of trucks in the world, and I also have a concept of trucks in my head. We assume that people's concepts correspond more or less closely to the actual category, but it can be useful to distinguish the two, as when someone's concept is not really correct.

Concepts are at the core of intelligent behaviour. We expect people to be able to know what to do in new situations and when confronting new objects. If you go into a new classroom and see chairs, a blackboard, a projector, and a screen, you know what these things are and how they will be used. You'll sit on one of the chairs and expect the instructor to write on the blackboard or project something onto the screen. You do this even if you have never seen any of these particular objects before, because you have concepts of classrooms, chairs, projectors, and so forth, that tell you what they are and what you're supposed to do with them. Furthermore, if someone tells you a new fact about the projector — for example, that it has a halogen bulb — you are likely to extend this fact to other projectors you encounter. In short, concepts allow you to extend what you have learned about a limited number of objects to a potentially infinite set of entities.

You know thousands of categories, most of which you have learned without careful study or instruction. Although this accomplishment may seem simple, we know that it isn't, because it is difficult to program computers to solve such intellectual tasks. If you teach a learning program that a robin, a swallow, and a duck are all birds, it may not recognize a cardinal or peacock as a bird. As we'll shortly see, the problem is that objects in categories are often surprisingly diverse.

Simpler organisms, such as animals and human infants, also have concepts (Mareschal, Quinn, & Lea, 2010). Squirrels may have a concept of predators, for example, that is specific to their own lives and experiences. However, animals likely have many fewer concepts and cannot understand complex concepts, such as mortgages or musical instruments.

Nature of categories

Traditionally, it has been assumed that categories are well-defined. This means that you can give a definition that specifies what is in and out of the category. Such a definition has two parts. First, it provides the **necessary features** for category membership; what must objects have in order to be in it? Second, those features must be **jointly sufficient** for membership; if an object has those features, then it is in the category. For example, if a dog is defined as a four-legged animal that barks, this would mean that every dog is four-legged, an animal, and barks, and also that anything that has all those properties is a dog.



Figure 8.2. Here is a very good dog, but one that does not fit perfectly into a well-defined category where all dogs have four legs.

Unfortunately, it has not been possible to find definitions for many familiar categories. Definitions are neat and clear-cut, but the world is messy and often unclear. For example, consider our definition of dogs. In reality, not all dogs have four legs, and not all dogs bark. Some dogs lose their bark with age, which might be seen as an improvement for some, but no one would doubt that a barkless dog is still a dog. It is often possible to find some necessary features (e.g., all dogs have blood and breathe), but these features are generally not sufficient to determine category membership (e.g., you also have blood and breathe but are not a dog).

Even in domains where one might expect to find clear-cut definitions, such as science and law, there are often problems. For example, many people were upset when Pluto was downgraded from its status as a planet to a dwarf planet in 2006.

Upset turned to outrage when they discovered that there was no hard-and-fast definition of planethood: "Aren't these astronomers scientists? Can't they make a simple definition?" In fact, they couldn't. After an astronomical organization tried to make a definition for planets, a number of astronomers complained that it might not include accepted planets such as Neptune and refused to use it. If everything looked like our planet, our moon, and our sun, it would be easy to give definitions of planets, moons, and stars, but the universe has sadly not conformed to this ideal.

Borderline items

Experiments also showed that the psychological assumptions of well-defined categories were not correct. James Hampton (1979) asked subjects to judge whether a number of items were in different categories. Hampton did not find that items were either clear members or clear nonmembers. Instead, many items were just barely considered category members and others were just barely not members, with much disagreement among subjects. Sinks were barely included as members of the kitchen utensil category, and sponges were barely excluded. People just included seaweed as a vegetable and just barely excluded tomatoes and gourds. Hampton found that members and nonmembers formed a continuum, with no obvious break in people's membership judgments. If categories were well defined, such examples should be very rare. Many studies since then have found such **borderline members** that are not clearly in or clearly out of the category.

Michael McCloskey and Sam Glucksberg (1978) found further evidence for borderline membership by asking people to judge category membership twice, separated by two weeks. They found that when people made repeated category judgments — such as "Is an olive a fruit?" or "Is a sponge a kitchen utensil?" — they changed their minds about borderline items, up to 22% of the time. So, not only do people disagree with one another about borderline items, they disagree with themselves! As a result, researchers often say that categories are **fuzzy**, that is, they have unclear boundaries that can shift over time.

Typicality

A related finding that turns out to be most important is that even among items that clearly are in a category, some seem to be "better" members than others (Rosch, 1973). Among birds, for example, robins and sparrows are very **typical**. In contrast, ostriches and penguins are very **atypical**, meaning not typical. If someone says, "There's a bird in my yard," the image you have will likely be of a smallish, passerine bird, such as a robin, and probably not an eagle, hummingbird, or turkey.

Furniture	Fruit
chair	orange
table	banana
desk	pear
bookcase	plum
lamp	strawberry
cushion	pineapple
rug	lemon
stove	honeydew
picture	date
vase	tomato

Figure 8.3. Examples of two categories, with members ordered by typicality (Rosch & Mervis, 1975).

You can find out which category members are typical merely by asking people. Category members may be listed in order of their rated typicality (see Figure 8.3). Typicality is perhaps the most important variable in predicting how people interact with categories, but there are other influences of typicality (see Figure 8.4).

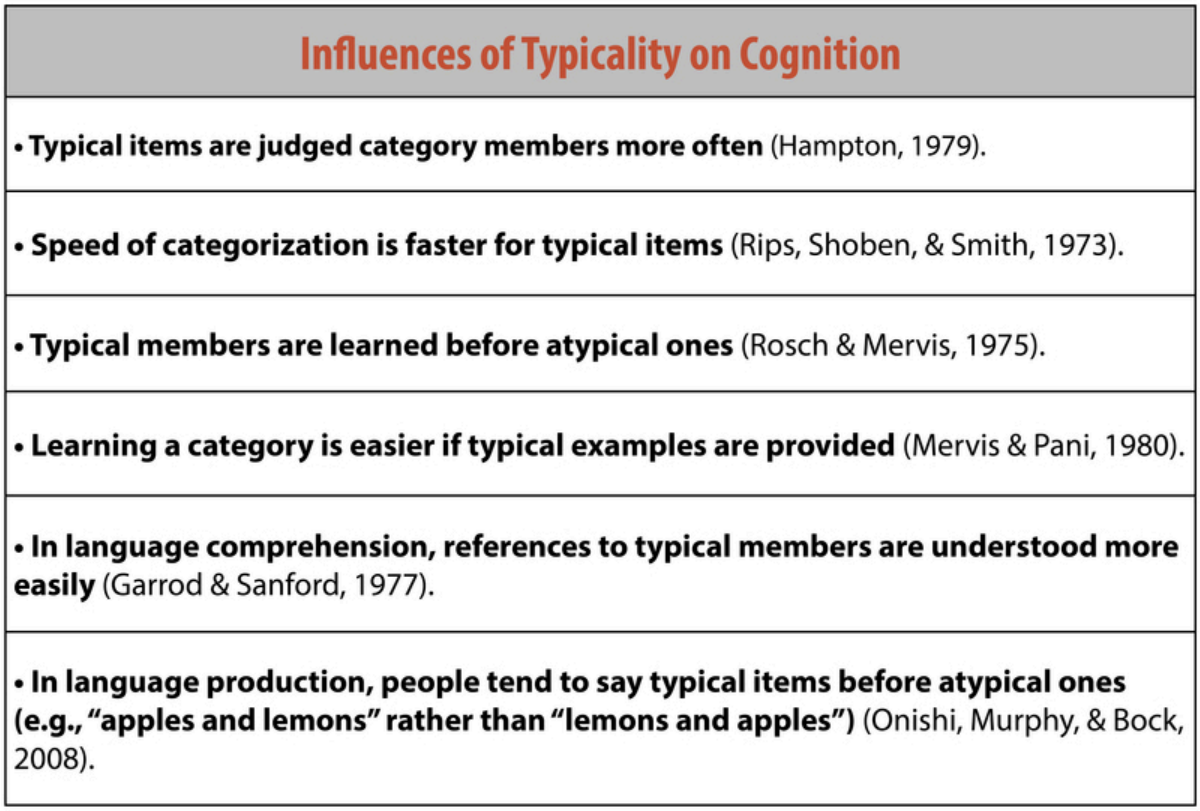


Figure 8.4. Influences on typicality on cognition.

We can understand the two phenomena of borderline members and typicality as two sides of the same coin. Think of the most typical category member; this is often called the category **prototype**. Items that are less and less similar to the prototype become less and less typical. At some point, these less typical items become so atypical that you start to doubt whether they are in the category at all. Is a rug really an example of furniture? It's in the home like chairs and tables, but it's also different from most furniture in its structure and use. From day to day, you might change your mind as to whether this atypical example is in or out of the category. So, changes in typicality ultimately lead to borderline members.

Source of typicality

Intuitively, it is not surprising that robins are better examples of birds than penguins are or that a table is a more typical kind of furniture than a rug is. However, given that robins and penguins are known to be birds, why should one be more typical than the other? One possible answer is the frequency with which we encounter the object. We see a lot more robins than penguins, so they must be more typical. Frequency does have some effect, but it is actually not the most important variable (Rosch, Simpson, & Miller, 1976). For example, one may see both rugs and tables every single day, but one of them is much more typical as furniture than the other.

The best account of what makes something typical comes from the **family resemblance theory**, which proposes that items are likely to be typical if they have the features that are frequent in the category and do not have features frequent in other categories (Rosch & Mervis, 1975). Let's compare two extremes: robins and penguins. Robins are small flying birds that sing, live in nests in trees, migrate in winter, hop around on your lawn, and so on. Most of these properties

are found in many other birds. In contrast, penguins do not fly, do not sing, do not live in nests nor in trees, and do not hop around on your lawn. Furthermore, they have properties that are common in other categories, such as swimming expertly and having wings that look and act like fins. These properties are more often found in fish than in birds.



Figure 8.5. When you think of "bird," how closely does the Japanese robin resemble your general figure?

According to the family resemblance theory, it is not because a robin is a very common bird that makes it typical. Rather, it is because the robin has the shape, size, body parts, and behaviours that are very common among birds — and not common among fish, mammals, bugs, and so forth.

In a classic experiment, Eleanor Rosch and Carolyn Mervis (1975) made up two new categories, each with arbitrary features. Subjects viewed example after example and had to learn which example was in which category. Rosch and Mervis constructed some items that had features that were common in the category and other items that had features less common in the category. The subjects learned the first type of item before they learned the second type. Furthermore, they then rated the items with common features as more typical. In another experiment, Rosch and Mervis constructed items that differed in how many features were shared with a different category. The more features that were shared, the longer it took subjects to learn which category the item was in. These experiments, and many later studies, support both parts of the family resemblance theory.

Category hierarchies

Many important categories fall into **hierarchies**, in which more concrete categories are nested inside larger, abstract categories. For example, consider the following categories: brown bear, bear, mammal, vertebrate, animal, and entity. Clearly, all brown bears are bears, all bears are mammals, all mammals are vertebrates, and so on. Any given object typically does not fall into just one category; it could be in a dozen different categories, some of which are structured in this hierarchical manner. Examples of biological categories come to mind most easily, but within the realm of human artifacts, hierarchical structures can readily be found, as in the following categories: desk chair, chair, furniture, artifact, and object.

Roger Brown (1958), a child language researcher, was perhaps the first to note that there seems to be a preference for which category we use to label things. If your office desk chair is in the way, you'll probably say, "Move that chair," rather than, "Move that desk chair" or "piece of furniture." Brown thought that the use of a single, consistent name probably helped children to learn the name for things. Indeed, children's first labels for categories tend to be exactly those names that adults prefer to use (Anglin, 1977).

This preference is referred to as a preference for the **basic level of categorization**, and it was first studied in detail by Eleanor Rosch and her students (Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976). The basic level represents a kind of Goldilocks effect in which the category used for something is not too small (e.g., northern brown bear) and not too big (e.g., animal), but it is just right (e.g., bear). The simplest way to identify an object's basic-level category is to discover how it would be labelled in a neutral situation. Rosch and her students showed subjects pictures and asked them to provide the first name that came to mind. They found that 1,595 names were at the basic level, with 14 more specific names (i.e., subordinates) used. Only once did anyone use a more general name (i.e., superordinate). Furthermore, in printed text, basic-level labels are much more frequent than most subordinate or superordinate labels (e.g., Wisniewski & Murphy, 1989).

The preference for the basic level is not merely a matter of labelling. Basic-level categories are usually easier to learn. As such, people are faster at identifying objects as members of basic-level categories (Rosch, Mervis et al., 1976).

As Brown noted (1958), children use these categories first in language learning, and superordinates are especially difficult for children to fully acquire. This is a controversial claim, as some say that infants learn superordinates before anything else (Mandler, 2004). However, if true, then it is very puzzling that older children have great difficulty learning the correct meaning of words for superordinates, as well as in learning artificial superordinate categories (Horton & Markman, 1980; Mervis, 1987). As a result, it seems fair to say that the answer to this question is not yet fully known.

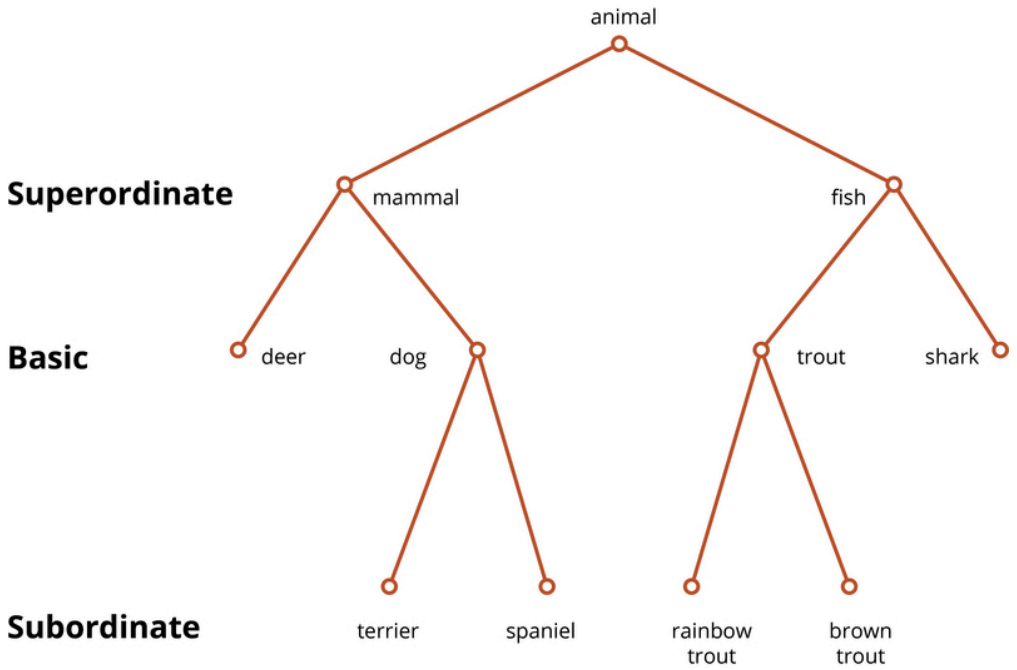


Figure 8.6. This is a highly simplified illustration of hierarchically organized categories, with the superordinate, basic, and subordinate levels labelled. Keep in mind that there may be even more specific subordinates (e.g., wire-haired terriers) and more general superordinates (e.g., living thing).

Rosch and colleagues (Rosch, Mervis et al., 1976) initially proposed that basic-level categories cut the world at its joints, that is, merely reflect the big differences between categories like chairs and tables or between cats and mice that exist in the world. However, it turns out that which level is basic is not universal. North Americans are likely to use names like "tree," "fish," and "bird" to label natural objects, but people in less industrialized societies seldom use these labels and instead use more specific words, equivalent to "elm," "trout," and "finch" (Berlin, 1992). Because Americans and many other people living in industrialized societies know so much less than our ancestors did about the natural world, our basic level has moved up to what would have been the superordinate level a century ago. Furthermore, experts in a domain often have a preferred level that is more specific than that of non-experts. For example, birdwatchers see sparrows rather than just birds, and carpenters see roofing hammers rather than just hammers (Tanaka & Taylor, 1991). This all suggests that the preferred level is not only based on how different categories are in the world, but that people's knowledge and interest in the categories has an important effect.

One explanation of the basic-level preference is that basic-level categories are more differentiated. The category members are similar to one another, but they are different from members of other categories (Murphy & Brownell, 1985; Rosch, Mervis et al., 1976). The alert reader will note a similarity to the explanation of typicality provided above. However, here we are talking about the entire category and not individual members. Chairs are pretty similar to one another, sharing a lot of features (e.g., legs, a seat, a back, similar size and shape, etc.), and they also do not share that many features with other furniture. Superordinate categories are not as useful because their members are not very similar to one another. What features are common to most furniture? There are very few. Subordinate categories are not as useful because they are very similar to other categories. For example, desk chairs are quite similar to dining room chairs and easy chairs. As a result, it can be difficult to decide which subordinate category an object is in (Murphy & Brownell, 1985). Experts can differ from novices, using categories that are more differentiated, because they know different things about the categories, therefore changing how similar the categories are.

Theories of concept representation

Now that we know these facts about the psychology of concepts, the question arises of how concepts are mentally represented. There have been two main answers. The first, somewhat confusingly called the **prototype theory**, suggests that people have a summary representation of the category, a mental description that is meant to apply to the category as a whole. The significance of summary will become apparent when the next theory is described. This description can be represented as a set of **weighted features** (Smith & Medin, 1981). The features are weighted by their frequency in the category. For the category of birds, having wings and feathers would have a very high weight; eating worms would have a lower weight; living in Antarctica would have a lower weight still, but not zero, as some birds do live there.



Figure 8.7. If you were asked what kind of animal this is, according to prototype theory, you would consult your summary representations of different categories and select the one that is most similar to this image — probably a lizard.

The idea behind prototype theory is that when you learn a category, you learn a general description that applies to the category as a whole. For example, birds have wings and usually fly, some eat worms, and some swim underwater to catch fish. People can state these generalizations, and sometimes we learn about categories by reading or hearing such statements as "The komodo dragon can grow to be 10 feet long."

When you try to classify an item, you see how well it matches that weighted list of features. For example, if you saw

something with wings and feathers fly onto your front lawn and eat a worm, you could unconsciously consult your concepts and see which ones contained the features you observed. This example possesses many of the highly weighted bird features, so it should be easy to identify as a bird.

This theory readily explains the phenomena we discussed earlier. Typical category members have more, or higher-weighted, features. Therefore, it is easier to match them to your conceptual representation. In contrast, less typical items have fewer, or lower-weighted, features, and they may have features of other concepts. Therefore, they don't match your representation as well. This makes people less certain in classifying such items. Borderline items may have features in common with multiple categories or not be very close to any of them. For example, edible seaweed does not have many of the common features of vegetables but also is not close to any other food concept — such as meat, fish, fruit, and so on — making it hard to know what kind of food it is.

A very different account of concept representation is the **exemplar theory**, with the word exemplar simply being a fancy name for an example (Medin & Schaffer, 1978). This theory denies that there is a summary representation. Instead, the theory claims that your concept of vegetables is remembered examples of vegetables you have seen. This could of course be hundreds or thousands of exemplars over the course of your life, though we don't know for sure how many exemplars you actually remember.

How does this theory explain classification? When you see an object, you unconsciously compare it to the exemplars in your memory, and you judge how similar it is to exemplars in different categories. For example, if you see some object on your plate and want to identify it, it will probably activate memories of vegetables, meats, fruit, and so on. In order to categorize this object, you calculate how similar it is to each exemplar in your memory. These similarity scores are added up for each category. Perhaps the object is very similar to a large number of vegetable exemplars, moderately similar to a few fruit, and only minimally similar to some exemplars of meat you remember. These similarity scores are compared, and the category with the highest score is chosen. That being said, the decision of which category is chosen is more complex than this, but the full details are beyond this discussion.

Why would someone propose such a theory of concepts? One answer is that in many experiments studying concepts, people learn concepts by seeing exemplars over and over again until they learn to classify them correctly. Under such conditions, it seems likely that people eventually memorize the exemplars (Smith & Minda, 1998). There is also evidence that close similarity to well-remembered objects has a large effect on classification. Scott Allen and Lee Brooks (1991) taught people to classify items by following a rule. However, they also had their subjects study the items, which were richly detailed. In a later test, the experimenters gave people new items that were very similar to one of the old items but were in a different category. That is, they changed one property so that the item no longer followed the rule. They discovered that people were often fooled by such items. Rather than following the category rule they had been taught, they seemed to recognize the new item as being very similar to an old one and so put it, incorrectly, into the same category.

Many experiments have been done to compare the prototype and exemplar theories. Overall, the exemplar theory seems to have won most of these comparisons. However, the experiments are somewhat limited in that they usually involve a small number of exemplars that people view over and over again. It is not so clear that exemplar theory can explain real-world classification in which people do not spend much time learning individual items (e.g., how much time do you spend studying squirrels or chairs?). Also, given that some part of our knowledge of categories is learned through general statements we read or hear, it seems that there must be room for a summary description separate from exemplar memory.

Many researchers would now acknowledge that concepts are represented through multiple cognitive systems. For example, your knowledge of dogs may be in part through general descriptions such as "dogs have four legs," but you probably also have strong memories of some exemplars, such as your family dog or other dogs you have known before,

that influence your categorization. Furthermore, some categories also involve rules (e.g., a strike in baseball). How these systems work together is the subject of current study.

Knowledge

The final topic has to do with how concepts fit with our broader knowledge of the world. We have been talking very generally about people learning the features of concepts. For example, they see a number of birds and then learn that birds generally have wings, or perhaps they remember bird exemplars. From this perspective, it makes no difference what those exemplars or features are — people just learn them. However, consider two possible concepts of buildings and their features (see Figure 8.8).

Donker	Blegdav
has thick windows	has steel windows
is red	is purple
divers live there	farmers live there
is under water	is in the desert
get there by submarine	get there by submarine
has fish as pets	has polar bears as pets

Figure 8.8. Examples of two fictional concepts.

Imagine you had to learn these two concepts by seeing exemplars of them, each exemplar having some of the features listed for the concept as well as some idiosyncratic features. Learning the donker concept would be pretty easy. It seems to be a kind of underwater building, perhaps for deep-sea explorers. Its features seem to go together. In contrast, the blegdav doesn't really make sense. If it is in the desert, how can you get there by submarine, and why do they have polar bears as pets? Why would farmers live in the desert or use submarines? What good would steel windows do in such a building? This concept seems peculiar. In fact, if people are asked to learn new concepts that make sense, such as donkers, they learn them quite a bit faster than concepts such as blegdavs that don't make sense (Murphy & Allopenna,

1994). Furthermore, the features that seem connected to one another, such as being underwater and getting there by submarine, are learned better than features that do not seem related to the others, such as being red.

Such effects demonstrate that when we learn new concepts, we try to connect them to the knowledge we already have about the world. If you were to learn about a new animal that does not seem to eat or reproduce, you would be very puzzled and think that you must have gotten something wrong. By themselves, the prototype and exemplar theories do not predict this. They simply say that you learn descriptions or exemplars, and they do not put any constraints on what those descriptions or exemplars are. However, the **knowledge approach** to concepts emphasizes that concepts are meant to tell us about real things in the world, and so our knowledge of the world is used in learning and thinking about concepts.

We can see this effect of knowledge when we learn about new pieces of technology. For example, most people could easily learn about tablet computers (e.g., iPads) when they were first introduced by drawing on their knowledge of laptops, cell phones, and related technology. Of course, this reliance on past knowledge can also lead to errors, as when people don't learn about features of their new tablet that weren't present in their cell phone or expect the tablet to be able to do something it can't.

Schemas are a way for us to cognitively organize the knowledge that we have amassed about specific things: people, activities, categories, events, and so on. For example, you may have a complex and highly detailed schema about using an iPad if you have a lot of experience. Your knowledge about using it is organized, and integrating new knowledge (e.g., using a new app) is likely to be much easier than it is for someone whose schema is limited to the basics. Schemas provide a cognitive structure for us to organize and use knowledge; for example, your schema for what to do on a first date is likely to be affected by things like your age, cultural background, experience, and so on. Schemas are cognitive, but they interact with feelings and behaviour. We will return to schema later in this chapter.

Establishing concepts

Concepts are central to our everyday thought. When we are planning for the future or thinking about our past, we think about specific events and objects in terms of their categories. If you're visiting a friend with a new baby, you have some expectations about what the baby will do, what gifts would be appropriate, how you should behave toward it, and so on. Knowing about the category of babies helps you to effectively plan and behave when you encounter this child you've never seen before.

Learning about those categories is a complex process that involves seeing exemplars (e.g., babies), hearing or reading general descriptions (e.g., "babies like black-and-white pictures"), general knowledge (e.g., babies have kidneys), and learning the occasional rule (e.g., all babies have a rooting reflex). Current research is focusing on how these different processes take place in the brain. It seems likely that these different aspects of concepts are accomplished by different neural structures (Maddox & Ashby, 2004).

Another interesting topic is how concepts differ across cultures. As different cultures have different interests and different kinds of interactions with the world, it seems clear that their concepts will somehow reflect those differences. On the other hand, the structure of categories in the world also imposes a strong constraint on what kinds of categories are actually useful. Some researchers have suggested that differences between Eastern and Western modes of thought have led to qualitatively different kinds of concepts (e.g., Norenzayan, Smith, Kim, & Nisbett, 2002). Although such differences are intriguing, we should also remember that different cultures seem to share common categories such as chairs, dogs, parties, and jars, so the differences may not be as great as suggested by experiments designed to detect cultural effects. The interplay of culture, the environment, and basic cognitive processes in establishing concepts has yet to be fully investigated.

Source: Adapted from Murphy (2020).

Key Takeaways

- Categories are sets of equivalent objects, but they are not always well-defined.
- The mental representations of categories are called concepts. Concepts allow us to behave intelligently in new situations. They involve prototypes and exemplars.
- Some category members are seen as prototypical.
- Many categories fall into hierarchies. Basic categories are more likely to be used.
- We build on existing knowledge when learning new concepts.
- Schemas are organized knowledge structures

Exercises and Critical Thinking

1. Pick a couple of familiar categories, and try to come up with definitions for them. When you evaluate each proposal, consider whether it is, in fact, accurate as a definition and if it is a definition that people might actually use in identifying category members.
2. For the same categories, can you identify members that seem to be "better" and "worse" members? What about these items makes them typical and atypical?
3. Look around the room. Point to some common objects, including things people are wearing or brought with them, and identify what the basic-level category is for that item. What are superordinate and subordinate categories for the same items?
4. Draw an image that represents your schema for doing laundry. Then, do the same thing for studying for a final exam. What have you included in your studying schema?

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8.2 Problem-Solving: Heuristics and Algorithms

Learning Objectives

1. Describe the differences between heuristics and algorithms in information processing.

When faced with a problem to solve, should you go with intuition or with more measured, logical reasoning? Obviously, we use both of these approaches. Some of the decisions we make are rapid, emotional, and automatic. Daniel Kahneman (2011) calls this "fast" thinking. By definition, fast thinking saves time. For example, you may quickly decide to buy something because it is on sale; your fast brain has perceived a bargain, and you go for it quickly. On the other hand, "slow" thinking requires more effort; applying this in the same scenario might cause us not to buy the item because we have reasoned that we don't really need it, that it is still too expensive, and so on. Using slow and fast thinking does not guarantee good decision-making if they are employed at the wrong time. Sometimes it is not clear which is called for, because many decisions have a level of uncertainty built into them. In this section, we will explore some of the applications of these tendencies to think fast or slow.

Heuristics

We will look further into our thought processes, more specifically, into some of the problem-solving strategies that we use. **Heuristics** are information-processing strategies that are useful in many cases but may lead to errors when misapplied. A heuristic is a principle with broad application, essentially an educated guess about something. We use heuristics all the time, for example, when deciding what groceries to buy from the supermarket, when looking for a library book, when choosing the best route to drive through town to avoid traffic congestion, and so on. Heuristics can be thought of as aids to decision making; they allow us to reach a solution without a lot of cognitive effort or time.

The benefit of heuristics in helping us reach decisions fairly easily is also the potential downfall: the solution provided by the use of heuristics is not necessarily the best one. Let's consider some of the most frequently applied, and misapplied, heuristics in the table below.

Table 8.1. Heuristics that pose threats to accuracy

Heuristic	Description	Examples of Threats to Accuracy
Representativeness	A judgment that something that is more representative of its category is more likely to occur	We may overestimate the likelihood that a person belongs to a particular category because they resemble our prototype of that category.
Availability	A judgment that what comes easily to mind is common	We may overestimate the crime statistics in our own area because these crimes are so easy to recall.
Anchoring and adjustment	A tendency to use a given starting point as the basis for a subsequent judgment	We may be swayed towards or away from decisions based on the starting point, which may be inaccurate.

In many cases, we base our judgments on information that seems to represent, or match, what we expect will happen, while ignoring other potentially more relevant statistical information. When we do so, we are using the **representativeness heuristic**. Consider, for instance, the data presented in the table below. Let's say that you went to a hospital, and you checked the records of the babies that were born on that given day. Which pattern of births do you think you are most likely to find?

Table 8.2. The representativeness heuristic

List A		List B	
6:31 a.m.	Girl	6:31 a.m.	Boy
8:15 a.m.	Girl	8:15 a.m.	Girl
9:42 a.m.	Girl	9:42 a.m.	Boy
1:13 p.m.	Girl	1:13 p.m.	Girl
3:39 p.m.	Boy	3:39 p.m.	Girl
5:12 p.m.	Boy	5:12 p.m.	Boy
7:42 p.m.	Boy	7:42 p.m.	Girl
11:44 p.m.	Boy	11:44 p.m.	Boy

Note: Using the representativeness heuristic may lead us to incorrectly believe that some patterns of observed events are more likely to have occurred than others. In this case, list B seems more random, and thus is judged as more likely to have occurred, but statistically both lists are equally likely.

Most people think that list B is more likely, probably because list B looks more random, and matches — or is "representative of" — our ideas about randomness, but statisticians know that any pattern of four girls and four boys is mathematically equally likely. Whether a boy or girl is born first has no bearing on what sex will be born second; these are independent events, each with a 50:50 chance of being a boy or a girl. The problem is that we have a schema of what randomness should be like, which does not always match what is mathematically the case. Similarly, people who see a flipped coin come up "heads" five times in a row will frequently predict, and perhaps even wager money, that "tails" will be next. This behaviour is known as the **gambler's fallacy**. Mathematically, the gambler's fallacy is an error: the likelihood of any single coin flip being "tails" is always 50%, regardless of how many times it has come up "heads" in the past.

The representativeness heuristic may explain why we judge people on the basis of appearance. Suppose you meet your new next-door neighbour, who drives a loud motorcycle, has many tattoos, wears leather, and has long hair. Later, you try to guess their occupation. What comes to mind most readily? Are they a teacher? Insurance salesman? IT specialist? Librarian? Drug dealer? The representativeness heuristic will lead you to compare your neighbour to the prototypes you have for these occupations and choose the one that they seem to represent the best. Thus, your judgment is affected by how much your neibour seems to resemble each of these groups. Sometimes these judgments are accurate, but they

often fail because they do not account for **base rates**, which is the actual frequency with which these groups exist. In this case, the group with the lowest base rate is probably drug dealer.

Our judgments can also be influenced by how easy it is to retrieve a memory. The tendency to make judgments of the frequency or likelihood that an event occurs on the basis of the ease with which it can be retrieved from memory is known as the **availability heuristic** (MacLeod & Campbell, 1992; Tversky & Kahneman, 1973). Imagine, for instance, that I asked you to indicate whether there are more words in the English language that begin with the letter "R" or that have the letter "R" as the third letter. You would probably answer this question by trying to think of words that have each of the characteristics, thinking of all the words you know that begin with "R" and all that have "R" in the third position. Because it is much easier to retrieve words by their first letter than by their third, we may incorrectly guess that there are more words that begin with "R," even though there are in fact more words that have "R" as the third letter.

The availability heuristic may explain why we tend to overestimate the likelihood of crimes or disasters; those that are reported widely in the news are more readily imaginable, and therefore, we tend to overestimate how often they occur. Things that we find easy to imagine, or to remember from watching the news, are estimated to occur frequently. Anything that gets a lot of news coverage is easy to imagine. Availability bias does not just affect our thinking. It can change behaviour. For example, homicides are usually widely reported in the news, leading people to make inaccurate assumptions about the frequency of murder. In Canada, the murder rate has dropped steadily since the 1970s (Statistics Canada, 2018), but this information tends not to be reported, leading people to overestimate the probability of being affected by violent crime. In another example, doctors who recently treated patients suffering from a particular condition were more likely to diagnose the condition in subsequent patients because they overestimated the prevalence of the condition (Poses & Anthony, 1991).

The anchoring and adjustment heuristic is another example of how fast thinking can lead to a decision that might not be optimal. Anchoring and adjustment is easily seen when we are faced with buying something that does not have a fixed price. For example, if you are interested in a used car, and the asking price is $10,000, what price do you think you might offer? Using $10,000 as an anchor, you are likely to adjust your offer from there, and perhaps offer $9000 or $9500. Never mind that $10,000 may not be a reasonable anchoring price. Anchoring and adjustment does not just happen when we're buying something. It can also be used in any situation that calls for judgment under uncertainty, such as sentencing decisions in criminal cases (Bennett, 2014), and it applies to groups as well as individuals (Rutledge, 1993).

Algorithms

In contrast to heuristics, which can be thought of as problem-solving strategies based on educated guesses, algorithms are problem-solving strategies that use rules. Algorithms are generally a logical set of steps that, if applied correctly, should be accurate. For example, you could make a cake using heuristics — relying on your previous baking experience and guessing at the number and amount of ingredients, baking time, and so on — or using an algorithm. The latter would require a recipe which would provide step-by-step instructions; the recipe is the algorithm. Unless you are an extremely accomplished baker, the algorithm should provide you with a better cake than using heuristics would. While heuristics offer a solution that might be correct, a correctly applied algorithm is guaranteed to provide a correct solution. Of course, not all problems can be solved by algorithms.

As with heuristics, the use of algorithmic processing interacts with behaviour and emotion. Understanding what strategy might provide the best solution requires knowledge and experience. As we will see in the next section, we are prone to a number of cognitive biases that persist despite knowledge and experience.

Key Takeaways

- We use a variety of shortcuts in our information processing, such as the representativeness, availability, and anchoring and adjustment heuristics. These help us to make fast judgments but may lead to errors.
- Algorithms are problem-solving strategies that are based on rules rather than guesses. Algorithms, if applied correctly, are far less likely to result in errors or incorrect solutions than heuristics. Algorithms are based on logic.

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8.3 Cognitive Processes That May Lead to Inaccuracy

Learning Objectives

1. Understand why cognitive biases are used.
2. Explain confirmation bias, how to avoid it, and its role in stereotypes.
3. Explain hindsight bias.
4. Explain functional fixedness.
5. Explain the framing effect.
6. Explain cognitive dissonance.

Cognitive biases: Efficiency versus accuracy

We have seen how our cognitive efforts to solve problems can make use of heuristics and algorithms. Research has shown that human thinking is subject to a number of cognitive processes; we all use them routinely, although we might not be aware that we are. While these processes provide us with a level of cognitive efficiency in terms of time and effort, they may result in problem-solving and decision-making that is flawed. In this section, we will discover a number of these processes.

Cognitive biases are errors in memory or judgment that are caused by the inappropriate use of cognitive processes. Refer to the table below for specific examples. The study of cognitive biases is important, both because it relates to the important psychological theme of accuracy versus inaccuracy in perception and because being aware of the types of errors that we may make can help us avoid them, thereby improving our decision-making skills.

Table 8.3. Cognitive processes that pose threats to accuracy

Cognitive Process	Description	Examples of Threats to Accurate Reasoning
Confirmation bias	The tendency to verify and confirm our existing memories rather than to challenge and disconfirm them	Once beliefs become established, they become self-perpetuating and difficult to change, regardless of their accuracy.
Functional fixedness	When schemas prevent us from seeing and using information in new and nontraditional ways	Creativity may be impaired by the overuse of traditional, expectancy-based thinking.
Counterfactual thinking	When we "replay" events such that they turn out differently, especially when only minor changes in the events leading up to them make a difference	We may feel particularly bad about events that might not have occurred if only a small change had occurred before them.
Hindsight bias	The tendency to reconstruct a narrative of the past that includes our ability to predict what happened	Knowledge is reconstructive.
Salience	When some stimuli (e.g., those that are colourful, moving, or unexpected) grab our attention, making them more likely to be remembered	We may base our judgments on a single salient event while we ignore hundreds of other equally informative events that we do not see.

Confirmation bias is the tendency to verify and confirm our existing beliefs and ignore or discount information that disconfirms them. For example, one might believe that organic produce is inherently better: higher in nutrition, lower in pesticides, and so on. Adhering to confirmation bias would mean paying attention to information that confirms the superiority of organic produce and ignoring or not believing any accounts that suggest otherwise. Confirmation bias is psychologically comfortable, such that we can proceed to make decisions with our views unchallenged. However, just because something "feels" right, does not necessarily make it so. Confirmation bias can make people make poor decisions because they fail to pay attention to contrary evidence.

A good example of confirmation bias is seen in people's attention to political messaging. Jeremy Frimer, Linda Skitka, and Matt Motyl (2017) found that both liberal and conservative voters in Canada and the United States were averse to hearing about the views of their ideological opponents. Furthermore, the participants in their studies indicated that their aversion was not because they felt well-informed, but rather because they were strategically avoiding learning information that would challenge their pre-existing views. As the researchers point out, confirmation bias can result in people on all sides of the political scene remaining within their ideological bubbles, avoiding dialogue with opposing views, and becoming increasingly entrenched and narrow-minded in their positions.

Avoiding confirmation bias and its effects on reasoning requires, first of all, understanding of its existence and, secondly, work to reduce its effects by actively and systematically reviewing disconfirmatory evidence (Lord, Lepper, & Preston, 1984). For example, someone who believes that vaccinations are dangerous might change their mind if they wrote down the arguments for vaccination after considering some of the evidence.

It must be evident that confirmation bias has a role to play in **stereotypes**, which are a set of beliefs, or schemas, about the characteristics of a group. John Darley and Paget Gross (1983) demonstrated how schemas about social class could influence memory. In their research, they gave participants a picture and some information about a Grade 4 girl named Hannah. To activate a schema about her social class, Hannah was pictured sitting in front of a nice suburban house for one-half of the participants and pictured in front of an impoverished house in an urban area for the other half. Next, the participants watched a video that showed Hannah taking an intelligence test. As the test went on, Hannah got some of the questions right and some of them wrong, but the number of correct and incorrect answers was the same

in both conditions. Then, the participants were asked to remember how many questions Hannah got right and wrong. Demonstrating that stereotypes had influenced memory, the participants who thought that Hannah had come from an upper-class background remembered that she had gotten more correct answers than those who thought she was from a lower-class background. You can imagine how the stereotypes that we have against certain groups can affect our behaviour with members of those groups.

All of us, from time to time, fall prone to the feeling, "I knew it all along!" This tendency is called **hindsight bias**, and it refers to the narrative that is constructed about something that happened in the past that helps us make sense of the event. Hindsight bias is the brain's tendency to rewrite one's knowledge of history after it happens. The tendency to feel like "I knew it all along" is coupled with an inability to reconstruct the lack of knowledge that formerly existed. Thus, we overestimate our ability to predict the future because we have reconstructed an illusory past (Kahneman, 2011).

Functional fixedness occurs when people's schemas prevent them from using an object in new and nontraditional ways. Karl Duncker (1945) gave participants a candle, a box of thumbtacks, and a box of matches; participants were then asked to attach the candle to the wall so that it did not drip onto the table underneath it (see Figure 8.9). Few of the participants realized that the box could be tacked to the wall and used as a platform to hold the candle. The problem again is that our existing memories are powerful, and they bias the way we think about new information. Because the participants were fixated on the box's normal function of holding thumbtacks, they could not see its alternative use.

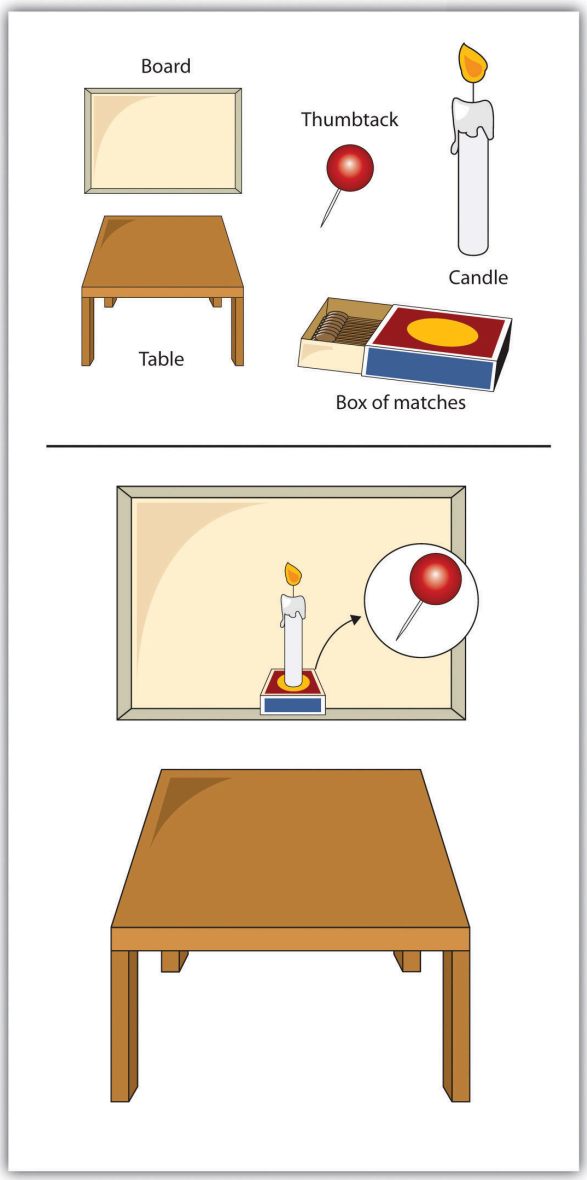


Figure 8.9. In the candle-tack-box problem, functional fixedness may lead us to see the box only as a box and not as a potential candleholder.

Humans have a tendency to avoid risk when making decisions. The **framing effect** is the tendency for judgments to be affected by the framing, or wording, of the problem. When asked to choose between two alternatives, one framed in terms of avoiding loss and the second framed in maximizing gain, people will make different choices about the same problem. Furthermore, emotional reactions to the same event framed differently are also different. For example, the probability of recovery from an illness is 90% is more reassuring than being told that the mortality rate of the illness is 10% (Kahneman, 2011). Amos Tversky and Daniel Kahneman (1981) devised an example, now known as the "Asian disease problem," to show the framing effect:

> Imagine that the United States is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programs are as follows:

- If Program A is adopted, 200 people will be saved. [72%]
- If Program B is adopted, there is 1/3 probability that 600 people will be saved and 2/3 probability that no people will be saved. [28%]

Which of the two programs would you favour?

The majority of participants chose Program A as the best choice. Clearly, they favoured a sure thing over a gamble. In another version of the same problem, the options were framed differently:

- If Program C is adopted, 400 people will die. [22%]
- If Program D is adopted, there is 1/3 probability that nobody will die and 2/3 probability that 600 people will die. [78%]

Which of the two programs would you favour?

This time, the majority of participants chose the uncertain response of Program D as the best choice, but look closely, and you will note that the consequences of Programs A and C are identical, as are the consequences of programs B and D. In the first problem, participants chose the sure gain over the riskier, though potentially more lifesaving, option. In the second problem, the opposite choice was made; this time participants favoured the risky option of 600 people dying over the sure thing that 400 would die. In other words, choices involving potential losses are risky, while choices involving gains are risk averse. The important message here is that it is only the framing of the problem that causes people to shift from risk aversion to risk accepting; the problems are identical. As Daniel Kahneman (2011) pointed out, even trained medical and policy professionals reason using the framing effects above, demonstrating that education and experience may not be powerful enough to overcome these cognitive tendencies.

All of us are prone to thinking about past events and imagine that they may have turned out differently. If we can easily imagine an outcome that is better than what actually happened, then we may experience sadness and disappointment; on the other hand, if we can easily imagine that a result might have been worse than what actually happened, we may be more likely to experience happiness and satisfaction. The tendency to think about and experience events according to "what might have been" is known as **counterfactual thinking** (Kahneman & Miller, 1986; Roese, 2005).

Imagine, for instance, that you were participating in an important contest, and you finished in second place, winning the silver medal. How would you feel? Certainly you would be happy that you won the silver medal, but wouldn't you also be thinking about what might have happened if you had been just a little bit better — you might have won the gold medal! On the other hand, how might you feel if you won the bronze medal for third place? If you were thinking about the counterfactuals — that is, the "what might have beens" — perhaps the idea of not getting any medal at all would have been highly accessible; you'd be happy that you got the medal that you did get, rather than coming in fourth.

Victoria Medvec, Scott Madey, and Thomas Gilovich (1995) investigated this idea by videotaping the responses of athletes who won medals in the 1992 Summer Olympic Games (see Figure 8.10). They videotaped the athletes both as they learned that they had won a silver or a bronze medal and again as they were awarded the medal. Then, the researchers showed these videos, without any sound, to raters who did not know which medal which athlete had won. The raters were asked to indicate how they thought the athlete was feeling, using a range of feelings from "agony" to "ecstasy." The results showed that the bronze medalists were, on average, rated as happier than were the silver medalists. In a follow-up study, raters watched interviews with many of these same athletes as they talked about their performance. The raters indicated what we would expect on the basis of counterfactual thinking — the silver medalists talked about their disappointments in having finished second rather than first, whereas the bronze medalists focused on how happy they were to have finished third rather than fourth.



Figure 8.10. Counterfactual thinking might be a factor here. Does the bronze medalist look happier to you than the silver medalist? Medvec, Madey, and Gilovich (1995) found that, on average, bronze medalists were happier.

You might have experienced counterfactual thinking in other situations. If you were driving across the country and your car was having some engine trouble, you might feel an increased desire to make it home as you approached the end of your journey; you would have been extremely disappointed if the car broke down only a short distance from your home. Perhaps you have noticed that once you get close to finishing something, you feel like you really need to get it done. Counterfactual thinking has even been observed in juries. Jurors who were asked to award monetary damages to others who had been in an accident offered them substantially more in compensation if they barely avoided injury than they offered if the accident seemed inevitable (Miller, Turnbull, & McFarland, 1988).

Psychology in Everyday Life

Cognitive dissonance and behaviour

One of the most important findings in social-cognitive psychology research was made by Leon Festinger more than 60 years ago. Festinger (1957) found that holding two contradictory attitudes or beliefs at the same time, or acting in a way that contradicts a pre-existing attitude, created a state of **cognitive dissonance**, which is a

feeling of discomfort or tension that people actively try to reduce. The reduction in dissonance could be achieved by either changing the behaviour or by changing what is believed. For example, a person who smokes cigarettes while at the same time believing in their harmful effects is experiencing incongruence between actions and behaviour; this creates cognitive dissonance. The person can reduce the dissonance by either changing their behaviour (e.g., giving up smoking) or by changing their belief (e.g., convincing themselves that smoking isn't that bad, rationalizing that lots of people smoke without harmful effect, or denying the evidence against smoking). Another example could be a parent who spanks their child while also expressing a belief that spanking is wrong. The dissonance created here can similarly be reduced by either changing their behaviour (e.g., quitting spanking) or by changing their belief (e.g., rationalizing that the spanking was a one-off situation, adopting the view that spanking was occasionally justified, or rationalizing that many adults were spanked as children).

Cognitive dissonance is both cognitive and social because it involves thinking, and sometimes, social behaviours. Festinger (1957) wanted to see how believers in a doomsday cult would react when told the end of the world was coming, and later, when it failed to happen. By infiltrating a genuine cult, Festinger was able to extend his research into the real world. The cult members devoutly believed that the end was coming but that they would be saved by an alien spaceship, as told to them in a prophecy by the cult leader. Accordingly, they gave away their possessions, quit their jobs, and waited for rescue. When the prophecised end and rescue failed to materialize, one might think that the cult members experienced an enormous amount of dissonance; their strong beliefs, backed up by their behaviour, was incongruent with the rescue and end that failed to materialize. However, instead of reducing their dissonance by ceasing to believe that the end of the world was nigh, the cult members actually increased their faith by altering it to include a view that the world has in fact been saved by the demonstration of their faith. They became even more evangelical.

You might be wondering how cognitive dissonance operates when the inconsistency is between two attitudes or beliefs. For example, suppose the family wage-earner is a staunch supporter of the Green Party, believes in the science of climate change, and is generally aware of environmental issues. At the same time, the family wage-earner loses their job. They send out many job applications, but nothing materializes until there is an offer of full-time employment from a large petroleum company to manage the town's gas station. Here, we would see one's environmental beliefs pitted against the need for a job at a gas station: cognitive dissonance in the making. How would you reduce your cognitive dissonance in this situation? Take the job and rationalize that environmental beliefs can be set aside this time, that one gas station is not so bad, or that there are no other jobs? Turn down the job knowing your family needs the money but retaining your environmental beliefs?

Key Takeaways

- A variety of cognitive biases influence the accuracy of our judgments.
- Overcoming cognitive bias may take awareness of their existence and active work.
- Cognitive dissonance occurs when there is an inconsistency between two cognitions or between cognition and behaviour. People are motivated to reduce cognitive dissonance.

Congratulations on completing Chapter 8! Remember to go back to the section on Approach and Pedagogy near the beginning of the book to learn more about how to get the most out of reading and learning the material in this textbook.

Image Attributions

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Figure 8.10. *2010 Winter Olympic Men's Snowboard Cross medalists* by Laurie Kinniburgh is used under a CC BY 2.0 license.

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CHAPTER 9. INTELLIGENCE AND LANGUAGE

9.0 Introduction

Research Focus

How do we talk, or not talk, about intelligence

In January 2005, the president of Harvard University, Lawrence H. Summers, sparked an uproar during a presentation at an economic conference on women and minorities in the science and engineering workforce. During his talk, Summers proposed three reasons why there are so few women who have careers in math, physics, chemistry, and biology. One explanation was that it might be due to discrimination against women in these fields, and a second was that it might be a result of women's preference for raising families rather than for competing in academia. However, Summers also argued that women might be less genetically capable of performing science and mathematics — that they may have less "intrinsic aptitude" than men do.

Summers's comments on genetics set off a flurry of responses. One of the conference participants, a biologist at the Massachusetts Institute of Technology, walked out on the talk, and other participants said that they were deeply offended. Summers replied that he was only putting forward hypotheses based on the scholarly work assembled for the conference and that research has shown that genetics have been found to be very important in many domains compared with environmental factors. As an example, he mentioned the psychological disorder of autism, which was once believed to be a result of parenting but is now known to be primarily genetic in origin.

The controversy did not stop with the conference. Many Harvard faculty members were appalled that a prominent person could even consider the possibility that mathematical skills were determined by genetics, and the controversy and protests that followed the speech led to a first-ever faculty vote for a motion expressing a "lack of confidence" in a Harvard president. Summers resigned his position, in large part as a result of the controversy, in 2006 (Goldin, Goldin, & Foulkes, 2005).

Researchers at the University of Western Ontario in Canada (Vingilis-Jaremko & Vingilis, 2006), conducting a meta-analysis of three decades of research on gender differences in performance and participation within the science, technology, engineering, and math (STEM) areas, state: "clearly, gender stereotypic messages and priming can have negative effects. Unfortunately, gender stereotypic messages abound and remain ubiquitous in the 21st century. Much work has yet to be done" (p. 6).

Yet, the 2010 Pan-Canadian Assessment Program (PCAP) from the Council of Ministers of Education in Canada shows that in studying 32,000 Grade 8 students from across Canada, female Grade 8 students outperformed their male counterparts on reading and science, with no significant difference between the two genders in math skills. Researchers believe that the cultural shift to making math and science more gender neutral may be an influencing factor. Girls scored better than boys in both science and reading. Researchers hypothesize that boys appear to believe that reading and writing is a feminine act and are therefore reluctant to partake fully in these subject areas. Stereotype-threat, the reduction in performance of individuals who belong to negatively stereotyped groups, seems to apply to both genders (Council of Ministers of Education Canada, 2011).

In this chapter we consider how psychologists conceptualize and measure **human intelligence** — the ability to think, to learn from experience, to solve problems, and to adapt to new situations. We'll consider whether intelligence involves a single ability or many different abilities, how we measure intelligence, what intelligence predicts, and how cultures and societies think about it. We'll also consider intelligence in terms of nature versus nurture and in terms of similarities versus differences among people.

Intelligence is important because it has an impact on many human behaviours. Intelligence is more strongly related than any other individual difference variable to successful educational, occupational, economic, and social outcomes. Scores on intelligence tests predict academic and military performance, as well as success in a wide variety of jobs (Ones, Viswesvaran, & Dilchert, 2005; Schmidt & Hunter, 1998). Intelligence is also negatively correlated with criminal behaviours — the average **intelligence quotient** (IQ) of delinquent adolescents is about seven points lower than that of other adolescents (Wilson & Herrnstein, 1985) — and positively correlated with health-related outcomes, including longevity (Gottfredson, 2004; Gottfredson & Deary, 2004). At least some of this latter relationship may be due to the fact that people who are more intelligent are better able to predict and avoid accidents and to understand and follow instructions from doctors or on drug labels.

The advantages of having a higher IQ increase as life settings become more complex. The correlation between IQ and job performance is higher in more mentally demanding occupations, such as physician or lawyer, than in less mentally demanding occupations, like clerk or newspaper delivery person (Salgado et al., 2003). Although some specific personality traits, talents, and physical abilities are important for success in some jobs, intelligence predicts performance across all types of jobs.

Our vast intelligence also allows us to have **language**, defined as a system of communication that uses symbols in a regular way to create meaning. Language gives us the ability to communicate our intelligence to others by talking, reading, and writing. According to psychologist Steven Pinker (1994), language is the jewel in the crown of cognition. Although other species have at least some ability to communicate, none of them have language. In the last section of this chapter, we will consider the structure and development of language, as well as its vital importance to human beings.

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9.1 Defining and Measuring Intelligence

Learning Objectives

1. Define intelligence, and list the different types of intelligences that psychologists study.
2. Summarize the characteristics of a scientifically valid intelligence test.
3. Describe how IQ is normally distributed.
4. Outline the biological and environmental determinants of intelligence.

Psychologists have long debated how to best conceptualize and measure intelligence (Sternberg, 2003a). These questions include how many types of intelligence there are, the role of nature versus nurture in intelligence, how intelligence is represented in the brain, and the meaning of group differences in intelligence.

General versus specific intelligences

In the early 1900s, the French psychologist Alfred Binet (1857–1914) and colleague Henri Simon (1872–1961) began working in Paris to develop a measure that would differentiate students who were expected to be better learners from students who were expected to be slower learners. The goal was to help teachers better educate these two groups of students. Binet and Simon developed what most psychologists today regard as the first intelligence test (see Figure 9.1), which consisted of a wide variety of questions that included the ability to name objects, define words, draw pictures, complete sentences, compare items, and construct sentences.

Binet and Simon (1915; Siegler, 1992) believed that the questions they asked their students, even though they were on the surface dissimilar, all assessed the basic abilities to understand, reason, and make judgments. It turned out that the correlations among these different types of measures were, in fact, all positive; students who got one item correct were more likely to also get other items correct, even though the questions themselves were very different.



Figure 9.1. This child is completing an intelligence test by answering questions about pictures.

On the basis of these results, psychologist Charles Spearman (1863–1945) hypothesized that there must be a single underlying construct that all of these items measure. Spearman called the construct that the different abilities and skills measured on intelligence tests have in common the **general intelligence factor** (*g*). Virtually all psychologists now believe that there is a generalized intelligence factor, *g*, that relates to abstract thinking and that includes the abilities to acquire knowledge, to reason abstractly, to adapt to novel situations, and to benefit from instruction and experience (Gottfredson, 1997; Sternberg, 2003a). People with higher general intelligence learn faster.

Soon after Binet and Simon introduced their test, American psychologist Lewis Terman (1877–1956) developed an American version of Binet's test that became known as the **Stanford-Binet Intelligence Test**. The Stanford-Binet is a measure of general intelligence made up of a wide variety of tasks including vocabulary, memory for pictures, naming of familiar objects, repeating sentences, and following commands.

Although there is general agreement among psychologists that *g* exists, there is also evidence for **specific intelligence** (*s*), which is a measure of specific skills in narrow domains. One empirical result in support of the idea of *s* comes from intelligence tests themselves. Although the different types of questions do correlate with each other, some items correlate more highly with each other than do other items; they form clusters or clumps of intelligences.

One distinction is between **fluid intelligence**, which refers to the capacity to learn new ways of solving problems and performing activities, and **crystallized intelligence**, which refers to the accumulated knowledge of the world we have acquired throughout our lives (Salthouse, 2004). These intelligences must be different because crystallized intelligence increases with age — older adults are as good as or better than young people in solving crossword puzzles — whereas fluid intelligence tends to decrease with age (Horn, Donaldson, & Engstrom, 1981; Salthouse, 2004).

Other researchers have proposed even more types of intelligences. Louis Thurstone (1938) proposed that there were seven clusters of **primary mental abilities**, made up of word fluency, verbal comprehension, spatial ability, perceptual speed, numerical ability, inductive reasoning, and memory. However, even these dimensions tend to be at least somewhat correlated, showing again the importance of *g*.

One advocate of the idea of multiple intelligences is the psychologist Robert Sternberg, who has proposed a **triarchic theory of intelligence**, focusing on three types of intelligence, that proposes people may display more or less analytical intelligence, creative intelligence, and practical intelligence. Sternberg (1985, 2003b) argued that traditional intelligence tests assess analytical intelligence, the ability to answer problems with a single right answer, but that they do not assess creativity well, like the ability to adapt to new situations and create new ideas, or practicality, like the ability to write good memos or to effectively delegate responsibility.

As Sternberg proposed, research has found that creativity is not highly correlated with analytical intelligence (Furnham & Bachtiar, 2008), and exceptionally creative scientists, artists, mathematicians, and engineers do not score higher on intelligence than do their less creative peers (Simonton, 2000). Furthermore, the brain areas that are associated with **convergent thinking**, which is thinking that is directed toward finding the correct answer to a given problem, are different from those associated with **divergent thinking** (Tarasova, Volf, & Razoumnikova, 2010), which is the ability to generate many different ideas for or solutions to a single problem (see Figure 9.2). On the other hand, being creative often takes some of the basic abilities measured by *g*, including the abilities to learn from experience, to remember information, and to think abstractly (Bink & Marsh, 2000).



Figure 9.2. Test your divergent thinking. How many uses for a paper clip can you think of?

Studies of creative people suggest at least five components that are likely to be important for creativity:

1. **Expertise** — Creative people have carefully studied and know a lot about the topic that they are working in. Creativity comes with a lot of hard work (Ericsson, 1998; Weisberg, 2006).
2. **Imaginative thinking** — Creative people often view a problem in a visual way, allowing them to see it from a new and different point of view.

3. **Risk taking** — Creative people are willing to take on new but potentially risky approaches.
4. **Intrinsic interest** — Creative people tend to work on projects because they love doing them, not because they are paid for them. In fact, research has found that people who are paid to be creative are often less creative than those who are not (Hennessey & Amabile, 2010).
5. **Working in a creative environment** — Creativity is in part a social phenomenon. Dean Simonton (1992) found that the most creative people were supported, aided, and challenged by other people working on similar projects.

The last aspect of the triarchic model, practical intelligence, refers primarily to intelligence that cannot be gained from books or formal learning. Practical intelligence represents a type of street smarts or common sense that is learned from life experiences. Although a number of tests have been devised to measure practical intelligence (Sternberg, Wagner, & Okagaki, 1993; Wagner & Sternberg, 1985), research has not found much evidence that practical intelligence is distinct from *g* or that it is predictive of success at any particular tasks (Gottfredson, 2003). Practical intelligence may include, at least in part, certain abilities that help people perform well at specific jobs, and these abilities may not always be highly correlated with general intelligence (Sternberg, Wagner, & Okagaki, 1993). On the other hand, these abilities or skills are very specific to particular occupations and thus do not seem to represent the broader idea of intelligence.

Another champion of the idea of multiple intelligences is the psychologist Howard Gardner. Gardner (1983, 1999) argued that it would be evolutionarily functional for different people to have different talents and skills. Additionally, Gardner proposed that there are eight intelligences that can be differentiated from each other, as seen in the table below. Gardner noted that some evidence for multiple intelligences comes from the abilities of "autistic savants," people who score low on intelligence tests overall but who nevertheless may have exceptional skills in a given domain, such as math, music, art, or in being able to recite statistics in a given sport (Treffert & Wallace, 2004).

Table 9.1. Howard Gardner's eight specific intelligences

Intelligence	Description
Linguistic	The ability to speak and write well
Logico-mathematical	The ability to use logic and mathematical skills to solve problems
Spatial	The ability to think and reason about objects in three dimensions
Musical	The ability to perform and enjoy music
Kinesthetic (body)	The ability to move the body in sports, dance, or other physical activities
Interpersonal	The ability to understand and interact effectively with others
Intrapersonal	The ability to have insight into the self
Naturalistic	The ability to recognize, identify, and understand animals, plants, and other living things
	Data source: Gardner, 1999.

The idea of multiple intelligences has been influential in the field of education, and teachers have used these ideas to try to teach differently to different students (see Figure 9.3). For instance, to teach math problems to students who have particularly good kinesthetic intelligence, a teacher might encourage the students to move their bodies or hands according to the numbers. On the other hand, some have argued that these intelligences sometimes seem more like abilities or talents rather than real intelligence, and there is no clear conclusion about how many intelligences there are. Are sense of humour, artistic skills, dramatic skills, and so forth also separate intelligences? Furthermore, and again demonstrating the underlying power of a single intelligence, the many different intelligences are in fact correlated and thus represent, in part, the general intelligence factor (Brody, 2003).



Figure 9.3. Although intelligence is often conceptualized in a general way, known as the g factor, there is a variety of specific skills that can be useful for particular tasks.

Measuring intelligence: Standardization and the intelligence quotient

The goal of most intelligence tests is to measure *g*, the general intelligence factor. Good intelligence tests are **reliable**, meaning that they are consistent over time, and also demonstrate **construct validity**, meaning that they actually measure intelligence rather than something else. Because intelligence is such an important individual difference dimension, psychologists have invested substantial effort in creating and improving measures of intelligence, and these tests are now the most accurate of all psychological tests. In fact, the ability to accurately assess intelligence is one of the most important contributions of psychology to everyday public life.

Intelligence changes with age. A three-year-old who could accurately multiply 183 by 39 would certainly be intelligent, but a 25-year-old who could not do so would be seen as unintelligent. Thus, understanding intelligence requires that we know the norms or standards in a given population of people at a given age. The **standardization** of a test involves giving it to a large number of people at different ages and computing the average score on the test at each age level. Once a large enough representative sample of people have been tested, any individual's score can be compared to **norms** that are based on the population.

The results of studies assessing the measurement of intelligence show that IQ is distributed in the population in the form of a **normal distribution (or bell curve)**, which is the pattern of scores usually observed in a variable that clusters around its average. In a normal distribution, the bulk of the scores fall toward the middle, with many fewer scores falling at the extremes. The normal distribution of intelligence shows that on IQ tests, as well as on most other measures, the majority of people cluster around the average, where IQ = 100, and fewer are either very smart or very dull (see Figure 9.4). Because the standard deviation of an IQ test is about 15, this means that about 2% of people score above an IQ of 130, often considered the threshold for giftedness, and about the same percentage score below an IQ of 70, often being considered the threshold for intellectual disability.

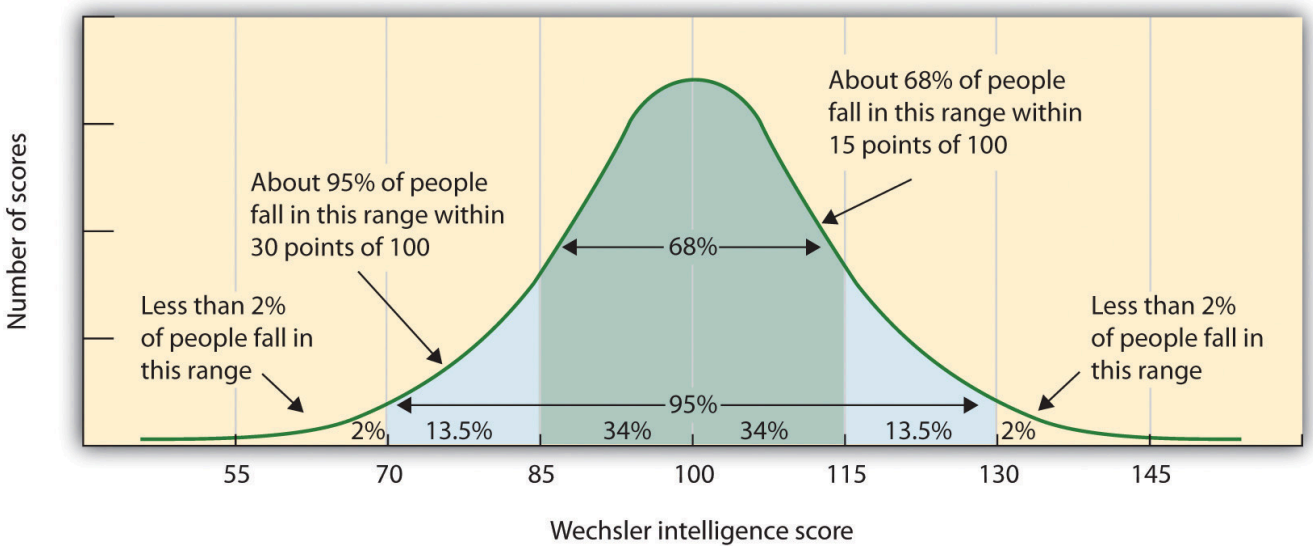


Figure 9.4. The normal distribution of IQ scores in the general population shows that most people have about average intelligence, while very few have extremely high or extremely low intelligence.

It is important that intelligence tests be standardized on a regular basis because the overall level of intelligence in a population may change over time. The **Flynn effect** refers to the observation that scores on intelligence tests worldwide have increased substantially over the past decades (Flynn, 1999). Although the increase varies somewhat from country to country, the average increase is about three intelligence points in IQ test scores every 10 years. There are many explanations for the Flynn effect, including better nutrition, increased access to information, and more familiarity with multiple-choice tests (Neisser, 1998), but whether people are actually getting smarter is debatable (Neisser, 1997).

Once the standardization has been accomplished, we have a picture of the average abilities of people at different ages and can calculate a **person's mental age**, which is the age at which a person is performing intellectually. If we compare the mental age of a person to the person's chronological age, the result is the **IQ**, a measure of intelligence that is adjusted for age. A simple way to calculate IQ is by using the following formula:

IQ = mental age ÷ chronological age × 100.

Thus, a 10-year-old child who does as well as the average 10-year-old child has an IQ of 100 (10 ÷ 10 × 100), whereas an eight-year-old child who does as well as the average 10-year-old child would have an IQ of 125 (10 ÷ 8 × 100). Most modern intelligence tests are based the relative position of a person's score among people of the same age, rather than

on the basis of this formula, but the idea of an intelligence ratio, or intelligence quotient, provides a good description of the score's meaning.

A number of scales are based on IQ. The **Wechsler Adult Intelligence Scale (WAIS)** is the most widely used intelligence test for adults (Watkins, Campbell, Nieberding, & Hallmark, 1995). The current version of the WAIS, the WAIS-IV, was standardized on 2,200 people ranging from 16 to 90 years of age. It consists of 15 different tasks, each designed to assess intelligence, including working memory, arithmetic ability, spatial ability, and general knowledge about the world (see Figure 9.5). The WAIS-IV yields scores on four domains: verbal, perceptual, working memory, and processing speed. The reliability of the test is high, more than 0.95, and it shows substantial construct validity. The WAIS-IV is correlated highly with other IQ tests such as the Stanford-Binet, as well as with criteria of academic and life success, including grades, measures of work performance, and occupational level. It also shows significant correlations with measures of everyday functioning among the intellectually disabled.

The Wechsler scale has also been adapted for preschool children, in the form of the Wechsler Primary and Preschool Scale of Intelligence (WPPSI-III), and for older children and adolescents, in the form of the Wechsler Intelligence Scale for Children (WISC-IV).

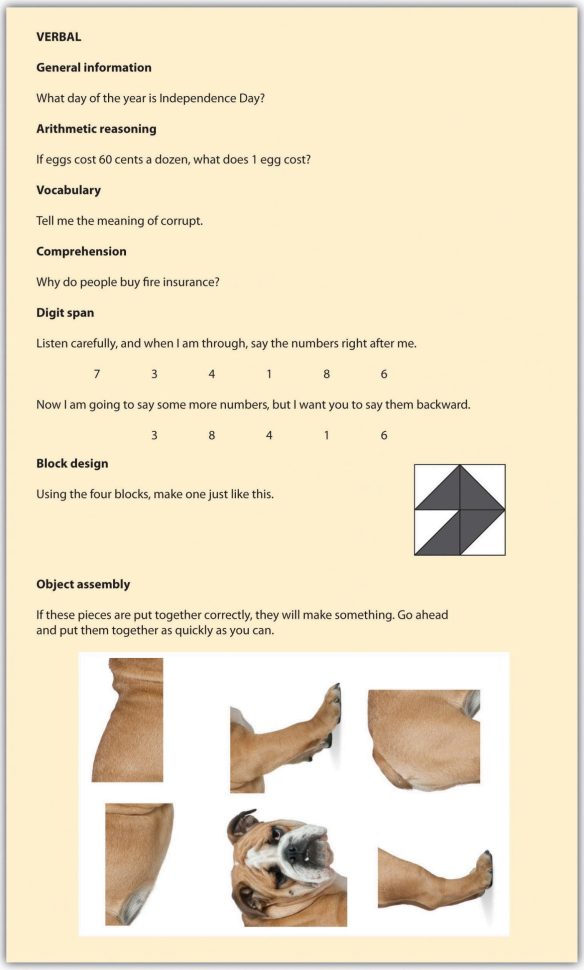


Figure 9.5. Sample Items from the Wechsler Adult Intelligence Scale (Thorndike & Hagen, 1997). [Long description]

The intelligence tests that you may be most familiar with are **aptitude tests**, which are designed to measure one's ability to perform a given task, such as doing well in undergraduate, graduate, or post-graduate training. Canadian post-secondary institutions request official high school transcripts demonstrating minimum grade admission requirements, while most American colleges and universities require students to take the Scholastic Assessment Test (SAT) or the American College Test (ACT). Post-graduate schools in both countries require the Graduate Record Examination (GRE), Graduate Management Admission Test (GMAT), Medical College Admissions Test (MCAT), or the Law School Admission Test (LSAT). These tests are useful for selecting students because they predict success in the programs that they are designed for, particularly in the first year of the program (Kuncel, Hezlett, & Ones, 2010). These aptitude tests also measure, in part, intelligence. Meredith Frey and Douglas Detterman (2004) found that the SAT correlated highly (i.e., between about $r = .7$ and $r = .8$) with standard measures of intelligence.

Intelligence tests are also used by industrial and organizational psychologists in the process of personnel selection. **Personnel selection** is the use of structured tests to select people who are likely to perform well at given jobs (Schmidt & Hunter, 1998). The psychologists begin by conducting a **job analysis** in which they determine what knowledge, skills, abilities, and personal characteristics (KSAPs) are required for a given job. This is normally accomplished by surveying or interviewing current workers and their supervisors. Based on the results of the job analysis, the psychologists choose selection methods that are most likely to be predictive of job performance. Measures include tests of cognitive and physical ability and job knowledge tests, as well as measures of IQ and personality.

The biology of intelligence

The brain processes underlying intelligence are not completely understood, but current research has focused on four potential factors: brain size, sensory ability, speed and efficiency of neural transmission, and working memory capacity.

There is at least some truth to the idea that smarter people have bigger brains. Studies that have measured brain volume using neuroimaging techniques find that larger brain size is correlated with intelligence (McDaniel, 2005), and intelligence has also been found to be correlated with the number of neurons in the brain and with the thickness of the cortex (Haier, 2004; Shaw et al., 2006). It is important to remember that these correlational findings do not mean that having more brain volume causes higher intelligence. It is possible that growing up in a stimulating environment that rewards thinking and learning may lead to greater brain growth (Garlick, 2003), and it is also possible that a third variable, such as better nutrition, causes both brain volume and intelligence.

Another possibility is that the brains of more intelligent people operate faster or more efficiently than the brains of the less intelligent. Some evidence supporting this idea comes from data showing that people who are more intelligent frequently show less brain activity, suggesting that they need to use less capacity, than those with lower intelligence when they work on a task (Haier, Siegel, Tang, & Abel, 1992), and the brains of more intelligent people also seem to run faster than the brains of the less intelligent. Research has found that the speed with which people can perform simple tasks — such as determining which of two lines is longer or pressing, as quickly as possible, one of eight buttons that is lighted — is predictive of intelligence (Deary, Der, & Ford, 2001). Intelligence scores also correlate at about $r = .5$ with measures of working memory (Ackerman, Beier, & Boyle, 2005), and working memory is now used as a measure of intelligence on many tests.

Although intelligence is not located in a specific part of the brain, it is more prevalent in some brain areas than others. John Duncan and colleagues (Duncan et al., 2000) administered a variety of intelligence tasks and observed the places in the cortex that were most active. Although different tests created different patterns of activation (see Figure 9.6), these activated areas were primarily in the outer parts of the cortex, the area of the brain most involved in planning, executive control, and short-term memory.



Figure 9.6. Functional magnetic resonance imaging (fMRI) studies have found that the areas of the brain most related to intelligence are in the outer parts of the cortex (Duncan et al., 2000).

Is intelligence nature or nurture?

Intelligence has both genetic and environmental causes, and these have been systematically studied through a large number of twin and adoption studies (Neisser et al., 1996; Plomin, 2003). These studies have found that between 40% and 80% of the variability in IQ is due to differences in genes, meaning that overall, genetics plays a bigger role than environment does in creating IQ differences among individuals (Plomin & Spinath, 2004). The IQs of identical twins correlate very highly, where $r = .86$, which is much higher than do the scores of fraternal twins who are less genetically similar, where $r = .60$, and the correlations between the IQs of parents and their biological children, where $r = .42$, is significantly greater than the correlation between parents and adopted children, where $r = .19$. The role of genetics gets stronger as children get older. The intelligence of very young children that are less than 3 years old does not predict adult intelligence, but by age 7 it does, and IQ scores remain very stable in adulthood (Deary, Whiteman, Starr, Whalley, & Fox, 2004).

There is also evidence for the role of nurture, indicating that individuals are not born with fixed, unchangeable levels of

intelligence. Twins raised together in the same home have more similar IQs than do twins who are raised in different homes, and fraternal twins have more similar IQs than do non-twin siblings, which is likely due to the fact that they are treated more similarly than non-twin siblings are.

The fact that intelligence becomes more stable as we get older provides evidence that early environmental experiences matter more than later ones. Environmental factors also explain a greater proportion of the variance in intelligence for children from lower-class households than they do for children from upper-class households (Turkheimer, Haley, Waldron, D'Onofrio, & Gottesman, 2003). This is because most upper-class households tend to provide a safe, nutritious, and supporting environment for children, whereas these factors are more variable in lower-class households.

Social and economic deprivation can adversely affect IQ. Children from households in poverty have lower IQs than do children from households with more resources even when other factors such as education, race, and parenting are controlled (Brooks-Gunn & Duncan, 1997). Poverty may lead to diets that are undernourishing or lacking in appropriate vitamins, and poor children may also be more likely to be exposed to toxins such as lead in drinking water, dust, or paint chips (Bellinger & Needleman, 2003). Both of these factors can slow brain development and reduce intelligence.

If impoverished environments can harm intelligence, we might wonder whether enriched environments can improve it. Government-funded after-school programs such as Head Start are designed to help children learn. Research has found that attending such programs may increase intelligence for a short time, but these increases rarely last after the programs end (McLoyd, 1998; Perkins & Grotzer, 1997). Other studies suggest that Head Start and similar programs may improve emotional intelligence and reduce the likelihood that children will drop out of school or be held back a grade (Reynolds, Temple, Robertson, & Mann 2001).

Intelligence is improved by education; the number of years a person has spent in school correlates at about $r = .6$ with IQ (Ceci, 1991). In part, this correlation may be due to the fact that people with higher IQ scores enjoy taking classes more than people with low IQ scores, and thus they are more likely to stay in school. However, education also has a causal effect on IQ. Comparisons between children who are almost exactly the same age but who just do or just do not make a deadline for entering school in a given school year show that those who enter school a year earlier have higher IQ than those who have to wait until the next year to begin school (Baltes & Reinert, 1969; Ceci & Williams, 1997). Children's IQs tend to drop significantly during summer vacations (Huttenlocher, Levine, & Vevea, 1998), a finding that suggests that a longer school year, as is used in Europe and East Asia, is beneficial.

It is important to remember that the relative roles of nature and nurture can never be completely separated. A child who has higher than average intelligence will be treated differently than a child who has lower than average intelligence, and these differences in behaviours will likely amplify initial differences. This means that modest genetic differences can be multiplied into big differences over time.

Psychology in Everyday Life

Emotional intelligence

Although most psychologists have considered intelligence a cognitive ability, people also use their emotions to help them solve problems and relate effectively to others. While there are different models of emotional intelligence, the term encompasses the ability to accurately identify, assess, and understand emotions, both of one's self and others, and to effectively regulate one's own emotions (Ackley, 2016).

The idea of emotional intelligence is seen in Howard Gardner's **interpersonal intelligence** — which is the capacity to understand the emotions, intentions, motivations, and desires of other people — and **intrapersonal intelligence** — which is the capacity to understand oneself, including one's emotions. Public interest in, and research on, emotional intellgence became widely prevalent following the publication of Daniel Goleman's best-selling book, *Working With Emotional Intelligence* (1998).

One problem with emotional intelligence tests is that they often do not show a great deal of reliability or construct validity (Føllesdal & Hagtvet, 2009). Although it has been found that people with higher emotional intelligence are also healthier (Martins, Ramalho, & Morin, 2010), findings are mixed about whether emotional intelligence predicts life success — for instance, job performance (Harms & Credé, 2010). Furthermore, other researchers have questioned the construct validity of the measures, arguing that emotional intelligence really measures knowledge about what emotions are but not necessarily how to use those emotions (Brody, 2004), and that emotional intelligence is actually a personality trait, a part of the general intelligence factor, or a skill that can be applied in some specific work situations — for instance, academic and work situations (Landy, 2005).

Although measures of the ability to understand, experience, and manage emotions may not predict effective behaviours, another important aspect of emotional intelligence —emotion regulation— does. **Emotion regulation** refers to the ability to control and productively use one's emotions. Research has found that people who are better able to override their impulses to seek immediate gratification and who are less impulsive also have higher cognitive and social intelligence. They have better test scores, are rated by their friends as more socially adept, and cope with frustration and stress better than those with less skill at emotion regulation (Ayduk et al., 2000; Eigsti et al., 2006; Mischel & Ayduk, 2004).

Because emotional intelligence seems so important, many school systems have designed programs to teach it to their students. However, the effectiveness of these programs has not been rigorously tested, and we do not yet know whether emotional intelligence can be taught or if learning it would improve the quality of people's lives (Mayer & Cobb, 2000). Many businesses and corporations have an interest in emotional intelligence in relation to job performance, leadership, and flexibility (Ackley, 2016).

Key Takeaways

- Intelligence is the ability to think, to learn from experience, to solve problems, and to adapt to new situations. Intelligence is important because it has an impact on many human behaviours.
- Psychologists believe that there is a construct, known as general intelligence (*g*), that accounts for the overall differences in intelligence among people.
- There is also evidence for specific intelligences (s), which are measures of specific skills in narrow domains, including creativity and practical intelligence.
- The intelligence quotient (IQ) is a measure of intelligence that is adjusted for age. The Wechsler Adult lntelligence Scale (WAIS) is the most widely used IQ test for adults.
- Brain volume, speed of neural transmission, and working memory capacity are related to IQ.
- Between 40% and 80% of the variability in IQ is due to genetics, meaning that overall genetics plays a bigger role than environment does in creating IQ differences among individuals.
- Intelligence is improved by education and may be hindered by environmental factors such as poverty.
- Emotional intelligence refers to the ability to identify, assess, manage, and control one's emotions. People who are better able to regulate their behaviours and emotions are also more successful in their personal and social encounters.

Exercises and Critical Thinking

1. Consider your own IQ. Are you smarter than the average person? What specific intelligences do you think you excel in?
2. Did your parents try to improve your intelligence? Do you think their efforts were successful?
3. Consider the meaning of the Flynn effect. Do you think people are really getting smarter?
4. Give some examples of how emotional intelligence, or the lack of it, influences your everyday life and the lives of other people you know.

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Long Description

Figure 9.5. Sample items from the Wechsler Adult Intelligence Scale:

1. What day of the year is Independence Day?
2. If eggs cost 60 cents a dozen, what does 1 egg cost?
3. Tell me the meaning of "corrupt."
4. Why do people buy fire insurance?
5. Say the following numbers after me: 7 3 4 1 8 6
6. Say the following numbers backwards: 3 8 4 1 6

The last two questions involve making pictures out of blocks.

[Return to Figure 9.5]

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9.2 Individual Differences in Intelligence

Learning Objectives

- Explain how very high and very low intelligence is defined and what it means to have them.
- Explain how intelligence testing can be used to justify political or racist ideologies.
- Define stereotype threat, and explain how it might influence scores on intelligence tests.

Intelligence is defined by the culture in which it exists. Most people in Western cultures tend to agree with the idea that intelligence is an important personality variable that should be admired in those who have it, but people from Eastern cultures tend to place less emphasis on individual intelligence and are more likely to view intelligence as reflecting wisdom and the desire to improve the society as a whole rather than only themselves (Baral & Das, 2004; Sternberg, 2007). In some cultures, it is seen as unfair and prejudicial to argue, even at a scholarly conference, that men and women might have different abilities in domains such as math and science and that these differences may be caused by context, environment, culture, and genetics. In short, although psychological tests accurately measure intelligence, a culture interprets the meanings of those tests and determines how people with differing levels of intelligence are treated.

Extremes of intelligence: Extremely low intelligence

One end of the distribution of intelligence scores is defined by people with very low IQ. **Intellectual disability** is a generalized disorder ascribed to people who have an IQ below 70, who have experienced deficits since childhood, and who have trouble with basic life skills, such as dressing and feeding themselves and communicating with others (Switzky & Greenspan, 2006). About 1% of the Canadian population, most of them males, fulfill the criteria for intellectual disability, but some children who are diagnosed as mentally disabled lose the classification as they get older and better learn to function in society. A particular vulnerability of people with low IQ is that they may be taken advantage of by others, and this is an important aspect of the definition of intellectual disability (Greenspan, Loughlin, & Black, 2001). Intellectual disability is divided into four categories: mild, moderate, severe, and profound. Severe and profound intellectual disabilities are usually caused by genetic mutations or accidents during birth, whereas mild forms have both genetic and environmental influences.

One cause of intellectual disability is **Down syndrome**, a chromosomal disorder caused by the presence of all or part of an extra 21st chromosome. The incidence of Down syndrome is estimated at one per 800 to 1,000 births, although its prevalence rises sharply in those born to older mothers (see Figure 9.7). People with Down syndrome typically exhibit a distinctive pattern of physical features, including a flat nose, upwardly slanted eyes, a protruding tongue, and a short neck.



Figure 9.7. About one in every 800 to 1,000 children has Down syndrome.

Societal attitudes toward individuals with mental disabilities have changed over the past decades. We no longer use terms such as moron, idiot, or imbecile to describe these people, although these were the official psychological terms used to describe degrees of intellectual disability in the past. Laws, such as the Canadians with Disabilities Act, have made it illegal to discriminate on the basis of mental and physical disability, and there has been a trend to bring the mentally disabled out of institutions and into our workplaces and schools. In 2002, although capital punishment continues to be practised there, the U.S. Supreme Court ruled that the execution of people with an intellectual disability is "cruel and unusual punishment," thereby ending the practice of their execution (Atkins v. Virginia, 2002). In Canada, capital punishment was abolished in 1976.

Extremes of intelligence: Extremely high intelligence

Having extremely high IQ is clearly less of a problem than having extremely low IQ, but there may also be challenges to being particularly smart. It is often assumed that schoolchildren who are labelled as gifted may have adjustment problems that make it more difficult for them to create social relationships. To study gifted children, Lewis Terman and Melita Oden (1959) selected about 1,500 high school students who scored in the top 1% on the Stanford-Binet and similar IQ tests (i.e., who had IQs of about 135 or higher), and tracked them for more than seven decades; the children became known as the "termites" and are still being studied today. This study found, first, that these students were not unhealthy or poorly adjusted but rather were above average in physical health and were taller and heavier than individuals in the general population. The students also had above average social relationships — for instance, being less likely to divorce than the average person (Seagoe, 1975).

Terman's study also found that many of these students went on to achieve high levels of education and entered prestigious professions, including medicine, law, and science. Of the sample, 7% earned doctoral degrees, 4% earned medical degrees, and 6% earned law degrees. These numbers are all considerably higher than what would have been expected from a more general population. Another study of young adolescents who had even higher IQs found that these students ended up attending graduate school at a rate more than 50 times higher than that in the general population (Lubinski & Benbow, 2006).

As you might expect based on our discussion of intelligence, children who are gifted have higher scores on general intelligence (*g*), but there are also different types of giftedness. Some children are particularly good at math or science, some at automobile repair or carpentry, some at music or art, some at sports or leadership, and so on. There is a lively debate among scholars about whether it is appropriate or beneficial to label some children as gifted and talented in school and to provide them with accelerated special classes and other programs that are not available to everyone.

Although doing so may help the gifted kids (Colangelo & Assouline, 2009), it also may isolate them from their peers and make such provisions unavailable to those who are not classified as gifted.

Sex differences in intelligence

As discussed in the introduction to to this chapter, Lawrence Summers's claim about the reasons why women might be underrepresented in the hard sciences was based, in part, on the assumption that environment, such as the presence of gender discrimination or social norms, was important but also, in part, on the possibility that women may be less genetically capable of performing some tasks than are men. These claims, and the responses they provoked, provide another example of how cultural interpretations of the meanings of IQ can create disagreements and even guide public policy.

Assumptions about sex differences in intelligence are increasingly challenged in the research. In Canada, recent statistics show that women outnumber men in university degrees earned. The Organisation for Economic Cooperation and Development (OECD) released its *Education at a Glance* 2013 report where Canada ranked first among 34 OECD countries with adults who had attained a tertiary (i.e., post-secondary) education, reporting 51% of 25- to 64-year-olds in Canada attained a post-secondary education in 2011 (Organisation for Economic Cooperation and Development, 2013). The report found women in Canada had significantly higher tertiary attainment rates compared with men, at 56% versus 46%, with a 16 percentage-point gap between the genders among younger adults.

There are also observed sex differences on some particular types of tasks. Women tend to do better than men on some verbal tasks, including spelling, writing, and pronouncing words (Halpern et al., 2007), and they have better emotional intelligence in the sense that they are better at detecting and recognizing the emotions of others (McClure, 2000). On average, men do better than women on tasks requiring spatial ability (Voyer, Voyer, & Bryden, 1995), such as the mental rotation tasks (see Figure 9.8). Boys tend to do better than girls on both geography and geometry tasks (Vogel, 1996).

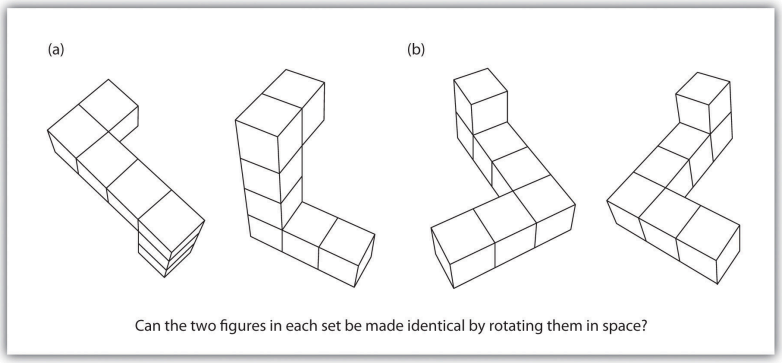


Figure 9.8. Men outperform women on measures of spatial rotation, such as this task requires, but women are better at recognizing the emotions of others (Halpern, et al., 2007).

Although these differences are real, and can be important, keep in mind that like virtually all sex-group differences, the average difference between men and women is small compared with the average differences within each sex (Lynn & Irwing, 2004). There are many women who are better than the average man on spatial tasks, and many men who

score higher than the average women in terms of emotional intelligence. Sex differences in intelligence allow us to make statements only about average differences and do not say much about any individual person.

The origins of sex differences in intelligence are not clear. Differences between men and women may be in part genetically determined, perhaps by differences in brain lateralization or by hormones (Kimura & Hampson, 1994; Voyer, Voyer, & Bryden, 1995), but nurture is also likely important (Newcombe & Huttenlocher, 2006). As infants, boys and girls show no or few differences in spatial or counting abilities, suggesting that the differences occur at least in part as a result of socialization (Spelke, 2005). Furthermore, the number of women entering the hard sciences has been increasing steadily over the past years, again suggesting that some of the differences may have been due to gender discrimination and societal expectations about the appropriate roles and skills of women.

Racial differences in intelligence

One of the most controversial and divisive areas of research in psychology has been to look for evidence of racial differences in intelligence (e.g., Lynn & Vanhanen, 2002; 2006). As you might imagine, this endeavour is fraught with methodological and theoretical minefields. Firstly, the concept of race as a biological category is problematic. Things like skin colour and facial features might define social or cultural conceptions of race but are biologically not very meaningful (Chou, 2017; Yudell, 2014). Secondly, intelligence interacts with a host of factors such as socioeconomic status and health; factors that are also related to race. Thirdly, intelligence tests themselves may be worded or administered in ways that favour the experiences of some groups, thus maximizing their scores, while failing to represent the experiences of other groups, thus lowering their scores.

In the United States, differences in the average scores of white and black Americans have been found consistently. For several decades, the source of this difference has been contentious, with some arguing that it must be genetic (e.g., Reich, 2018) with others arguing that it is nothing of the sort (e.g., Turkheimer, Harden, & Nisbett, 2017). The history of this controversy is interesting; for further reading, see William Saletan (2018) and Gavin Evans (2018). Interestingly, this debate among scholars is playing out in a nontraditional manner; as well as in scholarly journals, the debate has become more widely accessible due to the use of social and online media.

When average differences in intelligence have been observed between groups, these observations have, at times, led to discriminatory treatment of people from different races, ethnicities, and nationalities (Lewontin, Rose, & Kamin, 1984). One of the most egregious examples was the spread of **eugenics**, the proposal that one could improve the human species by encouraging or permitting reproduction of only those people with genetic characteristics judged desirable.

Eugenics became popular in Canada and the United States in the early 20th century and was supported by many prominent psychologists, including Sir Francis Galton (1822–1911). Dozens of universities offered courses in eugenics, and the topic was presented in most high school and university biology texts (Selden, 1999). Belief in the policies of eugenics led the Canadian legislatures in Alberta (1928) and British Columbia (1933) to pass sterilization laws that led to the forced sterilization of approximately 5000 people deemed to be "unfit." Those affected were mainly youth and women, and people of Aboriginal or Metis identity were disproportionately targetted. This practice continued for several decades before being completely abandoned and the laws repealed. This dark chapter in Canadian history shows how intelligence testing can be used to justify political and racist ideology.

Research Focus

Stereotype threat

Although intelligence tests may not be culturally biased, the situation in which one takes a test may be. One environmental factor that may affect how individuals perform and achieve is their expectations about their ability at a task. In some cases, these beliefs may be positive, and they have the effect of making us feel more confident and thus better able to perform tasks. For instance, research has found that because Asian students are aware of the cultural stereotype that "Asians are good at math," reminding them of this fact before they take a difficult math test can improve their performance on the test (Walton & Cohen, 2003).

On the other hand, sometimes these beliefs are negative, and they create negative self-fulfilling prophecies such that we perform more poorly just because of our knowledge about the stereotypes. Claude Steele and Joshua Aronson (1995) tested the hypothesis that the differences in performance on IQ tests between black and white Americans might be due to the activation of negative stereotypes. Because black students are aware of the stereotype that blacks are intellectually inferior to whites, this stereotype might create a negative expectation, which might interfere with their performance on intellectual tests through fear of confirming that stereotype.

In support of this hypothesis, the experiments revealed that black university students performed worse, in comparison to their prior test scores, on standardized test questions when this task was described to them as being diagnostic of their verbal ability, and thus when the stereotype was relevant, but that their performance was not influenced when the same questions were described as an exercise in problem solving. In another study, the researchers found that when black students were asked to indicate their race before they took a math test, again activating the stereotype, they performed more poorly than they had on prior exams, whereas white students were not affected by first indicating their race.

Researchers concluded that thinking about negative stereotypes that are relevant to a task that one is performing creates **stereotype threat** — that is, it creates performance decrements caused by the knowledge of cultural stereotypes. That is, they argued that the negative impact of race on standardized tests may be caused, at least in part, by the performance situation itself.

Research has found that stereotype threat effects can help explain a wide variety of performance decrements among those who are targeted by negative stereotypes. When stereotypes are activated, children with low socioeconomic status perform more poorly in math than do those with high socioeconomic status, and psychology students perform more poorly than do natural science students (Brown, Croizet, Bohner, Fournet, & Payne, 2003; Croizet & Claire, 1998). Even groups who typically enjoy advantaged social status can be made to experience stereotype threat. For example, white men perform more poorly on a math test when they are told that their performance will be compared with that of Asian men (Aronson, Lustina, Good, Keough, & Steele, 1999), and whites perform more poorly than blacks on a sport-related task when it is described to them as measuring their natural athletic ability (Stone, 2002; Stone, Lynch, Sjomeling, & Darley, 1999).

Research has found that stereotype threat is caused by both cognitive and emotional factors (Schmader, Johns, & Forbes, 2008). On the cognitive side, individuals who are experiencing stereotype threat show an increased

vigilance toward the environment as well as increased attempts to suppress stereotypic thoughts. Engaging in these behaviours takes cognitive capacity away from the task. On the affective side, stereotype threat occurs when there is a discrepancy between our positive concept of our own skills and abilities and the negative stereotypes that suggest poor performance. These discrepancies create stress and anxiety, and these emotions make it harder to perform well on the task.

Stereotype threat is not, however, absolute; we can get past it if we try. What is important is to reduce the self doubts that are activated when we consider the negative stereotypes. Manipulations that affirm positive characteristics about the self or one's social group are successful at reducing stereotype threat (Marx & Roman, 2002; McIntyre, Paulson, & Lord, 2003). In fact, just knowing that stereotype threat exists and may influence our performance can help alleviate its negative impact (Johns, Schmader, & Martens, 2005).

In summary, although there is no definitive answer to why IQ bell curves differ across racial and ethnic groups, and most experts believe that environment is important in pushing the bell curves apart, genetics can also be involved. It is important to realize that although IQ is heritable, this does not mean that group differences are caused by genetics. Although some people are naturally taller than others, since height is heritable, people who get plenty of nutritious food are taller than people who do not, and this difference is clearly due to environment. This is a reminder that group differences may be created by environmental variables but can also be reduced through appropriate environmental actions such as educational and training programs.

Key Takeaways

- Intellectual disability is a generalized disorder ascribed to people who have an IQ below 70, who have experienced deficits since childhood, and who have trouble with basic life skills, such as dressing and feeding themselves and communicating with others. One cause of intellectual disability is Down syndrome.
- Extremely intelligent individuals are not unhealthy or poorly adjusted, but rather are above average in physical health and taller and heavier than individuals in the general population.
- Men and women have almost identical intelligence, but men have more variability in their IQ scores than women do.
- On average, men do better than women on tasks requiring spatial ability, whereas women do better on verbal tasks and score higher on emotional intelligence.
- Although their bell curves overlap considerably, there are also average group differences for members of different racial and ethnic groups.
- The observed average differences in intelligence between racial and ethnic groups is controversial.

- The situation in which one takes a test may create stereotype threat, whereby performance decrements are caused by the knowledge of cultural stereotypes.

Exercises and Critical Thinking

1. Were Lawrence Summers's ideas about the potential causes of differences between men and women in math and hard sciences careers offensive to you? Why or why not?
2. Do you think that we should give intelligence tests? Why or why not? Does it matter to you whether or not the tests have been standardized and shown to be reliable and valid?
3. Give your ideas about the practice of providing accelerated classes to children listed as "gifted" in high school. What are the potential positive and negative outcomes of doing so? What research evidence has helped you form your opinion?

Image Attributions

Figure 9.7. *Boy With Down Syndrome* by Vanellus Foto is used under a CC BY-SA 3.0 license; *My Special Daughter With Her Special Smile* by Andreas-photography is used under a CC BY-NC-ND 2.0 license.

Figure 9.8. Used under a CC BY-NC-SA 4.0 license.

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9.3 Communicating With Others: Development and Use of Language

Learning Objectives

1. Review the components and structure of language.
2. Describe the process by which people can share new information by using language.
3. Characterize the typical content of conversation and its social implications.
4. Characterize psychological consequences of language use and give an example.
5. Describe how children acquire language.
6. Describe theories of language development.
7. Explain the biological underpinnings of language.
8. Describe the use of language in non-human animals.

Human language is the most complex behaviour on the planet and, at least as far as we know, in the universe. Language involves both the ability to comprehend spoken and written words and to create communication in real time when we speak or write. Most languages are oral, generated through speaking. Speaking involves a variety of complex cognitive, social, and biological processes, including operation of the vocal cords and the coordination of breath with movements of the throat, mouth, and tongue.

Other languages are sign languages, in which the communication is expressed by movements of the hands. The most common sign language is American Sign Language (ASL), commonly used in many countries across the world and adapted for use in varying countries. The other main sign language used in Canada is la Langue des Signes Québécoise (LSQ); there is also a regional dialect, Maritimes Sign Language (MSL).

Although language is often used for the transmission of information (e.g., “turn right at the next light and then go straight” or “Place tab A into slot B”), this is only its most mundane function. Language also allows us to access existing knowledge, to draw conclusions, to set and accomplish goals, and to understand and communicate complex social relationships. Language is fundamental to our ability to think, and without it, we would be nowhere near as intelligent as we are.

Language can be conceptualized in terms of sounds, meaning, and the environmental factors that help us understand it. As we will discuss further, phonemes are the elementary sounds of our language, morphemes are the smallest units of meaning in a language, syntax is the set of grammatical rules that control how words are put together, and contextual information is the elements of communication that are not part of the content of language but that help us understand its meaning.

The Components of Language

A **phoneme** is the smallest unit of sound that makes a meaningful difference in a language. In transcription, phonemes are placed between slashes. For example, the word "bit" has three phonemes: /b/, /i/, and /t/. The word "pit" also has three: /p/, /i/, and /t/. In spoken languages, phonemes are produced by the positions and movements of the vocal tract, including our lips, teeth, tongue, vocal cords, and throat, whereas in sign languages, phonemes are defined by the shapes and movement of the hands.

There are hundreds of unique phonemes that can be made by human speakers, but most languages only use a small subset of the possibilities. English contains about 45 phonemes, whereas other languages have as few as 15 and others more than 60. The Hawaiian language contains only about a dozen phonemes, including five vowels — a, e, i, o, and u — and seven consonants — h, k, l, m, n, p, and w.

Because the phoneme is actually a category of sounds that are treated alike within the language, speakers of different languages are able to hear the difference only between some phonemes but not others. This is known as the **categorical perception of speech sounds**. English speakers can differentiate the /r/ phoneme from the /l/ phoneme, and thus "rake" and "lake" are heard as different words. In Japanese, however, /r/ and /l/ are the same phoneme, and thus speakers of that language are not likely to tell the difference between the word "rake" and the word "lake." Try saying the words "cool" and "keep" out loud. Can you hear the difference between the two /k/ sounds? To English speakers they both sound the same, but to speakers of Arabic, these represent two different phonemes (see Figure 9.9).

Infants are born able to understand all phonemes, but they lose their ability to do so as they get older; by 10 months of age, a child's ability to recognize phonemes becomes very similar to that of the adult speakers of the native language. Phonemes that were initially differentiated come to be treated as equivalent (Werker & Tees, 2002).

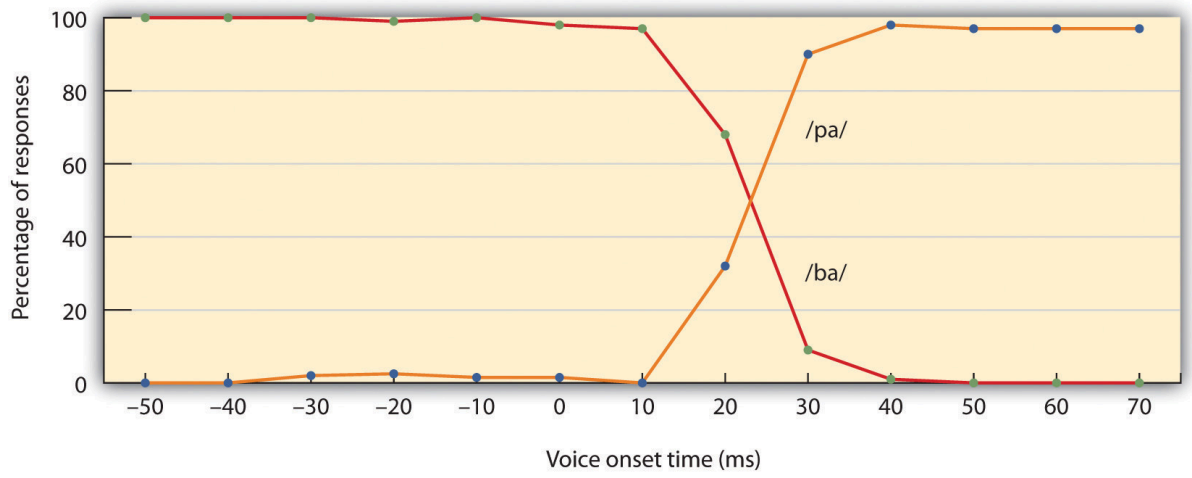


Figure 9.9. When adults hear speech sounds that gradually change from one phoneme to another, they do not hear the continuous change; rather, they hear one sound until they suddenly begin hearing the other. In this case, the change is from /ba/ to /pa/ (Wood, 1976).

Whereas phonemes are the smallest units of sound in language, a **morpheme** is a string of one or more phonemes that makes up the smallest units of meaning in a language. Some morphemes, such as one-letter words like "I" and "a," are

also phonemes, but most morphemes are made up of combinations of phonemes. Some morphemes are prefixes and suffixes used to modify other words. For example, the syllable "re-" as in "rewrite" or "repay" means "to do again," and the suffix "-est" as in "happiest" or "coolest" means "to the maximum."

Syntax is the set of rules of a language by which we construct sentences. Each language has a different syntax. The syntax of the English language requires that each sentence have a noun and a verb, each of which may be modified by adjectives and adverbs. Some syntaxes make use of the order in which words appear, while others do not. In English, "The man bites the dog" is different from "The dog bites the man." In German, however, only the article endings before the noun matter. "Der Hund beisst den Mann" means "The dog bites the man" but so does "Den Mann beisst der Hund."

Words do not possess fixed meanings but change their interpretation as a function of the context in which they are spoken. We use **contextual information** — the information surrounding language — to help us interpret it. Examples of contextual information include the knowledge that we have and that we know that other people have, and nonverbal expressions such as facial expressions, postures, gestures, and tone of voice. Misunderstandings can easily arise if people are not attentive to contextual information or if some of it is missing, such as it may be in newspaper headlines or in text messages.

The following are examples of headlines in which syntax is correct but the interpretation can be ambiguous:

- Grandmother of Eight Makes Hole in One
- Milk Drinkers Turn to Powder
- Farmer Bill Dies in House
- Old School Pillars Are Replaced by Alumni
- Two Convicts Evade Noose, Jury Hung
- Include Your Children When Baking Cookies

How do we use language?

If language is so ubiquitous, how do we actually use it? To be sure, some of us use it to write diaries and poetry, but the primary form of language use is interpersonal. That's how we learn language, and that's how we use it. We exchange words and utterances to communicate with each other. Let's consider the simplest case of two people, Adam and Ben, talking with each other. Judging from their clothing, they are young businessmen, taking a break from work. They then have this exchange:

> Adam: "You know, Gary bought a ring."
> Ben: "Oh yeah? For Mary, isn't it?"
> Adam nods.

According to Herbert Clark (1996), in order for them to carry out a conversation, they must keep track of common ground. **Common ground** is a set of knowledge that the speaker and listener share and they think, assume, or otherwise take for granted that they share. So, when Adam says, "Gary bought a ring," he takes for granted that Ben knows the meaning of the words he is using, whom Gary is, and what buying a ring means. When Ben says, "For Mary, isn't it?" he takes for granted that Adam knows the meaning of these words, who Mary is, and what buying a ring for someone means. All these are part of their common ground.



Figure 9.10. Common ground in a conversation helps people coordinate their language use, and as conversations progress, common ground shifts and changes as the participants add new information and cooperate to help one another understand.

Note that, when Adam presents the information about Gary's purchase of a ring, Ben responds by presenting his inference about who the recipient of the ring might be, namely, Mary. In conversational terms, Ben's utterance acts as evidence for his comprehension of Adam's utterance — "Yes, I understood that Gary bought a ring" — and Adam's nod acts as evidence that he now has understood what Ben has said too — "Yes, I understood that you understood that Gary has bought a ring for Mary." This new information is now added to the initial common ground. Thus, the pair of utterances by Adam and Ben, called an adjacency pair, together with Adam's affirmative nod jointly completes one proposition, "Gary bought a ring for Mary," and adds this information to their common ground. This way, common ground changes as we talk, gathering new information that we agree on and have evidence that we share. It evolves as people take turns to assume the roles of speaker and listener and actively engage in the exchange of meaning.

Common ground helps people coordinate their language use. For instance, when a speaker says something to a listener, they take into account their common ground, that is, what the speaker thinks the listener knows. Adam said what he did because he knew Ben would know who Gary was. He'd have said, "A friend of mine is getting married," to another colleague who wouldn't know Gary. This is called **audience design** (Fussell & Krauss, 1992); speakers design their utterances for their audiences by taking into account the audiences' knowledge. If their audiences are seen to be knowledgeable about an object, such as Ben about Gary, they tend to use a brief label of the object (i.e., Gary); for a less knowledgeable audience,they use more descriptive words (e.g., "a friend of mine") to help the audience understand their utterances.

In systematic research on audience design, Susan Fussell and Robert Krauss (1992) found that, when communicating about public figures, speakers included more descriptive information (e.g., physical appearances and occupation) about

lesser known and less identifiable people (e.g., Kevin Kline or Carl Icahn) than better known ones (e.g., Woody Allen or Clint Eastwood), so that their listeners could identify them. Likewise, Ellen Isaacs and Herbert Clark (1987) showed that people who were familiar with New York City (NYC) could gauge their audience's familiarity with NYC soon after they began conversation and adjusted their descriptions of NYC landmarks to help the audience identify such landmarks as the Brooklyn Bridge and Yankee Stadium more easily. More generally, Paul Grice (1975) suggested that speakers often follow certain rules, called conversational maxims, by trying to be informative (e.g., maxim of quantity), truthful (e.g., maxim of quality), relevant (e.g., maxim of relation), and clear and unambiguous (e.g., maxim of manner).

So, language use is a cooperative activity, but how do we coordinate our language use in a conversational setting? To be sure, we have a conversation in small groups. The number of people engaging in a conversation at a time is rarely more than four. By some counts (e.g., Dunbar, Duncan, & Nettle, 1995; James, 1953), more than 90% of conversations happen in a group of four individuals or less. Certainly, coordinating conversation among four is not as difficult as coordinating conversation among 10, but even among only four people, if you think about it, everyday conversation is an almost miraculous achievement. We typically have a conversation by rapidly exchanging words and utterances in real time in a noisy environment. Think about your conversation at home in the morning, at a bus stop, in a shopping mall. How can we keep track of our common ground under such circumstances?

Martin Pickering and Simon Garrod (2004) argue that we achieve our conversational coordination by virtue of our ability to interactively align each other's actions at different levels of language use: **lexicon** (i.e., words and expressions), **syntax** (i.e., grammatical rules for arranging words and expressions together), as well as speech rate and accent. For instance, when one person uses a certain expression to refer to an object in a conversation, others tend to use the same expression (e.g., Clark & Wilkes-Gibbs, 1986). Furthermore, if someone says "the cowboy offered a banana to the robber," rather than "the cowboy offered the robber a banana," others are more likely to use the same syntactic structure (e.g., "the girl gave a book to the boy" rather than "the girl gave the boy a book") even if different words are involved (Branigan, Pickering, & Cleland, 2000). Finally, people in conversation tend to exhibit similar accents and rates of speech, and they are often associated with people's social identity (Giles, Coupland, & Coupland, 1991). So, if you have lived in different places where people have somewhat different accents (e.g., United States and United Kingdom), you might have noticed that you speak with Americans with an American accent, but speak with Britons with a British accent.

Pickering and Garrod (2004) suggest that these interpersonal alignments at different levels of language use can activate similar **situation models** in the minds of those who are engaged in a conversation. Situation models are representations about the topic of a conversation. So, if you are talking about Gary and Mary with your friends, you might have a situation model of Gary giving Mary a ring in your mind. Pickering and Garrod's theory is that as you describe this situation using language, others in the conversation begin to use similar words and grammar, and many other aspects of language use converge. As you all do so, similar situation models begin to be built in everyone's mind through the mechanism known as priming. **Priming** occurs when your thinking about one concept (e.g., ring) reminds you about other related concepts (e.g., marriage or wedding ceremony). So, if everyone in the conversation knows about Gary, Mary, and the usual course of events associated with a ring — involving engagement, wedding, marriage, and so on — everyone is likely to construct a shared situation model about Gary and Mary. Thus, making use of our highly developed interpersonal ability to imitate (i.e., executing the same action as another person) and cognitive ability to infer (i.e., one idea leading to other ideas), we humans coordinate our common ground, share situation models, and communicate with each other.

What Do We Talk About?

What are humans doing when we are talking? Surely, we can communicate about mundane things such as what to have

for dinner, but also more complex and abstract things such as the meaning of life and death, liberty, equality, fraternity, and many other philosophical thoughts. Well, when naturally occurring conversations were actually observed (Dunbar, Marriott, & Duncan, 1997), a staggering 60–70% of everyday conversation, for both men and women, turned out to be gossip — people talk about themselves and others whom they know (see Figure 9.11). Just like Adam and Ben, more often than not, people use language to communicate about their social world.



Figure 9.11. Studies show that people love to gossip. By gossiping, humans can communicate and share their representations about their social world — who their friends and enemies are, what the right thing to do is under what circumstances, and so on.

Gossip may sound trivial and seem to belittle our noble ability for language, surely one of the most remarkable human abilities of all that distinguish us from other animals. On the contrary, some have argued that gossip — activities to think and communicate about our social world — is one of the most critical uses to which language has been put. Robin Dunbar conjectured that gossiping is the human equivalent of grooming, that is, when monkeys and primates attend to each other by cleaning each other's fur. Dunbar (1996) argued that it is an act of socializing, signaling the importance of one's partner. Furthermore, by gossiping, humans can communicate and share their representations about their social world: who their friends and enemies are, what the right thing to do is under what circumstances, and so on. In so doing, they can regulate their social world, making more friends and enlarging one's own group — often called the **ingroup**, the group to which one belongs — against other groups — known as **outgroups** — that are more likely to be one's enemies. Dunbar has argued that it is these social effects that have given humans an evolutionary advantage and larger brains, which, in turn, help humans to think more complex and abstract thoughts and, more important, maintain larger

ingroups. Dunbar (1993) estimated an equation that predicts average group size of nonhuman primate genera from their average neocortex size, which is the part of the brain that supports higher order cognition. In line with his **social brain hypothesis**, Dunbar showed that those primate genera that have larger brains tend to live in larger groups. Furthermore, using the same equation, Dunbar was able to estimate the group size that human brains can support, which turned out to be about 150 — approximately the size of modern hunter-gatherer communities. Dunbar's argument is that language, brain, and human group living have co-evolved; language and human sociality are inseparable.

Dunbar's hypothesis is controversial. Nonetheless, our everyday language use often ends up maintaining the existing structure of intergroup relationships. Language use can have implications for how we construe our social world. For one thing, there are subtle cues that people use to convey the extent to which someone's action is just a special case in a particular context or a pattern that occurs across many contexts, like a character trait. According to Gün Semin and Klaus Fiedler (1988), someone's action can be described by an action verb that describes a concrete action (e.g., she runs), a state verb that describes the actor's psychological state (e.g., she likes running), an adjective that describes the actor's personality (e.g., she is athletic), or a noun that describes the actor's role (e.g., she is an athlete). Depending on whether a verb, an adjective, or a noun is used, speakers can convey the permanency and stability of an actor's tendency to act in a certain way — verbs convey particularity, whereas adjectives convey permanency. Intriguingly, people tend to describe positive actions of their ingroup members using adjectives (e.g., she is generous) rather than verbs (e.g., she gave a blind man some change), and negative actions of outgroup members using adjectives (e.g., she is cruel) rather than verbs (e.g., she kicked a dog). Anne Maass, Daniela Salvi, Luciano Arcuri, and Gün Semin (1989) called this a **linguistic intergroup bias**, which can produce and reproduce the representation of intergroup relationships by painting a picture favoring the ingroup. That is, ingroup members are typically good, and if they do anything bad, that's more an exception in special circumstances; in contrast, outgroup members are typically bad, and if they do anything good, that's more an exception.

People tend to tell stories that evoke strong emotions (Rimé, Mesquita, Boca, & Philoppot, 1991). Such emotive stories can then spread far and wide through people's social networks. When a group of 33 psychology students visited a city morgue — no doubt an emotive experience for many — they told their experience to about six people on average; each of these people who heard about it told one person, who in turn told another person on average. By this third retelling of the morgue visit, 881 people had heard about this in their community within 10 days. If everyone in society is connected with one another by six degrees of separation (Travers & Milgram, 1969) and if a chain letter can travel hundreds of steps via the Internet (Liben-Nowell & Kleinberg, 2008), the possibility of emotive gossip travelling through a vast social network is not a fantasy. Indeed, urban legends that evoke strong feelings of disgust tend to spread in cyberspace and become more prevalent on the Internet (Heath, Bell, & Sternberg, 2001).

In addition, when people exchange their gossip, it can spread through broader **social networks**. If gossip is transmitted from one person to another, the second person can transmit it to a third person, who then in turn transmits it to a fourth, and so on through a chain of communication. This often happens for emotive stories. If gossip is repeatedly transmitted and spread, it can reach a large number of people. When stories travel through communication chains, they tend to become conventionalized (Bartlett, 1932). A Native American tale of the "War of the Ghosts" recounts a warrior's encounter with ghosts travelling in canoes and his involvement with their ghostly battle. He is shot by an arrow but doesn't die, returning home to tell the tale. After his narration, however, he becomes still, a black thing comes out of his mouth, and he eventually dies. When it was told to a student in England in the 1920s and retold from memory to another person, who, in turn, retold it to another and so on in a communication chain, the mythic tale became a story of a young warrior going to a battlefield, in which canoes became boats, and the black thing that came out of his mouth became simply his spirit (Bartlett, 1932). In other words, information transmitted multiple times was transformed to something that was easily understood by many; information was assimilated into the common ground shared by most people in the linguistic community. More recently, Yoshihisa Kashima (2000) conducted a similar experiment using a story that contained a sequence of events that described a young couple's interaction that included both stereotypical and counter-stereotypical actions (e.g., a man watching sports on TV on Sunday as opposed to a man vacuuming the house). After the retelling of this story, much of the counter-stereotypical information was dropped, and

stereotypical information was more likely to be retained. Because stereotypes are part of the common ground shared by the community, this finding too suggests that conversational retellings are likely to reproduce conventional content.

Psychological consequences of language use

What are the psychological consequences of language use? When people use language to describe an experience, their thoughts and feelings are profoundly shaped by the linguistic representation that they have produced rather than the original experience (Holtgraves & Kashima, 2008). For example, Jamin Halberstadt (2003) showed a picture of a person displaying an ambiguous emotion and examined how people evaluated the displayed emotion. When people verbally explained why the target person was expressing a particular emotion, they tended to remember the person as feeling that emotion more intensely than when they simply labelled the emotion.



Figure 9.12. By verbalizing our own emotional experiences, such as in a conversation with a close friend, we can improve our psychological wellbeing.

Thus, constructing a linguistic representation of another person's emotion apparently biased the speaker's memory of that person's emotion. Furthermore, linguistically labelling one's own emotional experience appears to alter the speaker's neural processes. When people linguistically labelled negative images, the amygdala — a brain structure that is critically involved in the processing of negative emotions such as fear — was activated less than when they were not given a chance to label them (Lieberman et al., 2007). Potentially because of these effects of verbalizing emotional experiences, linguistic reconstructions of negative life events can have some therapeutic effects on those who suffer from the traumatic experiences (Pennebaker & Seagal, 1999). Sonja Lyubomirsky, Lorie Sousa, and Rene Dickerhoof (2006) found that writing and talking about negative past life events improved people's psychological wellbeing, but just thinking about them worsened it. There are many other examples of effects of language use on memory and decision making (Holtgraves & Kashima, 2008).

Furthermore, if a certain type of language use (i.e., linguistic practice) is repeated by a large number of people in a community, it can potentially have a significant effect on their thoughts and action (Holtgraves & Kashima, 2008). This notion is often called **Sapir-Whorf hypothesis** (Sapir, 1921; Whorf, 1956). For instance, if you are given a description of a man, Steven, as having greater than average experience of the world (e.g., well-traveled, varied job experience), a strong family orientation, and well-developed social skills, how do you describe Steven? Do you think you can remember Steven's personality five days later? It will probably be difficult, but if you know Chinese and are reading about Steven in Chinese, as Curt Hoffman, Ivy Lau, and David Johnson (1986) showed, the chances are that you can remember him well. This is because English does not have a word to describe this kind of personality, whereas Chinese does: *shì gù*. This way, the language you use can influence your cognition. In its strong form, it has been argued that language determines thought, but this is probably wrong. Language does not completely determine our thoughts — our thoughts are far too flexible for that — but habitual uses of language can influence our habit of thought and action. For instance, some linguistic practice seems to be associated even with cultural values and social institution, like dropping pronouns. Pronouns such as "I" and "you" are used to represent the speaker and listener of a speech in English. In an English sentence, these pronouns cannot be dropped if they are used as the subject of a sentence. So, for instance, "I went to the movie last night" is fine, but "Went to the movie last night" is not in standard English. However, in other languages such as Japanese, pronouns can be, and in fact often are, dropped from sentences. It turned out that people living in those countries where pronoun drop languages are spoken tend to have more collectivistic values (e.g., employees having greater loyalty toward their employers) than those who use non–pronoun drop languages such as English (Kashima & Kashima, 1998). It was argued that the explicit reference to "you" and "I" may remind speakers of the distinction between the self and other, and it may remind speakers of the differentiation between individuals. Such a linguistic practice may act as a constant reminder of the cultural value, which, in turn, may encourage people to perform the linguistic practice.

An example of evidence for Sapir-Whorf hypothesis comes from a comparison between English and Mandarin Chinese speakers (Boroditsky, 2000). In English, time is often metaphorically described in horizontal terms. For instance, good times are ahead of us, or hardship can be left behind us. We can move a meeting forward or backward. Mandarin Chinese speakers use similar horizontal metaphors too, but vertical metaphors are also used. So, for instance, the last month is called *shàng gè yuè* or "above month," and the next month, *xià gè yuè* or "below month." To put it differently, the arrow of time flies horizontally in English, but it can fly both horizontally and vertically in Chinese. Does this difference in language use affect English and Chinese speakers' comprehension of language?

This is what Boroditsky (2000) found. First, English and Chinese speakers' understanding of sentences that use a horizontal (e.g., June comes before August) did not differ much. When they were first presented with a picture that implies a horizontal positioning (e.g., the black worm is ahead of the white worm), they could read and understand them faster than when they were presented with a picture that implies a vertical positioning (e.g., the black ball is above the white ball). This implies that thinking about the horizontal positioning, when described as ahead or behind, equally primed (i.e., reminded) both English and Chinese speakers of the horizontal metaphor used in the sentence about time. However, English and Chinese speakers' comprehension differed for statements that do not use a spatial metaphor (e.g., August is later than June). When primed with the vertical spatial positioning, Chinese speakers comprehended these statements faster, but English speakers more slowly, than when they were primed with the horizontal spatial positioning. Apparently, English speakers were not used to thinking about months in terms of the vertical line, when described as above or below. Indeed, when they were trained to do so, their comprehension was similar to Chinese speakers (Boroditsky, Fuhrman, & McCormick, 2010).

The idea that language and its structures influence and limit human thought is called **linguistic relativity**. The most frequently cited example of this possibility was proposed by Benjamin Whorf (1897–1941), a linguist who was particularly interested in Aboriginal languages. Whorf argued that the Inuit people of Canada had many words for snow, whereas English speakers have only one, and that this difference influenced how the different cultures perceived snow. Whorf argued that the Inuit perceived and categorized snow in finer details than English speakers possibly could because the English language constrained perception.

Although the idea of linguistic relativism seemed reasonable, research has suggested that language has less influence on thinking than might be expected. For one, in terms of perceptions of snow, although it is true that the Inuit do make more distinctions among types of snow than English speakers do, the latter also make some distinctions (e.g., think of words like powder, slush, whiteout, and so forth). It is also possible that thinking about snow may influence language, rather than the other way around.

In a more direct test of the possibility that language influences thinking, Eleanor Rosch (1973) compared people from the Dani culture of New Guinea, who have only two terms for colour, dark and bright, with English speakers who use many more terms. Rosch hypothesized that if language constrains perception and categorization, then the Dani should have a harder time distinguishing colours than English speakers would. However, Rosch's research found that when the Dani were asked to categorize colours using new categories, they did so in almost the same way that English speakers did. Similar results were found by Michael Frank, Daniel Everett, Evelina Fedorenko, and Edward Gibson (2008), who showed that the Amazonian tribe known as the Pirahã, who have no linguistic method for expressing exact quantities, not even the number one, were nevertheless able to perform matches with large numbers without problem.

Although these data led researchers to conclude that the language we use to describe colour and number does not influence our underlying understanding of the underlying sensation, another more recent study has questioned this assumption. Debi Roberson, Ian Davies, and Jules Davidoff (2000) conducted another study with Dani participants and found that, at least for some colours, the names that they used to describe colours did influence their perceptions of the colours. Other researchers continue to test the possibility that our language influences our perceptions, and perhaps even our thoughts (Levinson, 1998), and yet the evidence for this possibility is, as of now, mixed.

Development of language

Psychology in Everyday Life

The case of Genie

In the fall of 1970, a social worker in the Los Angeles area found a 13-year-old girl who was being raised in extremely neglectful and abusive conditions. The girl, who came to be known as Genie, had lived most of her life tied to a potty chair or confined to a crib in a small room that was kept closed with the curtains drawn. For a little over a decade, Genie had virtually no social interaction and no access to the outside world. As a result of these conditions, Genie was unable to stand up, chew solid food, or speak (Fromkin, Krashen, Curtiss, Rigler, & Rigler, 1974; Rymer, 1993). The police took Genie into protective custody.

Genie's abilities improved dramatically following her removal from her abusive environment, and early on, it appeared she was acquiring language — much later than would be predicted by critical period hypotheses that had been posited at the time (Fromkin et al., 1974). Genie managed to amass an impressive vocabulary in a relatively short amount of time. However, she never developed a mastery of the grammatical aspects of language (Curtiss, 1981). Perhaps being deprived of the opportunity to learn language during a critical period

impeded Genie's ability to fully acquire and use language. Genie's case, while not conclusive, suggests that early language input is needed for language learning. This is also why it is important to determine quickly if a child is deaf and to begin immediately to communicate in sign language in order to maximize the chances of fluency (Mayberry, Lock, & Kazmi, 2002).

All children with normal brains who are exposed to language will develop it seemingly effortlessly. They do not need to be taught explicitly how to conjugate verbs, they do not need to memorize vocabulary lists, and they will easily pick up any accent or dialect that they are exposed to. Indeed, children seem to learn to use language much more easily than adults do. You may recall that each language has its own set of phonemes that are used to generate morphemes, words, and so on. Babies can discriminate among the sounds that make up a language (e.g., they can tell the difference between the "s" in vision and the "ss" in fission), and they can differentiate between the sounds of all human languages, even those that do not occur in the languages that are used in their environments. However, by the time that they are about one year old, they can only discriminate among those phonemes that are used in the language or languages in their environments (Jensen, 2011; Werker & Lalonde, 1988; Werker & Tees, 2002).

Learning language

Language learning begins even before birth because the fetus can hear muffled versions of speaking from outside the womb. Christine Moon, Robin Cooper, and William Fifer (1993) found that infants only two days old sucked harder on a pacifier when they heard their mothers' native language being spoken than when they heard a foreign language, even when strangers were speaking the languages. Babies are also aware of the patterns of their native language, showing surprise when they hear speech that has a different patterns of phonemes than those they are used to (Saffran, Aslin, & Newport, 2004).

During the first year or so after birth, long before they speak their first words, infants are already learning language. One aspect of this learning is practise in producing speech. By the time they are six to eight weeks old, babies start making vowel sounds (e.g., ooohh, aaahh, goo) as well as a variety of cries and squeals to help them practise.

At about seven months, infants begin **babbling**, which is to say they are engaging in intentional vocalizations that lack specific meaning. Children babble as practise in creating specific sounds, and by the time they are one year old, the babbling uses primarily the sounds of the language that they are learning (de Boysson-Bardies, Sagart, & Durand, 1984). These vocalizations have a conversational tone that sounds meaningful even though it is not. Babbling also helps children understand the social, communicative function of language (see Figure 9.13). Children who are exposed to sign language babble in sign by making hand movements that represent real language (Petitto & Marentette, 1991).



Figure 9.13. Babies often engage in vocal exchanges to help them practise language.

At the same time that infants are practising their speaking skills by babbling, they are also learning to better understand sounds and eventually the words of language. One of the first words that children understand is their own name, usually by about six months, followed by commonly used words like "bottle," "mama," and "doggie" by 10 to 12 months (Mandel, Jusczyk, & Pisoni, 1995).

The infant usually produces their first words at about one year of age. It is at this point that the child first understands that words are more than sounds — they refer to particular objects and ideas. By the time children are two years old, they have a vocabulary of several hundred words, and by kindergarten their vocabularies have increased to several thousand words. By Grade 5, most children know about 50,000 words; by the time they are in university, most know about 200,000.

The early utterances of children contain many errors, for instance, confusing /b/ and /d/, or /c/ and /z/, and the words that children create are often simplified, in part because they are not yet able to make the more complex sounds of the real language (Dobrich & Scarborough, 1992). Children may say "keekee" for kitty, "nana" for banana, and "vesketti" for spaghetti in part because it is easier. Often these early words are accompanied by gestures that may also be easier to produce than the words themselves. Children's pronunciations become increasingly accurate between one and three years, but some problems may persist until school age.

Most of a child's first words are nouns, and early sentences may include only the noun. "Ma" may mean "more milk please," and "da" may mean "look, there's Fido." Eventually the length of the utterances increases to two words (e.g., "mo ma" or "da bark"), and these primitive sentences begin to follow the appropriate syntax of the native language.

Because language involves the active categorization of sounds and words into higher level units, children make some mistakes in interpreting what words mean and how to use them. In particular, they often make **overextensions** of concepts, which means they use a given word in a broader context than appropriate. For example, a child might at first call all adult men "daddy" or all animals "doggie."

Children also use contextual information, particularly the cues that parents provide, to help them learn language. Infants are frequently more attuned to the tone of voice of the person speaking than to the content of the words themselves

and are aware of the target of speech. Janet Werker, Judith Pegg, and Peter McLeod (1994) found that infants listened longer to a woman who was speaking to a baby than to a woman who was speaking to another adult.

Children learn that people are usually referring to things that they are looking at when they are speaking (Baldwin, 1993) and that the speaker's emotional expressions are related to the content of their speech. Children also use their knowledge of syntax to help them figure out what words mean. If a child hears an adult point to a strange object and say, "this is a dirb," they will infer that a "dirb" is a thing, but if they hear them say, "this is a one of those dirb things," they will infer that it refers to the colour or other characteristic of the object. Additionally, if they hear the word "dirbing," they will infer that "dirbing" is something that we do (Waxman, 1990).

How children learn language: Theories of language acquisition

Psychological theories of language learning differ in terms of the importance they place on nature versus nurture, yet it is clear that both matter. Children are not born knowing language; they learn to speak by hearing what happens around them. On the other hand, human brains, unlike those of any other animal, are wired in a way that leads them, almost effortlessly, to learn language.

Perhaps the most straightforward explanation of language development is that it occurs through principles of learning, including association, reinforcement, and the observation of others (Skinner, 1965). There must be at least some truth to the idea that language is learned, because children learn the language that they hear spoken around them rather than some other language. Also supporting this idea is the gradual improvement of language skills with time. It seems that children modify their language through imitation, reinforcement, and shaping, as would be predicted by learning theories.

However, language cannot be entirely learned. For one, children learn words too fast for them to be learned through reinforcement. Between the ages of 18 months and five years, children learn up to 10 new words every day (Anglin, 1993). More importantly, language is more generative than it is imitative. **Generativity** refers to the fact that speakers of a language can compose sentences to represent new ideas that they have never before been exposed to. Language is not a predefined set of ideas and sentences that we choose when we need them, but rather a system of rules and procedures that allows us to create an infinite number of statements, thoughts, and ideas, including those that have never previously occurred. When a child says that they "swimmed" in the pool, for instance, they are showing generativity. No adult speaker of English would ever say "swimmed," yet it is easily generated from the normal system of producing language.

Other evidence that refutes the idea that all language is learned through experience comes from the observation that children may learn languages better than they ever hear them. Deaf children whose parents do not use sign language very well nevertheless are able to learn it perfectly on their own, and they may even make up their own language if they need to (Goldin-Meadow & Mylander, 1998). A group of deaf children in a school in Nicaragua, whose teachers could not sign, invented a way to communicate through made-up signs (Senghas, Senghas, & Pyers, 2005). The development of this new Nicaraguan Sign Language has continued and changed as new generations of students have come to the school and started using the language. Although the original system was not a real language, it is becoming closer and closer every year, showing the development of a new language in modern times.

The linguist Noam Chomsky is a believer in the nature approach to language, arguing that human brains contain a language acquisition device that includes a **universal grammar** that underlies all human language (Chomsky, 1965, 1972). According to this approach, each of the many languages spoken around the world — there are between 6,000 and 8,000 — is an individual example of the same underlying set of procedures that are hardwired into human brains. Chomsky's account proposes that children are born with a knowledge of general rules of syntax that determine how sentences are constructed that then coordinates with the language the child is exposed to.

Chomsky differentiates between the **deep structure of an idea** — how the idea is represented in the fundamental universal grammar that is common to all languages — and the **surface structure of the idea** — how it is expressed in any one language. Once we hear or express a thought in surface structure, we generally forget exactly how it happened. At the end of a lecture, you will remember a lot of the deep structure (i.e., the ideas expressed by the instructor), but you cannot reproduce the surface structure (i.e., the exact words that the instructor used to communicate the ideas).

Although there is general agreement among psychologists that babies are genetically programmed to learn language, there is still debate about Chomsky's idea that there is a universal grammar that can account for all language learning. Nicholas Evans and Stephen Levinson (2009) surveyed the world's languages and found that none of the presumed underlying features of the language acquisition device were entirely universal. In their search, they found languages that did not have noun or verb phrases, that did not have tenses (e.g., past, present, future), and even some that did not have nouns or verbs at all, even though a basic assumption of a universal grammar is that all languages should share these features.

Bilingualism and cognitive development

Bilingualism, which is the ability to speak two languages, is becoming more and more frequent in the modern world. Nearly one-half of the world's population, including 17% of Canadian citizens, grows up bilingual.

In Canada, education is under provincial jurisdiction; however, the federal government has been a strong supporter of establishing Canada as a bilingual country and has helped pioneer the French immersion programs in the public education systems throughout the country. In contrast, many U.S. states have passed laws outlawing bilingual education in schools based on the idea that students will have a stronger identity with the school, the culture, and the government if they speak only English. This is, in part, based on the idea that speaking two languages may interfere with cognitive development.

A variety of minority language immersion programs are now offered across the country depending on need and interest. In British Columbia, for instance, the city of Vancouver established a new bilingual Mandarin Chinese-English immersion program in 2002 at the elementary school level in order accommodate Vancouver's both historic and present strong ties to the Chinese-speaking world. Similar programs have been developed for both Hindi and Punjabi to serve the large South Asian cultural community in the city of Surrey. By default, most schools in British Columbia teach in English, with French immersion options available. In both English and French schools, one can study and take government exams in Japanese, Punjabi, Mandarin Chinese, French, Spanish, and German at the secondary level.

Some early psychological research showed that, when compared with monolingual children, bilingual children performed more slowly when processing language, and their verbal scores were lower. However, these tests were frequently given in English, even when this was not the child's first language, and the children tested were often of lower socioeconomic status than the monolingual children (Andrews, 1982).

More current research that has controlled for these factors has found that, although bilingual children may, in some cases, learn language somewhat slower than do monolingual children (Oller & Pearson, 2002), bilingual and monolingual children do not significantly differ in the final depth of language learning, nor do they generally confuse the two languages (Nicoladis & Genesee, 1997). In fact, participants who speak two languages have been found to have better cognitive functioning, cognitive flexibility, and analytic skills in comparison to monolinguals (Bialystok, 2009). Research has also found that learning a second language produces changes in the area of the brain in the left hemisphere that is involved in language (see Figure 9.14), such that this area is denser and contains more neurons (Mechelli et al., 2004). Furthermore, the increased density is stronger in those individuals who are most proficient in their second

language and who learned the second language earlier. Thus, rather than slowing language development, learning a second language seems to increase cognitive abilities.

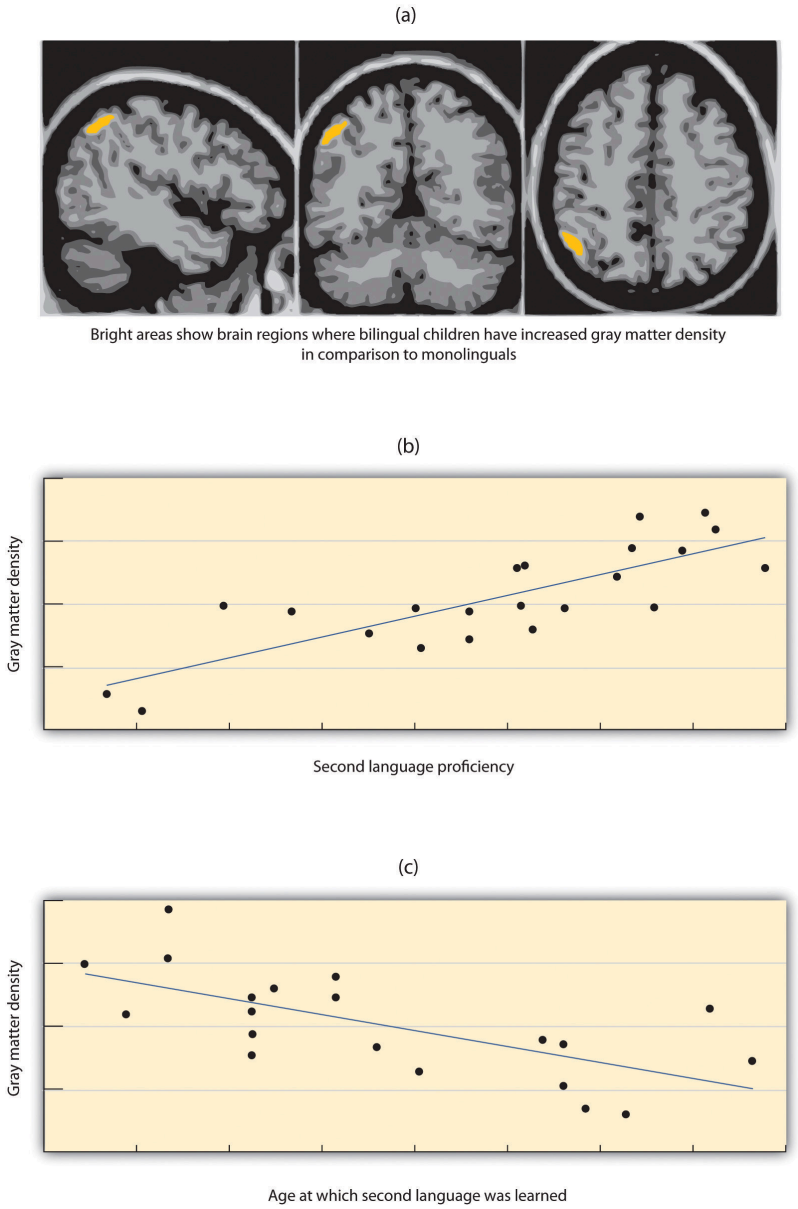


Figure 9.14. Andrea Mechelli and colleagues (Mechelli et al., 2004) found that children who were bilingual had increased gray matter density (i.e., more neurons) in cortical areas related to language in comparison to monolinguals (panel a), that gray matter density correlated positively with second language proficiency (panel b), and that gray matter density correlated negatively with the age at which the second language was learned (panel c).

Biology of language

For the 90% of people who are right-handed, language is stored and controlled by the left cerebral cortex, although for some left-handers this pattern is reversed. These differences can easily be seen in the results of neuroimaging studies that show that listening to and producing language creates greater activity in the left hemisphere than in the right. **Broca's area**, an area in front of the left hemisphere near the motor cortex, is responsible for language production (see Figure 9.15). This area was first localized in the 1860s by the French physician Paul Broca, who studied patients with lesions to various parts of the brain. **Wernicke's area**, an area of the brain next to the auditory cortex, is responsible for language comprehension.

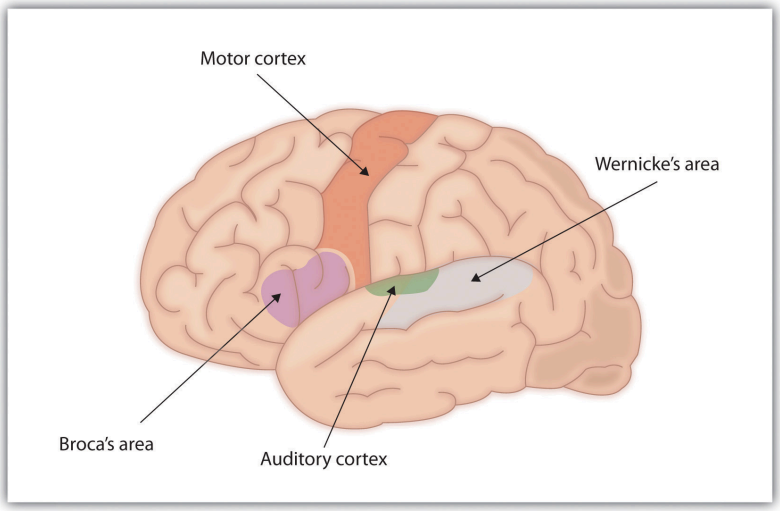


Figure 9.15. Drawing of the human brain showing Broca's area and Wernicke's area.

Evidence for the importance of Broca's area and Wernicke's area in language is seen in patients who experience **aphasia**, a condition in which language functions are severely impaired. People with Broca's aphasia have difficulty producing speech, whereas people with damage to Wernicke's area can produce speech, but what they say makes no sense, and they have trouble understanding language.

Can animals learn language?

Nonhuman animals have a wide variety of systems of communication. Some species communicate using scents; others use visual displays, such as baring the teeth, puffing up the fur, or flapping the wings; and still others use vocal sounds. Male songbirds, such as canaries and finches, sing songs to attract mates and to protect territory, and chimpanzees use a combination of facial expressions, sounds, and actions, such as slapping the ground, to convey aggression (de Waal, 1989). Honeybees use a waggle dance to direct other bees to the location of food sources (von Frisch, 1956). The language of vervet monkeys is relatively advanced in the sense that they use specific sounds to communicate specific meanings. Vervets make different calls to signify that they have seen either a leopard, a snake, or a hawk (Seyfarth & Cheney, 1997).

Despite their wide abilities to communicate, efforts to teach animals to use language have had only limited success. One of the early efforts was made by Catherine and Keith Hayes (1952), who raised a chimpanzee named Viki in their home along with their own children, but Viki learned little and could never speak. Researchers speculated that Viki's difficulties might have been, in part, because she could not create the words in her vocal cords. Subsequent attempts were made to teach primates to speak using sign language or boards on which they can point to symbols.

In another famous case, an African grey parrot called Alex was able to idenitfy and name certain objects, and Alex was even able to categorize them in terms of shape or colour (Pepperberg, 2010). Alex used the words he had been taught and eventually began to use other words that he had not been trained for; this was evidence that he was picking up words and using them correctly merely by being exposed to them. Alex was also able to make rudimentary phrases without being taught them specifically.

Allen and Beatrix Gardner worked for many years to teach a chimpanzee named Washoe to sign using ASL. Washoe, who lived to be 42 years old, could label up to 250 different objects and make simple requests and comments, such as "please tickle" and "me sorry" (Fouts, 1997). Washoe's adopted daughter Loulis, who was never exposed to human signers, learned more than 70 signs simply by watching her mother sign.

The most proficient nonhuman language user is Kanzi, a bonobo who lives at the Language Learning Center at Georgia State University (Savage-Rumbaugh & Lewin, 1994; Raffaele, 2006). The following YouTube link shows that Kanzi has a propensity for language that is in many ways similar to humans:

- Video: *Kanzi and Novel Sentences* (IowaPrimate .LearningSanctuary, 2009)

Kanzi learned faster when he was younger than when he got older, he learns by observation, and he can use symbols to comment on social interactions, rather than simply for food treats. Kanzi can also create elementary syntax and understand relatively complex commands. Kanzi can make tools and can even play the video game Pac-Man.

Yet, even Kanzi does not have a true language in the same way that humans do. Human babies learn words faster and faster as they get older, but Kanzi does not. Each new word he learns is almost as difficult as the one before. Kanzi usually requires many trials to learn a new sign, whereas human babies can speak words after only one exposure. Kanzi's language is focused primarily on food and pleasure and only rarely on social relationships. Although he can combine words, he generates few new phrases and cannot master syntactic rules beyond the level of about a two-year-old human child (Greenfield & Savage-Rumbaugh, 1991).

In sum, although many animals communicate, none of them has a true language. With some exceptions, the information that can be communicated in nonhuman species is limited primarily to displays of liking or disliking and related to basic motivations of aggression and mating. Humans also use this more primitive type of communication — in the form of **nonverbal behaviours** such as eye contact, touch, hand signs, and interpersonal distance — to communicate their like or dislike for others, but they, unlike animals, also supplant this more primitive communication with language. Although other animal brains share similarities to ours, only the human brain is complex enough to create language. What is perhaps most remarkable is that although language never appears in nonhumans, language is universal in humans. All humans, unless they have a profound brain abnormality or are completely isolated from other humans, learn language.

Source: Adapted from Kashima (2020).

Key Takeaways

- Language involves both the ability to comprehend spoken and written words and to speak and write. Some languages are sign languages, in which the communication is expressed by movements of the hands.
- Phonemes are the elementary sounds of our language, morphemes are the smallest units of meaningful language, syntax is the grammatical rules that control how words are put together, and contextual information is the elements of communication that help us understand its meaning.
- Gossip is a large part of how language is used.
- Infants are able to discriminate amongst all sounds but lose this ability after the first year and become adult-like in sound perception.
- Children acquire language in a predictable sequence.
- One explanation of language development is that it occurs through principles of learning, including association, reinforcement, and the observation of others.
- Noam Chomsky argues that human brains contain a language acquisition module that includes a universal grammar that underlies all human language. Chomsky differentiates between the deep structure and the surface structure of an idea.
- Broca's area is responsible for language production, wheareas Wernicke's area is responsible for language comprehension.
- Although other animals communicate and may be able to express ideas, only the human brain is complex enough to create real language.

Exercises and Critical Thinking

1. What languages do you speak? Did you ever try to learn a new one? What problems did you have when you did this? Would you consider trying to learn a new language?
2. Some animals, such as Kanzi the bonobo, display at least some language. Do you think that this means that they are intelligent?

Congratulations on completing Chapter 9! Remember to go back to the section on Approach and Pedagogy near the beginning of the book to learn more about how to get the most out of reading and learning the material in this textbook.

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CHAPTER 11. EMOTIONS AND MOTIVATIONS

11.0 Introduction

Psychology in Everyday Life

Grace under pressure

On June 27, 2014, 13-year-old Gavin England saved his grandfather from drowning when their prawning boat took on water and sank off the Saanich Peninsula on Vancouver Island (CTV National News, 2014). Gavin's grandfather, Vern, was not a strong swimmer, and though both were wearing life jackets, they would not have survived for long in the cold Pacific ocean waters 300 meters from shore.

Gavin recounted the event, explaining how he suffered sharp cuts to his bare feet when climbing the embankment where he had dragged his grandfather. He attributed his ability to overcome the pain of the cuts to adrenalin. Upon finding an old truck with keys in the ignition, and despite the high emotions he was experiencing, he then had the wherewithal to learn to drive on the spot and make it up a three-kilometer hill to get help. Gavin explained that his knowledge of driving a dirt bike served him well: "I knew that clutch in meant drive." Vern described the young boy as "tenacious" and calm throughout the event. He was giving his grandfather words of encouragement as he pulled him to shore.

Stories such as Gavin's are rare and unpredictable. We hope we will act with the same clear-headed tenacity in emergency situations, but the heroic response is not assured. Gavin's ability to abate panic by recognizing and regulating his emotions was central to his actions in this emergency situation.

American pilot Captain "Sully" Sullenberger (see Figure 11.1) was 915 metres up in the air when the sudden loss of power in his airplane put his life, as well as the lives of 150 passengers and crew members, in his hands. Both of the engines on flight 1539 had shut down, and his options for a safe landing were limited.



Figure 11.1. Imagine that you are on a plane that you know is going to crash. What emotions would you experience, and how would you respond to them? Would the rush of fear cause you to panic, or could you control your emotions like Captain Sullenberger did, as he calmly calculated the heading, position, thrust, and elevation of the plane, and then landed it on the Hudson River?

Sully kept flying the plane and alerted the control tower to the situation: "This is Cactus 1539 . . . hit birds. We lost thrust in both engines. We're turning back toward La Guardia."

When the tower gave him the compass setting and runway for a possible landing, Sullenberger's extensive experience allowed him to give a calm response: "I'm not sure if we can make any runway…Anything in New Jersey?"

Captain Sullenberger was not just any pilot in a crisis, but a former U.S. Air Force fighter pilot with 40 years of flight experience. He had served both as a flight instructor and the safety chairman for the Airline Pilots Association. Training had quickened his mental processes in assessing the threat, allowing him to maintain what tower operators later called an "eerie calm." He knew the capabilities of his plane.

When the tower suggested a runway in New Jersey, Sullenberger calmly replied: "We're unable. We may end up in the Hudson."

The last communication from Captain Sullenberger to the tower advised of the eventual outcome: "We're going to be in the Hudson."

He calmly set the plane down on the water. Passengers reported that the landing was like landing on a rough runway. The crew kept the passengers calm as women, children, and then the rest of the passengers were evacuated onto the rescue boats that had quickly arrived. Captain Sullenberger then calmly walked the aisle of the plane to be sure that everyone was out before joining the 150 other rescued survivors (Levin, 2009; National Transportation Safety Board, 2009).

Some called it "grace under pressure," and others called it the "miracle on the Hudson." However, psychologists see it as the ultimate in **emotion regulation**, which is the ability to control and productively use one's emotions. Both Gavin and Captain Sullenberger were motivated to save lives and were able to regulate their emotions to achieve that end.

An **emotion** is a mental and physiological feeling state that directs our attention and guides our behaviour. Whether it is the thrill of a roller-coaster ride that elicits an unexpected scream, the flush of embarrassment that follows a public mistake, or the horror of a potential plane crash that creates an exceptionally brilliant response in a pilot, emotions

move our actions. Emotions normally serve an adaptive role; for example, we care for infants because of the love we feel for them, we avoid making a left turn onto a crowded highway because we fear that a speeding truck may hit us, and we are particularly nice to Mandy because we are feeling guilty that we did not go to her party. However, emotions may also be destructive, such as when a frustrating experience leads us to lash out at others who do not deserve it. One of the Core Competencies in British Columbia's education curriculum is Personal and Social — this includes social-emotional proficiencies that help students to recognize and manage their emotional states. British Columbia has identified that competence in this area is required in order for students to achieve their potential in more traditional areas of learning (Province of British Columbia, 2019).

Motivation is often considered in psychology in terms of **drives**, which are internal states that are activated when the physiological characteristics of the body are out of balance, and **goals**, which are desired end states that we strive to attain. Motivation can thus be conceptualized as a series of behavioural responses that lead us to attempt to reduce drives and to attain goals by comparing our current state with a desired end state (Lawrence, Carver, & Scheier, 2002). Like a thermostat on an air conditioner, the body tries to maintain **homeostasis**, the natural state of the body's systems, with goals, drives, and arousal in balance. When a drive or goal is aroused — for instance, when we are hungry — the thermostat turns on, and we start to behave in a way that attempts to reduce the drive or meet the goal — in this case, to seek food. As the body works toward the desired end state, the thermostat continues to check whether or not the end state has been reached. Eventually, the need or goal is satisfied (e.g., we eat), and the relevant behaviours are turned off. The body's thermostat continues to check for homeostasis and is always ready to react to future needs.

In addition to more basic motivations such as hunger, a variety of other personal and social motivations can also be conceptualized in terms of drives or goals. When the goal of studying for an exam is hindered because we take a day off from our schoolwork, we may work harder on our studying on the next day to move us toward our goal; when we are dieting, we may be more likely to have a big binge on a day when the scale says that we have met our prior day's goals; and when we are lonely, the motivation to be around other people is aroused and we try to socialize. In many, if not most cases, our emotions and motivations operate out of our conscious awareness to guide our behaviour (Freud, 1922; Hassin, Bargh, & Zimerman, 2009; Williams, Bargh, Nocera, & Gray, 2009).

We begin this chapter by examining several popular theories of emotion. We will then turn to theories of motivation and spend a little more time on two important drives in the human experience: the drive to eat and the drive to have sex. What you learn in this chapter should have direct relevance to your own experiences of emotion and should help you to understand why we engage in certain behaviours disproportionately often compared to others.

Image Attributions

Figure 11.1. *Sully Sullenberger* by Ingrid Taylar is used under a CC BY-NC 2.0 license; *Plane Crash Into Hudson River* by Greg Lam Pak Ng is used under a CC BY 2.0 license.

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11.1 The Experience of Emotion

Learning Objectives

1. Explain the biological experience of emotion.
2. Summarize the psychological theories of emotion.
3. Give examples of the ways that emotion is communicated.

The most fundamental emotions, known as the basic emotions, are those of anger, disgust, fear, happiness, sadness, and surprise. The basic emotions have a long history in human evolution, and they have developed in large part to help us make rapid judgments about stimuli and to quickly guide appropriate behaviour (LeDoux, 2000). The basic emotions are determined in large part by one of the oldest parts of our brain, the limbic system, including the amygdala, the hypothalamus, and the thalamus. Because they are primarily evolutionarily determined, the basic emotions are experienced and displayed in much the same way across cultures (Ekman, 1992; Elfenbein & Ambady, 2002; Fridland, Ekman, & Oster, 1987), and people are quite accurate at judging the facial expressions of people from different cultures.

Not all of our emotions come from the old parts of our brain; we also interpret our experiences to create a more complex array of emotional experiences. For instance, the amygdala may sense fear when it senses that the body is falling, but that fear may be interpreted completely differently, perhaps even as excitement, when we are falling on a roller-coaster ride than when we are falling from the sky in an airplane that has lost power. The cognitive interpretations that accompany emotions— known as **cognitive appraisal** — allow us to experience a much larger and more complex set of secondary emotions (see Figure 11.2). Although they are in large part cognitive, our experiences of the secondary emotions are determined in part by arousal, as seen on the vertical axis of Figure 11.2, and in part by their valence — that is, whether they are pleasant or unpleasant feelings — as seen on the horizontal axis of Figure 11.2.

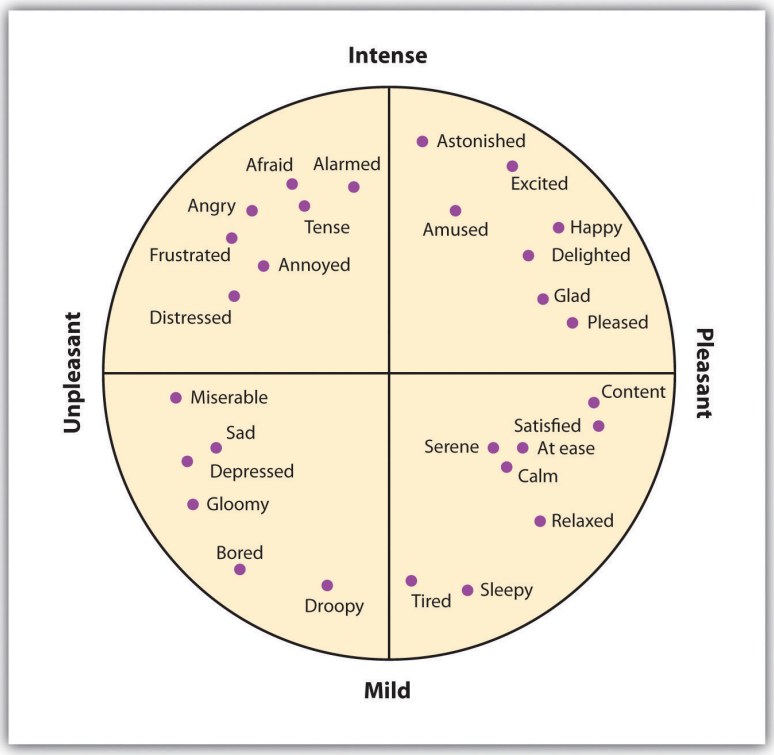


Figure 11.2. The secondary emotions are those that have a major cognitive component. They are determined by both their level of arousal, ranging from mild to intense, and their valence, ranging from pleasant to unpleasant (Russell, 1980). [Long description]

When you succeed in reaching an important goal, you might spend some time enjoying your secondary emotions, perhaps the experience of joy, satisfaction, and contentment, but when your close friend wins a prize that you thought you had deserved, you might also experience a variety of secondary emotions — in this case, the negative ones like feeling angry, sad, resentful, or ashamed. You might mull over the event for weeks or even months, experiencing these negative emotions each time you think about it (Martin & Tesser, 2006).

The distinction between the primary and the secondary emotions is paralleled by two brain pathways: a fast pathway and a slow pathway (Damasio, 2000; LeDoux, 2000; Ochsner, Bunge, Gross, & Gabrieli, 2002). The thalamus acts as the major gatekeeper in this process (see Figure 11.3). Our response to the basic emotion of fear, for instance, is primarily determined by the fast pathway through the limbic system. When a car pulls out in front of us on the highway, the thalamus activates and sends an immediate message to the amygdala. We quickly move our foot to the brake pedal. Secondary emotions are more determined by the slow pathway through the frontal lobes in the cortex. When we stew in jealousy over the loss of a partner to a rival or recollect our win in the big tennis match, the process is more complex. Information moves from the thalamus to the frontal lobes for cognitive analysis and integration, and then from there to the amygdala. We experience the arousal of emotion, but it is accompanied by a more complex cognitive appraisal, producing more refined emotions and behavioural responses.

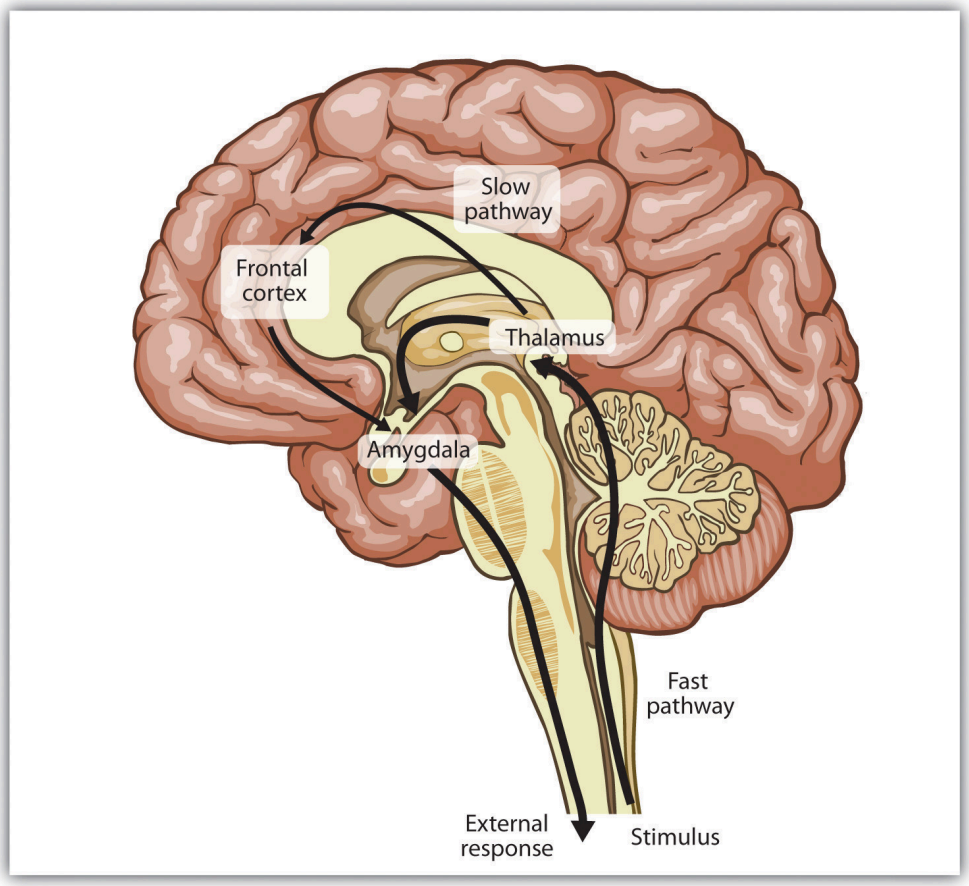


Figure 11.3. There are two emotional pathways in the brain — one slow and the other fast — both of which are controlled by the thalamus.

Although emotions might seem to you to be more frivolous or less important in comparison to our more rational cognitive processes, both emotions and cognitions can help us make effective decisions. In some cases, we take action after rationally processing the costs and benefits of different choices, but in other cases, we rely on our emotions. Emotions become particularly important in guiding decisions when the alternatives between many complex and conflicting alternatives present us with a high degree of uncertainty and ambiguity, making a complete cognitive analysis difficult. In these cases, we often rely on our emotions to make decisions, and these decisions may in many cases be more accurate than those produced by cognitive processing (Damasio, 1994; Dijksterhuis, Bos, Nordgren, & van Baaren, 2006; Nordgren & Dijksterhuis, 2009; Wilson & Schooler, 1991).

The Cannon-Bard and James-Lange theories of emotion

Recall for a moment a situation in which you have experienced an intense emotional response. Perhaps you woke up in the middle of the night in a panic because you heard a noise that made you think that someone had broken into your house or apartment, or maybe you were calmly cruising down a street in your neighbourhood when another car suddenly pulled out in front of you, forcing you to slam on your brakes to avoid an accident. Maybe you remember that your emotional reaction was in large part physical, and you remember being flushed, your heart pounding, feeling sick to your stomach, or having trouble breathing. You were experiencing the physiological part of emotion (i.e., arousal), and

you have likely had similar feelings in other situations, perhaps when you were in love, angry, embarrassed, frustrated, or very sad.

If you think back to a strong emotional experience, you might wonder about the order of the events that occurred. Certainly you experienced arousal, but did the arousal come before, after, or along with the experience of the emotion? Psychologists have proposed three different theories of emotion, which differ in terms of the hypothesized role of arousal in emotion (see Figure 11.4).

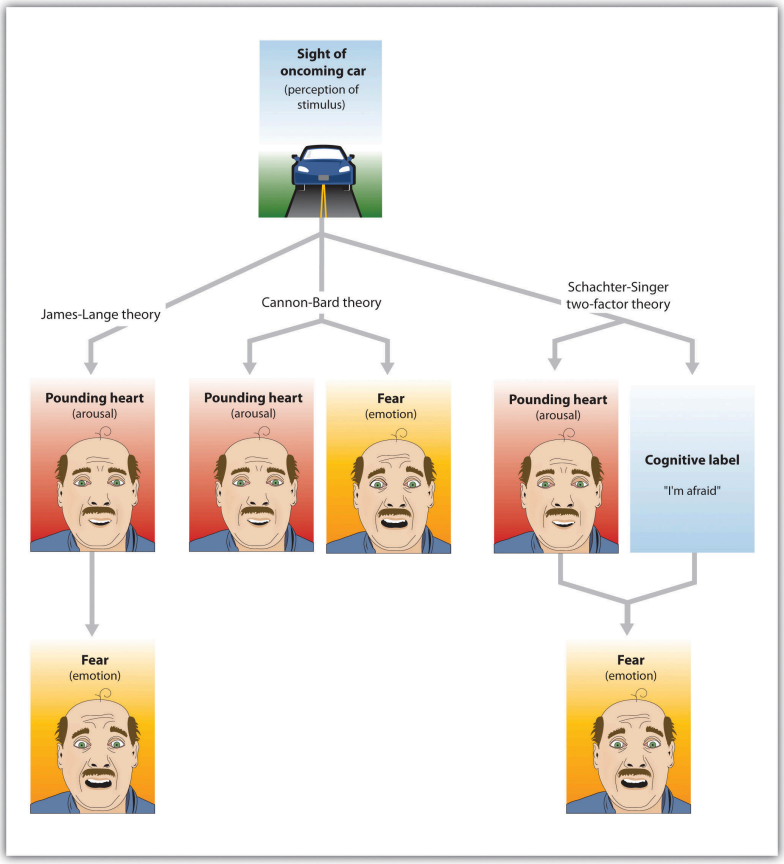


Figure 11.4. The Cannon-Bard theory proposes that emotions and arousal occur at the same time. The James-Lange theory proposes the emotion is the result of arousal. Schachter and Singer's two-factor model proposes that arousal and cognition combine to create emotion.

If your experiences are like mine, as you reflected on the arousal that you have experienced in strong emotional situations, you probably thought something like, "I was afraid and my heart started beating like crazy." At least some psychologists agree with this interpretation. According to the theory of emotion proposed by Walter Cannon and then graduate student Philip Bard (Cannon, 1927), the experience of the emotion (e.g., "I'm afraid") occurs alongside the experience of the arousal (e.g., "my heart is beating fast"). According to the **Cannon-Bard theory of emotion**, the experience of an emotion is accompanied by physiological arousal. Thus, according to this model of emotion, as we become aware of danger, our heart rate also increases.

Although the idea that the experience of an emotion occurs alongside the accompanying arousal seems intuitive to our everyday experiences, the psychologists William James and Carl Lange had another idea about the role of arousal. According to the **James-Lange theory of emotion**, our experience of an emotion is the result of the arousal that we experience. This approach proposes that the arousal and the emotion are not independent, but rather that the emotion depends on the arousal. The fear does not occur along with the racing heart but occurs because of the racing heart. As William James put it, "We feel sorry because we cry, angry because we strike, afraid because we tremble" (James, 1884, p. 190). A fundamental aspect of the James-Lange theory is that different patterns of arousal may create different emotional experiences.

There is research evidence to support each of these theories. The operation of the fast emotional pathway (see Figure 11.3) supports the idea that arousal and emotions occur together. The emotional circuits in the limbic system are activated when an emotional stimulus is experienced, and these circuits quickly create corresponding physical reactions (LeDoux, 2000). The process happens so quickly that it may feel to us as if emotion is simultaneous with our physical arousal.

On the other hand, and as predicted by the James-Lange theory, our experiences of emotion are weaker without arousal. Patients who have spinal injuries that reduce their experience of arousal also report decreases in emotional responses (Hohmann, 1966). There is also at least some support for the idea that different emotions are produced by different patterns of arousal. People who view fearful faces show more amygdala activation than those who watch angry or joyful faces (Whalen et al., 2001; Witvliet & Vrana, 1995), we experience a red face and flushing when we are embarrassed but not when we experience other emotions (Leary, Britt, Cutlip, & Templeton, 1992), and different hormones are released when we experience compassion than when we experience other emotions (Oatley, Keltner, & Jenkins, 2006).

The two-factor theory of emotion

Whereas the James-Lange theory proposes that each emotion has a different pattern of arousal, the two-factor theory of emotion takes the opposite approach, arguing that the arousal that we experience is basically the same in every emotion, and that all emotions, including the basic emotions, are differentiated only by our cognitive appraisal of the source of the arousal. The **two-factor theory of emotion** asserts that the experience of emotion is determined by the intensity of the arousal we are experiencing but that the cognitive appraisal of the situation determines what the emotion will be. Because both arousal and appraisal are necessary, we can say that emotions have two factors, both an arousal factor and a cognitive factor (Schachter & Singer, 1962). This may be represented as follows:

- Emotion = arousal + cognition

In some cases, it may be difficult for a person who is experiencing a high level of arousal to accurately determine which emotion they are experiencing. That is, the person may be certain that they are feeling arousal, but the meaning of the arousal (i.e., the cognitive factor) may be less clear. Some romantic relationships, for instance, have a very high level of arousal, and the partners alternatively experience extreme highs and lows in the relationship. One day, they are madly in love with each other, and the next, they are in a huge fight. In situations that are accompanied by high arousal, people may be unsure what emotion they are experiencing. In the high arousal relationship, for instance, the partners may be uncertain whether the emotion they are feeling is love, hate, or both at the same time. The tendency for people to incorrectly label the source of the arousal that they are experiencing is known as the **misattribution of arousal**.

In one interesting field study by Donald Dutton and Arthur Aron (1974), an attractive young woman approached individual young men as they crossed a wobbly, long suspension walkway hanging more than 200 feet above a river in British Columbia (see Figure 11.5). The woman asked each man to help her fill out a class questionnaire. When he had

finished, she wrote her name and phone number on a piece of paper, and invited him to call if he wanted to hear more about the project. More than half of the men who had been interviewed on the bridge later called the woman. In contrast, men approached by the same woman on a low, solid bridge, or who were interviewed on the suspension bridge by men, called significantly less frequently. The idea of misattribution of arousal can explain this result — the men were feeling arousal from the height of the bridge, but they misattributed it as romantic or sexual attraction to the woman, making them more likely to call her.



Figure 11.5. Arousal caused by the height of the Capilano Suspension Bridge was misattributed as attraction by the men who were interviewed by an attractive woman as they crossed it.

Research Focus

Misattributing arousal

If you think a bit about your own experiences of different emotions and you consider the equation that suggests that emotions are represented by both arousal and cognition, you might start to wonder how much was determined by each. That is, do we know what emotion we are experiencing by monitoring our feelings (i.e., arousal) or by monitoring our thoughts (i.e., cognition)? The bridge study you just read about might begin to provide you with an answer. The men seemed to be more influenced by their perceptions of how they should be feeling, by their cognition, rather than by how they actually were feeling, by their arousal.

Stanley Schachter and Jerome Singer (1962) directly tested this prediction of the two-factor theory of emotion in a well-known experiment. Schachter and Singer believed that the cognitive part of the emotion was critical — in fact, they believed that the arousal that we experience could be interpreted as any emotion, provided we had the right label for it. Thus, they hypothesized that if an individual is experiencing arousal for which there is no immediate explanation, that individual will "label" this state in terms of the cognitions that are created in their environment. On the other hand, they argued that people who already have a clear label for their arousal would have no need to search for a relevant label and, therefore, should not experience an emotion.

In the research, male participants were told that they would be participating in a study on the effects of a new drug, called "suproxin," on vision. On the basis of this cover story, the men were injected with a shot of the neurotransmitter epinephrine, a drug that normally creates feelings of tremors, flushing, and accelerated breathing in people. The idea was to give all the participants the experience of arousal.

Then, according to random assignment to conditions, the men were told that the drug would make them feel certain ways. The men in the epinephrine-informed condition were told the truth about the effects of the drug — that they would likely experience tremors, their hands would start to shake, their hearts would start to pound, and their faces might get warm and flushed. The participants in the epinephrine-uninformed condition, however, were told something untrue — that their feet would feel numb, they would have an itching sensation over parts of their body, and they might get a slight headache. The idea was to make some of the men think that the arousal they were experiencing was caused by the drug, like those in the informed condition, whereas others would be unsure where the arousal came from, like those in the uninformed condition.

Next, the men were left alone with a confederate who they thought had received the same injection. While they were waiting for the experiment to begin, which was supposedly about vision, the confederate behaved in a wild and crazy manner that Schachter and Singer called a "euphoric" manner. This confederate wadded up spitballs, flew paper airplanes, and played with a hula-hoop. He kept trying to get the participant to join in with his games. Then, right before the vision experiment was to begin, the participants were asked to indicate their current emotional states on a number of scales. One of the emotions they were asked about was euphoria.

If you are following the story, you will realize what was expected. The men who had a label for their arousal (i.e., the informed group) would not be experiencing much emotion because they already had a label available for their arousal. On the other hand, the men without a label for their arousal (i.e., the misinformed group), were expected to be unsure about the source of the arousal. They needed to find an explanation for their arousal, and the confederate provided one. This is just what they found (see the left side of Figure 11.6). The participants in the misinformed condition were more likely to experience euphoria, as measured by their behavioural responses with the confederate, than were those in the informed condition.

Schachter and Singer went on to conduct another part of the study, using new participants. Everything was exactly the same except for the behaviour of the confederate. Rather than being euphoric, he acted angry. He complained about having to complete the questionnaire he had been asked to do, indicating that the questions were stupid and too personal. He ended up tearing up the questionnaire that he was working on, yelling, "I don't have to tell them that!" Then, he grabbed his books and stormed out of the room.

What do you think happened in this condition? The answer is the same thing: the misinformed participants experienced more anger, again as measured by the participant's behaviours during the waiting period, than did the informed participants (see the right side of Figure 11.6). The idea is that because cognitions are such strong determinants of emotional states, the same state of physiological arousal could be labelled in many different ways, depending entirely on the label provided by the social situation. As Schachter and Singer put it: "Given a

state of physiological arousal for which an individual has no immediate explanation, he will 'label' this state and describe his feelings in terms of the cognitions available to him" (Schachter & Singer, 1962, p. 381).

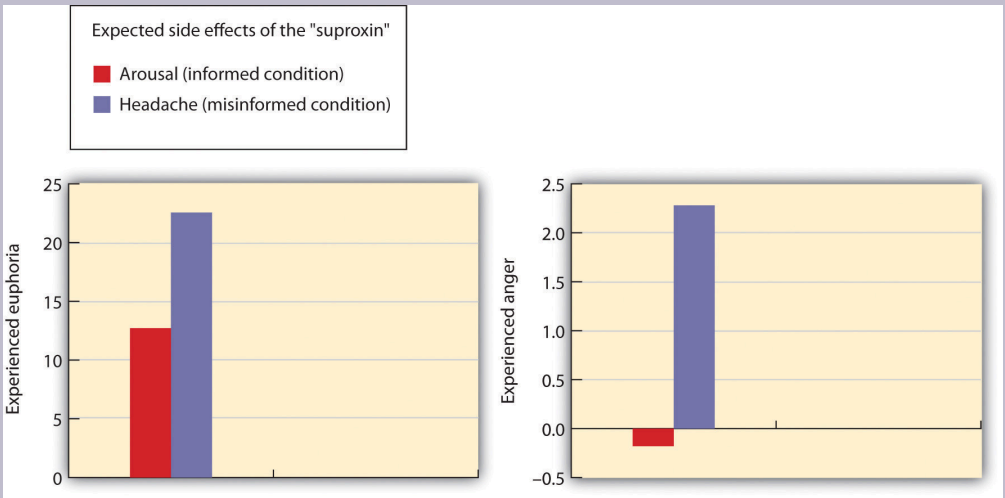


Figure 11.6. Results of the study by Schachter and Singer (1962) support the two-factor theory of emotion. The participants who did not have a clear label for their arousal took on the emotion of the confederate.

Because it assumes that arousal is constant across emotions, the two-factor theory also predicts that emotions may transfer or spill over from one highly arousing event to another. My university basketball team recently won a basketball championship, but after the final victory some students rioted in the streets near the campus, lighting fires and burning cars. This seems to be a very strange reaction to such a positive outcome for the university and the students, but it can be explained through the spillover of the arousal caused by happiness to destructive behaviours. The principle of **excitation transfer** refers to the phenomenon that occurs when people who are already experiencing arousal from one event tend to also experience unrelated emotions more strongly.

In sum, each of the three theories of emotion has something to support it. In terms of Cannon-Bard, emotions and arousal generally are subjectively experienced together, and the spread is very fast. In support of the James-Lange theory, there is at least some evidence that arousal is necessary for the experience of emotion, and that the patterns of arousal are different for different emotions. In line with the two-factor model, there is also evidence that we may interpret the same patterns of arousal differently in different situations.

Communicating emotion

In addition to experiencing emotions internally, we also express our emotions to others, and we learn about the emotions of others by observing them. This communication process has evolved over time and is highly adaptive. One way that we perceive the emotions of others is through their **nonverbal communication** — that is, communication, primarily of liking or disliking, that does not involve words (Ambady & Weisbuch, 2010; Andersen, 2007). Nonverbal

communication includes our tone of voice, gait, posture, touch, and facial expressions, and we can often accurately detect the emotions that other people are experiencing through these channels. The table below shows some of the important nonverbal behaviours that we use to express emotion and some other information, particularly liking or disliking and dominance or submission.

Table 11.1. Some common nonverbal communicators (Schachter & Singer, 1962)

Nonverbal Cue	Description	Examples
Proxemics	Rules about the appropriate use of personal space	Standing nearer to someone can express liking or dominance.
Body appearance	Expressions based on alterations to our body	Body building, breast augmentation, weight loss, piercings, and tattoos are often used to appear more attractive to others.
Body positioning and movement	Expressions based on how our body appears	A more open body position can denote liking; a faster walking speed can communicate dominance.
Gestures	Behaviours and signs made with our hands or faces	A "thumbs up" communicates liking; the "finger" communicates disrespect.
Facial expressions	The variety of emotions that we express, or attempt to hide, through our face	Smiling or frowning and staring or avoiding looking at the other can express liking or disliking, as well as dominance or submission.
Paralanguage	Clues to identity or emotions contained in our voices	Pronunciation, accents, and dialect can be used to communicate identity and liking.

Just as there is no universal spoken language, there is no universal nonverbal language. For instance, in Canada we express disrespect by showing the middle finger, also known as giving the finger or the bird; however, in Britain, Ireland, Australia, and New Zealand, the V sign — made with back of the hand facing the recipient — serves a similar purpose. In countries where Spanish, Portuguese, or French are spoken, a gesture in which a fist is raised and the arm is slapped on the bicep is equivalent to the finger, and in Russia, Indonesia, Turkey, and China, a sign in which the hand and fingers are curled and the thumb is thrust between the middle and index fingers is used for the same purpose of disrespect.

The most important communicator of emotion is the face. The face contains 43 different muscles that allow it to make more than 10,000 unique configurations and to express a wide variety of emotions. For example, happiness is expressed by smiles, which are created by two of the major muscles surrounding the mouth and the eyes, and anger is created by lowered brows and firmly pressed lips.

In addition to helping us express our emotions, the face also helps us feel emotion. The **facial feedback hypothesis** proposes that the movement of our facial muscles can trigger corresponding emotions. Fritz Strack, Leonard Martin, and Sabine Stepper (1988) asked their research participants to hold a pen in their teeth, mimicking the facial action of a smile, or between their lips, similar to a frown, and then had them rate the funniness of a cartoon. They found that the cartoons were rated as more amusing when the pen was held in the smiling position; the subjective experience of emotion was intensified by the action of the facial muscles.

These results, and others like them, show that our behaviours, including our facial expressions, both influence and are influenced by our affect. We may smile because we are happy, but we are also happy because we are smiling; we may stand up straight because we are proud, but we are proud because we are standing up straight (Stepper & Strack, 1993).

Key Takeaways

- Emotions are the normally adaptive mental and physiological feeling states that direct our attention and guide our behaviour.
- Emotional states are accompanied by arousal in which our experiences of the bodily responses are created by the sympathetic division of the autonomic nervous system.
- Motivations are forces that guide behaviour. They can be biological, such as hunger and thirst, personal, such as the motivation for achievement, or social, such as the motivation for acceptance and belonging.
- The most fundamental emotions, known as the basic emotions, are those of anger, disgust, fear, happiness, sadness, and surprise.
- Cognitive appraisal also allows us to experience a variety of secondary emotions.
- According to the Cannon-Bard theory of emotion, the experience of an emotion is accompanied by physiological arousal.
- According to the James-Lange theory of emotion, our experience of an emotion is the result of the arousal that we experience.
- According to the two-factor theory of emotion, the experience of emotion is determined by the intensity of the arousal we are experiencing and the cognitive appraisal of the situation determines what the emotion will be.
- When people incorrectly label the source of the arousal that they are experiencing, we say that they have misattributed their arousal.
- We express our emotions to others through nonverbal behaviours, and we learn about the emotions of others by observing them.

Exercises and Critical Thinking

1. Consider the three theories of emotion that we have discussed, and provide an example of a situation in which a person might experience each of the three proposed patterns of arousal and emotion.
2. Describe a time when you used nonverbal behaviours to express your emotions or to detect the emotions of others. What specific nonverbal techniques did you use to communicate?

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Long Descriptions

Figure 11.2. The secondary emotions:

Level of Arousal	Unpleasant	Pleasant
Mild	• Miserable • Sad • Depressed • Gloomy • Bored • Droopy	• Content • Satisfied • At ease • Serene • Calm • Relaxed • Sleepy • Tired
Intense	• Alarmed • Afraid • Angry • Intense • Annoyed • Frustrated • Distressed	• Astonished • Excited • Amused • Happy • Delighted • Glad Pleased

[Return to Figure 11.2]

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11.2 Theories of Motivation

Learning Objectives

1. Define intrinsic and extrinsic motivation.
2. Understand that instincts, drive reduction, self-efficacy, and social motives have all been proposed as theories of motivation.
3. Explain the basic concepts associated with Maslow's hierarchy of needs.

Why do we do the things we do? What motivations underlie our behaviours? Motivation describes the wants or needs that direct behaviour toward a goal or away from an unpleasant experience. In addition to biological motives, motivations can be **intrinsic** — arising from internal factors — or **extrinsic** — arising from external factors (see Figure 11.7). Intrinsically motivated behaviours are performed because of the sense of personal satisfaction that they bring, while extrinsically motivated behaviours are performed in order to receive something from others.

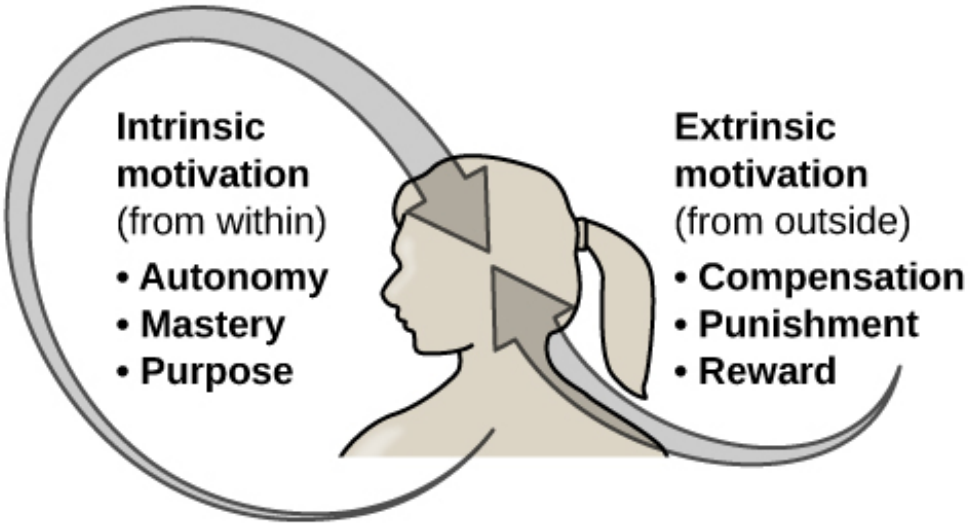


Figure 11.7. Intrinsic motivation comes from within the individual, while extrinsic motivation comes from outside the individual.

Think about why you are currently in college or university. Are you here because you enjoy learning and want to pursue an education to make yourself a more well-rounded individual? If so, then you are intrinsically motivated. However, if

you are here because you want to get a college degree to make yourself more marketable for a high-paying career or to satisfy the demands of your parents, then your motivation is more extrinsic in nature.

In reality, our motivations are often a mix of both intrinsic and extrinsic factors, but the nature of the mix of these factors might change over time, often in ways that seem counter-intuitive. There is an old adage: "Choose a job that you love, and you will never have to work a day in your life," meaning that if you enjoy your occupation, work doesn't seem like . . . well, work. Some research suggests that this isn't necessarily the case (Daniel & Esser, 1980; Deci, 1972; Deci, Koestner, & Ryan, 1999). According to this research, receiving some sort of extrinsic reinforcement (e.g., getting paid) for engaging in behaviours that we enjoy leads to those behaviours being thought of as work no longer providing that same enjoyment. As a result, we might spend less time engaging in these reclassified behaviours in the absence of any extrinsic reinforcement. For example, Odessa loves baking, so in her free time, she bakes for fun. Oftentimes, after stocking shelves at her grocery store job, she often whips up pastries in the evenings because she enjoys baking. When a coworker in the store's bakery department leaves his job, Odessa applies for his position and gets transferred to the bakery department. Although she enjoys what she does in her new job, after a few months, she no longer has much desire to concoct tasty treats in her free time. Baking has become work in a way that changes her motivation to do it (see Figure 11.8). What Odessa has experienced is called the **overjustification effect**, which means intrinsic motivation is diminished when extrinsic motivation is given. This can lead to extinguishing the intrinsic motivation and creating a dependence on extrinsic rewards for continued performance (Deci et al., 1999).



Figure 11.8. Research suggests that when something we love to do, like icing cakes, becomes our job, our intrinsic and extrinsic motivations to do it may change.

Other studies suggest that intrinsic motivation may not be so vulnerable to the effects of extrinsic reinforcements, and in fact, reinforcements such as verbal praise might actually increase intrinsic motivation (Arnold, 1976; Cameron & Pierce, 1994). In that case, Odessa's motivation to bake in her free time might remain high if, for example, customers regularly compliment her baking or cake-decorating skill.

These apparent discrepancies in the researchers' findings may be understood by considering several factors. For one, physical reinforcement (e.g., money) and verbal reinforcement (e.g., praise) may affect an individual in very different ways. In fact, tangible rewards (e.g., money) tend to have more negative effects on intrinsic motivation than do intangible rewards (e.g., praise). Furthermore, the expectation of the extrinsic motivator by an individual is crucial. If the person expects to receive an extrinsic reward, then intrinsic motivation for the task tends to be reduced. If, however, there is no such expectation, and the extrinsic motivation is presented as a surprise, then intrinsic motivation for the task tends to persist (Deci et al., 1999).

In educational settings, students are more likely to experience intrinsic motivation to learn when they feel a sense of belonging and respect in the classroom. This internalization can be enhanced if the evaluative aspects of the classroom are de-emphasized and if students feel that they exercise some control over the learning environment. Furthermore, providing students with activities that are challenging, yet doable, along with a rationale for engaging in various learning activities can enhance intrinsic motivation for those tasks (Niemiec & Ryan, 2009). Consider Hakim, a first-year law student with two courses this semester: Family Law and Criminal Law. The Family Law professor has a rather intimidating classroom and likes to put students on the spot with tough questions, which often leaves students feeling belittled or embarrassed; grades are based exclusively on quizzes and exams, and the instructor posts results of each test on the classroom door. In contrast, the Criminal Law professor facilitates classroom discussions and respectful debates in small groups; the majority of the course grade is not exam-based, but instead centres on a student-designed research project on a crime issue of the student's choice. Research suggests that Hakim will be less intrinsically motivated in his Family Law course, where students are intimidated in the classroom setting, and there is an emphasis on teacher-driven evaluations. Hakim is likely to experience a higher level of intrinsic motivation in his Criminal Law course, where the class setting encourages inclusive collaboration and a respect for ideas, and where students have more influence over their learning activities.

Theories about motivation

William James (1842–1910) was an important contributor to early research into motivation, and he is often referred to as the father of psychology in the United States. James theorized that behaviour was driven by a number of instincts, which aid survival (see Figure 11.9). From a biological perspective, an instinct is a species-specific pattern of behaviour that is not learned. There was, however, considerable controversy among James and his contemporaries over the exact definition of instinct. James proposed several dozen special human instincts, but many of his contemporaries had their own lists that differed. A mother's protection of her baby, the urge to lick sugar, and hunting prey were among the human behaviours proposed as true instincts during James's era. This view — that human behaviour is driven by instincts — received a fair amount of criticism because of the undeniable role of learning in shaping all sorts of human behaviour. In fact, as early as the 1900s, some instinctive behaviours were experimentally demonstrated to result from associative learning (Faris, 1921). Recall when you learned about Watson's conditioning of fear response in "Little Albert."



Figure 11.9. (a) William James proposed the instinct theory of motivation, asserting that behaviour is driven by instincts. (b) In humans, instincts may include behaviours such as an infant's rooting for a nipple and sucking.

Another early theory of motivation proposed that the maintenance of homeostasis is particularly important in directing behaviour. **Homeostasis** is the tendency to maintain a balance, or optimal level, within a biological system. In a body system, the control centre, which is often part of the brain, receives input from receptors, which are often complexes of neurons. The control centre directs effectors, which may be other neurons, to correct any imbalance detected by the control centre.

According to the **drive theory of motivation**, deviations from homeostasis create physiological needs. These needs result in psychological drive states that direct behaviour to meet the need and, ultimately, bring the system back to homeostasis. For example, if it's been a while since you ate, your blood sugar levels will drop below normal. This low blood sugar will induce a physiological need and a corresponding drive state (e.g., hunger) that will direct you to seek out and consume food (see Figure 11.10). Eating will eliminate the hunger, and, ultimately, your blood sugar levels will return to normal. Interestingly, drive theory also emphasizes the role that habits play in the type of behavioural response in which we engage. A habit is a pattern of behaviour in which we regularly engage. Once we have engaged in a behaviour that successfully reduces a drive, we are more likely to engage in that behaviour whenever faced with that drive in the future (Graham & Weiner, 1996).



Figure 11.10. Hunger and subsequent eating are the result of complex physiological processes that maintain homeostasis.

Extensions of drive theory take into account levels of arousal as potential motivators. As you recall from your study of learning, these theories assert that there is an **optimal level of arousal** that we all try to maintain (see Figure 11.11). If we are under-aroused, we become bored and will seek out some sort of stimulation. On the other hand, if we are over-aroused, we will engage in behaviours to reduce our arousal (Berlyne, 1960). Most students have experienced this need to maintain optimal levels of arousal over the course of their academic career. Think about how much stress students experience toward the end of spring semester. They feel overwhelmed with seemingly endless exams, papers, and major assignments that must be completed on time. They probably yearn for the rest and relaxation that awaits them over the extended summer break. However, once they finish the semester, it does not take too long before they begin to feel bored. Generally, by the time the next semester is beginning in the fall, many students are quite happy to return to school. This is an example of how arousal theory works.

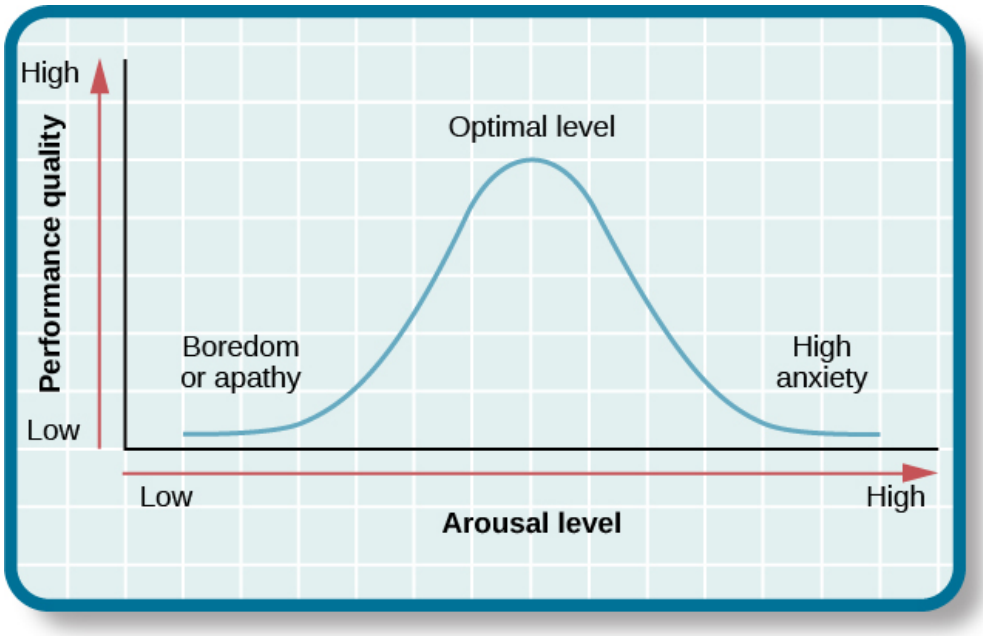


Figure 11.11. The concept of optimal arousal in relation to performance on a task is depicted here. Performance is maximized at the optimal level of arousal, and it tapers off during under- and over-arousal.

So, what is the optimal level of arousal? What level leads to the best performance? Research shows that moderate arousal is generally best; when arousal is very high or very low, performance tends to suffer (Yerkes & Dodson, 1908). Think of your arousal level regarding taking an exam for this class. If your level is very low, such as boredom and apathy, your performance will likely suffer. Similarly, a very high level, such as extreme anxiety, can be paralyzing and hinder performance. Consider the example of a softball team facing a tournament. They are favored to win their first game by a large margin, so they go into the game with a lower level of arousal and get beat by a less skilled team.

However, optimal arousal level is more complex than a simple answer that the middle level is always best. Researchers Robert Yerkes and John Dodson (1908) discovered that the optimal arousal level depends on the complexity and difficulty of the task to be performed (see Figure 11.12). This relationship is known as the **Yerkes-Dodson law**, which holds that a simple task is performed best when arousal levels are relatively high and complex tasks are best performed when arousal levels are lower.

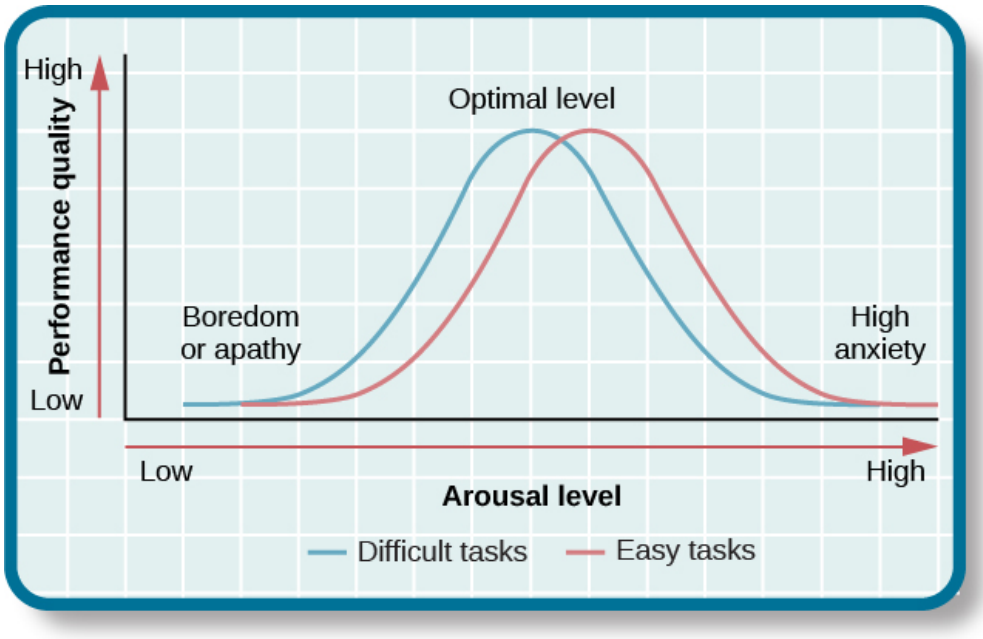


Figure 11.12. Task performance is best when arousal levels are in a middle range, with difficult tasks best performed under lower levels of arousal and simple tasks best performed under higher levels of arousal.

Self-efficacy and social motives

Self-efficacy is an individual's belief in their own capability to complete a task, which may include a previous successful completion of the exact task or a similar task. Albert Bandura (1994) theorized that an individual's sense of self-efficacy plays a pivotal role in motivating behaviour. Bandura argues that motivation derives from expectations that we have about the consequences of our behaviours, and ultimately, it is the appreciation of our capacity to engage in a given behaviour that will determine what we do and the future goals that we set for ourselves. For example, if you have a sincere belief in your ability to achieve at the highest level, you are more likely to take on challenging tasks and to not let setbacks dissuade you from seeing the task through to the end.

A number of theorists have focused their research on understanding social motives (McAdams & Constantian, 1983; McClelland & Liberman, 1949; Murray et al., 1938). Among the motives they describe are needs for achievement, affiliation, and intimacy. It is the need for achievement that drives accomplishment and performance. The need for affiliation encourages positive interactions with others, and the need for intimacy causes us to seek deep, meaningful relationships. Henry Murray and colleagues (Murray et al., 1938) categorized these needs into domains. For example, the need for achievement and recognition falls under the domain of ambition. Dominance and aggression were recognized as needs under the domain of human power, and play was a recognized need in the domain of interpersonal affection.

Maslow's hierarchy of needs

While the theories of motivation described earlier relate to basic biological drives, individual characteristics, or social contexts, Abraham Maslow (1943) proposed that needs are tiered, this became known as **Maslow's hierarchyof needs**, which spans the spectrum of motives ranging from the biological to the individual to the social. These needs are often depicted as a pyramid (see Figure 11.13).

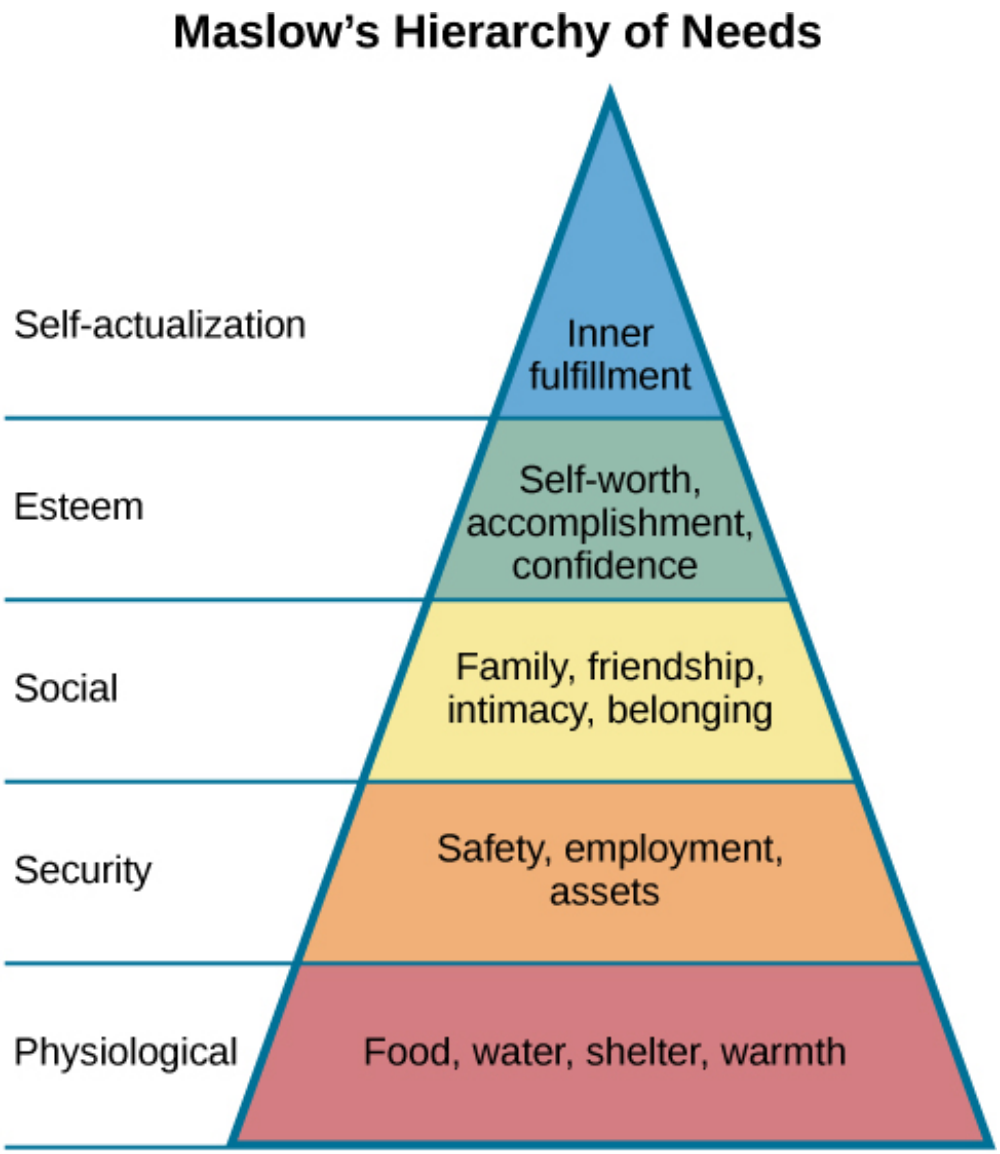


Figure 11.13. Maslow's hierarchy of needs is illustrated here. In some versions of the pyramid, cognitive and aesthetic needs are also included between esteem and self-actualization. Others include another tier at the top of the pyramid for self-transcendence.

At the base of the pyramid are all of the physiological needs that are necessary for survival. These are followed by basic needs for security and safety, the need to be loved and to have a sense of belonging, and the need to have self-worth and confidence. The top tier of the pyramid is self-actualization, which is a need that essentially equates to achieving one's full potential, and it can only be realized when needs lower on the pyramid have been met. To Maslow and humanistic theorists, self-actualization reflects the humanistic emphasis on positive aspects of human nature. Maslow suggested that this is an ongoing, life-long process and that only a small percentage of people actually achieve a self-actualized state (Francis & Kritsonis, 2006; Maslow, 1943).

According to Maslow (1943), one must satisfy lower-level needs before addressing those needs that occur higher in the pyramid. So, for example, if someone is struggling to find enough food to meet their nutritional requirements, it is quite unlikely that they would spend an inordinate amount of time thinking about whether others viewed them as a good person or not. Instead, all of their energies would be geared toward finding something to eat. However, it should be

pointed out that Maslow's theory has been criticized for its subjective nature and its inability to account for phenomena that occur in the real world (Leonard, 1982). Other research has more recently addressed that late in life. Maslow proposed a self-transcendence level above self-actualization to represent striving for meaning and purpose beyond the concerns of oneself (Koltko-Rivera, 2006). For example, people sometimes make self-sacrifices in order to make a political statement or in an attempt to improve the conditions of others. Mohandas Gandhi, a world-renowned advocate for independence through nonviolent protest, on several occasions went on hunger strikes to protest a particular situation. People may starve themselves or otherwise put themselves in danger displaying higher-level motives beyond their own needs.

Source: Adapted from Spielman et al. (2019).

Key Takeaways

- Motivation describes the wants or needs that direct behaviour toward a goal or away from an unpleasant experience.
- We are intrinsically motivated to pursue goals that make us feel good when we achieve them.
- We are extrinsically motivated to pursue goals with external rewards, like money or recognition.
- William James's instinct theory of motivation is problematic because it ignores the role of learning.
- The drive theory of motivation predicts that physiological needs result in psychological drive states that direct behaviour to meet the need and bring the system back to homeostasis.
- Physiological arousal is predicted to motivate behaviour. A moderate level of arousal is better for performance than under- or over-arousal, as shown in the Yerkes-Dodson law.
- Several theorists have focused on understanding social motives. The best example is Maslow's hierarchy of needs that includes a range of needs from physiological to social. Maslow argued that higher needs cannot be met while lower needs are unmet.
- The pinnacle of Maslow's hierarchy is self-actualization.

Exercises and Critical Thinking

1. Schools often use concrete rewards to increase adaptive behaviours. How might this be a disadvantage for students intrinsically motivated to learn? What are educational implications of the potential for concrete rewards to diminish intrinsic motivation for a given task?

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11.3 Motivation: Food and Sex

Learning Objectives

1. Identify the key properties of drive states.
2. Describe biological goals accomplished by drive states.
3. Give examples of drive states.
4. Outline the neurobiological basis of drive states such as hunger and arousal.
5. Discuss the main moderators and determinants of drive states such as hunger and arousal.
6. Describe obesity and eating disorders.
7. Explain the importance of Alfred Kinsey's research on human sexuality.
8. Explain the contributions that William Masters and Virginia Johnson's research made to our understanding of the sexual response cycle.

Drive states

Our thoughts and behaviours are strongly influenced by affective experiences known as drive states. These drive states motivate us to fulfill goals that are beneficial to our survival and reproduction. This section provides an overview of key drive states, including information about their neurobiology and their psychological effects.

What is the longest you have ever gone without eating? A couple of hours? An entire day? How did it feel? Humans rely critically on food for nutrition and energy, and the absence of food can create drastic changes, not only in physical appearance, but in thoughts and behaviours as well. If you have ever fasted for a day, you probably noticed how hunger can take over your mind, directing your attention to foods you could be eating (e.g., a cheesy slice of pizza or perhaps some sweet, cold ice cream), and motivating you to obtain and consume these foods. Once you have eaten and your hunger has been satisfied, your thoughts and behaviours return to normal.

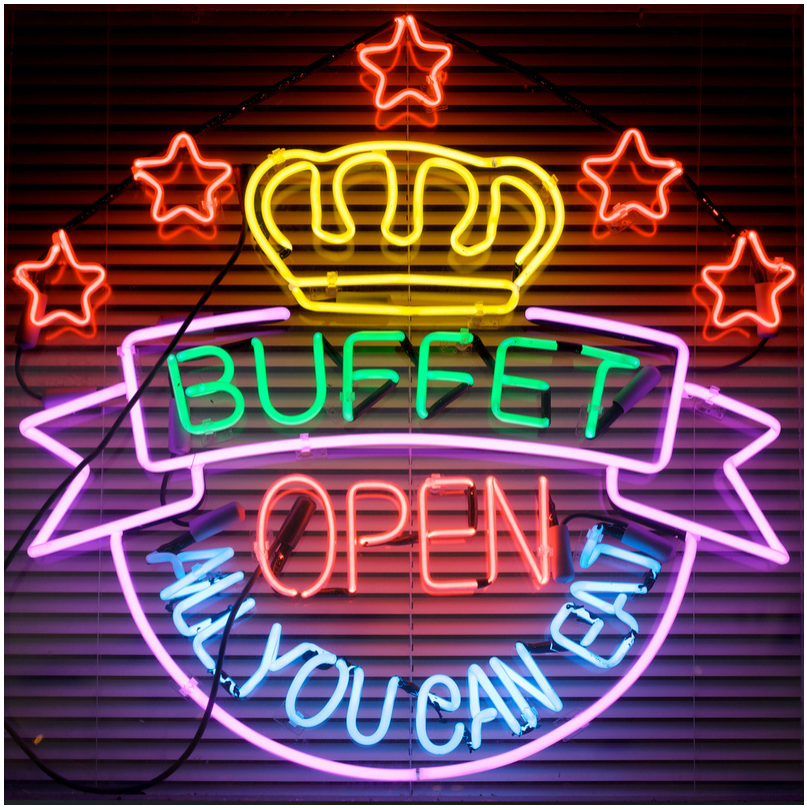


Figure 11.14. Hunger is among our most basic motivators.

Hunger is a **drive state**, an affective experience — meaning that it is something you feel, like the sensation of being tired or hungry — that motivates organisms to fulfill goals that are generally beneficial to their survival and reproduction. Like other drive states, such as thirst or sexual arousal, hunger has a profound impact on the functioning of the mind. It affects psychological processes, such as perception, attention, emotion, and motivation, and it influences the behaviours that these processes generate.

Key properties of drive states

Drive states differ from other affective or emotional states in terms of the biological functions they accomplish. Whereas all affective states possess valence (i.e., they are positive or negative) and serve to motivate approach or avoidance behaviours (Zajonc, 1998), drive states are unique in that they generate behaviours that result in specific benefits for the body. For example, hunger directs individuals to eat foods that increase blood sugar levels in the body, while thirst causes individuals to drink fluids that increase water levels in the body.

Different drive states have different triggers. Most drive states respond to both internal and external cues, but the combinations of internal and external cues, and the specific types of cues, differ between drives. Hunger, for example, depends on internal, visceral signals as well as sensory signals, such as the sight or smell of tasty food. Different drive states also result in different cognitive and emotional states; hence, they may be associated with different behaviours. Yet, despite these differences, there are a number of properties common to all drive states.

Homeostasis

Humans, like all organisms, need to maintain a stable state in their various physiological systems. For example, the excessive loss of body water results in dehydration, a dangerous and potentially fatal state. However, too much water can be damaging as well. Thus, a moderate and stable level of body fluid is ideal. The tendency of an organism to maintain this stability across all the different physiological systems in the body is called homeostasis.

Homeostasis is maintained via two key factors. First, the state of the system being regulated must be monitored and compared to an ideal level, or a **set point**. Second, there needs to be mechanisms for moving the system back to this set point — that is, to restore homeostasis when deviations from it are detected. To better understand this, think of the thermostat in your own home. It detects when the current temperature in the house is different than the temperature you have it set at (i.e., the set point). Once the thermostat recognizes the difference, the heating or air conditioning turns on to bring the overall temperature back to the designated level.

Many homeostatic mechanisms, such as blood circulation and immune responses, are automatic and unconscious. Others, however, involve deliberate action. Most drive states motivate action to restore homeostasis using both "punishments" and "rewards." Imagine that these homeostatic mechanisms are like protective parents. When you behave poorly by departing from the set point, such as not eating or being somewhere too cold, they raise their voice at you. You experience this as the bad feelings, or punishments, of hunger, thirst, or feeling too cold or too hot. However, when you behave well, such as eating nutritious foods when hungry, these homeostatic parents reward you with the pleasure that comes from any activity that moves the system back toward the set point. For example, when body temperature declines below the set point, any activity that helps to restore homeostasis, such as putting one's hand in warm water, feels pleasurable. Likewise, when body temperature rises above the set point, anything that cools it feels pleasurable.

The narrowing of attention

As drive states intensify, they direct attention toward elements, activities, and forms of consumption that satisfy the biological needs associated with the drive. Hunger, for example, draws attention toward food. Outcomes and objects that are not related to satisfying hunger lose their value (Easterbrook, 1959). For instance, has anyone ever invited you to do a fun activity while you were hungry? Likely your response was something like: "I'm not doing anything until I eat first." Indeed, at a sufficient level of intensity, individuals will sacrifice almost any quantity of goods that do not address the needs signaled by the drive state. For example, cocaine addicts, according to Frank Gawin (1991), "report that virtually all thoughts are focused on cocaine during binges; nourishment, sleep, money, loved ones, responsibility, and survival lose all significance" (p. 1581).

Drive states also produce a second form of attention-narrowing: a collapsing of time-perspective toward the present. That is, they make us impatient. While this form of attention-narrowing is particularly pronounced for the outcomes and behaviours directly related to the biological function being served by the drive state at issue (e.g., "I need food now"), it applies to general concerns for the future as well. Dan Ariely and George Loewenstein (2006), for example, investigated the impact of sexual arousal on the thoughts and behaviours of a sample of male undergraduates. These undergraduates were lent laptop computers that they took to their private residences, where they answered a series of questions, both in normal states and in states of high sexual arousal. Ariely and Loewenstein found that being sexually aroused made people extremely impatient for both sexual outcomes and for outcomes in other domains, such as those involving money. In another study, Louis Giordano and colleagues (Giordano et al., 2002) found that heroin addicts were more impatient with respect to heroin when they were craving it than when they were not. More surprisingly, they were also more impatient toward money (i.e., they valued delayed money less) when they were actively craving heroin.

Yet, a third form of attention-narrowing involves thoughts and outcomes related to the self versus others. Intense drive states tend to narrow one's focus inwardly and to undermine altruism, which is the desire to do good for others. People who are hungry, in pain, or craving drugs tend to be selfish. Indeed, popular interrogation methods involve depriving individuals of sleep, food, or water, so as to trigger intense drive states leading the subject of the interrogation to divulge information that may betray comrades, friends, and family (Biderman, 1960).

Two illustrative drive states

Thus far, we have considered drive states abstractly. We have discussed the ways in which they relate to other affective and motivational mechanisms, as well as their main biological purpose and general effects on thought and behaviour. Yet, despite serving the same broader goals, different drive states are often remarkably different in terms of their specific properties. To understand some of these specific properties, we will explore two different drive states that play very important roles in determining behaviour and in ensuring human survival: hunger and sexual arousal.

Hunger

Hunger is a classic example of a drive state, one that results in thoughts and behaviours related to the consumption of food. Hunger is generally triggered by low glucose levels in the blood (Rolls, 2000), and behaviours resulting from hunger aim to restore homeostasis regarding those glucose levels. Various other internal and external cues can also cause hunger. For example, when fats are broken down in the body for energy, this initiates a chemical cue that the body should search for food (Greenberg, Smith, & Gibbs, 1990). External cues include the time of day, estimated time until the next feeding (e.g., hunger increases immediately prior to food consumption), and the sight, smell, taste, and even touch of food and food-related stimuli. Note that while hunger is a generic feeling, it has nuances that can provoke the eating of specific foods that correct for nutritional imbalances we may not even be conscious of. For example, a couple who was lost adrift at sea found they inexplicably began to crave the eyes of fish. Only later, after they had been rescued, did they learn that fish eyes are rich in vitamin C, a very important nutrient that they had been depleted of while lost in the ocean (Walker, 2014).



Figure 11.15. External cues, like the sight and smell of food, can ignite feelings of hunger.

The **hypothalamus**, located in the lower central part of the brain, plays a very important role in eating behaviour. It is responsible for synthesizing and secreting various hormones. The lateral hypothalamus (LH) is concerned largely with hunger. In fact, lesions (i.e., damage) of the LH can eliminate the desire for eating entirely — to the point that animals starve themselves to death unless kept alive by force-feeding (Anand & Brobeck, 1951). Additionally, artificially stimulating the LH, using electrical currents, can generate eating behaviour if food is available (Andersson, 1951).

Activation of the LH can not only increase the desirability of food but can also reduce the desirability of nonfood-related items. For example, Miguel Brendl, Arthur Markman, and Claude Messner (2003) found that participants who were given a handful of popcorn to trigger hunger not only had higher ratings of food products, but also had lower ratings of nonfood products compared with participants whose appetites were not similarly primed. That is, because eating had become more important, other non-food products lost some of their value.

Hunger is only part of the story of when and why we eat. A related process, **satiation**, refers to the decline of hunger and the eventual termination of eating behaviour. Whereas the feeling of hunger gets you to start eating, the feeling of satiation gets you to stop. Perhaps surprisingly, hunger and satiation are two distinct processes, controlled by different circuits in the brain and triggered by different cues. Distinct from the LH, which plays an important role in hunger, the ventromedial hypothalamus (VMH) plays an important role in satiety. Though lesions of the VMH can cause an animal to overeat to the point of obesity, the relationship between the LH and the VMH is quite complicated. Rats with VMH lesions can also be quite finicky about their food (Teitelbaum, 1955).

Other brain areas, besides the LH and VMH, also play important roles in eating behaviour. For example, the sensory cortices — visual, olfactory, and taste — are important in identifying food items. These areas provide informational value, however, not hedonic evaluations. That is, these areas help tell a person what is good or safe to eat, but they do not provide the pleasure (i.e., hedonic) sensations that actually eating the food produces. While many sensory functions are roughly stable across different psychological states, other functions, such as the detection of food-related stimuli, are enhanced when the organism is in a hungry drive state.

After identifying a food item, the brain also needs to determine its **reward value**, which affects the organism's motivation

to consume the food. The reward value ascribed to a particular item is, not surprisingly, sensitive to the level of hunger experienced by the organism. The hungrier you are, the greater the reward value of the food. Neurons in the areas where reward values are processed, such as the orbitofrontal cortex, fire more rapidly at the sight or taste of food when the organism is hungry relative to if it is satiated.

How we eat is also influenced by our environment. When researchers rigged clocks to move faster, people got hungrier and ate more, as if they thought they must be hungry again because so much time had passed since they last ate (Schachter, 1968). Additionally, if we forget that we have already eaten, we are likely to eat again, even if we are not actually hungry (Rozin, Dow, Moscovitch, & Rajaram, 1998).

Cultural norms about appropriate weights also influence eating behaviours. Current norms for women in Western societies are based on a very thin body ideal, emphasized by television and movie actresses, models, and even children's dolls, such as the ever-popular Barbie. These norms for excessive thinness are very difficult for most women to attain. For example, Barbie's measurements, if translated to human proportions, would be about 91 cm bust/46 cm waist/84 cm hips, measurements that are attained by less than one in 100,000 women (Norton, Olds, Olive, & Dank, 1996). Many women idealize being thin, yet they are unable to reach the standard that they prefer.

Obesity

According to Statistics Canada (2019a), about 60% of Canadians over age 18 are overweight or obese as measured by **body mass index** (BMI), a measurement that compares one's weight and height. If you know your height and weight, you can compute your BMI; refer to "Calculate Your Body Mass Index" (n.d.) by the National Heart, Lung, and Blood Institute. A BMI of 18.5 to 24.9 is considered healthy, while between 25 and 29.9 is overweight, and 30 or over is considered obese. Health risks rise with increased BMI. In addition to causing people to be stereotyped and treated less positively by others (Crandall, Merman, & Hebl, 2009), obesity leads to health problems including cardiovascular disease, diabetes, sleep apnea, arthritis, Alzheimer's disease, and some types of cancer (Gustafson, Rothenberg, Blennow, Steen, & Skoog, 2003). Obesity also reduces life expectancy (Haslam & James, 2005). Obesity is a leading cause of death worldwide and is one of the most serious public health problems of the 21st century.

Although obesity is caused in part by genetics, it is increased by overeating and a lack of physical activity (James, 2008; Nestle & Jacobson, 2000). There are really only two approaches to controlling weight: eat less and exercise more. Dieting is difficult for anyone, but it is particularly difficult for people with slow basal metabolic rates who must cope with severe hunger to lose weight. Although most weight loss can be maintained for about a year, very few people are able to maintain substantial weight loss through dieting alone for more than three years (Miller, 1999). Substantial weight loss of more than 50 pounds is typically seen only when weight loss surgery has been performed (Douketis, Macie, Thabane, & Williamson, 2005). Weight loss surgery reduces stomach volume or bowel length, leading to earlier satiation and reduced ability to absorb nutrients from food.

Although dieting alone does not produce a great deal of weight loss over time, its effects are substantially improved when it is accompanied by more physical activity. People who exercise regularly, and particularly those who combine exercise with dieting, are less likely to be obese (Borer, 2008). Exercise not only improves our waistline but also makes us healthier overall. Exercise increases cardiovascular capacity, lowers blood pressure, and helps improve diabetes, joint flexibility, and muscle strength (American Heart Association, 1998). Exercise also slows the cognitive impairments that are associated with aging (Kramer, Erickson, & Colcombe, 2006).

Because the costs of exercise are immediate but the benefits are long-term, it may be difficult for people who do not exercise to get started. It is important to make a regular schedule, to work exercise into one's daily activities, and to view exercise not as a cost but as an opportunity to improve oneself (Schomer & Drake, 2001). Exercising is more fun when it

is done in groups, so team exercise is recommended (Kirchhoff, Elliott, Schlichting, & Chin, 2008). Exercise is important throughout life but may be easier to maintain if it is a habit acquired during childhood. Unfortunately, physical activity tends to decrease with age, especially for girls who already exercise less than boys, and only one-third of Canadian children meet the recommended one hour of physical activity per day. (Statistics Canada, 2017).

Canadian Society for Exercise Physiology (2019) recommend that adults accumulate at least 150 minutes of moderate-to-vigorous physical activity a week to obtain substantial health benefits. The guidelines also suggest five- to 17-year-olds should accumulate at least 60 minutes of moderate-to-vigorous physical activity daily. Statistics Canada (2019b) reports that just over half of Canadians self-report that they meet this standard, although this is not the most reliable reporting method. Almost half of the people who start an exercise regimen give it up by the six-month mark (American Heart Association, 1998; Colley, Garriguet, Janssen, Craig, Clarke, & Tremblay, 2011).

It is clear that people eat more than is necessary, but there are complex reasons relating to age, activity level, food availability, culture and so on. The psychology of eating requires us to look beyond eating due to hunger and examine interactions with some of these other factors.

Eating disorders

While the majority of Canadian adults are overweight, a smaller, but significant, portion of the population has eating disorders associated with being normal weight or underweight. Often, these individuals are fearful of gaining weight. Individuals who suffer from bulimia nervosa and anorexia nervosa face many adverse health consequences (Mayo Clinic, 2012a, 2012b).

People suffering from **bulimia nervosa** engage in binge eating behaviour that is followed by purging. Purging the food involves inducing vomiting or the use of laxatives. Some affected individuals engage in excessive amounts of exercise to compensate for their binges. Bulimia is associated with many adverse health consequences that can include dehydration, kidney failure, heart failure, and tooth decay. In addition, these individuals often suffer from anxiety and depression, and they are at an increased risk for substance abuse (Mayo Clinic, 2012b). The lifetime prevalence rate for bulimia nervosa is estimated at around 1% for women and less than 0.5% for men (Smink, van Hoeken, & Hoek, 2012).

Binge eating disorder is a disorder recognized by the American Psychiatric Association (APA). Unlike with bulimia, as eating binges are not followed by inappropriate behaviour, such as purging, but they are followed by distress, including feelings of guilt, depression, and embarrassment. The resulting psychological distress distinguishes binge eating disorder from overeating (American Psychiatric Association, 2013).

Anorexia nervosa is an eating disorder characterized by the maintenance of a body weight well below average through starvation and possibly excessive exercise. Individuals suffering from anorexia nervosa often have a distorted body image, also known as body dysmorphia, meaning that they view themselves as overweight even though they are not. Like bulimia nervosa, anorexia nervosa is associated with a number of significant negative health outcomes: heart and kidney problems, low blood iron, bone loss, digestive problems, low heart rate, low blood pressure, fertility problems in women, and up to a 10% mortality rate (Canadian Mental Health Association, n.d.). Furthermore, there is an increased risk for a number of psychological problems, which include anxiety disorders, mood disorders, and substance abuse (Mayo Clinic, 2012a). Estimates of the prevalence of anorexia nervosa vary from study to study but generally range from just under 1% to just over 4% in women. Generally, prevalence rates are considerably lower for men (Smink et al., 2012).

While both anorexia and bulimia nervosa occur in men and women of many different cultures, Caucasian females from Western societies tend to be the most at-risk population. Recent research indicates that females between the ages of 15 and 19 are most at risk (see Figure 11.16), and it has long been suspected that these eating disorders are culturally-bound

phenomena that are related to messages of a thin ideal often portrayed in popular media and the fashion world (Smink et al., 2012). While social factors play an important role in the development of eating disorders, there is also evidence that genetic factors may predispose people to these disorders (Collier & Treasure, 2004).



Figure 11.16. Young women in our society are inundated with images of extremely thin models, sometimes accurately depicted and sometimes digitally altered to make them look even thinner. These images may contribute to eating disorders.

Sexual arousal

A second drive state, especially critical to reproduction, is sexual arousal. Sexual arousal results in thoughts and behaviours related to sexual activity. As with hunger, it is generated by a large range of internal and external mechanisms that are triggered either after the extended absence of sexual activity or by the immediate presence and possibility of sexual activity shown by cues commonly associated with such possibilities. Unlike hunger, however, these mechanisms

can differ substantially between males and females, indicating important evolutionary differences in the biological functions that sexual arousal serves for different sexes.



Figure 11.17. Unlike other drive states, the mechanisms that trigger sexual arousal are not the same for men and women.

Physiological mechanisms of sexual behaviour and motivation

Much of what we know about the physiological mechanisms that underlie sexual behaviour and motivation comes from animal research. As you have learned, the hypothalamus plays an important role in motivated behaviours, and sex is no exception. In fact, lesions to an area of the hypothalamus, called the medial preoptic area, completely disrupt a male rat's ability to engage in sexual behaviour. Surprisingly, medial preoptic lesions do not change how hard a male rat is willing to work to gain access to a sexually receptive female (see Figure 11.18). This suggests that the ability to engage in sexual behaviour, and the motivation to do so, may be mediated by neural systems distinct from one another.

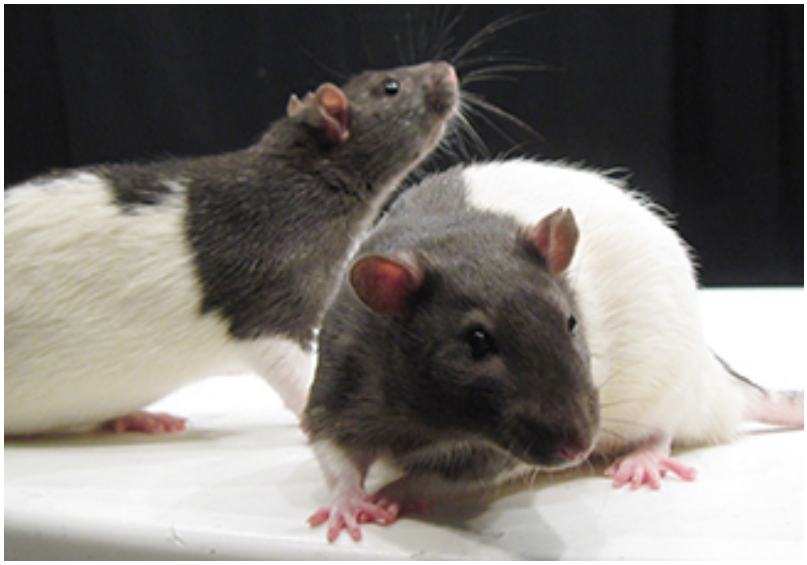


Figure 11.18. A male rat that cannot engage in sexual behaviour still seeks receptive females, suggesting that the ability to engage in sexual behaviour and the motivation to do so are mediated by different systems in the brain.

Animal research suggests that limbic system structures such as the amygdala and nucleus accumbens are especially important for sexual motivation (see Figure 11.19). Damage to these areas results in a decreased motivation to engage in sexual behaviour, while leaving the ability to do so intact (Everett, 1990). Similar dissociations of sexual motivation and sexual ability have also been observed in the female rat (Becker, Rudick, & Jenkins, 2001; Jenkins & Becker, 2001).

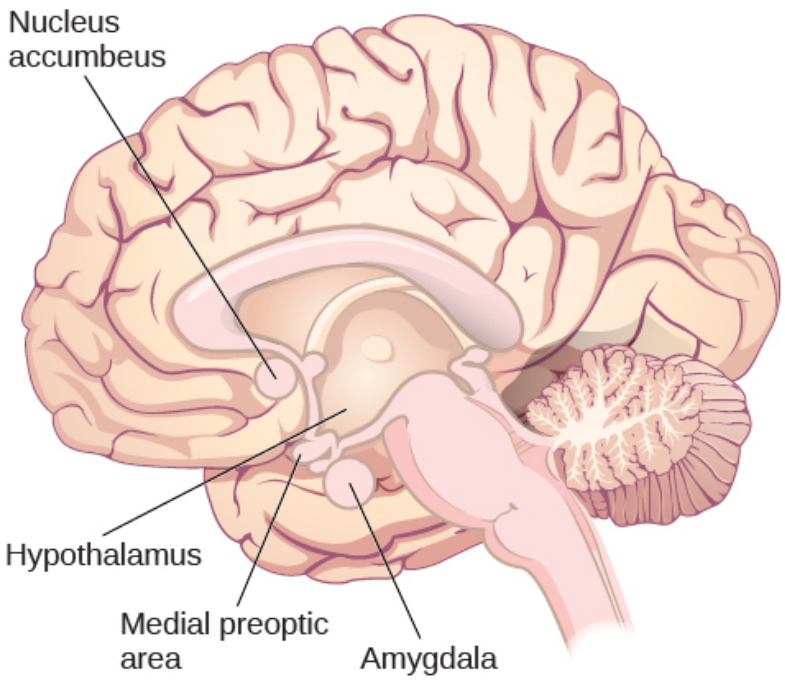


Figure 11.19. The medial preoptic area, an area of the hypothalamus, is involved in the ability to engage in sexual behaviour, but it does not affect sexual motivation. In contrast, the amygdala and nucleus accumbens are involved in motivation for sexual behaviour, but they do not affect the ability to engage in it.

Although human sexual behaviour is much more complex than that seen in rats, some parallels between animals and humans can be drawn from this research. The worldwide popularity of drugs used to treat erectile dysfunction (Conrad, 2005) speaks to the fact that sexual motivation and the ability to engage in sexual behaviour can also be dissociated in humans. Moreover, disorders that involve abnormal hypothalamic function are often associated with hypogonadism, which is characterized by the reduced function of the gonads, and reduced sexual function (e.g., Prader-Willi syndrome). Given the hypothalamus's role in endocrine function, it is not surprising that hormones secreted by the endocrine system also play important roles in sexual motivation and behaviour. For example, many animals show no sign of sexual motivation in the absence of the appropriate combination of sex hormones from their gonads. While this is not the case for humans, there is considerable evidence that sexual motivation for both men and women varies as a function of circulating testosterone levels (Bhasin, Enzlin, Coviello, & Basson, 2007; Carter, 1992; Sherwin, 1988).

The sexual response cycle and sexual desire are regulated by the sex hormones estrogen in women and testosterone in both women and in men. Although the hormones are secreted by the ovaries and testes, it is the hypothalamus and the pituitary glands that control the process. Estrogen levels in women vary across the menstrual cycle, peaking during ovulation (Pillsworth, Haselton, & Buss, 2004). Women are more interested in having sex during ovulation but can experience high levels of sexual arousal throughout the menstrual cycle.

In men, testosterone is essential to maintain sexual desire and to sustain an erection, and testosterone injections can increase sexual interest and performance (Aversa et al., 2000; Jockenhövel et al., 2009). Testosterone is also important in the female sex cycle. Women who are experiencing menopause may develop a loss of interest in sex, but this interest may be rekindled through estrogen and testosterone replacement treatments (Meston & Frohlich, 2000).

Although their biological determinants and experiences of sex are similar, men and women differ substantially in their overall interest in sex, the frequency of their sexual activities, and the mates they are most interested in. Men show a

more consistent interest in sex, whereas the sexual desires of women are more likely to vary over time (Baumeister, 2000). Men fantasize about sex more often than women, and their fantasies are more physical and less intimate (Leitenberg & Henning, 1995). Men are also more willing to have casual sex than are women, and their standards for sex partners is lower (Petersen & Hyde, 2010; Saad, Eba, & Sejean, 2009).

Gender differences in sexual interest probably occur in part as a result of the evolutionary predispositions of men and women, and this interpretation is bolstered by the finding that gender differences in sexual interest are observed cross-culturally (Buss, 1989). Evolutionarily, women should be more selective than men in their choices of sex partners because they must invest more time in bearing and nurturing their children than men do. Most men do help out, of course, but women simply do more (Buss & Kenrick, 1998). Because they do not need to invest a lot of time in child rearing, men may be evolutionarily predisposed to be more willing and desiring of having sex with many different partners and may be less selective in their choice of mates. Women, on the other hand, because they must invest substantial effort in raising each child, should be more selective.

Kinsey's research

Before the late 1940s, access to reliable, empirically-based information on sex was limited. Physicians were considered authorities on all issues related to sex, despite the fact that they had little to no training in these issues, and it is likely that most of what people knew about sex had been learned either through their own experiences or by talking with their peers. Convinced that people would benefit from a more open dialogue on issues related to human sexuality, Dr. Alfred Kinsey of Indiana University initiated large-scale survey research on the topic (see Figure 11.20). The results of some of these efforts were published in two books — *Sexual Behavior in the Human Male* and *Sexual Behavior in the Human Female* — which were published in 1948 and 1953, respectively (Bullough, 1998).



Figure 11.20. In 1947, Alfred Kinsey established The Kinsey Institute for Research, Sex, Gender and Reproduction at Indiana University, shown here in 2011, which has continued as a research site of important psychological studies for decades.

At the time, the Kinsey reports were quite sensational. Never before had the American public seen its private sexual behaviour become the focus of scientific scrutiny on such a large scale. The books, which were filled with statistics and scientific lingo, sold remarkably well to the general public, and people began to engage in open conversations about human sexuality. As you might imagine, not everyone was happy that this information was being published. In fact, these books were banned in some countries. Ultimately, the controversy resulted in Kinsey losing funding that he had secured from the Rockefeller Foundation to continue his research efforts (Bancroft, 2004).

Although Kinsey's research has been widely criticized as being riddled with sampling and statistical errors (Jenkins, 2010), there is little doubt that this research was very influential in shaping future research on human sexual behaviour and motivation. Kinsey described a remarkably diverse range of sexual behaviours and experiences reported by the volunteers participating in his research. Behaviours that had once been considered exceedingly rare or problematic were demonstrated to be much more common and innocuous than previously imagined (Bancroft, 2004; Bullough, 1998).

The following YouTube link is the trailer from the 2004 film *Kinsey* that depicts Alfred Kinsey's life and research:

- Video: *Kinsey (2004) – Movie Trailer* (ciwciwdotcom, 2009)

Among the results of Kinsey's research were the findings that women are as interested and experienced in sex as their male counterparts, that both males and females masturbate without adverse health consequences, and that homosexual acts are fairly common (Bancroft, 2004). Kinsey also developed a continuum known as the Kinsey scale that is still commonly used today to categorize an individual's sexual orientation (Jenkins, 2010). **Sexual orientation** is an individual's emotional and erotic attractions to same-sexed individuals (i.e., homosexual), opposite-sexed individuals (i.e., heterosexual), or both (i.e., bisexual).

Masters and Johnson's research

In 1966, William Masters and Virginia Johnson published a book detailing the results of their observations of nearly 700 people who agreed to participate in their study of physiological responses during sexual behaviour. Unlike Kinsey, who used personal interviews and surveys to collect data, Masters and Johnson (1966) observed people having intercourse in a variety of positions, and they observed people masturbating, manually or with the aid of a device. While this was occurring, researchers recorded measurements of physiological variables, such as blood pressure and respiration rate, as well as measurements of sexual arousal, such as vaginal lubrication and penile tumescence, which is the swelling associated with an erection. In total, Masters and Johnson observed nearly 10,000 sexual acts as a part of their research (Hock, 2008).

Based on these observations, Masters and Johnson (1966) divided the sexual response cycle into four phases that are fairly similar in men and women: excitement, plateau, orgasm, and resolution (see Figure 11.21). The excitement phase is the arousal phase of the sexual response cycle, and it is marked by erection of the penis or clitoris and lubrication and expansion of the vaginal canal. During plateau, women experience further swelling of the vagina and increased blood flow to the labia minora, and men experience full erection and often exhibit pre-ejaculatory fluid. Both men and women experience increases in muscle tone during this time. Orgasm is marked in women by rhythmic contractions of the pelvis and uterus along with increased muscle tension. In men, pelvic contractions are accompanied by a buildup of seminal fluid near the urethra that is ultimately forced out by contractions of genital muscles (i.e., ejaculation). Resolution is the relatively rapid return to an unaroused state accompanied by a decrease in blood pressure and muscular relaxation. While many women can quickly repeat the sexual response cycle, men must pass through a longer refractory period as part of resolution. The refractory period is a period of time that follows an orgasm during which an individual is incapable of experiencing another orgasm. In men, the duration of the refractory period can vary

dramatically from individual to individual with some refractory periods as short as several minutes and others as long as a day. As men age, their refractory periods tend to span longer periods of time.

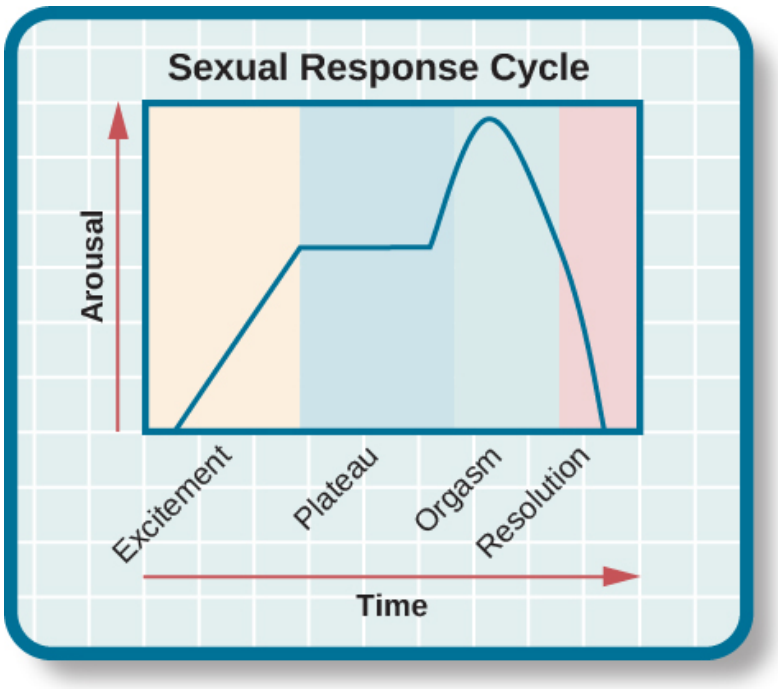


Figure 11.21. This graph illustrates the different phases of the sexual response cycle as described by Masters and Johnson (1966).

In addition to the insights that their research provided with regards to the sexual response cycle and the multi-orgasmic potential of women, Masters and Johnson also collected important information about reproductive anatomy. Their research demonstrated the oft-cited statistic of the average size of a flaccid and an erect penis — 7.6 cm and 15.2 cm, respectively — as well as dispelling long-held beliefs about relationships between the size of a man's erect penis and his ability to provide sexual pleasure to his female partner. Furthermore, they determined that the vagina is a very elastic structure that can conform to penises of various sizes (Hock, 2008).

Source: Adapted from Bhatia and Loewenstein (2020) and Spielman et al. (2019).

Key Takeaways

- Biologically, hunger is controlled by the interactions among complex pathways in the nervous system and a variety of hormonal and chemical systems in the brain and body.
- How we eat is also influenced by our environment, including social norms about appropriate body size.
- Homeostasis varies among people and is determined by the basal metabolic rate. Low metabolic rates, which are determined entirely by genetics, make weight management a very difficult undertaking for many people.
- Eating disorders, including anorexia nervosa and bulimia nervosa, affect about 1% of people, of which 90% are women.
- Obesity is a medical condition in which so much excess body fat has accumulated in the body that it begins to have an adverse impact on health. Uncontrolled obesity leads to health problems including cardiovascular disease, diabetes, sleep apnea, arthritis, and some types of cancer.
- The two approaches to controlling weight are to eat less and exercise more.
- Sex drive is regulated by the sex hormones estrogen in women and testosterone in both women and men.
- Although their biological determinants and experiences of sex are similar, men and women differ substantially in their overall interest in sex, the frequency of their sexual activities, and the mates they are most interested in.
- Sexual behaviour varies widely, not only between men and women, but also within each sex.
- There is also variety in sexual orientation: toward people of the opposite sex, people of the same sex, or people of both sexes. The determinants of sexual orientation are primarily biological.

Exercises and Critical Thinking

1. Consider your own eating and sex patterns. Are they healthy or unhealthy? What can you do to improve them?
2. Given that BMI is calculated solely on weight and height, how could it be misleading?
3. Caucasian women from industrialized, Western cultures tend to be at the highest risk for eating disorders like anorexia and bulimia nervosa. Why might this be?

4. While much research has been conducted on how an individual develops a given sexual orientation, many people question the validity of this research, citing that the participants used may not be representative. Why do you think this might be a legitimate concern?

Congratulations on completing Chapter 11! Remember to go back to the section on Approach and Pedagogy near the beginning of the book to learn more about how to get the most out of reading and learning the material in this textbook.

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CHAPTER 13. LIFESPAN DEVELOPMENT

13.0 Introduction

Psychology in Everyday Life

The Repository for Germinal Choice

During the 1970s, American millionaire Robert Klark Graham began one of the most controversial and unique sperm banks in the world. He called it the Repository for Germinal Choice. The sperm bank was part of a project that attempted to combat the "genetic decay" Graham saw all around him. He believed human reproduction was experiencing a genetic decline, making for a population of "retrograde humans," and he was convinced that the way to save the human race was to breed the best genes of his generation (Plotz, 2001).

Graham began his project by collecting sperm samples from the most intelligent and highly achieving people he could find, including scientists, entrepreneurs, athletes, and even Nobel Prize winners. Then, he advertised for potential mothers, who were required to be married to infertile men, educated, and financially well-off. Graham mailed out catalogues to the potential mothers, describing the donors using code names such as "Mr. Grey-White," who was "ruggedly handsome, outgoing, and positive, a university professor, expert marksman who enjoys the classics," and "Mr. Fuchsia," who was an "Olympic gold medalist, tall, dark, handsome, bright, a successful businessman and author" (Plotz, 2001, para. 5). When the mother had made her choice, the sperm sample was delivered by courier, and insemination was carried out at home. Before it closed following Graham's death in 1999, the repository claimed responsibility for the birth of 228 children.

Did Graham's project actually create super-intelligent babies? Although it is difficult to be sure, because very few interviews with the offspring have been permitted, at least some of the repository's progeny are indeed smart. Reporter for *Slate* magazine David Plotz (2001) spoke to nine families who benefited from the repository, and they proudly touted their children's achievements. He found that most of the offspring in the families interviewed seem to resemble their genetic fathers. Three from donor Mr. Fuchsia, the Olympic gold medallist, are reportedly gifted athletes. Several who excel in math and science were fathered by professors of math and science.

As well, the offspring, by and large, seem to be doing well, often attending excellent schools and maintaining very high grade-point averages. One of the offspring, now 26 years old, is particularly intelligent. In infancy, he could mark the beat of classical music with his hands. In kindergarten, he could read *Hamlet* and was learning algebra, and at age six, his IQ was already 180. However, he refused to apply to prestigious universities, such as Harvard or Yale, opting instead to study at a smaller progressive college and to major in comparative religion, with the aim of becoming an elementary schoolteacher. He is now an author of children's books.

Although it is difficult to know for sure, it appears that at least some of the children of the repository are indeed outstanding, but can the talents, characteristics, and skills of this small repository sample be attributed to genetics alone? After all, consider the parents of these children: Plotz reported that the parents, particularly the mothers, were highly involved in their children's development and took their parental roles very seriously. Most of the parents studied child care manuals, coached their children's sports teams, practised reading with

their kids, and either home-schooled them or sent them to the best schools in their areas. Additionally, the families were financially well-off. Furthermore, the mothers approached the repository at a relatively older child-bearing age, when all other options were exhausted. These children were desperately wanted and very well loved. It is undeniable that, in addition to their genetic backgrounds, all this excellent nurturing played a significant role in the development of the repository children.

Although the existence of the repository provides interesting insight into the potential importance of genetics on child development, the results of Graham's experiment are inconclusive. The offspring interviewed are definitely smart and talented, but only one of them was considered a true genius and child prodigy, and nurture may have played as much a role as nature in their outcomes (Olding, 2006; Plotz, 2001).

The goal of this chapter is to investigate the fundamental, complex, and essential process of human development. **Development** refers to the physiological, behavioural, cognitive, and social changes that occur throughout human life, which are guided by both genetic predispositions (i.e., nature) and by environmental influences (i.e., nurture). We will begin our study of development at the moment of conception, when the father's sperm unites with the mother's egg, and then consider prenatal development in the womb. Next, we will focus on **infancy**, the developmental stage that begins at birth and continues to one year of age, and **childhood**, the period between infancy and the onset of puberty. Finally, we will consider the developmental changes that occur during **adolescence**, the years between the onset of puberty and the beginning of adulthood; the stages of adulthood itself, including emerging, early, middle, and older adulthood; and the preparations for and eventual facing of death.

Each of the stages of development has its unique physical, cognitive, and emotional changes that define the stage and that make each one unique from the others. The psychologist and psychoanalyst Erik Erikson (1950) proposed a model of life-span development that provides a useful guideline for thinking about the changes we experience throughout life. As you can see in the table below, Erikson believed that each life stage has a unique challenge that the person who reaches it must face, and according to Erikson, successful development involves dealing with and resolving the goals and demands of each of the life stages in a positive way.

Table 13.1. Challenges of development as proposed by Erik Erikson

Stage	Age Range	Key Challenge	Positive Resolution of Challenge
Oral-sensory	Birth to 12 to 18 months	Trust versus mistrust	The child develops a feeling of trust with their caregivers.
Muscular-anal	18 months to 3 years	Autonomy versus shame/doubt	The child learns what they can and cannot control and develops a sense of free will.
Locomotor	3 to 6 years	Initiative versus guilt	The child learns to become independent by exploring, manipulating, and taking action.
Latency	6 to 12 years	Industry versus inferiority	The child learns to do things well or correctly according to standards set by others, particularly in school.
Adolescence	12 to 18 years	Identity versus role confusion	The adolescent develops a well-defined and positive sense of self in relationship to others.
Young adulthood	19 to 40 years	Intimacy versus isolation	The person develops the ability to give and receive love and to make long-term commitments.
Middle adulthood	40 to 65 years	Generativity versus stagnation	The person develops an interest in guiding the development of the next generation, often by becoming a parent.
Late adulthood	65 to death	Ego integrity versus despair	The person develops acceptance of their life as it was lived.

Data source: Erikson, 1950.

As we progress through this chapter, we will see that Robert Klark Graham was in part right — nature does play a substantial role in development. It has been found, for instance, that identical twins, who share all of their genetic code, usually begin sitting up and walking on the exact same days, but nurture is also important. We begin to be influenced by our environments even while still in the womb, and these influences remain with us throughout our development. Furthermore, we will see that we play an active role in shaping our own lives. Our own behaviour influences how and what we learn, how people respond to us, and how we develop as individuals. As you read the chapter, you will no doubt get a broader view of how we each pass through our own lives. You will see how we learn and adapt to life's changes, and this new knowledge may help you better understand and better guide your own personal life journey.

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13.1 Conception and Prenatal Development

Learning Objectives

1. Review the stages of prenatal development.
2. Explain how the developing embryo and fetus may be harmed by the presence of teratogens, and describe what a mother can do to reduce her risk.

Conception occurs when an egg from the mother is fertilized by a sperm from the father. In humans, the conception process begins with **ovulation**, when an ovum, or egg — the largest cell in the human body — which has been stored in one of the mother's two ovaries, matures and is released into the fallopian tube. Ovulation occurs about halfway through the woman's menstrual cycle and is aided by the release of a complex combination of hormones. In addition to helping the egg mature, the hormones also cause the lining of the uterus to grow thicker and more suitable for implantation of a fertilized egg.

If the woman has had sexual intercourse within one or two days of the egg's maturation, one of the up to 500 million sperm deposited by the man's ejaculation, which are travelling up the fallopian tube, may fertilize the egg. Although few of the sperm are able to make the long journey, some of the strongest swimmers succeed in meeting the egg. In fact, sperm live for up to five days inside a woman's body, so can effectively fertilize the egg even if they are present for a few days before ovulation. As the sperm reach the egg in the fallopian tube, they release enzymes that attack the outer, jellylike protective coating of the egg, each trying to be the first to enter. As soon as one of the millions of sperm enters the egg's coating, the egg immediately responds by both blocking out all other challengers and at the same time pulling in the single successful sperm. Given the longevity of egg and sperm, the window of opportunity for conception is about six days in a women's menstrual cycle.

The zygote

Within several hours of conception, half of the 23 chromosomes from the egg and half of the 23 chromosomes from the sperm fuse together, creating a **zygote** — a fertilized ovum. The zygote continues to travel down the fallopian tube to the uterus. Although the uterus is only about four inches away in the woman's body, the zygote's journey is nevertheless substantial for a microscopic organism, and fewer than half of zygotes survive beyond this earliest stage of life. If the zygote is still viable when it completes the journey, it will attach itself to the wall of the uterus, but if it is not, it will be flushed out in the woman's menstrual flow. During this time, the cells in the zygote continue to divide: the original two cells become four, those four become eight, and so on, until there are thousands, and eventually trillions, of cells. Soon the cells begin to differentiate, each taking on a separate function. The earliest differentiation is between the cells on the inside of the zygote, which will begin to form the developing human being, and the cells on the outside, which will form the protective environment that will provide support for the new life throughout the pregnancy.

The embryo

Once the zygote attaches to the wall of the uterus, it is known as the **embryo**. During the embryonic phase, which will last for the next six weeks, the major internal and external organs are formed, each beginning at the microscopic level, with only a few cells. The changes in the embryo's appearance will continue rapidly from this point until birth.

While the inner layer of embryonic cells is busy forming the embryo itself, the outer layer is forming the surrounding protective environment that will help the embryo survive the pregnancy. This environment consists of three major structures: the amniotic sac, the placenta, and the umbilical cord. The **amniotic sac** is the fluid-filled reservoir in which the embryo, soon to be known as a fetus, will live until birth and which acts as both a cushion against outside pressure and as a temperature regulator. The **placenta** is an organ that allows the exchange of nutrients between the embryo and the mother, while at the same time filtering out harmful material. The filtering occurs through a thin membrane that separates the mother's blood from the blood of the fetus, allowing them to share only the material that is able to pass through the filter. Finally, the **umbilical cord** links the embryo directly to the placenta and transfers all material to the fetus. Thus, the placenta and the umbilical cord protect the fetus from many foreign agents in the mother's system that might otherwise pose a threat.

The fetus

Beginning in the ninth week after conception, the embryo becomes a fetus. The defining characteristic of the fetal stage is growth. All the major aspects of the growing organism have been formed in the embryonic phase, and now the fetus has approximately six months to go from weighing less than an ounce to weighing an average of six to eight pounds. That's quite a growth spurt.

The fetus begins to take on many of the characteristics of a human being, including moving — by the third month, the fetus is able to curl and open its fingers, form fists, and wiggle its toes — sleeping, as well as early forms of swallowing and breathing. The fetus begins to develop its senses, becoming able to distinguish tastes and respond to sounds. Research has found that the fetus even develops some initial preferences. A newborn prefers the mother's voice to that of a stranger, the languages heard in the womb over other languages (DeCasper & Fifer, 1980; Moon, Cooper, & Fifer, 1993), and even the kinds of foods that the mother ate during the pregnancy (Mennella, Jagnow, & Beauchamp, 2001). By the end of the third month of pregnancy, the sexual organs are visible.

How the environment can affect the vulnerable fetus

Prenatal development is a complicated process and may not always go as planned. About 45% of pregnancies result in a miscarriage, often without the mother ever being aware it has occurred (Moore & Persaud, 1993). Although the amniotic sac and the placenta are designed to protect the embryo, substances that can harm the fetus, known as **teratogens**, may nevertheless cause problems. Teratogens include general environmental factors, such as air pollution and radiation, but also the cigarettes, alcohol, and drugs that the mother may use. Teratogens do not always harm the fetus, but they are more likely to do so when they occur in larger amounts, for longer time periods, and during the more sensitive phases, as when the fetus is growing most rapidly. The most vulnerable period for many of the fetal organs is very early in the pregnancy — before the mother even knows she is pregnant. **Critical periods** are times in development when, if a teratogen is present, it will have an effect. **Sensitive periods** are times when, if the teratogen is present, it may have an effect. Critical and sensitive periods are unique to different teratogens.

Rubella is a good example of a teratogen with known effects that differ according to the period of exposure. Also known as German measles, rubella is a virus that most women have been immunized against. If a pregnant woman contracts rubella during her first trimester, the developmental defects to the fetus can be severe, including deafness, visual problems, cardiovascular defects, and central nervous system disorders. It can also cause miscarriage or stillbirth. The effects tend to be less severe in the second trimester and negligible in the third trimester.

Harmful substances that the mother ingests may harm the child. Cigarette smoking, for example, reduces the blood oxygen for both the mother and child and can cause a fetus to be born severely underweight. Another serious threat is **fetal alcohol syndrome** (FAS), a condition caused by maternal alcohol drinking that can lead to numerous detrimental developmental effects, including limb and facial abnormalities, genital anomalies, and mental retardation. Each year in Canada, it is estimated that nine babies in every 1,000 are born with fetal alcohol spectrum disorder (FASD), and it is considered one of the leading causes of retardation in the world today (Health Canada, 2006; Niccols, 1994). Because there is no known safe level of alcohol consumption for a pregnant woman, the Public Health Agency of Canada (2011) states that there is no safe amount or safe time to drink alcohol during pregnancy. Therefore, the best approach for expectant mothers is to avoid alcohol completely. Maternal drug abuse is also of major concern and is considered one of the greatest risk factors facing unborn children.

The environment in which the mother is living also has a major impact on infant development (Duncan & Brooks-Gunn, 2000; Haber & Toro, 2004). Children born into homelessness or poverty are more likely to have mothers who are malnourished, who suffer from domestic violence, stress, and other psychological problems, and who smoke or abuse drugs. As well, children born into poverty are also more likely to be exposed to teratogens. Poverty's impact may also amplify other issues, creating substantial problems for healthy child development (Evans & English, 2002; Gunnar & Quevedo, 2007).

Mothers normally receive genetic and blood tests during the first months of pregnancy to determine the health or genetics of the embryo or fetus. They may undergo ultrasound (see Figure 13. 1), amniocentesis, chorionic villi sampling, or other testing. The screenings detect potential birth defects, including neural tube defects, chromosomal abnormalities (e.g., Down syndrome), genetic diseases, and other potentially dangerous conditions. Early testing allows parents to prepare for a baby with certain conditions or to make decisions about terminating the pregnancy.

This diagram illustrates a fetal ultrasound and identifies the fetus, uterus, and ultrasound transducer. An ultrasound image is also shown in the upper-right, which would be available on screen to the technician performing the ultrasound.

Figure 13.1. Ultrasound is used to create an image of a fetus.

Key Takeaways

- Development begins at the moment of conception, when the sperm from the father merges with the egg from the mother.
- Within a span of nine months, development progresses from a single cell into a zygote and then into an embryo and fetus.
- The fetus is connected to the mother through the umbilical cord and the placenta, which allow the fetus and mother to exchange nourishment and waste. The fetus is protected by the amniotic sac.
- The embryo and fetus are vulnerable and may be harmed by the presence of teratogens.
- Smoking, alcohol use, and drug use are all likely to be harmful to the developing embryo or fetus, and the mother should entirely refrain from these behaviours during pregnancy or if she expects to become pregnant.
- Environmental factors, especially homelessness and poverty, have a substantial negative effect on healthy child development.

Exercises and Critical Thinking

1. What behaviours must a woman avoid engaging in when she decides to try to become pregnant or when she finds out she is pregnant?
2. If a man and woman are trying to get pregnant, how could tracking the woman's menstrual cycle increase their chances of success?

Image Attributions

Figure 13.1. *Fetal Ultrasound* by BruceBlaus is used under a CC BY-SA 4.0 licence.

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13.2 Infancy and Childhood: Exploring, Learning, and Relating

Learning Objectives

1. Describe the abilities that newborn infants possess and how they actively interact with their environments.
2. Describe attachment.
3. Describe some types of parenting behaviours and their associations with children's behaviours.
4. Describe social and emotional competence in early childhood.
5. List the stages in Piaget's model of cognitive development, and explain the concepts that are mastered in each stage.
6. Describe other theories that complement and expand on Piaget's theory.

In a full term pregnancy, a baby is born sometime around the 38th week. The fetus is responsible, at least in part, for its own birth because chemicals released by the developing fetal brain trigger the muscles in the mother's uterus to start the rhythmic contractions of childbirth. The contractions are initially spaced at about 15-minute intervals but come more rapidly with time. When the contractions reach an interval of two to three minutes, the mother is requested to assist in the labour and help push the baby out.

The newborn arrives with many behaviours intact

Newborns are already prepared to face the new world they are about to experience. As you can see in the table below, babies are equipped with a variety of reflexes, each providing an ability that will help them survive their first few months of life as they continue to learn new routines to help them survive in, and manipulate, their environments.

Table 13.2. Survival reflexes in newborns

Name	Stimulus	Response	Significance	Video Example
Rooting reflex	The baby's cheek is stroked.	The baby turns its head toward the stroking, opens its mouth, and tries to suck.	Ensures the infant will find a nipple	*The Rooting Reflex* (infantopia, 2009)
Blink reflex	A light is flashed in the baby's eyes.	The baby closes both eyes.	Protects eyes from strong and potentially dangerous stimuli	*Cute Baby Blinking* (eminemloca8, 2007)
Withdrawal reflex	A soft pinprick is applied to the sole of the baby's foot.	The baby flexes the leg.	Keeps the exploring infant away from painful stimuli	*Baby Withdrawal Reflex* (betapicts, 2010)
Tonic neck reflex	The baby is laid down on its back.	The baby turns its head to one side and extends the arm on the same side.	Helps develop hand-eye coordination	*17Primitive Reflexes Asymmetric Tonic Neck* (daihocyduoc, 2009)
Grasp reflex	An object is pressed into the palm of the baby.	The baby grasps the object pressed and can even hold its own weight for a brief period.	Holding on to prevent falling	*Grasp Reflex* (qumar81, 2009)
Moro reflex	Loud noises or a sudden drop in height while holding the baby.	The baby extends arms and legs and quickly brings them in as if trying to grasp something.	Protects from falling; could have assisted infants in holding on to their mothers during rough travelling	*Moro Reflex* (qumar81, 2009)
Stepping reflex	The baby is suspended with bare feet just above a surface and is moved forward.	Baby makes stepping motions as if trying to walk.	Preparedness for walking	*Stepping Reflex* (qumar81, 2009)

In addition to reflexes, newborns have preferences. They like sweet-tasting foods at first, while becoming more open to salty items by four months of age (Beauchamp, Cowart, Menellia, & Marsh, 1994; Blass & Smith, 1992). Newborns also prefer the smell of their mothers. An infant only six days old is significantly more likely to turn toward its own mother's breast pad than to the breast pad of another baby's mother (Porter, Makin, Davis, & Christensen, 1992), and a newborn also shows a preference for the face of its own mother (Bushnell, Sai, & Mullin, 1989).

Although infants are born ready to engage in some activities, they also contribute to their own development through their own behaviours. The child's knowledge and abilities increase as it babbles, talks, crawls, tastes, grasps, plays, and interacts with the objects in the environment (Gibson, Rosenzweig, & Porter, 1988; Gibson & Pick, 2000; Smith & Thelen, 2003). Parents may help in this process by providing a variety of activities and experiences for the child. Research has found that animals raised in environments with more novel objects and that engage in a variety of stimulating activities have more brain synapses and larger cerebral cortexes, and they perform better on a variety of learning tasks compared with animals raised in more impoverished environments (Juraska, Henderson, & Müller, 1984). Similar effects are likely occurring in children who have opportunities to play, explore, and interact with their environments (Soska, Adolph, & Johnson, 2010).

Contact comfort

One of the key needs of babies is contact comfort: being held, comforted, and cuddled. In a classic study, Wisconsin University psychologists Harry and Margaret Harlow (1958) investigated the responses of young monkeys, separated from their biological mothers, to two surrogate mothers introduced to their cages. One — the wire mother — consisted

of a round wooden head, a mesh of cold metal wires, and a bottle of milk from which the baby monkey could drink. The second mother was a foam-rubber form wrapped in a heated terry-cloth blanket. The Harlows found that although the infant monkeys went to the wire mother for food, they overwhelmingly preferred and spent significantly more time with the warm, terry-cloth mother that provided no food but did provide comfort, especially when they were scared (Harlow, 1958).

The following YouTube link provides a good example of contact comfort:

- Video: *Harlow's Studies on Dependency in Monkeys* (@MichaelDBaker, n.d.)

Attachment

As they are cuddled and comforted by their caregivers, babies are also developing an attachment style. One of the most important milestones in infancy is the development of attachment to a caregiver. **Attachment** develops gradually, as infants begin to understand who responds consistently and sensitively to their needs by feeding them, cuddling them, and so on. Attachment is important for survival and helps babies thrive (see Figure 13.2). As attachment develops, it becomes the child's first "relationship," and early attachments may provide the model for other emotionally close relationships in life (Cassidy & Shaver, 1999).



Figure 13.2. Children develop appropriate attachment styles through their interactions with caregivers.

Attachment begins to be most evident around six to eight months of age. Most children at this age show **stranger anxiety**, which is a fearful response to strangers that can range from simply turning the head away to full-out crying. This response is showing that babies are discriminating between someone they know well (e.g., the caregiver) and someone they do not (e.g., the stranger). If the caregiver leaves the baby, either alone or with a stranger, they are likely to show **separation anxiety**. It is normal for babies to feel and show this distress, much to the chagrin of parents who often want their baby to make friends with an out-of-town relative. Separation anxiety can be difficult for both babies and parents, as it can last for a couple of years.

As late as the 1930s, psychologists believed that children who were raised in institutions such as orphanages and who received good physical care and proper nourishment, would develop normally, even if they had little interaction with their caretakers. However, studies by the developmental psychologist John Bowlby (1953) and others showed that these children did not develop normally — they were usually sickly, emotionally slow, and generally unmotivated. These observations helped make it clear that normal infant development requires successful attachment with a caretaker.

Developmental psychologist Mary Ainsworth, a student of John Bowlby, was interested in studying the development of attachment in infants. Ainsworth created a laboratory test that measured an infant's attachment to their parent; this was assessed in a situation where the caregiver and a stranger move in and out of the environment. The test is called the **strange situation** because it is conducted in a context that is unfamiliar to the child and therefore likely to heighten the child's need for their parent (Ainsworth, Blehar, Waters, & Wall, 1978). During the procedure, which lasts about 20 minutes, the parent and the infant are first left alone, while the infant explores the room full of toys. Then, a strange adult enters the room and talks for a minute to the parent, after which the parent leaves the room. The stranger stays with the infant for a few minutes, the parent again enters, and the stranger leaves the room. During the entire session, a video camera records the child's behaviours, which are later coded by trained coders.

The following YouTube link provides a good example of attachment:

- Video: *The Strange Situation – Mary Ainsworth* (thibs44, 2009)

On the basis of their behaviours, the children are categorized into one of four attachment styles, where each reflects a different kind of attachment relationship with the caregiver. A child with a **secure attachment style** usually explores freely while the mother is present and engages with the stranger. The child is upset when the mother departs and refuses to engage with the stranger, displaying stranger anxiety, but the child is comforted and happy when the mother returns. Most children who have been studied display a secure attachment style (see Figure 13.3).

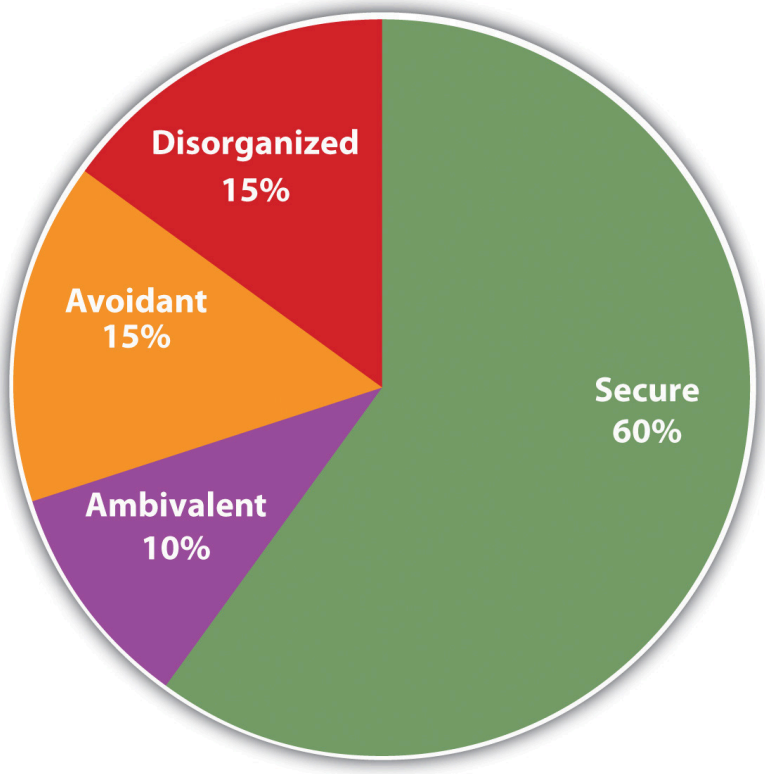


Figure 13.3. The graph shows the approximate proportion of children who have each of the four attachment styles. These proportions are fairly constant across cultures. [Long description]

A child with an **ambivalent attachment style**, sometimes called insecure-resistant, stays close or even clings to the mother rather than exploring the toys when the stranger is present. When the mother leaves, the child is extremely distressed and is ambivalent when she returns. The child may rush to the mother but then fail to cling to her when she picks up the child. A child with an **avoidant attachment style**, sometimes called insecure-avoidant, will avoid or ignore the mother, showing little emotion when the mother departs or returns. The child may run away from the mother when she approaches. The child will not explore very much, regardless of who is there, and the stranger will not be treated much differently from the mother.

Finally, a child with a **disorganized attachment style** seems to have no consistent way of coping with the stress of the strange situation. The child may cry during the separation but avoid the mother when she returns, or the child may approach the mother but then freeze or fall to the floor. Although some cultural differences in attachment styles have been found (Rothbaum, Weisz, Pott, Miyake, & Morelli, 2000), research has also found that the proportion of children who fall into each of the attachment categories is relatively constant across cultures.

You might wonder whether differences in attachment style are determined more by the child (i.e., nature) or more by the parents (i.e., nurture). Most developmental psychologists believe that socialization is primary, arguing that a child becomes securely attached when the mother is available and able to meet the needs of the child in a responsive and appropriate manner, but the insecure styles occur when the mother is insensitive and responds inconsistently to the child's needs. Given that most children show secure attachment, a wide variety of caregiver behaviours show consistency and sensitivity in responsiveness. In a direct test of this idea, Dutch researcher Dymphna van den Boom (1994) randomly assigned some babies' mothers to a training session in which they learned to better respond to their children's needs. The research found that these mothers' babies were more likely to show a secure attachment style compared with the babies of the mothers in a control group that did not receive training.

The attachment behaviour of the child is also likely influenced, at least in part, by temperament. **Temperament** in children refers to the characteristic mood, activity level, attention span, and level of distractability that is evident in infancy and early childhood (Rothbart & Bates, 2005; Thomas & Chess, 1977). Some children are warm, friendly, and responsive, whereas others tend to be more irritable, less manageable, and difficult to console. These differences may also play a role in attachment (Gillath, Shaver, Baek, & Chun, 2008; Seifer, Schiller, Sameroff, Resnick, & Riordan, 1996).

Although temperament is biologically based, it interacts with the influence of experience from the moment of birth, if not before, to shape personality (Rothbart, 2011). Temperamental dispositions are affected, for example, by the support level of parental care. More generally, personality is shaped by the goodness of fit between the child's temperamental qualities and characteristics of the environment (Chess & Thomas, 1999). For example, an adventurous child whose parents regularly take them on weekend hiking and fishing trips would be a good "fit" to their lifestyle, supporting personality growth. Personality is the result, therefore, of the continuous interplay between biological disposition and experience, as is true for many other aspects of social and personality development.

Personality develops from temperament in other ways (Thompson, Winer, & Goodvin, 2010). As children mature biologically, temperamental characteristics emerge and change over time. A newborn is not capable of much self-control, but as brain-based capacities for self-control advance, temperamental changes in self-regulation become more apparent. For example, a newborn who cries frequently does not necessarily have a grumpy personality; over time, with sufficient parental support and increased sense of security, the child might be less likely to cry.

In addition, personality is made up of many other features besides temperament. Children's developing self-concept, their motivations to achieve or to socialize, their values and goals, their coping styles, their sense of responsibility and conscientiousness, and many other qualities are encompassed into personality. These qualities are influenced by biological dispositions, but even more by the child's experiences with others, particularly in close relationships, that guide the growth of individual characteristics.

Indeed, personality development begins with the biological foundations of temperament but becomes increasingly elaborated, extended, and refined over time. The newborn that parents gazed upon thus becomes an adult with a personality of depth and nuance.

The influence of parents

Following the development of attachment in the child's early years, parents continue to play a role in shaping their children. The relative influences of parenting and genetics on things like personality, intelligence, morality, and so on are complicated to study empirically. Much research done with children cannot separate out these effects because we cannot do experiments that alter the parents or substantially alter parenting styles in order to see the effects on children, and being able to control for the effects of genes and environments requires children who are genetically identical (i.e., identical twins) or adopted to participate in the study. Twin and adoption studies are expensive, time-consuming, and complex. Thus, the research on the influence of parenting on children is largely correlational; as we have already learned, correlational studies show us associations between variables, but they cannot be used to make definitive statements about cause and effect.

As all parents eventually discover, there is no step-by-step guide that provides foolproof advice on all of the challenges of parenting; the effects of parenting practices vary at least partly because children are different. Children whose temperament might be described as easygoing might require different parenting strategies than children who are easily upset, distressed, fearful, or volatile. Part of the challenge for parents is recognizing these temperamental challenges of individual children and adapting their own temperaments to fit.

One of the areas that parents have to navigate is the use of discipline to shape children's behaviour. All parents are faced with children who misbehave. Research suggests some ways of responding to child misbehaviour may be better than others. **Power assertion** is when parents try to correct children's misbehaviour through the use of punishment, threats, and their superior power. While there are times when, for example, child safety requires this sort of discipline, using power assertion consistently may do little to teach children about the desired behaviour of the effects of their behaviour on others, and it may result in children simply obeying when the parent is present so they avoid punishment. If power assertion is coupled with physical punishment, this may cause children to obey out of fear. Physical punishment is generally seen as undesirable because it creates an atmosphere of fear, hostility, aggression, and anger. For more on this, the undesirable effects of physical punishment are investigated in greater detail by Elizabeth Gershoff (2002).

An alternative to power assertion is induction. **Induction** involves the correction of children's misbehaviour by showing them how and why they were wrong, explaining the effects of their behaviour on others, and showing understanding of the child's emotions. Induction involves the activation of the child's empathy. Induction tends to help children develop better self-regulation and internalize a sense of morality. Induction is more likely to maintain a child's self-esteem because it validates the child's understanding of the situation while at the same time allowing for it to be corrected in a gentle way.

It is likely that parents use both power assertion and induction at times. It is also possible that aspects of children may elicit these different strategies from parents and that situational demands may also call for different strategies. As well, cultures differ in their accepted standards of child discipline. There is no doubt that parents use discipline with the best of intentions and that psychologists will continue to try to understand what long-term effects may exist.

As children mature, parent-child relationships naturally change. Preschool and grade-school children are more capable, have their own preferences, and sometimes refuse or seek to compromise with parental expectations. This can lead to greater parent-child conflict, and how conflict is managed by parents further shapes the quality of parent-child relationships. In general, children develop greater competence and self-confidence when parents have high, but

reasonable, expectations for children's behaviour, communicate well with them, are warm and responsive, and use reasoning, rather than coercion, as preferred responses to children's misbehaviour. This kind of parenting style has been described as **authoritative** (Baumrind, 2013). Authoritative parents are supportive and show interest in their kids' activities but are not overbearing and allow them to make constructive mistakes. By contrast, some less-constructive parent-child relationships result from authoritarian, uninvolved, or permissive parenting styles (see Figure 13.4).

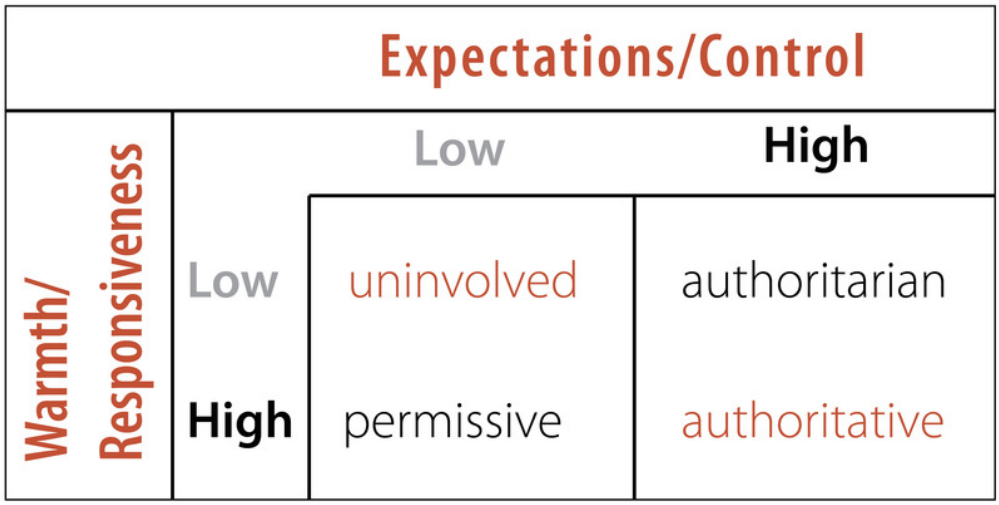


Figure 13.4. Comparison of four parenting styles. [Long description]

Parental roles in relation to their children change in other ways, too. Parents increasingly become mediators, also considered gatekeepers, of their children's involvement with peers and activities outside the family. Their communication and practice of values contribute to children's academic achievement, moral development, and activity preferences. As children reach adolescence, the parent-child relationship increasingly becomes one of "co-regulation," in which both the parent(s) and the child recognizes the child's growing competence and autonomy, and together they rebalance authority relations. We often see evidence of this as parents start accommodating their teenage kids' sense of independence by allowing them to get cars, jobs, attend parties, and stay out later.

Family relationships are significantly affected by conditions outside the home. For instance, the **Family Stress Model** describes how financial difficulties are associated with parents' depressed moods, which in turn lead to marital problems and poor parenting, which in turn contributes to poorer child adjustment (Conger, Conger, & Martin, 2010). Within the home, parental marital difficulty or divorce affects more than half the children growing up today in the Canada and the United States. Divorce is typically associated with economic stresses for children and parents, the renegotiation of parent-child relationships with one parent typically as primary custodian and the other assuming a visiting relationship, and many other significant adjustments for children. Divorce is often regarded by children as a sad turning point in their lives, although for most it is not associated with long-term problems of adjustment (Emery, 1999).

Knowing the self: The development of the self-concept

One of the important milestones in a child's social development is learning about their own self-existence (see Figure

13.5). This self-awareness is known as consciousness, and the content of consciousness is known as the self-concept. The **self-concept** is a knowledge representation or schema that contains knowledge about us, including our beliefs about our personality traits, physical characteristics, abilities, values, goals, and roles, as well as the knowledge that we exist as individuals (Kagan, 1991).



Figure 13.5. A simple test of self-awareness is the ability to recognize oneself in a mirror. Humans and chimpanzees can pass the test; dogs never do.

Some animals, including chimpanzees, orangutans, and perhaps dolphins, have at least a primitive sense of self (Boysen & Himes, 1999). In one study (Gallup, 1970), researchers painted a red dot on the foreheads of anesthetized chimpanzees and then placed each animal in a cage with a mirror. When the chimps woke up and looked in the mirror, they touched the dot on their faces, not the dot on the faces in the mirror. These actions suggest that the chimps understood that they were looking at themselves and not at other animals; thus, we can assume that they are able to realize that they exist as individuals. On the other hand, most other animals, including, for instance, dogs, cats, and monkeys, never realize that it is themselves in the mirror.

Infants who have a similar red dot painted on their foreheads recognize themselves in a mirror in the same way that the chimps do, and they do this by about 18 months of age (Povinelli, Landau, & Perilloux, 1996). The child's knowledge about the self continues to develop as the child grows. By age two, the infant becomes aware of their sex. By age four, self-descriptions are likely to be based on physical features, such as hair colour and possessions, and by about age six, the child is able to understand basic emotions and the concepts of traits, being able to make statements such as "I am a nice person" (Harter, 1998).

Soon after children enter school, at about age five or six, they begin to make comparisons with other children, a process known as **social comparison**. For example, a child might describe themself as being faster than one child but slower than another (Moretti & Higgins, 1990). According to Erik Erikson (1950), the important component of this process is the development of **competence** and **autonomy** — the recognition of one's own abilities relative to other children. Children increasingly show awareness of social situations; they understand that other people are looking at and judging them the same way that they are looking at and judging others (Doherty, 2009).

Social and emotional competence

Social and personality development is built from the social, biological, and representational influences discussed above.

These influences result in important developmental outcomes that matter to children, parents, and society. Some of the developmental outcomes that denote social and emotional competence include a young adult's capacity to engage in socially constructive actions (e.g., helping, caring, and sharing with others), to curb hostile or aggressive impulses, to live according to meaningful moral values, to develop a healthy identity and sense of self, and to develop talents and achieve success in using them.

These achievements of social and personality development derive from the interaction of many social, biological, and representational influences. Consider, for example, the development of conscience, which is an early foundation for moral development. **Conscience** consists of the cognitive, emotional, and social influences that cause young children to create and act consistently with internal standards of conduct (Kochanska, 2002). Conscience emerges from young children's experiences with parents, particularly in the development of a mutually responsive relationship that motivates young children to respond constructively to the parents' requests and expectations. Biologically based temperament is involved, as some children are temperamentally more capable of motivated self-regulation than are others, a quality called **effortful control**. However, some children are dispositionally more prone to the fear and anxiety that parental disapproval can evoke. Conscience development grows through a good fit between the child's temperamental qualities and how parents communicate and reinforce behavioural expectations. Moreover, as an illustration of the interaction of genes and experience, one research group found that young children with a particular gene allele, the 5-HTTLPR, were low on measures of conscience development when they had previously experienced unresponsive maternal care, but children with the same allele growing up with responsive care showed strong later performance on conscience measures (Kochanska, Kim, Barry, & Philibert, 2011).

Conscience development also expands as young children begin to represent moral values and think of themselves as moral beings. By the end of the preschool years, for example, young children develop a "moral self" by which they think of themselves as people who want to do the right thing, who feel badly after misbehaving, and who feel uncomfortable when others misbehave. In the development of conscience, young children become more socially and emotionally competent in a manner that provides a foundation for later moral conduct (Thompson, 2012).

Understanding infant knowledge

It may seem to you that babies have little ability to understand or remember the world around them. Indeed, the famous psychologist William James presumed that the newborn experiences a "blooming, buzzing confusion" (James, 1890, p. 462). You may think that, even if babies do know more than James gave them credit for, it might not be possible to find out what they know. After all, infants cannot talk or respond to questions, so how would we ever find out? Over the past two decades, developmental psychologists have created new ways to determine what babies know, and they have found that they know much more than you, or William James, might have expected.

One way that we can learn about the cognitive development of babies is by measuring their behaviour in response to the stimuli around them. For instance, some researchers have given babies the chance to control which shapes they get to see or which sounds they get to hear according to how hard they suck on a pacifier (Trehub & Rabinovitch, 1972). The sucking behaviour is used as a measure of the infants' interest in the stimuli, and the sounds or images they suck hardest in response to are the ones we can assume they prefer.

Another approach to understanding cognitive development by observing the behaviour of infants is through the use of the habituation technique. **Habituation** refers to the decreased responsiveness toward a stimulus after it has been presented numerous times in succession. Organisms, including infants, tend to be more interested in things the first few times they experience them and become less interested in them with more frequent exposure. Developmental psychologists have used this general principle to help them understand what babies remember and understand.

Habituation involves exposing an infant to a stimulus repeatedly. Each time the infant is exposed to the stimulus, the amount of time they spend attending to it is measured. With repeated presentations of the stimulus, babies spend less time attending to it. In other words, they get bored and stop paying attention. If the stimulus is changed slightly, researchers can tell that babies recognize this difference because the time they spend attending to it goes up again. Thus, it can be said that babies have "learned" something about the first stimulus in order to "know" that the second stimulus is different; dishabituation is seen in the latter.

The following YouTube link provides a good example of infant knowledge:

- Video: *Infant Looking Time Habituation. Activity 2 from "What Babies Can Do" DVD* (powerbabies, 2011)

The habituation procedure allows researchers to create variations that reveal a great deal about a newborn's cognitive ability. The trick is simply to change the stimulus in controlled ways to see if the baby notices the difference. Research using the habituation procedure has found that babies can notice changes in colours, sounds, and even principles of numbers and physics.

Cognitive development during childhood — Piaget's theory

Childhood is a time in which changes occur quickly. The child is growing physically, and cognitive abilities are also developing. During this time, the child learns to actively manipulate and control aspects of their environment and is first exposed to the requirements of society, particularly the need to control the bladder and bowels. According to Erikson (1950), the challenges that the child must attain in childhood relate to the development of initiative, competence, and independence; children need to learn to explore the world, to become self-reliant, and to make their own way in the environment.

These skills do not come overnight. Neurological changes during childhood provide children the ability to do some things at certain ages while making it impossible for them to do other things. This fact was made apparent through the groundbreaking work of the Swiss psychologist Jean Piaget (see Figure 13.6). During the 1920s, Piaget was administering intelligence tests to children in an attempt to determine the kinds of logical thinking that children were capable of. In the process of testing them, Piaget became intrigued, not so much by the answers that the children got right, but more by the answers they got wrong. Piaget believed that the incorrect answers the children gave were not mere shots in the dark but rather represented specific ways of thinking unique to the children's developmental stage. Just as almost all babies learn to roll over before they learn to sit up by themselves and learn to crawl before they learn to walk, Piaget believed that children gain their cognitive ability in a developmental order. These insights — that children at different ages think in fundamentally different ways — led to Piaget's **stage model of cognitive development**.



Figure 13.6. Jean Piaget developed his theories of child development by observing the behaviours of children.

Piaget (1952) argued that children do not just passively learn but also actively try to make sense of their worlds. He argued that, as they learn and mature, children develop **schemas** — patterns of knowledge in long-term memory — that help them remember, organize, and respond to information. Furthermore, Piaget thought that when children experience new things, they attempt to reconcile the new knowledge with existing schemas. Piaget believed that children use two distinct methods in doing so, methods that he called assimilation and accommodation (see Figure 13.7).

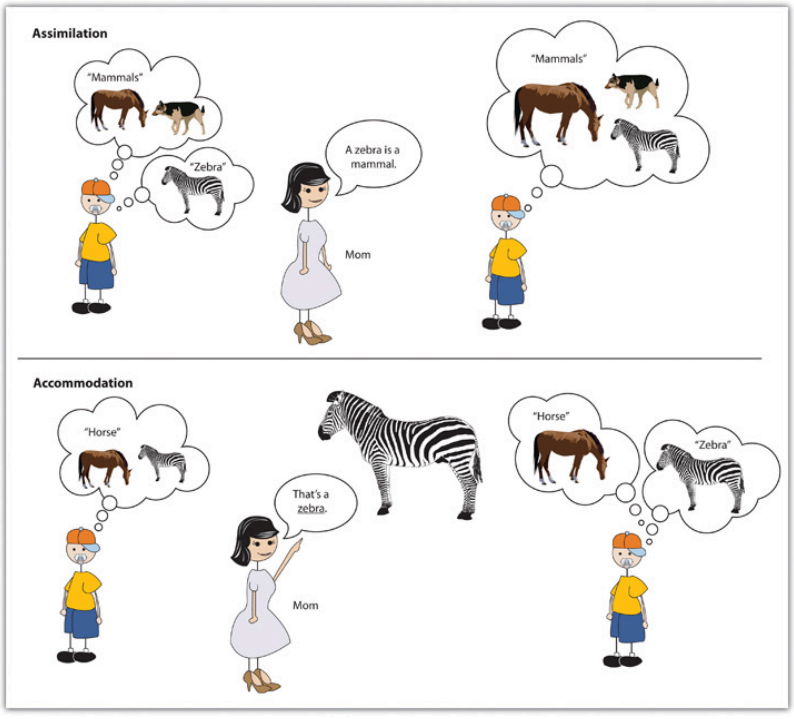


Figure 13.7. Difference between assimilation and accommodation.

When children employ **assimilation**, they use already developed schemas to understand new information. If children have learned a schema for horses, then they may call the striped animal they see at the zoo a horse rather than a zebra. In this case, children fit the existing schema to the new information and label the new information with the existing knowledge. **Accommodation**, on the other hand, involves learning new information and thus changing the schema. When a mother says, "No, honey. That's a zebra, not a horse," the child may adapt the schema to fit the new stimulus, learning that there are different types of four-legged animals, only one of which is a horse.

Piaget's most important contribution to understanding cognitive development, and the fundamental aspect of his theory, was the idea that development occurs in unique and distinct stages, with each stage occurring at a specific time, in a sequential manner, and in a way that allows the child to think about the world using new capacities. Piaget's stages of cognitive development are summarized in the table below.

Table 13.3. Piaget's stages of cognitive development

Stage	Approximate Age Range	Characteristics	Key Attainments
Sensorimotor	Birth to about two years	The child experiences the world through the fundamental senses of seeing, hearing, touching, and tasting.	Object permanence
Preoperational	Two to seven years	Children acquire the ability to internally represent the world through language and mental imagery. They are egocentric, have trouble reversing mental operations, and are developing a theory of mind.	Understands symbols
Concrete operational	Seven to 11 years	Children become able to think logically, overcoming the shortcomings of preoperational thought. They have trouble with abstract concepts.	Conservation; logical thinking
Formal operational	Eleven years to adulthood	Adolescents can think systematically, can reason about abstract concepts, and can understand ethics and scientific reasoning.	Abstract logic

The first developmental stage for Piaget was the **sensorimotor stage**, the cognitive stage that begins at birth and lasts until around the age of two. It is defined by the direct physical interactions that babies have with the objects around them. During this stage, babies form their first schemas by using their primary senses. They stare at, listen to, reach for, hold, shake, and taste the things in their environments.

During the sensorimotor stage, babies use of their senses to perceive the world is so central to their understanding that whenever babies do not directly perceive objects, as far as they are concerned, the objects do not exist. Piaget found, for instance, that if he first interested babies in a toy and then covered the toy with a blanket, children who were younger than six months of age would act as if the toy had disappeared completely; they never tried to find it under the blanket but would nevertheless smile and reach for it when the blanket was removed. Piaget found that it was not until about eight months that the children realized that the object was merely covered and not gone. Piaget used the term **object permanence** to refer to the child's ability to know that an object exists even when the object cannot be perceived.

The following YouTube link provides a demonstration of object permanence:

- Video: *Piaget – Object Permanence Failure – Sensorimotor Stage* (Adam, 2013)

Canadian researcher Renée Baillargeon (Baillargeon, 2004; Wang, Baillargeon, & Brueckner, 2004) expanded the habituation task to take advantage of the tendency of infants to attend to stimuli that they find interesting to see if object permanence existed earlier than eight months of age. While Piaget thought that object permanence was shown in

infants' active physical search of an object that had "disappeared," Baillargeon's research showed that object permanence can be shown by measuring infant gaze and that it appears earlier than eight months.

The following YouTube link provides a good example of object permanence:

- Video: *Object Concept VOE Ramp Study Baillargeon* (Adam, 2013)

At about two years of age, and until about seven years of age, children move into the **preoperational stage**. During this stage, children begin to use language and to think more abstractly about objects with capacity to form mental images; however, their understanding is more intuitive, and they lack much ability to deduce or reason. The thinking is preoperational, meaning that the child lacks the ability to operate on or transform objects mentally. In one study that showed the extent of this inability, Judy DeLoache (1987) showed children a room within a small dollhouse. Inside the room, a small toy was visible behind a small couch. The researchers took the children to another lab room, which was an exact replica of the dollhouse room, but full-sized. When children who were two-and-half years old were asked to find the toy, they did not know where to look; they were simply unable to make the transition across the changes in room size. Three-year-old children, on the other hand, immediately looked for the toy behind the couch, demonstrating that they were improving their operational skills.

The inability of young children to view transitions also leads them to be **egocentric** — that is, unable to readily see and understand other people's viewpoints. Developmental psychologists define the **theory of mind** as the ability to take another person's viewpoint, and the ability to do so increases rapidly during the preoperational stage. In one demonstration of the development of theory of mind, a researcher shows a child a video of another child — let's call her Anna — putting a ball in a red box. Then, Anna leaves the room, and the video shows that while she is gone, a researcher moves the ball from the red box into a blue box. As the video continues, Anna comes back into the room. The child is then asked to point to the box where Anna will probably look to find her ball. Children who are younger than four years of age typically are unable to understand that Anna does not know that the ball has been moved, and they predict that she will look for it in the blue box. After four years of age, however, children have developed a theory of mind; they realize that different people can have different viewpoints and that, although she will be wrong, Anna will nevertheless think that the ball is still in the red box.

After about seven years of age until 11, the child moves into the **concrete operational stage**, which is marked by more frequent and more accurate use of transitions, operations, and abstract concepts, including those of time, space, and numbers. An important milestone during the concrete operational stage is the development of conservation, which is the understanding that changes in the form of an object do not necessarily mean changes in the quantity of the object. Children younger than seven years generally think that a glass of milk that is tall holds more milk than a glass of milk that is shorter and wider, and they continue to believe this even when they see the same milk poured back and forth between the glasses. It appears that these children focus only on one dimension — in this case, the height of the glass — and ignore the other dimension — such as width. However, when children reach the concrete operational stage, their abilities to understand such transformations make them aware that, although the milk looks different in the different glasses, the amount must be the same.

At about 11 years of age, children enter the **formal operational stage**, which is marked by the ability to think in abstract terms and to use scientific and philosophical lines of thought. Children in the formal operational stage are better able to systematically test alternative ideas to determine their influences on outcomes. For instance, rather than haphazardly changing different aspects of a situation that allows no clear conclusions to be drawn, they systematically make changes in one thing at a time and observe what difference that particular change makes. They learn to use deductive reasoning, such as "if this, then that," and they become capable of imagining situations that might be, rather than just those that actually exist.

The following YouTube link provides good examples of Piaget's stages:

Piaget's Stages of Development (misssmith891)

Piaget's theories have made a substantial and lasting contribution to developmental psychology. His contributions include the idea that children are not merely passive receptacles of information but rather actively engage in acquiring new knowledge and making sense of the world around them. This general idea has generated many other theories of cognitive development, each designed to help us better understand the development of the child's information-processing skills (Klahr & MacWhinney, 1998; Shrager & Siegler, 1998). Furthermore, the extensive research that Piaget's theory has stimulated has generally supported his beliefs about the order in which cognition develops. Piaget's work has also been applied in many domains — for instance, many teachers make use of Piaget's stages to develop educational approaches aimed at the level children are developmentally prepared for (Driscoll, 1994; Levin, Siegler, & Druyan, 1990).

Piaget may have been surprised about the extent to which a child's social surroundings influence learning. In some cases, children progress to new ways of thinking and retreat to old ones depending on the type of task they are performing, the circumstances they find themselves in, and the nature of the language used to instruct them (Courage & Howe, 2002). Children in different cultures show somewhat different patterns of cognitive development. Pierre Dasen (1972) found that children in non-Western cultures moved to the next developmental stage about a year later than did children from Western cultures and that level of schooling also influenced cognitive development. In short, Piaget's theory probably understated the contribution of environmental factors to social development.

Cognitive development during childhood — Vygotsky's influence

More recent theories (Cole, 1996; Rogoff, 1990; Tomasello, 1999), based in large part on the **sociocultural theory** of the Russian scholar Lev Vygotsky (1962, 1978), argue that cognitive development is not isolated entirely within the child but occurs at least in part through social interactions. These scholars argue that children's thinking develops through constant interactions with more competent others, including parents, peers, and teachers.

Vygotsky's notion that children learn through the guidance of others is termed the **zone of proximal development** — this refers to the things that children cannot know or do on their own but that are attainable with the sensitive guidance from another person. Vygotsky argued that adults and teachers use **scaffolding**, which is an understanding of how to provide just enough guidance for a child to accomplish something on their own.

An extension of Vygotsky's sociocultural theory is the idea of **community learning** in which children serve as both teachers and learners. This approach is frequently used in classrooms to improve learning as well as to increase responsibility and respect for others. When children work cooperatively in groups to learn material, they can help and support each other's learning as well as learn about each other as individuals, thereby reducing prejudice (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978; Brown, 1997).

Source: Adapted from Thompson (2020).

Psychology in Everyday Life

What makes a good parent?

Earlier we discussed parenting styles and the classification of four styles based on where they fall along the dimensions of parental control and warmth: uninvolved, authoritarian, permissive, and authoritative. Many studies of children and their parents, using different methods, measures, and samples, have reached the same conclusion — namely, that authoritative parenting, in comparison to the other three styles, is associated with a wide range of psychological and social advantages for children. Parents who use the authoritative style, with its combination of demands on the children as well as responsiveness to the children's needs, have kids who show better psychological adjustment, school performance, and psychosocial maturity compared with the kids of parents who use the other styles (Baumrind, 1996; Grolnick & Ryan, 1989). On the other hand, there are cultural differences in parenting styles. In a study comparing parenting styles in Canada, France, and Italy, Michael Claes and colleagues at the University of Montreal (Claes et al., 2011) found Canadian parents to be the most tolerant, having fewer rules and disciplinary actions. Canadian mothers and fathers were seen as less punitive, less coercive, and more tolerant than French and Italian mothers. The French were found to parent in a moderate style. French fathers, however, were perceived by teens as emotionally distant, rigid, and prone to intergenerational conflict. French mothers, for their part, were reported to foster closer bonds as their children grew into adolescence. In all three countries, teens experienced a gradual decrease in behavioural control between the ages of 11 and 19, when fathers and mothers reduced requirements and disciplinary constraints. "Our study found parental control is dictated by social codes and culture-specific values, which promote certain parental practices and proscribe others," says Claes, noting that Canadian parents value a democratic conception of education that promotes independence and negotiation, while European parents, especially Italians, advocate for obligations and respect for parental authority (University of Montreal, 2010, para. 6).

Despite the fact that different parenting styles are differentially effective overall, every child is different, and parents must be adaptable. Some children have particularly difficult temperaments, and these children require different parenting. The behaviours of the parents matter more for the children's development than they do for other, less demanding children who require less parenting overall (Pluess & Belsky, 2010). These findings remind us how the behaviour of the child can influence the behaviour of the people in their environment.

Although the focus is on the child, the parents must never forget about each other. Parenting is time-consuming and emotionally taxing, and the parents must work together to create a relationship in which both mother and father contribute to the household tasks and support each other. It is also important for the parents to invest time in their own intimacy, as happy parents are more likely to stay together, and divorce has a profoundly negative impact on children, particularly during and immediately after the divorce (Burt, Barnes, McGue, & Iacono, 2008; Ge, Natsuaki, & Conger, 2006).

Key Takeaways

- Babies are born with a variety of skills and abilities that contribute to their survival, and they also actively learn by engaging with their environments.
- Attachment to a caregiver is an important first relationship in life. Attachment styles refer to the security of this relationship and more generally to the type of relationship that people, and especially children, develop with those who are important to them.
- Temperament refers to characteristic mood, activity level, attention span, and level of distractability that is evident in infancy and early childhood. It is the foundation for personality.
- Parents use different types of discipline, such as power assertion and induction, and have parenting styles characterized by levels of warmth and parental control.
- Children's knowledge of the self is evident as young as 18 months of age.
- By the end of the preschool years, young children's "moral self" reflects how they think of themselves as people who want to do the right thing, who feel badly after misbehaving, and who feel uncomfortable when others misbehave.
- The habituation technique is used to demonstrate the newborn's ability to remember and learn from experience.
- Children use both assimilation and accommodation to develop functioning schemas of the world.
- Piaget's theory of cognitive development proposes that children develop in a specific series of sequential stages: sensorimotor, preoperational, concrete operational, and formal operational.
- Piaget's theories have had a major impact, but they have also been critiqued and expanded.
- Vygotsky's sociocultural theory proposes that cognitive development is partly influenced by social interactions with more knowledgeable others.

Exercises and Critical Thinking

1. Give an example of a situation in which you or someone else might show cognitive assimilation and cognitive accommodation. In what cases do you think each process is most likely to occur?
2. Consider some examples of how Piaget's and Vygotsky's theories of cognitive development might be used

by teachers who are teaching young children.
3. What advice would you give to new parents who are concerned about their child developing secure attachment?
4. Are the gender differences that exist innate (i.e., biological) differences or are they caused by other variables?

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Long Descriptions

Figure 13.3. In terms of children's attachment styles, 60% are secure, 15% are disorganized, 15% are avoidant, and 10% are ambivalent.

[Return to Figure 13.3]

Figure 13.4. Parenting styles:

	High Demands	**Low Demands**
High Responsiveness	Authoritative parenting	Permissive parenting
Low Responsiveness	Authoritarian parenting	Rejecting-neglecting parenting

[Return to Figure 13.4]

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13.3 Development of Gender

Learning Objectives

1. Summarize the differences between gender and sex, and explain theories of gender development.
2. Describe sexual orientation.
3. Describe gender identity.

Development of gender

Before we discuss gender in detail, it is important to understand what gender actually is. The terms sex and gender are frequently used interchangeably, though they have different meanings. In this context, **sex** refers to the biological category of male or female, as defined by physical differences in genetic composition and in reproductive anatomy and function. On the other hand, **gender** refers to the cultural, social, and psychological meanings that are associated with masculinity and femininity (Wood & Eagly, 2002). You can think of "male" and "female" as distinct categories of sex — a person is typically born a male or a female — but "masculine" and "feminine" as continuums associated with gender — everyone has a certain degree of masculine and feminine traits and qualities.

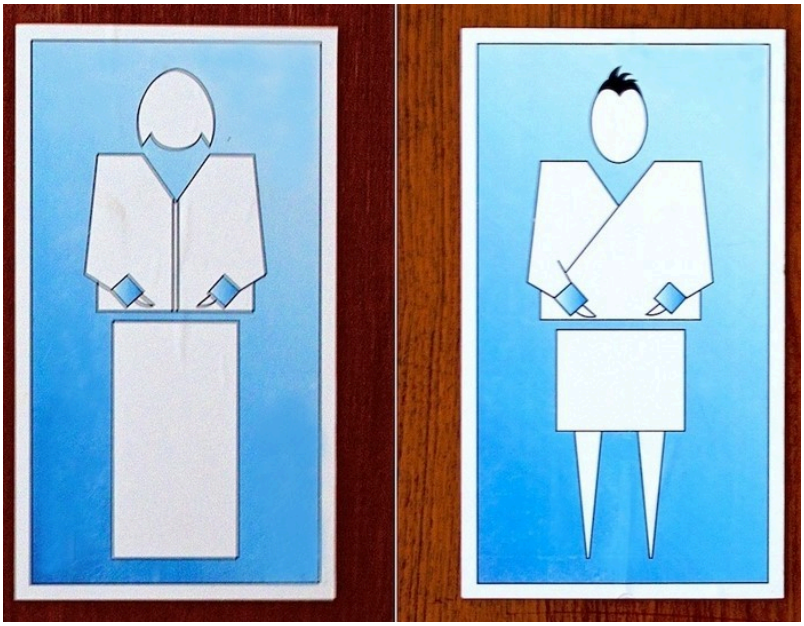


Figure 13.8. Gender refers to the cultural, social, and psychological meanings that are associated with masculinity and femininity.

Beyond sex and gender, there are a number of related terms that are also often misunderstood. **Gender roles** are the behaviours, attitudes, and personality traits that are designated as either masculine or feminine in a given culture. It is common to think of gender roles in terms of **gender stereotypes**, or the beliefs and expectations people hold about the typical characteristics, preferences, and behaviours of men and women. A person's **gender identity** refers to their psychological sense of being male or female. In contrast, a person's **sexual orientation** is the direction of their emotional and erotic attraction toward members of the opposite sex, the same sex, or both sexes. These are important distinctions, and though we will not discuss each of these terms in detail, it is important to recognize that sex, gender, gender identity, and sexual orientation do not always correspond with one another. A person can be biologically male but have a female gender identity while being attracted to women or any other combination of identities and orientations.

Gender roles

When do children start to learn about gender? The answer is that this begins at a very young age. By their first birthday, children can distinguish faces by gender. By their second birthday, they can label others' gender and even sort objects into gender-typed categories. By the third birthday, children can consistently identify their own gender (Martin, Ruble, & Szkrybalo, 2002). At this age, children believe sex is determined by external attributes, not biological attributes. Between three and six years of age, children learn that gender is constant and cannot change simply by changing external attributes, having developed **gender constancy**. During this period, children also develop strong and rigid gender stereotypes. Stereotypes can refer to play (e.g., boys play with trucks, and girls play with dolls), traits (e.g., boys are strong, and girls like to cry), and occupations (e.g., men are doctors, and women are nurses). These stereotypes stay rigid until children reach about age eight or nine. Then, they develop cognitive abilities that allow them to be more flexible in their thinking about others.

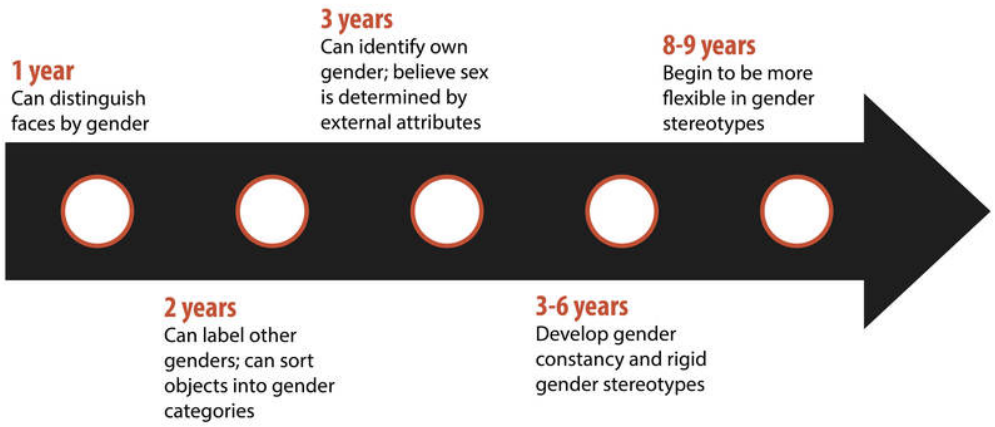


Figure 13.9. Children develop the ability to classify gender very early in life.

How do our gender roles and gender stereotypes develop and become so strong? Many of our gender stereotypes are so strong because we emphasize gender so much in culture (Bigler & Liben, 2007). For example, males and females are treated differently before they are even born. When someone learns of a new pregnancy, the first question asked is "Is it a boy or a girl?" Immediately upon hearing the answer, judgments are made about the child: boys will be rough and like blue, while girls will be delicate and like pink. **Developmental intergroup theory** postulates that adults' heavy focus on gender leads children to pay attention to gender as a key source of information about themselves and others, to seek out any possible gender differences, and to form rigid stereotypes based on gender that are subsequently difficult to change.



Figure 13.10. People are more likely to remember schema-consistent behaviours and attributes than schema-inconsistent behaviours and attributes. For example, people are more likely to remember men, and forget women, who are firefighters.

There are also psychological theories that partially explain how children form their own gender roles after they learn to differentiate based on gender. The first of these theories is gender schema theory. **Gender schema theory** argues that children are active learners who essentially socialize themselves. In this case, children actively organize others' behaviour, activities, and attributes into gender categories, which are known as **schemas**. These schemas then affect what children notice and remember later. People of all ages are more likely to remember schema-consistent behaviours and attributes than schema-inconsistent behaviours and attributes. So, people are more likely to remember men, and forget women, who are firefighters. They also misremember schema-inconsistent information. If research participants are shown pictures of someone standing at the stove, they are more likely to remember the person to be cooking if depicted as a woman, and the person to be repairing the stove if depicted as a man. By only remembering schema-consistent information, gender schemas strengthen more and more over time.

A second theory that attempts to explain the formation of gender roles in children is social learning theory. **Social learning theory** argues that gender roles are learned through reinforcement, punishment, and modelling. Children are rewarded and reinforced for behaving in concordance with gender roles and punished for breaking gender roles. In addition, social learning theory argues that children learn many of their gender roles by modelling the behaviour of adults and older children and, in doing so, develop ideas about what behaviours are appropriate for each gender. Social learning theory has less support than gender schema theory. Research shows that parents do reinforce gender-appropriate play, but for the most part treat their male and female children similarly (Lytton & Romney, 1991).

Gender socialization

Different treatment by gender begins with parents. A meta-analysis of research from Canada and the United States found that parents most frequently treated sons and daughters differently by encouraging gender-stereotypical activities (Lytton & Romney, 1991). Fathers, more than mothers, are particularly likely to encourage gender-stereotypical play, especially in sons. Parents also talk to their children differently based on stereotypes. For example, parents talk about numbers and counting twice as often with sons than daughters (Chang, Sandhofer, & Brown, 2011) and talk to sons in more detail about science than with daughters. Parents are also much more likely to discuss emotions with their daughters than their sons.

Children do a large degree of socializing themselves. By age three, children play in gender-segregated play groups and expect a high degree of conformity. Children who are perceived as gender atypical (i.e., do not conform to gender stereotypes) are more likely to be bullied and rejected than their more gender-conforming peers.

Sexual orientation

A person's sexual orientation is their emotional and erotic attraction toward another individual (see Figure 13.11). While the majority of people identify as heterosexual, there is a sizable population of people who identify as either homosexual or bisexual. Research suggests that somewhere between 3% and 10% of the U.S. population identifies as homosexual (Kinsey, Pomeroy, & Martin, 1998; LeVay, 1996; Pillard & Bailey, 1995).



Figure 13.11. Between 3% and 10% of the adult population identifies as homosexual.

Issues of sexual orientation have long fascinated scientists interested in determining what causes one individual to be heterosexual while another is homosexual. For many years, people believed that these differences arose because of different socialization and familial experiences. However, research has consistently demonstrated that family backgrounds and experiences are very similar among heterosexual and homosexual people (Bell, Weinberg, & Hammersmith, 1981; Ross & Arrindell, 1988). Issues related to sexual orientation and gender identity are very much influenced by sociocultural factors. Even the ways in which we define sexual orientation and gender vary from one culture to the next. In some instances, periods of exclusively homosexual behaviour are socially prescribed as a part of normal development and maturation. For example, in parts of New Guinea, young boys are expected to engage in sexual behaviour with other boys for a given period of time because it is believed that doing so is necessary for these boys to become men (Baldwin & Baldwin, 1989).

Genetic and biological mechanisms have also been proposed, and the balance of research evidence suggests that sexual

orientation has an underlying biological component. For instance, over the past 25 years, research has demonstrated gene-level contributions to sexual orientation (Bailey & Pillard, 1991; Hamer, Hu, Magnuson, Hu, & Pattatucci, 1993; Rodriguez-Larralde & Paradisi, 2009), with some researchers estimating that genes account for at least half of the variability seen in human sexual orientation (Pillard & Bailey, 1998). Other studies report differences in brain structure and function between heterosexual and homosexual people (Allen & Gorski, 1992; Byne et al., 2001; Hu et al., 2008; LeVay, 1991; Ponseti et al., 2006; Rahman & Wilson, 2003a; Swaab & Hofman, 1990), and even differences in basic body structure and function have been observed (Hall & Kimura, 1994; Lippa, 2003; Loehlin & McFadden, 2003; McFadden & Champlin, 2000; McFadden & Pasanen, 1998; Rahman & Wilson, 2003b). In aggregate, the data suggest that to a significant extent, sexual orientations are something with which we are born.

Misunderstandings about sexual orientation

Regardless of how sexual orientation is determined, research has made clear that sexual orientation is not a choice, but rather it is a relatively stable characteristic of a person that cannot be changed. Claims of successful gay conversion therapy have received wide criticism from the research community due to significant concerns with research design, recruitment of experimental participants, and interpretation of data. As such, there is no credible scientific evidence to suggest that individuals can change their sexual orientation (Jenkins, 2010).

Dr. Robert Spitzer, the author of one of the most widely-cited examples of successful conversion therapy, apologized to both the scientific community and the gay community for his mistakes, and he publicly recanted his own paper in a public letter addressed to the editor of *Archives of Sexual Behavior in* the spring of 2012 (Carey, 2012). In this letter, Spitzer wrote:

> I was considering writing something that would acknowledge that I now judge the major critiques of the study as largely correct. . . . I believe I owe the gay community an apology for my study making unproven claims of the efficacy of reparative therapy. I also apologize to any gay person who wasted time or energy undergoing some form of reparative therapy because they believed that I had proven that reparative therapy works with some "highly motivated" individuals. (Becker, 2012, para. 2, 5)

Citing research that suggests not only that gay conversion therapy is ineffective, but also potentially harmful, legislative efforts to make such therapy illegal have either been enacted (e.g., it is now illegal in California) or are underway across the United States, and many professional organizations have issued statements against this practice (Human Rights Campaign, n.d.)

Gender identity

Many people conflate sexual orientation with gender identity because of stereotypical attitudes that exist about homosexuality. In reality, these are two related, but different, issues. Gender identity refers to one's sense of being male or female. Generally, our gender identities correspond to our chromosomal and phenotypic sex, but this is not always the case. The umbrella acronym **LGBTQ+** is often used by people who refer to their sexual orientation or gender identity in a number of diverse ways: lesbian, gay, bisexual, trans, queer, and all others who use any non-traditional descriptors in their gender or sexual identity. Clearly, the traditional dichotomies of male-female or masculine-feminine do not capture the enormous variability that exists in human gender and sexual identity and expression.

When individuals do not feel comfortable identifying with the gender associated with their biological sex, they

experience gender dysphoria. **Gender dysphoria** is a diagnostic category in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) that describes a conflict between how one identifies with regard to gender and how they present on the outside.

Many people who are classified as gender dysphoric seek to live their lives in ways that are consistent with their own gender identity. This involves dressing in clothing and assuming an identity that conforms with how they identify with regard to gender. These individuals may also undertake transgender hormone therapy to make their bodies look more like the sex with which they identify, and in some cases, they elect to have surgeries to alter the appearance of their external genitalia to resemble that of their preferred identity (see Figure 13.12). While these may sound like drastic changes, gender dysphoric individuals take these steps because their bodies seem to them to be a mistake of nature, and they seek to correct this mistake. **Transgender (or trans)** is the term most commonly used by people whose gender identity differs from their assigned sex at birth. Other people who might be seen as trans use no term at all to describe their gender identity, preferring instead to refrain from definitions. Indigenous Canadians may describe themselves as **two-spirit**, reflecting their understanding of gender role and spirituality in Indigenous culture (Provincial Health Services Authority Trans Care BC, 2019). Many cultures have words that describe an understanding of the diversity in gender identity. In Thailand, you can be male, female, or kathoey. A kathoey is an individual who would be described as intersexed or transgendered in Canada and the United States (Tangmunkongvorakul, Banwell, Carmichael, Utomo, & Sleigh, 2010).



Figure 13.12. Chaz Bono, a transgender male, is a well-known person who transitioned from female to male. (a) In the 1970s, the world knew Chaz as Chastity Bono, the daughter of the famous entertaining duo Sonny and Cher; here young Chastity is pictured with Sonny. (b) Later in life, Chaz transitioned to align his physical body with his gender identity.

Jurisdictions around the world vary in how they treat people who identify as LGBTQ+. In Canada, the Gender Identity Rights Bill C-16 was passed in 2017, protecting transgender and gender-diverse Canadians from discrimination under the Canadian Human Rights Act and from hate speech under the Criminal Code. It also allowed for sentencing decisions in hate crimes to include those committed against transgender and gender-diverse people.

Source: Adapted from Brown, Jewell, and Tam (2020) and Spielman et al. (2019).

Psychology in Everyday Life

The case of David Reimer

In August of 1965, Janet and Ronald Reimer of Winnipeg, Canada, welcomed the birth of their twin sons, Bruce and Brian. Within a few months, the twins were experiencing urinary problems; doctors recommended the problems could be alleviated by having the boys circumcised. A malfunction of the medical equipment used to perform the circumcision resulted in Bruce's penis being irreparably damaged. Distraught, Janet and Ronald looked to expert advice on what to do with their baby boy. By happenstance, the couple became aware of Dr. John Money at Johns Hopkins University and his theory of psychosexual neutrality (Colapinto, 2000).

Dr. Money had spent a considerable amount of time researching transgendered individuals and individuals born with ambiguous genitalia. As a result of this work, he developed a theory of psychosexual neutrality. His theory asserted that we are essentially neutral at birth with regard to our gender identity and that we don't assume a concrete gender identity until we begin to master language. Furthermore, Dr. Money believed that the way in which we are socialized in early life is ultimately much more important than our biology in determining our gender identity (Money, 1962).

Dr. Money encouraged Janet and Ronald to bring the twins to Johns Hopkins University, and he convinced them that they should raise Bruce as a girl. Left with few other options at the time, Janet and Ronald agreed to have Bruce's testicles removed and to raise him as a girl. When they returned home to Canada, they brought with them Brian and his "sister," Brenda, along with specific instructions to never reveal to Brenda that she had been born a boy (Colapinto, 2000).

Early on, Dr. Money shared with the scientific community the great success of this natural experiment that seemed to fully support his theory of psychosexual neutrality (Money, 1975). Indeed, in early interviews with the children, it appeared that Brenda was a typical little girl who liked to play with "girly" toys and do "girly" things.

However, Dr. Money was less than forthcoming with information that seemed to argue against the success of the case. In reality, Brenda's parents were constantly concerned that their little girl wasn't really behaving as most girls did, and by the time Brenda was nearing adolescence, it was painfully obvious to the family that she was really having a hard time identifying as a female. In addition, Brenda was becoming increasingly reluctant to continue her visits with Dr. Money to the point that she threatened suicide if her parents made her go back to see him again.

At that point, Janet and Ronald disclosed the true nature of Brenda's early childhood to their daughter. While initially shocked, Brenda reported that things made sense to her now, and ultimately, by the time she was an adolescent, Brenda had decided to identify as a male. Thus, she became David Reimer.

David was quite comfortable in his masculine role. He made new friends and began to think about his future. Although his surgery had left him infertile, he still wanted to be a father. In 1990, David married a single mother and loved his new role as a husband and father. In 1997, David was made aware that Dr. Money was continuing

to publicize his case as a success supporting his theory of psychosexual neutrality. This prompted David and his brother to go public with their experiences in an attempt to discredit the doctor's publications. While this revelation created a firestorm in the scientific community for Dr. Money, it also triggered a series of unfortunate events that ultimately led to David committing suicide in 2004 (O'Connell, 2004).

This sad story speaks to the complexities involved in gender identity. While the Reimer case had earlier been paraded as a hallmark of how socialization trumped biology in terms of gender identity, the truth of the story made the scientific and medical communities more cautious in dealing with cases that involve intersex children and how to deal with their unique circumstances. In fact, stories like this one have prompted measures to prevent unnecessary harm and suffering to children who might have issues with gender identity. For example, in 2013, a law took effect in Germany allowing parents of intersex children to classify their children as indeterminate so that children can self-assign the appropriate gender once they have fully developed their own gender identities (Paramaguru, 2013).

Key Takeaways

- Gender and sex are different concepts.
- Gender development begins in early childhood. Parents and others reinforce gender stereotypes.
- Sexual orientation is distinct from gender identity.

Exercises and Critical Thinking

1. What can parents do to allow their children to develop gender roles that are not constrained by stereotypes?

2. How would you react if your child came out as trans?
3. What hurdles do non-gender-conforming children face?

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13.4 Adolescence: Developing Independence and Identity

Learning Objectives

1. Summarize the physical and cognitive changes that occur for boys and girls during adolescence.
2. Explain how adolescents develop a sense of morality and of self-identity.
3. Describe major features of social development during adolescence.
4. Be able to explain sources of diversity in adolescent development.
5. Explain moral development in adolescence.

Adolescence is defined as the years between the onset of puberty and the beginning of adulthood. In the past, when people were likely to marry in their early 20s or younger, this period might have lasted only 10 years or less — starting roughly between ages 12 and 13 and ending by age 20, at which time the child got a job or went to work on the family farm, married, and started their own family. Today, children mature more slowly, move away from home at later ages, and maintain ties with their parents longer. For instance, children may go away to university but still receive financial support from parents, and they may come home on weekends or even to live for extended time periods. Thus, the period between puberty and adulthood may well last into the late 20s, merging into adulthood itself. In fact, it is appropriate now to consider the period of adolescence and that of emerging adulthood (i.e., the ages between 18 and the middle or late 20s) together.

During adolescence, the child continues to grow physically, cognitively, and emotionally, changing from a child into an adult. The body grows rapidly in size, and the sexual and reproductive organs become fully functional. At the same time, as adolescents develop more advanced patterns of reasoning and a stronger sense of self; they seek to forge their own identities, developing important attachments with people other than their parents. Particularly in Western societies, where the need to forge a new independence is critical (Baumeister & Tice, 1986; Twenge, 2006), this period can be stressful for many children, as it involves new emotions, the need to develop new social relationships, and an increasing sense of responsibility and independence.

Although adolescence can be a time of stress for many teenagers, most of them weather the trials and tribulations successfully. For example, the majority of adolescents experiment with alcohol sometime before high school graduation. Although many will have been drunk at least once, relatively few teenagers will develop long-lasting drinking problems or permit alcohol to adversely affect their school or personal relationships. Similarly, a great many teenagers break the law during adolescence, but very few young people develop criminal careers (Farrington, 1995). These facts do not, however, mean that using drugs or alcohol is a good idea. The use of recreational drugs can have substantial negative consequences, and the likelihood of these problems — including dependence, addiction, and even brain damage — is significantly greater for young adults who begin using drugs at an early age.

Physical changes in adolescence

Adolescence begins with the onset of **puberty**, a developmental period in which hormonal changes cause rapid physical alterations in the body, culminating in sexual maturity. Although the timing varies to some degree across cultures, the average age range for reaching puberty is between nine and 14 years for girls and between 10 and 17 years for boys (Marshall & Tanner, 1986).

Puberty begins when the pituitary gland begins to stimulate the production of the male sex hormone testosterone in boys and the female sex hormones estrogen and progesterone in girls. The release of these sex hormones triggers the development of the **primary sex characteristics**, that is, the sex organs concerned with reproduction (see Figure 13.13). These changes include the enlargement of the testicles and the penis in boys and the development of the ovaries, uterus, and vagina in girls. In addition, **secondary sex characteristics**, which are features that distinguish the two sexes from each other but are not involved in reproduction, are also developing, such as an enlarged Adam's apple, a deeper voice, pubic hair, and underarm hair in boys and enlargement of the breasts and hips as well as the appearance of pubic and underarm hair in girls (see Figure 13.13). The enlargement of breasts is usually the first sign of puberty in girls and, on average, occurs between ages 10 and 12 (Marshall & Tanner, 1986). Boys typically begin to grow facial hair between ages 14 and 16, and both boys and girls experience a rapid growth spurt during this stage. The growth spurt for girls usually occurs earlier than that for boys, with some boys continuing to grow into their 20s.

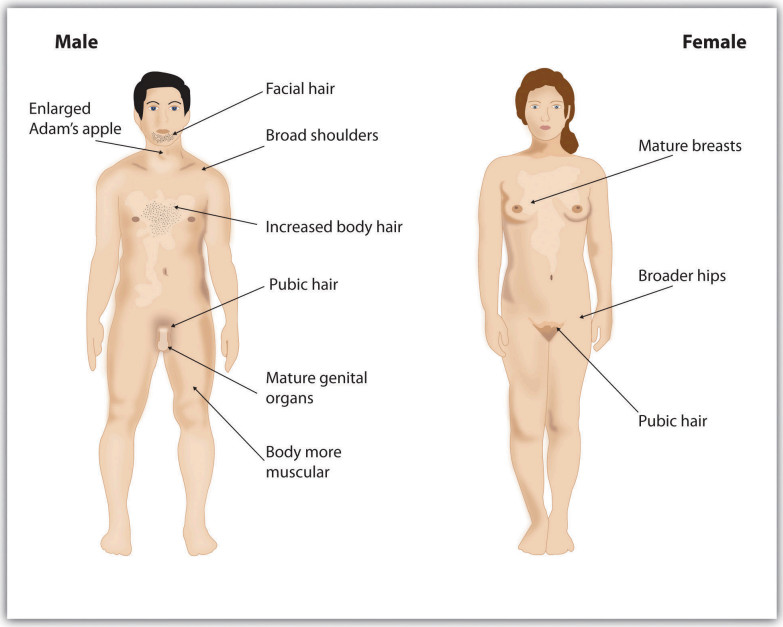


Figure 13.13. Puberty brings dramatic changes in the body, including the development of primary and secondary sex characteristics.

A major milestone in puberty for girls is **menarche**, the first menstrual period, typically experienced at around 12 or 13 years of age (Anderson, Dannal, & Must, 2003). The age of menarche varies substantially and is determined by genetics, as well as by diet and lifestyle, since a certain amount of body fat is needed to attain menarche. Girls who are very slim, who engage in strenuous athletic activities, or who are malnourished may begin to menstruate later. Even after

menstruation begins, girls whose level of body fat drops below the critical level may stop having their periods. The sequence of events for puberty is more predictable than the age at which they occur. Some girls may begin to grow pubic hair at age 10 but not attain menarche until age 15. In boys, facial hair may not appear until 10 years after the initial onset of puberty.

The timing of puberty in both boys and girls can have significant psychological consequences. Boys who mature earlier attain some social advantages because they are taller and stronger and, therefore, often more popular (Lynne, Graber, Nichols, Brooks-Gunn, & Botvin, 2007). At the same time, however, early-maturing boys are at greater risk for delinquency and are more likely than their peers to engage in antisocial behaviours, including drug and alcohol use, truancy (i.e., skipping class), and precocious sexual activity. Girls who mature early may find their maturity stressful, particularly if they experience teasing or sexual harassment (Mendle, Turkheimer, & Emery, 2007; Pescovitz & Walvoord, 2007). Early-maturing girls are also more likely to have emotional problems, a lower self-image, and higher rates of depression, anxiety, and disordered eating than their peers (Ge, Conger, & Elder, 1996).

Cognitive development in adolescence

Although the most rapid cognitive changes occur during childhood, the brain continues to develop throughout adolescence and even into the 20s (Weinberger, Elvevåg, & Giedd, 2005). During adolescence, the brain continues to form new neural connections, but it also casts off unused neurons and connections (Blakemore, 2008). As teenagers mature, the prefrontal cortex — the area of the brain responsible for reasoning, planning, and problem solving — also continues to develop (Goldberg, 2001). Additionally, myelin, the fatty tissue that forms around axons and neurons and helps speed transmissions between different regions of the brain, also continues to grow (Rapoport et al., 1999).

Adolescents often seem to act impulsively, rather than thoughtfully, and this may be in part because the development of the prefrontal cortex is, in general, slower than the development of the emotional parts of the brain, including the limbic system (Blakemore, 2008). Furthermore, the hormonal surge that is associated with puberty, which primarily influences emotional responses, may create strong emotions and lead to impulsive behaviour. It has been hypothesized that adolescents may engage in risky behaviour — such as smoking, drug use, dangerous driving, and unprotected sex — in part because they have not yet fully acquired the mental ability to curb impulsive behaviour or to make entirely rational judgments (Steinberg, 2007).

The new cognitive abilities that are attained during adolescence may also give rise to new feelings of egocentrism, in which adolescents believe that they can do anything and that they know better than anyone else, including their parents (Elkind, 1978). Teenagers are likely to be highly self-conscious, often creating an **imaginary audience** in which they feel that everyone is constantly watching them (Goossens, Beyers, Emmen, & van Aken, 2002). Because teens think so much about themselves, they mistakenly believe that others must be thinking about them, too (Rycek, Stuhr, McDermott, Benker, & Swartz, 1998). It is no wonder that everything a teen's parents do suddenly feels embarrassing to them when they are in public.

Social development in adolescence

Some of the most important changes that occur during adolescence involve the further development of the self-concept and the development of new attachments. Whereas young children are most strongly attached to their parents, the important attachments of adolescents move increasingly away from parents and increasingly toward peers (Harris, 1998). As a result, parents' influence diminishes at this stage.

According to Erik Erikson (1950), the main social task of the adolescent is the search for a unique identity — the ability to answer the question "Who am I?" In the search for identity, the adolescent may experience role confusion in which they are balancing or choosing among identities, taking on negative or undesirable identities, or temporarily giving up looking for an identity altogether if things are not going well.

One approach to assessing identity development was proposed by James Marcia (1980). In this approach, adolescents are asked questions regarding their exploration of and commitment to issues related to occupation, politics, religion, and sexual behaviour. The responses to the questions allow the researchers to classify the adolescent into one of four identity categories, as shown in the table below.

Table 13.4. James Marcia's stages of identity development

Stage	Identity Development
Identity-diffusion status	The individual does not have firm commitments regarding the issues in question and is not making progress toward them.
Foreclosure status	The individual has not engaged in any identity experimentation and has established an identity based on the choices or values of others.
Moratorium status	The individual is exploring various choices but has not yet made a clear commitment to any of them.
Identity-achievement status	The individual has attained a coherent and committed identity based on personal decisions.
	Data source: Marcia, 1980.

Studies assessing how teens pass through Marcia's stages show that, although most teens eventually succeed in developing a stable identity, the path to it is not always easy and many routes can be taken. Some teens may simply adopt the beliefs of their parents or the first role that is offered to them, perhaps at the expense of searching for other, more promising possibilities, which is an example of foreclosure status. Other teens may spend years trying on different possible identities before finally choosing one, which is an example of moratorium status.

To help them work through the process of developing an identity, teenagers may well try out different identities in different social situations. They may maintain one identity at home and a different type of persona when they are with their peers. Eventually, most teenagers do integrate the different possibilities into a single self-concept and a comfortable sense of identity, which is an example of identity-achievement status.

For teenagers, the peer group provides valuable information about the self-concept. For instance, in response to the question "What were you like as a teenager? (e.g., cool, nerdy, awkward)," posed on the website Answerbag, one teenager replied in this way:

> I'm still a teenager now, but from 8th–9th grade I didn't really know what I wanted at all. I was smart, so I hung out with the nerdy kids. I still do; my friends mean the world to me. But in the middle of 8th I started hanging out with whom you may call the "cool" kids . . . and I also hung out with some stoners, just for variety. I pierced various parts of my body and kept my grades up. Now, I'm just trying to find who I am. I'm even doing my sophomore year in China so I can get a better view of what I want. (dojokills, 2007, answer 47)

Responses like this one demonstrate the extent to which adolescents are developing their self-concepts and self-identities and how they rely on peers to help them do that. The writer here is trying out several, perhaps conflicting, identities, and the identities any teen experiments with are defined by the group the person chooses to be a part of. The friendship groups (e.g., cliques, crowds, or gangs) that are such an important part of the adolescent experience allow the young adult to try out different identities, and these groups provide a sense of belonging and acceptance (Rubin, Bukowski, & Parker, 2006). A big part of what the adolescent is learning is **social identity**, which is the part of the self-

concept that is derived from one's group memberships. Adolescents define their social identities according to how they are similar to and differ from others, finding meaning in the sports, religious, school, gender, and ethnic categories they belong to.

Aggression and antisocial behaviour

Several major theories of the development of antisocial behaviour treat adolescence as an important period. Gerald Patterson's (1982) early versus late starter model of the development of aggressive and antisocial behaviour distinguishes youths whose antisocial behaviour begins during childhood (i.e., early starters) versus adolescence (i.e., late starters). According to the theory, early starters are at greater risk for long-term antisocial behaviour that extends into adulthood than are late starters. Late starters who become antisocial during adolescence are theorized to experience poor parental monitoring and supervision, aspects of parenting that become more salient during adolescence. Poor monitoring and lack of supervision contribute to increasing involvement with deviant peers, which in turn promotes adolescents' own antisocial behaviour. Late starters desist from antisocial behaviour when changes in the environment make other options more appealing. Similarly, Terrie Moffitt's (1993) life-course-persistent versus adolescence-limited model distinguishes between antisocial behaviour that begins in childhood versus adolescence. Moffitt regards adolescence-limited antisocial behaviour as resulting from a "maturity gap" between adolescents' dependence on and control by adults and their desire to demonstrate their freedom from adult constraint. However, as they continue to develop, and legitimate adult roles and privileges become available to them, there are fewer incentives to engage in antisocial behaviour, leading to desistance in these antisocial behaviours.



Figure 13.14. Early antisocial behaviour leads to befriending others who also engage in antisocial behaviour, which only perpetuates the downward cycle of aggression and wrongful acts.

Anxiety and depression

Developmental models of anxiety and depression also treat adolescence as an important period, especially in terms of the emergence of gender differences in prevalence rates that persist through adulthood (Rudolph, 2009). Starting in early adolescence, compared with males, females have rates of anxiety that are about twice as high and rates of depression that are one and a half to three times as high (American Psychiatric Association, 2013). Although the rates vary across specific anxiety and depression diagnoses, rates for some disorders are markedly higher in adolescence than in childhood or adulthood. For example, prevalence rates for specific phobias are about 5% in children, 3–5% in adults, but 16% in adolescents. Anxiety and depression are particularly concerning because suicide is one of the leading causes of death during adolescence. Developmental models focus on interpersonal contexts in both childhood and adolescence that foster depression and anxiety (e.g., Rudolph, 2009). Family adversity, such as abuse and parental psychopathology, during childhood sets the stage for social and behavioural problems during adolescence. Adolescents with such problems generate stress in their relationships (e.g., by resolving conflict poorly and excessively seeking reassurance) and select into more maladaptive social contexts (e.g., "misery loves company" scenarios in which depressed youths select other depressed youths as friends and then frequently co-ruminate as they discuss their problems, exacerbating negative affect and stress). These processes are intensified for girls compared with boys because girls have more relationship-oriented goals related to intimacy and social approval, leaving them more vulnerable to disruption in these relationships. Anxiety and depression then exacerbate problems in social relationships, which in turn contribute to the stability of anxiety and depression over time.

Academic achievement

Adolescents spend more waking time in school than in any other context (Eccles & Roeser, 2011). Academic achievement during adolescence is predicted by interpersonal (e.g., parental engagement in adolescents' education), intrapersonal (e.g., intrinsic motivation), and institutional (e.g., school quality) factors. Academic achievement is important in its own right as a marker of positive adjustment during adolescence but also because academic achievement sets the stage for future educational and occupational opportunities. The most serious consequence of school failure, particularly dropping out of school, is the high risk of unemployment or underemployment in adulthood that follows. High achievement can set the stage for college or future vocational training and opportunities.

Diversity

Adolescent development does not necessarily follow the same pathway for all individuals. Certain features of adolescence, particularly with respect to biological changes associated with puberty and cognitive changes associated with brain development, are relatively universal. However, other features of adolescence depend largely on circumstances that are more environmentally variable. For example, adolescents growing up in one country might have different opportunities for risk taking than adolescents in a different country, and supports and sanctions for different behaviours in adolescence depend on laws and values that might be specific to where adolescents live. Likewise, different cultural norms regarding family and peer relationships shape adolescents' experiences in these domains. For example, in some countries, adolescents' parents are expected to retain control over major decisions, whereas in other countries, adolescents are expected to begin sharing in or taking control of decision making.



Figure 13.15. Although similar biological changes occur for all adolescents as they enter puberty, these changes can differ significantly depending on one's cultural, ethnic, and societal factors.

Even within the same country, adolescents' gender, ethnicity, immigrant status, religion, sexual orientation, socioeconomic status, and personality can shape both how adolescents behave and how others respond to them, creating diverse developmental contexts for different adolescents. For example, early puberty, which occurs before most other peers have experienced puberty, appears to be associated with worse outcomes for girls than boys, likely because girls who enter puberty early tend to associate with older boys, which in turn is associated with early sexual behaviour and substance use. For adolescents who are ethnic or sexual minorities, discrimination sometimes presents a set of challenges that non-minorities do not face.

Finally, genetic variations contribute an additional source of diversity in adolescence. Current approaches emphasize gene X environment interactions, which often follow a **differential susceptibility** model (Belsky & Pluess, 2009). That is, particular genetic variations are considered riskier than others, but genetic variations also can make adolescents more or less susceptible to environmental factors. For example, the association between the CHRM2 genotype and adolescent externalizing behaviour (e.g., aggression and delinquency) has been found in adolescents whose parents are low in monitoring behaviours (Dick et al., 2011). Thus, it is important to bear in mind that individual differences play an important role in adolescent development.

Peers

As children become adolescents, they usually begin spending more time with their peers and less time with their families, and these peer interactions are increasingly unsupervised by adults. Children's notions of friendship often focus on shared activities, whereas adolescents' notions of friendship increasingly focus on intimate exchanges of thoughts

and feelings. During adolescence, peer groups evolve from primarily single-sex to mixed-sex. Adolescents within a peer group tend to be similar to one another in behaviour and attitudes, which has been explained as being a function of **homophily** (i.e., adolescents who are similar to one another choose to spend time together in a "birds of a feather flock together" way) and influence (i.e., adolescents who spend time together shape each other's behaviour and attitudes). One of the most widely studied aspects of adolescent peer influence is known as **deviant peer contagion** (Dishion & Tipsord, 2011), which is the process by which peers reinforce problem behaviour by laughing or showing other signs of approval that then increase the likelihood of future problem behaviour.



Figure 13.16. Peer relationships are a big part of adolescent development. The influence of peers can be both positive and negative as adolescents experiment together with identity formation and new experiences.

Peers can serve both positive and negative functions during adolescence. Negative peer pressure can lead adolescents to make riskier decisions or engage in more problematic behaviour than they would alone or in the presence of their family. For example, adolescents are much more likely to drink alcohol, use drugs, and commit crimes when they are with their friends than when they are alone or with their family. However, peers also serve as an important source of social support and companionship during adolescence, and adolescents with positive peer relationships are happier and better adjusted than those who are socially isolated or have conflictual peer relationships.

Crowds are an emerging level of peer relationships in adolescence. In contrast to friendships, which are reciprocal dyadic relationships, and cliques, which refer to groups of individuals who interact frequently, crowds are characterized more by shared reputations or images than actual interactions (Brown & Larson, 2009). These crowds reflect different prototypic identities, such as jocks or brains, and are often linked with adolescents' social status and peers' perceptions of their values or behaviours.

Romantic relationships

Adolescence is the developmental period during which romantic relationships typically first emerge. Initially, same-sex peer groups that were common during childhood expand into mixed-sex peer groups that are more characteristic of adolescence. Romantic relationships often form in the context of these mixed-sex peer groups (Connolly, Furman, & Konarski, 2000). Although romantic relationships during adolescence are often short-lived, rather than long-term committed partnerships, their importance should not be minimized. Adolescents spend a great deal of time focused on romantic relationships, and their positive and negative emotions are more tied to romantic relationships, or lack thereof, than to friendships, family relationships, or school (Furman & Shaffer, 2003). Romantic relationships contribute to adolescents' identity formation, changes in family and peer relationships, and adolescents' emotional and behavioural adjustment.

Furthermore, romantic relationships are centrally connected to adolescents' emerging sexuality. Parents, policymakers, and researchers have devoted a great deal of attention to adolescents' sexuality, in large part because of concerns related to sexual intercourse, contraception, and preventing teen pregnancies. However, sexuality involves more than this narrow focus. For example, adolescence is often when individuals who are lesbian, gay, bisexual, or transgender come to perceive themselves as such (Russell, Clarke, & Clary, 2009). Thus, romantic relationships are a domain in which adolescents experiment with new behaviours and identities.

Developing moral reasoning — Kohlberg's theory

The independence that comes with adolescence requires independent thinking as well as the development of **morality**, which is the standards of behaviour that are generally agreed on within a culture to be right or proper. Just as Piaget believed that children's cognitive development follows specific patterns, Lawrence Kohlberg (1984) argued that children learn their moral values through active thinking and reasoning, and their moral development follows a series of stages. To study moral development, Kohlberg posed moral dilemmas to children, teenagers, and adults, such as the following:

> In Europe, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging 10 times what the drug cost him to make. He paid $400 for the radium and charged $4,000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money and tried every legal means, but he could only get together about $2,000, which is half of what it cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later, but the druggist said, "No, I discovered the drug and I'm going to make money from it." So, having tried every legal means, Heinz gets desperate and considers breaking into the man's store to steal the drug for his wife.

1. Should Heinz steal the drug? Why or why not?
2. Is it actually right or wrong for him to steal the drug? Why is it right or wrong?
3. Does Heinz have a duty or obligation to steal the drug? Why or why not? (Kohlberg, 1984)

The following YouTube link provides a good example of the stages of Kohlberg's theory:

- Video: *Kohlberg's Moral Development Theory* (FloatOnOkay, 2007)

As you can see in the table below, Kohlberg concluded, on the basis of their responses to the moral questions, that,

as children develop intellectually, they pass through **three stages of moral thinking**: the preconventional level, the conventional level, and the postconventional level.

Table 13.5. Kohlberg's stages of moral reasoning

Age	Moral Stage	Description
Young children	Preconventional morality	Until about the age of nine, children focus on self-interest. At this stage, punishment is avoided and rewards are sought. A person at this level will argue, "The man shouldn't steal the drug, as he may get caught and go to jail."
Older children, adolescents, most adults	Conventional morality	By early adolescence, the child begins to care about how situational outcomes impact others and wants to please and be accepted. At this developmental phase, people are able to value the good that can be derived from holding to social norms in the form of laws or less formalized rules. For example, a person at this level may say, "He should not steal the drug, as everyone will see him as a thief, and his wife, who needs the drug, wouldn't want to be cured because of thievery," or, "No matter what, he should obey the law because stealing is a crime."
Many adults	Postconventional morality	At this stage, individuals employ abstract reasoning to justify behaviours. Moral behaviour is based on self-chosen ethical principles that are generally comprehensive and universal, such as justice, dignity, and equality. Someone with self-chosen principles may say, "The man should steal the drug to cure his wife and then tell the authorities that he has done so. He may have to pay a penalty, but at least he has saved a human life."

Data source: Kohlberg, 1984.

Although research has supported Kohlberg's idea that moral reasoning changes from an early emphasis on punishment, social rules, and regulations to an emphasis on more general ethical principles, as with Piaget's approach, Kohlberg's stage model is probably too simple. For one, children may use higher levels of reasoning for some types of problems but revert to lower levels in situations where doing so is more consistent with their goals or beliefs (Rest, 1979). Second, it has been argued that the stage model is particularly appropriate for Western, rather than non-Western, samples in which allegiance to social norms, such as respect for authority, may be particularly important (Haidt, 2001). As well, there is frequently little correlation between how children score on the moral stages and how they behave in real life.

Perhaps the most important critique of Kohlberg's theory is that it may describe the moral development of boys better than it describes that of girls. Carol Gilligan (1982) has argued that, because of differences in their socialization, males tend to value principles of justice and rights, whereas females value caring for and helping others. Although there is little evidence that boys and girls score differently on Kohlberg's stages of moral development (Turiel, 1998), it is true that girls and women tend to focus more on issues of caring, helping, and connecting with others than do boys and men (Jaffee & Hyde, 2000). If you don't believe this, ask yourself when you last got a thank-you note from a man.

Source: Adapted from Lansford (2020).

Key Takeaways

- Adolescence is the period of time between the onset of puberty and emerging adulthood.
- Emerging adulthood is the period from age 18 years until the mid-20s in which young people begin to form bonds outside the family, attend university, and find work. Even so, they tend not to be fully

independent and have not taken on all the responsibilities of adulthood. This stage is most prevalent in Western cultures.

- Puberty is a developmental period in which hormonal changes cause rapid physical alterations in the body.
- The cerebral cortex continues to develop during adolescence and early adulthood, enabling improved reasoning, judgment, impulse control, and long-term planning.
- Adolescent development is characterized by social change as adolescents become more independent, spend more time with peers, explore romantic relationships and sexuality, and engage in more risk-taking behaviour.
- The developmental context for adolescence has wide variability including country, culture, sexual orientation, and so on.
- A defining aspect of adolescence is the development of a consistent and committed self-identity. The process of developing an identity can take time, but most adolescents succeed in developing a stable identity.
- Kohlberg's theory proposes that moral reasoning is divided into the following stages: preconventional morality, conventional morality, and postconventional morality.
- Kohlberg's theory of morality has been expanded and challenged, particularly by Gilligan, who has focused on differences in morality between boys and girls.

Exercises and Critical Thinking

1. Based on what you learned in this section, do you think that people should be allowed to drive at age 16? Why or why not? At what age do you think they should be allowed to vote and to drink alcohol?
2. Think about your experiences in high school. What sort of cliques or crowds were there? How did people express their identities in these groups? How did you use your groups to define yourself and develop your own identity?

Image Attributions

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Figure 13.15. *Friends are Happy Together* is used under a CC0 1.0 license.

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13.5 Early and Middle Adulthood: Building Effective Lives

Learning Objectives

1. Review the physical and cognitive changes that accompany early and middle adulthood.
2. Describe social changes in early and middle adulthood.
3. Describe and differentiate longitudinal and cross-sectional research.

Until the 1970s, psychologists tended to treat adulthood as a single developmental stage, with few or no distinctions made between the various periods that we pass through between adolescence and death. Present-day psychologists realize, however, that physical, cognitive, and emotional responses continue to develop throughout life, with corresponding changes in our social needs and desires. Thus, the three stages of early adulthood, middle adulthood, and late adulthood each have their own physical, cognitive, and social challenges.

In this section, we will consider the development of our cognitive and physical aspects that occur during **early adulthood** and **middle adulthood** — roughly the ages between 25 and 45 and between 45 and 65, respectively. These stages represent a long period of time — longer, in fact, than any of the other developmental stages — and the bulk of our lives is spent in them. These are also the periods in which most of us make our most substantial contributions to society, by meeting two of Erik Erikson's life challenges. That is, we learn to give and receive love in a close, long-term relationship, and we develop an interest in guiding the development of the next generation, often by becoming parents.

Physical and cognitive changes in early and middle adulthood

Compared with the other stages, the physical and cognitive changes that occur in the stages of early and middle adulthood are less dramatic. As individuals pass into their 30s and 40s, their recovery from muscular strain becomes more prolonged, and their sensory abilities may become somewhat diminished, at least when compared with their prime years, which usually occurs during the teens and early 20s (Panno, 2004). Visual acuity diminishes somewhat, and many people in their late 30s and early 40s begin to notice that their eyes are changing and they need eyeglasses. Adults in their 30s and 40s may also begin to suffer some hearing loss because of damage to their cilia, which are the hair cells in the inner ear (Lacher-Fougëre & Demany, 2005). Additionally, it is during middle adulthood that many people first begin to suffer from ailments such as high cholesterol, high blood pressure, and low bone density (Shelton, 2006). Corresponding to changes in our physical abilities, our cognitive and sensory abilities also seem to show some, but not dramatic, decline during this stage.

Menopause

The stages of both early and middle adulthood bring about a gradual decline in fertility, particularly for women. Eventually, women experience **menopause**, which is the cessation of the menstrual cycle that usually occurs at around age 50. Menopause occurs because of the gradual decrease in the production of the female sex hormones, estrogen and progesterone, slows the production and release of eggs into the uterus. Women whose menstrual cycles have stopped for 12 consecutive months are considered to have entered menopause (Minkin & Wright, 2004).

Researchers have found that women's responses to menopause are social as well as physical, and they vary substantially between both individuals and cultures. Within individuals, some women may react more negatively to menopause, worrying that they have lost their femininity and that their final chance to bear children is over, whereas other women may regard menopause more positively, focusing on the new freedom from menstrual discomfort and unwanted pregnancy. In Western cultures such as in Canada, women are likely to see menopause as a challenging and potentially negative event, whereas in India, where older women enjoy more social privileges than do younger ones, menopause is more positively regarded (Avis & Crawford, 2008).

Menopause may have evolutionary benefits. Infants have better chances of survival when their mothers are younger and have more energy to care for them, and the presence of older women who do not have children of their own to care for, but who can help out with raising grandchildren, can be beneficial to the family group. Also consistent with the idea of an evolutionary benefit of menopause is that the decline in fertility occurs primarily for women, who do most of the child care and who need the energy of youth to accomplish it. If older women were able to have children, they might not be as able to effectively care for them. Most men never completely lose their fertility, but they do experience a gradual decrease in testosterone levels, sperm count, and speed of erection and ejaculation.

Social changes in early and middle adulthood

Perhaps the major marker of adulthood is the ability to create an effective and independent life. Whereas children and adolescents are generally supported by parents, adults must make their own living and must start their own families. Furthermore, the needs of adults are different from those of younger persons.

Even though the timing of the major life events that occur in early and middle adulthood varies substantially among individuals, the events nevertheless tend to follow a general sequence, known as a social clock. The **social clock** refers to the culturally preferred "right time" for major life events, such as moving out of the childhood house, getting married, and having children. People who do not appear to be following the social clock (e.g., young adults who still live with their parents, individuals who never marry, and couples who choose not to have children) may be seen as unusual or deviant, and they may be stigmatized by others (DePaulo, 2006; Rook, Catalano, & Dooley, 1989).

Although they are doing it later, on average, than they did even 20 or 30 years ago, most people do eventually marry. Marriage is beneficial to the partners, both in terms of mental health and physical health. People who are married report greater life satisfaction than those who are not married and also suffer fewer health problems (Gallagher & Waite, 2001; Liu & Umberson, 2008).

Divorce is more common now than it was 50 years ago. Fluctuating between 35% and 42%, the proportion of marriages that ends in divorce has remained relatively stable during the last 20 years in Canada. Among adults under 65 who were separated or divorced in 2017, over half of them had previous marriages of longer than 10 years duration. People who lived in common-law relationships without getting married were likely to have separated much earlier in the

relationship than 10 years and were also more likely to experience multiple divorces or separations than previously married people (Statistics Canada, 2019).

Parenthood also involves a major and long-lasting commitment, one that can cause substantial stress on the parents. The time and finances invested in children create stress, which frequently results in decreased marital satisfaction (Twenge, Campbell, & Foster, 2003). This decline is especially true for women, who bear the larger part of the burden of raising the children and taking care of the house, despite the fact they increasingly also work and have careers.

Despite the challenges of early and middle adulthood, the majority of middle-aged adults are not unhappy. These years are often very satisfying, as families have been established, careers have been entered into, and some percentage of life goals has been realized (Eid & Larsen, 2008).

Research Focus

Using a longitudinal research design to assess attachment from infancy into adulthood

You might wonder whether the attachment style displayed by infants has much influence later in life. In fact, research has found that the attachment styles of children predict their emotions and their behaviours many years later (Cassidy & Shaver, 1999). Psychologists have studied the persistence of attachment styles over time using **longitudinal research designs** in which individuals in the sample are followed and contacted over an extended period of time, often over multiple developmental stages.

In one such study, Everett Waters, Susan Merrick, Dominique Treboux, Judith Crowell, and Leah Albersheim (2000) examined the extent of stability and change in attachment patterns from infancy to early adulthood. In their research, 60 middle-class infants who had been tested in the strange situation at one year of age were recontacted 20 years later and interviewed using a measure of adult attachment. Waters and colleagues (Waters et al., 2000) found that 72% of the participants received the same secure versus insecure attachment classification in early adulthood as they had received as infants. The adults who changed categorization, usually from secure to insecure, were primarily those who had experienced traumatic events, such as the death or divorce of parents, severe illnesses either contracted by the parents or the children themselves, or physical or sexual abuse by a family member.

In addition to finding that people generally display the same attachment style over time, longitudinal studies have also found that the attachment classification received in infancy, as assessed using the strange situation or other measures, predicts many childhood and adult behaviours. Securely attached infants have closer, more harmonious relationships with peers, are less anxious and aggressive, and are better able to understand others' emotions than are those who were categorized as insecure as infants (Lucas-Thompson & Clarke-Stewart, 2007). Additionally, securely attached adolescents also have more positive peer and romantic relationships than their insecurely attached counterparts (Carlson, Sroufe, & Egeland, 2004). The relationship between attachment during childhood and attachment with relationship partners in adulthood was studied

longitudinally by William Chopik, Robin Edelestein, and Kevin Grimm (2019), who found that attachment security increased over time for people in relationships, and there was some reduction in anxiety and avoidance related to attachment over time. However, they noted that attachment patterns within individuals remained fairly stable over long periods of time, well into adulthood.

Conducting longitudinal research is a very difficult task, but one that has substantial rewards. When the sample is large enough and the time frame long enough, the potential findings of such a study can provide rich and important information about how people change over time and the causes of those changes. The drawbacks of longitudinal studies include the researcher commitment, cost, and the challenge of finding a large sample that can be tracked over time. The loss of participants who drop out of the study is called **attrition**, which negatively affects the study, and the many years that it takes to get the data is also a substantial drawback. In addition, because the results are delayed over an extended period, the research questions posed at the beginning of the study may become less relevant over time as the research continues.

Cross-sectional research designs represent an alternative to longitudinal designs. In a **cross-sectional research design,** age comparisons are made between samples of different people at different ages at one time. For example, a cross-sectional study of intelligence might have people of different ages in the sample. In this case, researchers would be looking for age differences in intelligence by testing everyone and then comparing, for example, the adolescents, the middle-aged adults, and the old adults.

Cross-sectional studies have a major advantage in that the researcher does not have to wait for years to pass to get results. On the other hand, the interpretation of the results in a cross-sectional study is not as clear as those from a longitudinal study, in which the same individuals are studied over time. Most important, the interpretations drawn from cross-sectional studies may be confounded by cohort effects. **Cohort effects** refer to the possibility that differences between people of different ages may be caused by differences that are unrelated to the changes in age. The differences might instead be due to environmental factors that affect an entire age group. For instance, in our example of intelligence, a difference in scores between the adolescents and the older people may be wrongly interpreted to mean that intelligence declines over time. However, if we examine the differences between these two cohorts, we would note that they have been differentially influenced by societal experiences, such as economic hardship, the presence of wars, or the introduction of new technology. As a result, it is difficult in cross-sectional studies such as this one to determine whether the differences between the groups are due to age or to other factors.

Key Takeaways

- It is in early and middle adulthood that muscle strength, reaction time, cardiac output, and sensory

abilities begin to decline.

- One of the key signs of aging in women is the decline in fertility, culminating in menopause, which is marked by the cessation of the menstrual period.
- The different social stages in adulthood — such as marriage, parenthood, and work — are loosely determined by a social clock, a culturally recognized time for each phase.
- Longitudinal and cross-sectional studies are each used to test hypotheses about development, and each approach has advantages and disadvantages.

Exercises and Critical Thinking

1. Compare your behaviour, values, and attitudes regarding marriage and work to the attitudes of your parents and grandparents. In what way are your values similar? In what ways are they different?
2. Draw a timeline of your own planned or preferred social clock. What factors do you think will make it more or less likely that you will be able to follow the timeline?

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13.6 Late Adulthood: Aging, Retiring, and Bereavement

Learning Objectives

1. Explain research approaches to studying aging.
2. Describe cognitive, psychosocial, and physical changes that occur with age.
3. Provide examples of how age-related changes in these domains are observed in the context of everyday life.
4. Describe the psychological and physical outcomes of bereavement.

We are currently living in an aging society (Rowe, 2009). Indeed, by 2030, when the last of the Baby Boomers reach age 65, the older population in Canada and the United States will be double that of 2010. Furthermore, because of increases in average life expectancy, each new generation can expect to live longer than their parents' generation and certainly longer than their grandparents' generation. As a consequence, it is time for individuals of all ages to rethink their personal life plans and consider prospects for a long life. When is the best time to start a family? Will the education gained up to age 20 be sufficient to cope with future technological advances and marketplace needs? What is the right balance between work, family, and leisure throughout life? What's the best age to retire? How can someone age successfully and enjoy life to the fullest at 80 or 90 years old? In this section, we will discuss several different domains of psychological research on aging that will help answer these important questions.



Figure 13.17. Due to positive health trends, the population of older adults is increasing steadily. Understanding the psychology of aging will be more important than ever to support this group and help them thrive.

Life span and life course perspectives on aging

Just as young adults differ from one another, older adults are also not all the same. In each decade of adulthood, we observe substantial heterogeneity in cognitive functioning, personality, social relationships, lifestyle, beliefs, and satisfaction with life. This **heterogeneity** reflects differences in rates of biogenetic and psychological aging and the sociocultural contexts and history of people's lives (Bronfenbrenner, 1979; Fingerman, Berg, Smith, & Antonucci, 2011). Theories of aging describe how these multiple factors interact and change over time. They describe why functioning differs on average between young, middle-aged, old, and very old adults and why there is heterogeneity within these age groups. **Life course theories**, for example, highlight the effects of social expectations and the normative timing of life events and social roles, such as becoming a parent or experiencing retirement. They also consider the lifelong cumulative effects of membership in specific cohorts (i.e., generations), sociocultural subgroups such as race, gender, or socioeconomic status, and exposure to historical events such as war, revolution, or natural disasters (Elder, Johnson, & Crosnoe, 2003; Settersten, 2005). **Life span theories** complement the life-course perspective with a greater focus on processes within the individual (e.g., the aging brain). This approach emphasizes the patterning of lifelong intra- and inter-individual differences in the shape, level, and rate of change (Baltes, 1987; Baltes & Lindenberger, 1997). Both life course and life span researchers generally rely on longitudinal studies to examine hypotheses about different patterns of aging associated with the effects of biogenetic, life history, social, and personal factors. Cross-sectional studies provide information about age-group differences, but these are confounded with cohort, time of study, and historical effects.

Cognitive aging

Researchers have identified areas of both losses and gains in cognition in older age. Cognitive ability and intelligence are often measured using standardized tests and validated measures. The psychometric approach has identified two categories of intelligence that show different rates of change across the life span (Schaie & Willis, 1996). **Fluid intelligence** refers to information processing abilities, such as logical reasoning, remembering lists, spatial ability, and reaction time. **Crystallized intelligence** encompasses abilities that draw upon experience and knowledge. Measures of crystallized intelligence include vocabulary tests, solving number problems, and understanding texts.

Older adults have more crystallized intelligence — that is, general knowledge about the world, as reflected in semantic knowledge, vocabulary, and language. As a result, adults generally outperform younger people on measures of history, geography, and even on crossword puzzles, where this information is useful (Salthouse, 2004). It is this superior knowledge, combined with a slower and more complete processing style, along with a more sophisticated understanding of the workings of the world around them, that gives the elderly the advantage of wisdom over the advantages of fluid intelligence — the ability to think and acquire information quickly and abstractly — which favour the young (Baltes, Staudinger, & Lindenberger, 1999; Scheibe, Kunzmann, & Baltes, 2009).

The differential changes in crystallized versus fluid intelligence help explain why the elderly do not necessarily show poorer performance on tasks that also require experience (i.e., crystallized intelligence), although they show poorer memory overall. A young chess player may think more quickly, for instance, but a more experienced chess player has more knowledge to draw on. Older adults are also more effective at understanding the nuances of social interactions than younger adults are, in part because they have more experience in relationships (Blanchard-Fields, Mienaltowski, & Seay, 2007).

Whereas it was once believed that almost all older adults suffered from a generalized memory loss, research now indicates that healthy older adults actually experience only some particular types of memory deficits, while other types of memory remain relatively intact or may even improve with age. Older adults do seem to process information more slowly — it may take them longer to evaluate information and to understand language, and it takes them longer, on average, than it does younger people, to recall a word that they know, even though they are perfectly able to recognize the word once they see it (Burke, Shafto, Craik, & Salthouse, 2008). Older adults also have more difficulty inhibiting and controlling their attention (Persad, Abeles, Zacks, & Denburg, 2002), making them, for example, more likely to talk about topics that are not relevant to the topic at hand when conversing (Pushkar et al., 2000).



Figure 13.18. There are many stereotypes of older adults. They are sometimes seen as slow because of changes in cognitive processing speed. They are, on average, excellent at drawing on personal experience and knowledge, and they tend to outperform young adults when it comes to social and emotional challenges.

With age, systematic declines are observed on cognitive tasks requiring self-initiated, effortful processing, without the aid of supportive memory cues (Park, 2000). Older adults tend to perform poorer than young adults on memory tasks that involve recall of information, where individuals must retrieve information they learned previously without the help of a list of possible choices. For example, older adults may have more difficulty recalling facts such as names or contextual details about where or when something happened (Craik, 2000). What might explain these deficits as we age? As we age, **working memory**, which is our ability to simultaneously store and use information, becomes less efficient (Craik & Bialystok, 2006). The ability to process information quickly also decreases with age. This slowing of processing speed may explain age differences on many different cognitive tasks (Salthouse, 2004). Some researchers have argued that **inhibitory functioning**, which is the ability to focus on certain information while suppressing attention to less pertinent information, declines with age and may explain age differences in performance on cognitive tasks (Hasher & Zacks, 1988). Finally, it is well established that our hearing and vision decline as we age. Longitudinal research has proposed that deficits in sensory functioning explain age differences in a variety of cognitive abilities (Baltes & Lindenberger, 1997).

Fewer age differences are observed when memory cues are available, such as for **recognition memory tasks**, when individuals can draw upon acquired knowledge or experience. For example, older adults often perform as well if not better than young adults on tests of word knowledge or vocabulary. With age often comes expertise, and research has pointed to areas where aging experts perform as well or better than younger individuals. For example, older typists were found to compensate for age-related declines in speed by looking farther ahead at printed text (Salthouse, 1984). Compared to younger players, older chess experts are able to focus on a smaller set of possible moves, leading to greater

cognitive efficiency (Charness, 1981). Accrued knowledge of everyday tasks, such as grocery prices, can help older adults to make better decisions than young adults (Tentori, Osheron, Hasher, & May, 2001).

How do changes or maintenance of cognitive ability affect older adults' everyday lives? Researchers have studied cognition in the context of several different everyday activities. One example is driving. Although older adults often have more years of driving experience, cognitive declines related to reaction time, known as **attentional processes**, may pose limitations under certain circumstances (Park & Gutchess, 2000). Research on interpersonal problem solving suggested that older adults use more effective strategies than younger adults to navigate through social and emotional problems (Blanchard-Fields, 2007). In the context of work, researchers rarely find that older individuals perform poorer on the job (Park & Gutchess, 2000). Similar to everyday problem solving, older workers may develop more efficient strategies and rely on expertise to compensate for cognitive decline.

Personality and self-related processes

Research on adult personality examines normative age-related increases and decreases in the expression of the so-called "Big Five" traits: extraversion, neuroticism, conscientiousness, agreeableness, and openness to new experience. Does personality change throughout adulthood? Previously the answer was no, but contemporary research shows that although some people's personalities are relatively stable over time, others' are not (Lucas & Donnellan, 2011; Roberts & Mroczek, 2008). Longitudinal studies reveal average changes during adulthood in the expression of some traits (e.g., neuroticism and openness decrease with age and conscientiousness increases) and individual differences in these patterns due to idiosyncratic life events (e.g., divorce or illness). Longitudinal research also suggests that adult personality traits, such as conscientiousness, predict important life outcomes including job success, health, and longevity (Friedman et al., 1993; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

In contrast to the relative stability of personality traits, theories about the aging self-propose changes in self-related knowledge, beliefs, and autobiographical narratives. Responses to questions such as "Who are you?" and "What are your hopes for the future?" provide insight into the characteristics and life themes that an individual considers uniquely distinguishable about themself. These self-descriptions enhance self-esteem and guide behaviour (Markus & Nurius, 1986; McAdams, 2006). Theory suggests that as we age, themes that were relatively unimportant in young and middle adulthood gain in salience (e.g., generativity and health) and that people view themselves as improving over time (Ross & Wilson, 2003). Reorganizing personal life narratives and self-descriptions are the major tasks of midlife and late adulthood due to transformations in professional and family roles and obligations. In advanced old age, self-descriptions are often characterized by a life review and reflections about having lived a long life. James Birren and Johannes Schroots (2006), for example, found the process of life review in late life helped individuals confront and cope with the challenges of old age.



Figure 13.19. There is a difference between physical age and subjective age as summarized in the saying "You are only as old as you feel."

One aspect of the self that particularly interests life span and life course psychologists is the individual's perception and evaluation of their own aging and identification with an age group. **Subjective age** is a multidimensional construct that indicates how old, or young, a person feels and into which age group a person categorizes themself. After early adulthood, most people say that they feel younger than their chronological age, and the gap between subjective age and actual age generally increases. On average, after age 40, people report feeling 20% younger than their actual age (e.g., Rubin & Berntsen, 2006). Asking people how satisfied they are with their own aging assesses an evaluative component of **age identity**. Whereas some aspects of age identity are positively valued (e.g., acquiring seniority in a profession or becoming a grandparent), others may be less valued, depending on societal context. Perceived physical age (i.e., the age one looks in a mirror) is one aspect that requires considerable self-related adaptation in social and cultural contexts that value young bodies. Feeling younger and being satisfied with one's own aging are expressions of positive **self-perceptions of aging**. They reflect the operation of self-related processes that enhance wellbeing. Becca Levy (2009) found that older individuals who are able to adapt to and accept changes in their appearance and physical capacity in a positive way report higher wellbeing, have better health, and live longer.

Social relationships

Social ties to family, friends, mentors, and peers are primary resources of information, support, and comfort. Individuals develop and age together with family and friends and interact with others in the community. Across the life course, social ties are accumulated, lost, and transformed. Already in early life, there are multiple sources of heterogeneity in the characteristics of each person's social network of relationships (e.g., size, composition, and quality). Life course

and life span theories, as well as research about age-related patterns in social relationships, focus on understanding changes in the processes underlying social connections. Toni Antonucci's **convoy model of social relations** (2001; Kahn & Antonucci, 1980), for example, suggests that the social connections that people accumulate are held together by exchanges in social support (e.g., tangible and emotional). The frequency, types, and reciprocity of the exchanges change with age and in response to need, and in turn, these exchanges impact the health and wellbeing of the givers and receivers in the convoy. In many relationships, it is not the actual objective exchange of support that is critical, but instead it is the perception that support is available if needed (Uchino, 2009). Laura Carstensen's **socioemotional selectivity theory** (1993; Carstensen, Isaacowitz, & Charles, 1999) focuses on changes in motivation for actively seeking social contact with others. Carstensen proposes that with increasing age our motivational goals change from information gathering to emotion regulation. To optimize the experience of positive affect, older adults actively restrict their social life to prioritize time spent with emotionally close significant others. In line with this, older marriages are found to be characterized by enhanced positive and reduced negative interactions, and older partners show more affectionate behaviour during conflict discussions than do middle-aged partners (Carstensen, Gottman, & Levenson, 1995). Research showing that older adults tend to avoid negative interactions and have smaller networks compared to young adults also supports this theory. Similar selective processes are also observed when time horizons for interactions with close partners shrink temporarily for young adults (e.g., impending geographical separations).

Much research focuses on the associations between specific effects of long-term social relationships and health in later life. Older married individuals who receive positive social and emotional support from their partner generally report better health than their unmarried peers (Antonucci, 2001; Umberson, Williams, Powers, Liu, & Needham, 2006; Waite & Gallagher, 2000). Despite the overall positive health effects of being married in old age — compared with being widowed, divorced, or single — living as a couple can have a "dark side" if the relationship is strained or if one partner is the primary caregiver. The consequences of positive and negative aspects of relationships are complex (Birditt & Antonucci, 2008; Rook, 1998; Uchino, 2009). For example, in some circumstances, criticism from a partner may be perceived as valid and useful feedback whereas in others it is considered unwarranted and hurtful. In long-term relationships, habitual negative exchanges might have diminished effects. Parent-child and sibling relationships are often the most long-term and emotion-laden social ties. Across the life span, the parent-child tie, for example, is characterized by a paradox of solidarity, conflict, and ambivalence (Fingerman, Chen, Hay, Cichy, & Lefkowitz, 2006).

Emotion and wellbeing

As we get older, the likelihood of losing loved ones or experiencing declines in health increases. Does the experience of such losses result in decreases in wellbeing in older adulthood? Researchers have found that wellbeing differs across the life span and that the patterns of these differences depend on how wellbeing is measured.

Measures of **global subjective wellbeing** assess individuals' overall perceptions of their lives. This can include questions about life satisfaction or judgments of whether individuals are currently living the best life possible. What factors may contribute to how people respond to these questions? Age, health, personality, social support, and life experiences have been shown to influence judgments of global wellbeing. It is important to note that predictors of wellbeing may change as we age. What is important to life satisfaction in young adulthood can be different in later adulthood (George, 2010). Early research on wellbeing argued that life events such as marriage or divorce can temporarily influence wellbeing, but people quickly adapt and return to a neutral baseline, called the hedonic treadmill (Diener, Lucas, & Scollon, 2006). More recent research suggests otherwise. Using longitudinal data, researchers have examined wellbeing prior to, during, and after major life events such as widowhood, marriage, and unemployment (Lucas, 2007). Different life events influence wellbeing in different ways, and individuals do not often adapt back to baseline levels of wellbeing. The influence of events, such as unemployment, may have a lasting negative influence on wellbeing as people age. Research suggests

that global wellbeing is highest in early and later adulthood and lowest in midlife (Stone, Schwartz, Broderick, & Deaton, 2010).

Hedonic wellbeing refers to the emotional component of wellbeing and includes measures of positive affect (e.g., happiness and contentment) and negative affect (e.g., stress and sadness). The pattern of positive affect across the adult life span is similar to that of global wellbeing, with experiences of positive emotions such as happiness and enjoyment being highest in young and older adulthood. Experiences of negative affect, particularly stress and anger, tend to decrease with age. Experiences of sadness are lowest in early and later adulthood compared to midlife (Stone et al., 2010). Other research finds that older adults report more positive and less negative affect than middle age and younger adults (Magai, 2008; Mroczek, 2001). It should be noted that both global wellbeing and positive affect tend to taper off during older adulthood, and these declines may be accounted for by increases in health-related losses during these years (Charles & Carstensen, 2010).

Psychological wellbeing aims to evaluate the positive aspects of psychosocial development, as opposed to factors of ill-being, such as depression or anxiety. Carol Ryff's model of psychological wellbeing proposes six core dimensions of positive wellbeing. Older adults tend to report higher environmental mastery (e.g., feelings of competence and control in managing everyday life) and autonomy (e.g., a sense of independence), lower personal growth and purpose in life, and similar levels of positive relations with others as younger individuals (Ryff, 1995). Links between health and interpersonal flourishing, or having high-quality connections with others, may be important in understanding how to optimize quality of life in old age (Ryff & Singer, 2000).

Social changes during aging: Retiring effectively

Because of increased life expectancy in the 21st century, elderly people can expect to spend approximately a quarter of their lives in retirement. Leaving one's career is a major life change and can be a time when people experience anxiety, depression, and other negative changes in conceptions of self and in self-identity. On the other hand, retirement may also serve as an opportunity for a positive transition from work and career roles to stronger family and community member roles, and the latter may have a variety of positive outcomes for the individual. Retirement may be a relief for people who have worked in boring or physically demanding jobs, particularly if they have other outlets for stimulation and expressing self-identity.

Psychologist Mo Wang (2007) observed the wellbeing of 2,060 people between the ages of 51 and 61 over an eight-year period and made the following recommendations to make the retirement phase a positive one:

- **Work part time** — Continue to work part-time past retirement in order to ease into retirement status slowly.
- **Plan for retirement** — This is a good idea financially, but also making plans to incorporate other kinds of work or hobbies into post-employment life makes sense.
- **Retire with someone** — If the retiree is still married, it is a good idea to retire at the same time as a spouse so that people can continue to work part-time and follow a retirement plan together.
- **Have a happy marriage** — People with marital problems tend to find retirement more stressful because they do not have a positive home life to return to and can no longer seek refuge in long working hours. Couples that work on their marriages can make their retirements a lot easier.
- **Take care of physical and financial health** — A sound financial plan and good physical health can ensure a healthy, peaceful retirement.
- **Retire early from a stressful job** — People who stay in stressful jobs for fear that they will lose their pensions or will not be able to find work somewhere else feel trapped. Toxic environments can take a severe emotional toll on an employee. Leaving an unsatisfying job early may make retirement a relief.

- **Retire "on time"** — Retiring too early or too late can cause people to feel "out of sync" or to feel they have not achieved their goals.

Whereas these seven tips are helpful for a smooth transition to retirement, Wang also notes that people tend to be adaptable, and no matter how they do it, retirees will eventually adjust to their new lifestyles.

Successful aging and longevity

Increases in average life expectancy in the 20th century and evidence from twin studies, suggesting that genes account for only 25% of the variance in human life spans, have opened new questions about implications for individuals and society (Christensen, Doblhammer, Rau, & Vaupel, 2009). What environmental and behavioural factors contribute to a long and healthy life? Is it possible to intervene and slow processes of aging or to minimize cognitive decline, prevent dementia, and ensure life quality at the end of life (Fratiglioni, Paillard-Borg, & Winblad, 2004; Hertzog, Kramer, Wilson, & Lindenberger, 2009; Lang, Baltes, & Wagner, 2007)? Should interventions focus on late life, midlife, or indeed begin in early life? Suggestions that pathological change (e.g., dementia) is not an inevitable component of aging and that pathology could at least be delayed until the very end of life led to theories about successful aging and proposals about targets for intervention. John Rowe and Robert Kahn (1997) defined three criteria of successful aging: (1) the relative avoidance of disease, disability, and risk factors like high blood pressure, smoking, or obesity; (2) the maintenance of high physical and cognitive functioning; and (3) active engagement in social and productive activities. Although such definitions of successful aging are value-laden, research and behavioural interventions have subsequently been guided by this model. For example, research has suggested that age-related declines in cognitive functioning across the adult life span may be slowed through physical exercise and lifestyle interventions (Kramer & Erickson, 2007). It is recognized, however, that societal and environmental factors also play a role and that there is much room for social change and technical innovation to accommodate the needs of the Baby Boomers and later generations as they age in the decades to come.



Figure 13.20. Physical activity is one of the pillars of successful aging.

We have seen that, over the course of their lives, most individuals are able to develop secure attachments; reason cognitively, socially, and morally; and create families and find appropriate careers. Eventually, however, as people enter into their 60s and beyond, the aging process leads to faster changes in our physical, cognitive, and social capabilities and needs. Life begins to come to its natural conclusion, resulting in the final life stage, beginning in the 60s, known as late adulthood.

Despite the fact that the body and mind are slowing, most older adults nevertheless maintain an active lifestyle, remain as happy as they were when younger — or are happier — and increasingly value their social connections with family and friends (Angner, Ray, Saag, & Allison, 2009). Quinn Kennedy, Mara Mather, and Laura Carstensen (2004) found that people's memories of their lives became more positive with age, and David Myers and Ed Diener (1996) found that older adults tended to speak more positively about events in their lives, particularly their relationships with friends and family, than did younger adults.

The changes associated with aging do not affect everyone in the same way, and they do not necessarily interfere with a healthy life. Former Beatles drummer Ringo Starr celebrated his 80 birthday in 2020 with a livestreamed concert, and Rolling Stones singer Mick Jagger — who once supposedly said, "I'd rather be dead than singing 'Satisfaction' at 45" — continues to perform in his late 70s. The golfer Tom Watson nearly won the 2010 British Open golf tournament at the age of 59, playing against competitors in their 20s and 30s. People well into their 80s and 90s, such as the financier Warren Buffett, Jim Pattison, a prominent Vancouver philanthropist, Hazel McCallion, mayor of Mississauga in Ontario until she was 93, and actress Betty White, all enjoy highly productive and energetic lives.

Researchers are beginning to better understand the factors that allow some people to age better than others. For one, research has found that the people who are best able to adjust well to changing situations early in life are also able to better adjust later in life (Rubin, 2007; Sroufe, Collins, Egeland, & Carlson, 2009). Perceptions also matter. People who

believe that the elderly are sick, vulnerable, and grumpy often act according to such beliefs (Nemmers, 2005), and other research has found that the elderly who had more positive perceptions about aging also lived longer (Levy, Slade, Kunkel, & Kasl, 2002).

Research on the influence of cultural values and beliefs on aging attitudes has been dominated by comparisons between Eastern versus Western cultures. This belief is inspired by the idea that Asian societies are influenced by Confucian values of filial piety and the practice of ancestor worship, which are thought to promote positive views of aging and high esteem for older adults (Davis, 1983; Ho, 1994; Sher, 1984). Western societies, in contrast, were thought to be youth-oriented and to hold more negative views about the aging process and the elderly (Palmore, 1975). Empirical evidence for the proposed East-West differences is scarce. Although some studies have found support for the notion that aging attitudes are more positive in Asian as compared to Western cultures (Levy & Langer, 1994; Tan, Zhang, & Fan, 2004), others report effects in the opposite direction (Giles et al., 2000; Harwood et al., 2001; Sharps, Price-Sharps, & Hanson, 1998; Zhou, 2007), or fail to find any marked cultural differences (Boduroglu, Yoon, Luo, & Park, 2006; Ryan, Jin, Anas, & Luh, 2004).

Dementia and Alzheimer's disease

Some older adults suffer from biologically based cognitive impairments in which the brain is so adversely affected by aging that it becomes very difficult for the person to continue to function effectively. **Dementia** is defined as a progressive neurological disease that includes loss of cognitive abilities significant enough to interfere with everyday behaviours, and **Alzheimer's disease** is a form of dementia that, over a period of years, leads to a loss of emotions, cognitions, and physical functioning, which is ultimately fatal. Dementia and Alzheimer's disease are most likely to be observed in individuals who are 65 and older, and the likelihood of developing Alzheimer's disease doubles about every five years after age 65. After age 85, the risk reaches nearly 8% per year (Hebert et al., 1995). Dementia and Alzheimer's disease both produce a gradual decline in functioning of the brain cells that produce the neurotransmitter acetylcholine (see Figure 13.21). Without this neurotransmitter, the neurons are unable to communicate, leaving the brain less and less functional.

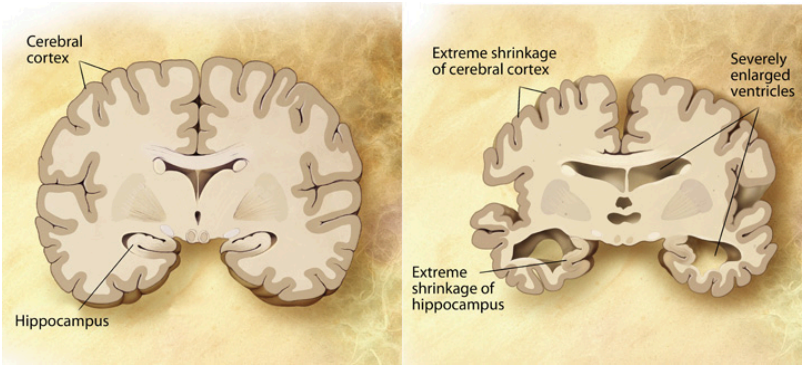


Figure 13.21. A healthy brain (left) versus a brain with advanced Alzheimer's disease (right).

Dementia and Alzheimer's disease are in part heritable, but there is increasing evidence that the environment also

plays a role. Current research is helping us understand the things that older adults can do to help them slow down or prevent the negative cognitive outcomes of aging, including dementia and Alzheimer's disease (Pushkar, Bukowski, Schwartzman, Stack, & White, 2007). Older adults who continue to keep their minds active by engaging in cognitive activities — such as reading, playing musical instruments, attending lectures, or doing crossword puzzles — who maintain social interactions with others, and who keep themselves physically fit have a greater chance of maintaining their mental acuity than those who do not (Cherkas et al., 2008; Verghese et al., 2003). In short, although physical illnesses may occur to anyone, the more people keep their brains active and the more they maintain a healthy and active lifestyle, the more likely their brains will remain healthy (Ertel, Glymour, & Berkman, 2008).

Death, dying, and bereavement

Living includes dealing with our own and our loved ones' mortality. In her book *On Death and Dying* (1997), Elisabeth Kübler-Ross describes five phases of grief through which people pass in grappling with the knowledge that they or someone close to them is dying:

1. **Denial**: "I feel fine." "This can't be happening. Not to me."
2. **Anger**: "Why me? It's not fair!" "How can this happen to me?" "Who is to blame?"
3. **Bargaining**: "Just let me live to see my children graduate." "I'd do anything for a few more years." "I'd give my life savings if . . ."
4. **Depression**: "I'm so sad. Why bother with anything?" "I'm going to die. What's the point?" "I miss my loved ones. Why go on?"
5. **Acceptance**: "I know my time has come" "It's almost my time."

Despite Kübler-Ross's popularity, there are a growing number of critics of her theory who argue that her five-stage sequence is too constraining because attitudes toward death and dying have been found to vary greatly across cultures and religions, and these variations make the process of dying different according to culture (Bonanno, 2009). As an example, Japanese-Americans restrain their grief (Corr, Nabe, & Corr, 2009) so as not to burden other people with their pain. By contrast, Jewish people observe a seven-day, publicly announced mourning period. In some cultures, the elderly are more likely to be living and coping alone, or perhaps only with their spouse, whereas in other cultures, such as the Hispanic culture, the elderly are more likely to be living with their children and other relatives, and this social support may create a better quality of life for them (Diaz-Cabello, 2004).

Margaret Stroebe, Robert Hansson, Henk Schut, and Wolfgang Stroebe (2008) found that although most people adjusted to the loss of a loved one without seeking professional treatment, many had an increased risk of mortality, particularly within the early weeks and months after the loss. These researchers also found that people going through the grieving process suffered more physical and psychological symptoms, were sick more often, and used more medical services.

The health of survivors during the end of life is influenced by factors such as circumstances surrounding the loved one's death, individual personalities, and ways of coping. People serving as caretakers to partners or other family members who are ill frequently experience a great deal of stress themselves, making the dying process even more stressful. Despite the trauma of the loss of a loved one, people do recover and are able to continue with effective lives. Grief intervention programs can go a long way in helping people cope during the bereavement period (Neimeyer, Holland, Currier, & Mehta, 2008).

Source: Adapted from Queen and Smith (2020).

Key Takeaways

- Most older adults maintain an active lifestyle, remain as happy as they were when younger — or are happier — and increasingly value their social connections with family and friends.
- Although older adults have slower cognitive processing overall (i.e., fluid intelligence), their experience in the form of existing knowledge about the world and the ability to use it (i.e., crystallized intelligence) is maintained and even strengthened during old age.
- Expectancies about change in aging vary across cultures and may influence how people respond to getting older.
- A portion of the elderly suffer from age-related brain diseases, such as dementia, a progressive neurological disease that includes significant loss of cognitive abilities, and Alzheimer's disease, a fatal form of dementia that is related to changes in the cerebral cortex.
- Two significant social stages in late adulthood are retirement and dealing with grief and bereavement. Studies show that a well-planned retirement can be a pleasant experience.
- A significant number of people going through the grieving process are at increased risk of mortality and physical and mental illness, but grief counselling can be effective in helping these people cope with their loss.

Exercises and Critical Thinking

1. How do the people in your culture view aging? What stereotypes are there about the elderly? Are there other ways that people in your society might learn to think about aging that would be more beneficial?
2. Based on the information you have read in this section, what would you tell older adults that you know about how they can best maintain healthy physical and cognitive function into late adulthood?

Congratulations on completing Chapter 13! Remember to go back to the section on Approach and Pedagogy near the beginning of the book to learn more about how to get the most out of reading and learning the material in this textbook.

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CHAPTER 14. PERSONALITY

14.0 Introduction

Psychology in Everyday Life

Identical twins reunited after 35 years

Paula Bernstein and Elyse Schein were identical twins who were adopted into separate families immediately after their births in 1968. It was only at the age of 35 that the twins were reunited and discovered how similar they were to each other.

Paula Bernstein grew up in a happy home in suburban New York. She loved her adopted parents and older brother and even wrote an article titled "Why I Don't Want to Find My Birth Mother." Elyse's childhood, also a happy one, was followed by university and then film school abroad.

In 2003, 35 years after she was adopted, Elyse, acting on a whim, inquired about her biological family at the adoption agency. The response came back: "You were born on October 9, 1968, at 12:51 p.m., the younger of twin girls. You've got a twin sister named Paula, and she's looking for you."

"Oh, my God. I'm a twin! Can you believe this? Is this really happening?" Elyse cried.

Elyse dialed Paula's phone number: "It's almost like I'm hearing my own voice in a recorder back at me," she said.

"It's funny because I feel like in a way I was talking to an old, close friend I never knew I had. We had an immediate intimacy, and yet, we didn't know each other at all," Paula said.

The two women met for the first time at a café for lunch and talked until the late evening.

"We had 35 years to catch up on," said Paula. "How do you start asking somebody, 'What have you been up to since we shared a womb together?' Where do you start?"

With each new detail revealed, the twins learned about their remarkable similarities. They'd both gone to graduate school in film. They both loved to write, and they had both edited their high school yearbooks. They have similar taste in music.

"I think, you know, when we met it was undeniable that we were twins. Looking at this person, you are able to gaze into your own eyes and see yourself from the outside. This identical individual has the exact same DNA and is essentially your clone. We don't have to imagine," Paula said.

Now they finally feel like sisters.

"But it's perhaps even closer than sisters," Elyse said, "because we're also twins."

The twins, who both now live in Brooklyn, combined their writing skills to write a book called *Identical Strangers* about their childhoods and their experience of discovering an identical twin in their mid-30s (Spilius, 2007; Kuntzman, 2007).

The following YouTube link provides further details about the experiences of Paula Bernstein and Elyse Schein:

- Video: *Elyse Schein & Paula Bernstein – Identical Strangers – Authors* (Rintoul, 2007)

One of the most fundamental tendencies of human beings is to size up other people. We say that Bill is fun, that Marian is adventurous, or that Frank is dishonest. When we make these statements, we mean that we believe that these people have stable individual characteristics — their personalities. **Personality** is defined as an individual's consistent patterns of feeling, thinking, and behaving (John, Robins, & Pervin, 2008).

The tendency to perceive personality is a fundamental part of human nature, and an adaptive one. If we can draw accurate generalizations about what other people are normally like, we can predict how they will behave in the future, and this can help us determine how they are likely to respond in different situations. Understanding personality can also help us better understand psychological disorders and the negative behavioural outcomes they may produce. In short, personality matters because it guides behaviour.

In this chapter, we will consider the wide variety of personality traits found in human beings. We'll consider how and when personality influences our behaviour and how well we perceive the personalities of others. We will also consider how psychologists measure personality and the extent to which personality is caused by nature versus nurture. The fundamental goal of personality psychologists is to understand what makes people different from each other by studying individual differences, but they also find that people who share genes, such as Paula Bernstein and Elyse Schein, have a remarkable similarity in personality.

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14.1 Personality Measurement

Learning Objectives

1. Outline and critique the early approaches to assessing personality.
2. Discuss the Minnesota Multiphasic Personality Inventory.
3. Recognize and describe common projective tests used in personality assessment.

Early theories assumed that personality was expressed in people's physical appearance. One early approach, developed by the German physician Franz Joseph Gall (1758–1828) and known as **phrenology**, was based on the idea that we could measure personality by assessing the patterns of bumps on people's skulls (see Figure 14.1). In the Victorian age, phrenology was taken seriously, and many people promoted its use as a source of psychological insight and self-knowledge. Machines were even developed for helping people analyze skulls (Simpson, 2005). However, because careful scientific research did not validate the predictions of the theory, phrenology has now been discredited in contemporary psychology.

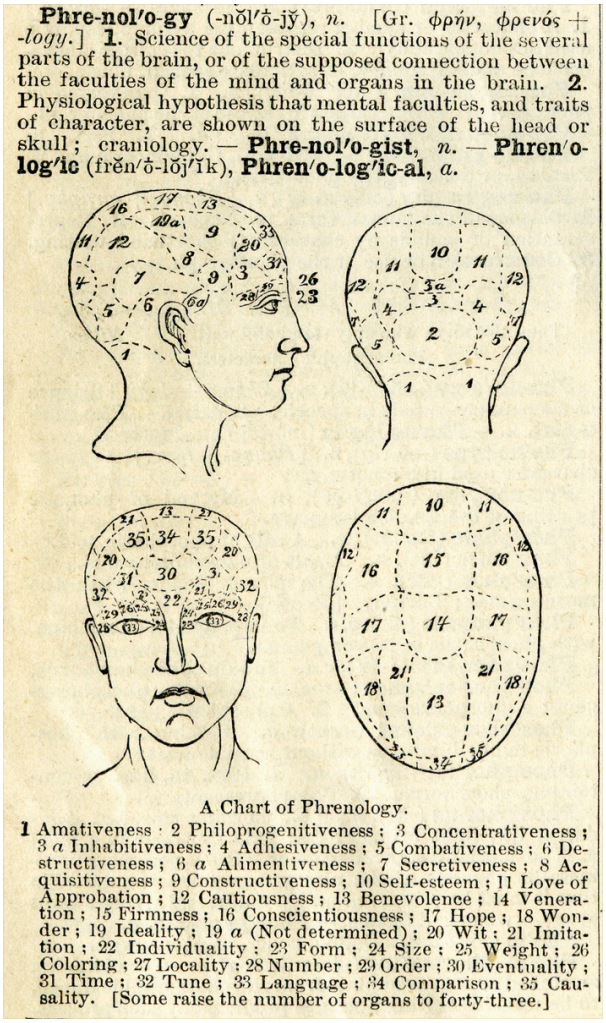


Figure 14.1. This definition of phrenology with a chart of the skull appeared in Webster's Academic Dictionary, circa 1895. [Long description]

Another approach, known as **somatology**, championed by the psychologist William Herbert Sheldon (1898–1977), was based on the idea that we could determine personality from people's body types (see Figure 14.2). Sheldon (1940) argued that people with more body fat and a rounder physique (i.e., endomorphs) were more likely to be assertive and bold, whereas thinner people (i.e., ectomorphs) were more likely to be introverted and intellectual. As with phrenology, scientific research did not validate the predictions of the theory, and somatology has now been discredited in contemporary psychology.

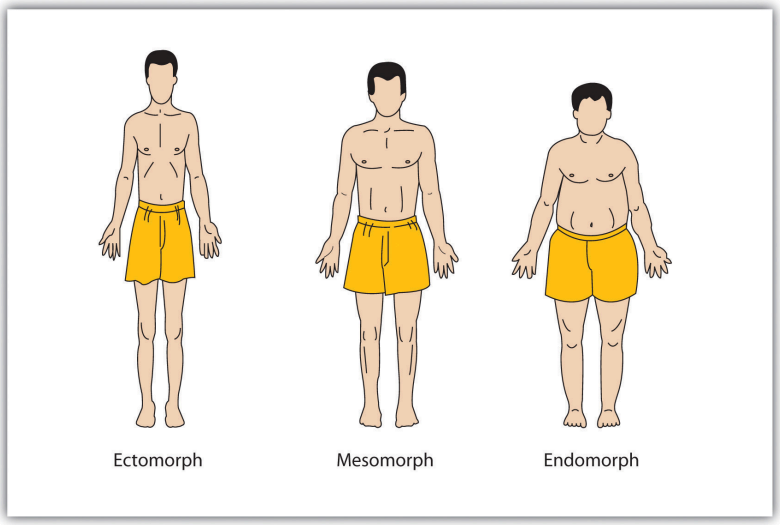


Figure 14.2. William Sheldon erroneously believed that people with different body types had different personalities.

Another approach to detecting personality is known as **physiognomy**, or the idea that it is possible to assess personality from facial characteristics. In contrast to phrenology and somatology, for which no research support has been found, contemporary research has found that people are able to detect some aspects of a person's character — for instance, whether they are gay or straight and whether they are liberal or conservative — at above-chance levels by looking only at their face (Rule & Ambady, 2010; Rule, Ambady, Adams, & Macrae, 2008; Rule, Ambady, & Hallett, 2009).

Personality testing is often used to screen applicants for employment and job training. Personality tests are also used in criminal cases, custody battles, and assessments of psychological disorders. This section explores the best known among the many different types of personality tests.

Self-report inventories

Self-report inventories are a kind of objective test used to assess personality. They typically use multiple-choice items or numbered scales, which represent a range from 1, signalling strong disagreement, to 5, identifying strong agreement (see Figure 14.3). They often are called Likert scales after their developer, Rensis Likert (1932).

	Strongly Disagree	Somewhat Disagree	No Opinion	Somewhat Agree	Strongly Agree
I am easygoing.	O	O	O	O	O
I have high standards.	O	O	O	O	O
I enjoy time alone.	O	O	O	O	O
I work well with others.	O	O	O	O	O
I dislike confrontation.	O	O	O	O	O
I prefer crowds over intimacy.	O	O	O	O	O

Figure 14.3. If you've ever taken a survey, you are probably familiar with Likert-type scale questions. Most personality inventories employ these types of response scales.

One of the most widely used personality inventories is the Minnesota Multiphasic Personality Inventory (MMPI), first published in 1943, with 504 true-false questions, and updated to the MMPI-2 in 1989, with 567 questions. The original MMPI was based on a small, limited sample, composed mostly of Minnesota farmers and psychiatric patients; the revised inventory was based on a more representative, national sample to allow for better standardization. The MMPI-2 takes one to two hours to complete. Responses are scored to produce a clinical profile composed of 10 scales: hypochondriasis, depression, hysteria, psychopathic deviance (i.e., social deviance), masculinity versus femininity, paranoia, psychasthenia (i.e., obsessive-compulsive qualities), schizophrenia, hypomania, and social introversion. There is also a scale to ascertain risk factors for alcohol abuse. In 2008, the test was again revised, using more advanced methods, to the MMPI-2-RF. This version takes about one-half the time to complete and has only 338 questions (see Figure 14.4). Despite the new test's advantages, the MMPI-2 is more established and is still more widely used. Typically, the tests are administered by computer. Although the MMPI was originally developed to assist in the clinical diagnosis of psychological disorders, it is now also used for occupational screening, such as in law enforcement, and in college, career, and marital counselling (Ben-Porath & Tellegen, 2008).

	True	False
1. I like gardening magazines.	O	O
2. I am unhappy with my sex life.	O	O
3. I feel like no one understands me.	O	O
4. I think I would enjoy the work of a teacher.	O	O
5. I am not easily awakened by noise.	O	O

Figure 14.4. These true-false questions resemble the kinds of questions you would find on the MMPI.

In addition to clinical scales, the tests also have validity and reliability scales. Recall the concepts of reliability and validity from your study of psychological research. One of the validity scales, the Lie Scale, or "L" Scale, consists of 15 items and is used to ascertain whether the respondent is "faking good" (i.e., underreporting psychological problems to appear healthier). For example, if someone responds "yes" to a number of unrealistically positive items such as "I have never told a lie," they may be trying to "fake good" or appear better than they actually are.

Reliability scales test an instrument's consistency over time, assuring that if you take the MMPI-2-RF today and then again five years later, your two scores will be similar. Larry Beutler, Paul Nussbaum, and Keith Meredith (1988) gave the MMPI to newly recruited police officers and then to the same police officers two years later. After two years on the job, police officers' responses indicated an increased vulnerability to alcoholism, somatic symptoms (i.e., vague, unexplained physical complaints), and anxiety. When the test was given an additional two years later — four years after starting on the job — the results suggested high risk for alcohol-related difficulties.

Projective tests

Another method for assessment of personality is **projective testing**, which relies on one of the defence mechanisms proposed by Sigmund Freud — projection — as a way to assess unconscious processes. During this type of testing, a series of ambiguous cards is shown to the person being tested, who then is encouraged to project their feelings, impulses, and desires onto the cards — by telling a story, interpreting an image, or completing a sentence. The results are then interpreted by the test administrator. Many projective tests have undergone standardization procedures (e.g., Exner, 2002) and can be used to access whether someone has unusual thoughts, a high level of anxiety, or is likely to become volatile. Some examples of projective tests are the Rorschach Inkblot Test, the Thematic Apperception Test (TAT), the Contemporized-Themes Concerning Blacks Test (C-TCB), the TEMAS (Tell-Me-A-Story), and the Rotter Incomplete Sentences Blank (RISB).

The Rorschach Inkblot Test was developed in 1921 by a Swiss psychologist named Hermann Rorschach (pronounced "ROAR-shock"). It is a series of symmetrical inkblot cards that are presented to a client by a psychologist (see Figure 14.5). Upon presentation of each card, the psychologist asks the client, "What might this be?" What the test-taker sees reveals unconscious feelings and struggles (Piotrowski, 1987; Weiner, 2003). The Rorschach has been standardized using the Exner system and is effective in measuring depression, psychosis, and anxiety.

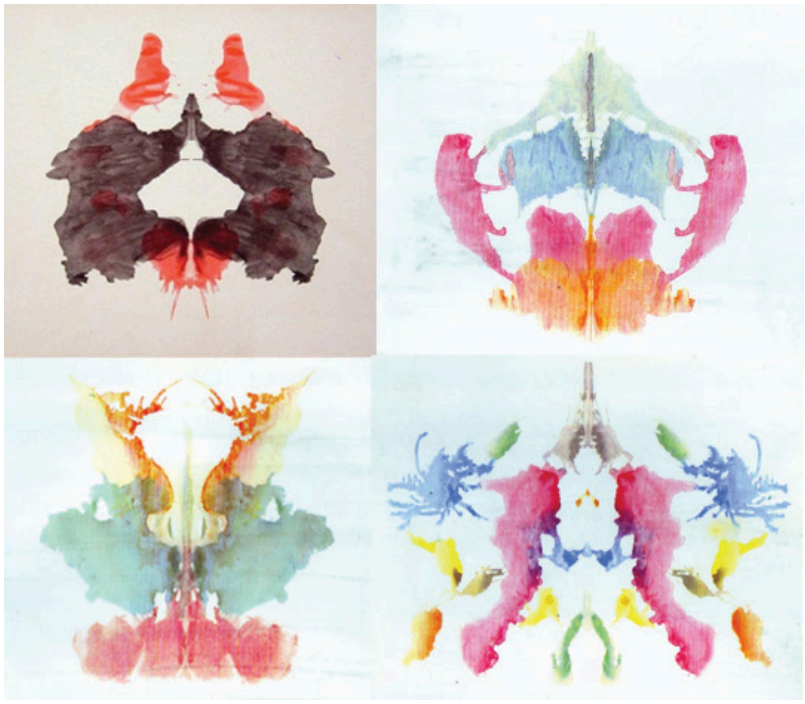


Figure 14.5. The Rorschach Inkblot Test is a projective test designed to assess psychological disorders.

A second projective test is the Thematic Apperception Test (TAT), created in the 1930s by Henry Murray, an American psychologist, and a psychoanalyst named Christiana Morgan. A person taking the TAT is shown eight to 12 ambiguous pictures and is asked to tell a story about each picture. The stories give insight into their social world, revealing hopes, fears, interests, and goals. The storytelling format helps to lower a person's resistance divulging unconscious personal details (Cramer, 2004). The TAT has been used in clinical settings to evaluate psychological disorders; more recently, it has been used in counselling settings to help clients gain a better understanding of themselves and achieve personal growth. Standardization of test administration is virtually nonexistent among clinicians, and the test tends to be modest to low on validity and reliability (Aronow, Weiss, & Rezinkoff, 2001; Lilienfeld, Wood, & Garb, 2000). Despite these shortcomings, the TAT has been one of the most widely used projective tests.

A third projective test is the Rotter Incomplete Sentences Blank (RISB) developed by Julian Rotter in 1950. There are three forms of this test for use with different age groups: the school form, the college form, and the adult form. The tests include 40 incomplete sentences that people are asked to complete as quickly as possible (see Figure 14.6). The average time for completing the test is approximately 20 minutes, as responses are only one to two words in length. This test is similar to a word association test, and like other types of projective tests, it is presumed that responses will reveal desires, fears, and struggles. The RISB is used in screening college students for adjustment problems and in career counselling (Holaday, Smith, & Sherry, 2010; Rotter & Rafferty 1950).

1. I feel...	
2. I regret...	
3. At home...	
4. My mother...	
5. My greatest worry...	

Figure 14.6. These incomplete sentences resemble the types of questions on the RISB. How would you complete these sentences?

For many decades, these traditional projective tests have been used in cross-cultural personality assessments. However, it was found that test bias limited their usefulness (Hoy-Watkins & Jenkins-Moore, 2008). It is difficult to assess the personalities and lifestyles of members of widely divergent ethnocultural groups using personality instruments based on data from a single culture or race (Hoy-Watkins & Jenkins-Moore, 2008). For example, when the TAT was used with African-American test-takers, the result was often shorter story length and low levels of cultural identification (Duzant, 2005). Therefore, it was vital to develop other personality assessments that explored factors such as race, language, and level of acculturation (Hoy-Watkins & Jenkins-Moore, 2008). To address this need, Robert Williams developed the first culturally specific projective test designed to reflect the everyday life experiences of African Americans (Hoy-Watkins & Jenkins-Moore, 2008). The updated version of the instrument is the Contemporized-Themes Concerning Blacks Test (C-TCB), which contains 20 colour images that show scenes of African-American lifestyles (Williams, 1972). When the C-TCB was compared with the TAT for African Americans, it was found that use of the C-TCB led to increased story length, higher degrees of positive feelings, and stronger identification with the C-TCB (Hoy, 1997; Hoy-Watkins & Jenkins-Moore, 2008).

Despite their widespread use, the empirical evidence supporting the use of projective tests is mixed (Karon, 2000; Wood, Nezworski, Lilienfeld, & Garb, 2003). The reliability of the measures is low because people often produce very different responses on different occasions. The construct validity of the measures is also suspect because there are very few consistent associations between Rorschach scores or TAT scores and most personality traits. The projective tests often fail to distinguish between people with psychological disorders and those without, and they often fail to correlate with other measures of personality or with behaviour. As such, projective tests are more useful as icebreakers to get to know a person better, to make the person feel comfortable, and to get some ideas about topics that may be of importance to that person rather than for accurately diagnosing personality.

In the next section we will view the most popular model of trait personality theory, which is the idea that personality is structured by a fundamental number of traits. In contrast to the projective testing discussed above, trait models tend to employ objective, standardized tests that have shown to be reliable and valid. **Standardized tests** do not rely on the text administrator's interpretation of the test-taker's responses, and norms obtained through research are used to provide scores.

Source: Adapted from Spielman et al. (2019).

Key Takeaways

- Personality is an individual's consistent patterns of feeling, thinking, and behaving.
- Early theories assumed that personality was expressed in people's physical appearance. One of these approaches, known as physiognomy, has been validated by current research.
- Self-report personality tests like the MMPI are used to assess personality, screen applicants for job training, in criminal cases, and in custody battles.
- Projective tests are based on the assumption that the test-taker will project unconscious aspects of their personality onto their test responses. Many projective tests lack reliability and validity.

Image Attributions

Figure 14.1. *1895-Dictionary-Phrenolog* by unknown author is in the public domain.

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Figure 14.5. *Rorschach Blot 02* by Hermann Rorschach is in the public domain; *Rorschach Blot 08* by Hermann Rorschach is in the public domain; *Rorschach Blot 09* by Hermann Rorschach is in the public domain; *Rorschach Blot 10* by Hermann Rorschach is in the public domain.

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Long Description

Figure 14.1. Phrenology can be defined as follows:

1. Science of the special functions of the several parts of the brain or of the supposed connection between the faculties of the mind and organs of the brain.
2. Physiological hypothesis that mental faculties, and traits of character, are shown on the surface of the head or skull; craniology.

[Return to Figure 14.1]

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14.2 Personality as Traits

Learning Objectives

1. Describe each of the Big Five personality traits and the low and high end of the dimension.
2. Give examples of each of the Big Five personality traits, including both a low and high example.
3. Describe other trait models of personality.

Personality traits reflect people's characteristic patterns of thoughts, feelings, and behaviours. Personality traits imply consistency and stability; for example, someone who scores high on a specific trait like extraversion is expected to be sociable in different situations and over time. Thus, trait psychology rests on the idea that people differ from one another in terms of where they stand on a set of basic trait dimensions that persist over time and across situations. The most widely used system of traits is called the **five-factor model**. This system includes five broad traits that can be remembered with the acronym OCEAN: openness, conscientiousness, extraversion, agreeableness, and neuroticism. Each of the major traits from the "Big Five" can be divided into facets to give a more fine-grained analysis of someone's personality. In addition, some trait theorists argue that there are other traits that cannot be completely captured by the five-factor model. Critics of the trait concept argue that people do not act consistently from one situation to the next and that people are very influenced by situational forces. Thus, one major debate in the field concerns the relative power of people's traits versus the situations in which they find themselves as predictors of their behaviour.

When we observe people around us, one of the first things that strikes us is how different people are from one another. Some people are very talkative, while others are very quiet. Some are active, whereas others are couch potatoes. Some worry a lot, others almost never seem anxious. Each time we use one of these words — words like "talkative," "quiet," "active," or "anxious" — to describe those around us, we are talking about a person's personality, that is, the characteristic ways that people differ from one another. Personality psychologists try to describe and understand these differences.



Figure 14.7. Are you an introvert? In popular culture it's common to talk about people being introverts or extroverts as if these were precise descriptions that meant the same thing for everyone, but research shows that these traits and others are quite variable within individuals.

Although there are many ways to think about the personalities that people have, Gordon Allport and other "personologists" claimed that we can best understand the differences between individuals by understanding their personality traits. **Personality traits** reflect basic dimensions on which people differ (Matthews, Deary, & Whiteman, 2003). According to trait psychologists, there are a limited number of these dimensions — dimensions like extraversion, conscientiousness, or agreeableness — and each individual falls somewhere on each dimension, meaning that they could be low, medium, or high on any specific trait.

An important feature of personality traits is that they reflect continuous distributions rather than distinct personality types. This means that when personality psychologists talk about introverts and extraverts, they are not really talking about two distinct types of people who are completely and qualitatively different from one another. Instead, they are talking about people who score relatively low or relatively high along a continuous distribution. In fact, when personality psychologists measure traits like extraversion, they typically find that most people score somewhere in the middle, with smaller numbers showing more extreme levels. From a survey of thousands of people (see Figure 14.8), the distribution of extraversion scores indicates that most people report being moderately, but not extremely, extraverted, with fewer people reporting very high or very low scores.

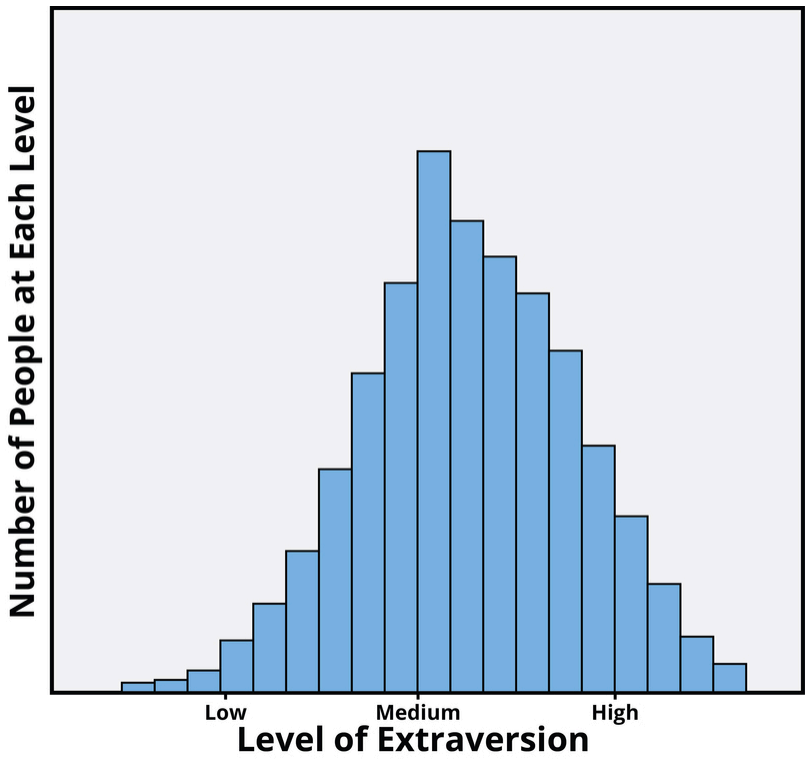


Figure 14.8. Distribution of extraversion scores in a sample shows that most people score towards the middle of the extraversion scale, with fewer people who are highly extraverted or highly introverted.

There are three criteria that characterize personality traits: (1) consistency, (2) stability, and (3) individual differences.

1. To have a personality trait, individuals must be somewhat consistent across situations in their behaviours related to the trait. For example, if they are talkative at home, they tend also to be talkative at work.
2. Individuals with a trait are also somewhat stable over time in behaviours related to the trait. If they are talkative, for example, at age 30, they will also tend to be talkative at age 40.
3. People differ from one another on behaviours related to the trait. Using speech is not a personality trait and neither is walking on two feet — virtually all individuals do these activities, and there are almost no individual differences. However, people differ on how frequently they talk and how active they are, and thus, personality traits such as "talkativeness" and "activity level" do exist.

A challenge of the trait approach was to discover the major traits on which all people differ. Scientists for many decades generated hundreds of new traits, so that it was soon difficult to keep track and make sense of them. For instance, one psychologist might focus on individual differences in "friendliness," whereas another might focus on the highly related concept of "sociability." Scientists began seeking ways to reduce the number of traits in some systematic way and to discover the basic traits that describe most of the differences between people.

The way that Gordon Allport and Henry Odbert approached this was to search the dictionary for all descriptors of personality (Allport & Odbert, 1936). Their approach was guided by the **lexical hypothesis**, which states that all important personality characteristics should be reflected in the language that we use to describe other people. Therefore, if we want to understand the fundamental ways in which people differ from one another, we can turn to the words that people use to describe one another. So, if we want to know what words people use to describe one another, where should we look? Allport and Odbert looked in the most obvious place: the dictionary. Specifically, they took all the

personality descriptors that they could find in the dictionary; they started with almost 18,000 words but quickly reduced that list to a more manageable number. Then, they used statistical techniques to determine which words went together. In other words, if everyone who said that they were "friendly" also said that they were "sociable," then this might mean that personality psychologists would only need a single trait to capture individual differences in these characteristics. Statistical techniques were used to determine whether a small number of dimensions might underlie all of the thousands of words we use to describe people.

The five-factor model of personality

Research that used the lexical approach showed that many of the personality descriptors found in the dictionary do indeed overlap. That is to say, many of the words that we use to describe people are synonyms. Thus, if we want to know what a person is like, we do not necessarily need to ask how sociable they are, how friendly they are, and how gregarious they are. Instead, because sociable people tend to be friendly and gregarious, we can summarize this personality dimension with a single term. Someone who is sociable, friendly, and gregarious would typically be described as an "extravert." Once we know they are an extravert, we can assume that they are sociable, friendly, and gregarious.

Statistical methods — specifically, a technique called **factor analysis** — helped to determine whether a small number of dimensions underlie the diversity of words that people like Allport and Odbert identified. The most widely accepted system to emerge from this approach was the Big Five, or five-factor model (Goldberg, 1990; McCrae & John, 1992; McCrae & Costa, 1987). The Big Five comprises five major traits (see Figure 14.9). A way to remember these five is with the acronym OCEAN, which stands for openness, conscientiousness, extraversion, agreeableness, and neuroticism. Consider the descriptions of people who would score high and low on each of these traits (see Figure 14.10).

Big 5 Trait	Definition
Openness	The tendency to appreciate new art, ideas, values, feelings, and behaviors.
Conscientiousness	The tendency to be careful, on-time for appointments, to follow rules, and to be hardworking.
Extraversion	The tendency to be talkative, sociable, and to enjoy others; the tendency to have a dominant style.
Agreeableness	The tendency to agree and go along with others rather than to assert one's own opinions and choices.
Neuroticism	The tendency to frequently experience negative emotions such as anger, worry, and sadness, as well as being interpersonally sensitive.

Figure 14.9. Descriptions of the Big Five personality traits.

Big 5 Trait	Example Behavior for LOW Scorers	Example Behavior for HIGH Scorers
Openness	Prefers not to be exposed to alternative moral systems; narrow interests; inartistic; not analytical; down-to-earth	Enjoys seeing people with new types of haircuts and body piercing; curious; imaginative; untraditional
Conscientiousness	Prefers spur-of-the-moment action to planning; unreliable; hedonistic; careless; lax	Never late for a date; organized; hardworking; neat; persevering; punctual; self-disciplined
Extraversion	Preferring a quiet evening reading to a loud party; sober; aloof; unenthusiastic	Being the life of the party; active; optimistic; fun-loving; affectionate
Agreeableness	Quickly and confidently asserts own rights; irritable; manipulative; uncooperative; rude	Agrees with others about political opinions; good-natured; forgiving; gullible; helpful; forgiving
Neuroticism	Not getting irritated by small annoyances; calm, unemotional; hardy; secure; self-satisfied	Constantly worrying about little things; insecure; hypochondriacal; feeling inadequate

Figure 14.10. Example behaviours for those scoring low and high for the Big Five traits.

Scores on the Big Five traits are mostly independent. That means that a person's standing on one trait tells very little about their standing on the other traits of the Big Five. For example, a person can be extremely high in extraversion and be either high or low on neuroticism. Similarly, a person can be low in agreeableness and be either high or low in conscientiousness. Thus, in the five-factor model, you need five scores to describe most of an individual's personality.

At the end of this section, a short scale is presented to assess the five-factor model of personality (Donnellan, Oswald, Baird, & Lucas, 2006). You can take this test to see where you stand in terms of your Big Five scores. John Johnson (n.d.) has also created a "Short Form for the IPIP-NEO" with personality scales that can be used and taken by the general public. After seeing your scores, you can judge for yourself whether you think such tests are valid.

Traits are important and interesting because they describe stable patterns of behaviour that persist for long periods of time (Caspi, Roberts, & Shiner, 2005). Importantly, these stable patterns can have broad-ranging consequences for many areas of our life (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). For instance, think about the factors that determine success in college. If you were asked to guess what factors predict good grades in college, you might guess something like intelligence. This guess would be correct, but we know much more about who is likely to do well. Specifically, personality researchers have also found the personality traits like "conscientiousness" play an important role in college and beyond, probably because highly conscientious individuals study hard, get their work done on time, and are less distracted by nonessential activities that take time away from school work. In addition, highly conscientious people are often healthier than people low in conscientiousness because they are more likely to maintain healthy diets, to exercise, and to follow basic safety procedures like wearing seat belts or bicycle helmets. Over the long term, this consistent pattern of behaviours can add up to meaningful differences in health and longevity. Thus, personality traits are not just a useful way to describe people you know; they actually help psychologists predict how good a worker someone will be, how long they will live, and the types of jobs and activities the person will enjoy. Thus, there is growing interest in personality psychology among psychologists who work in applied settings, such as health psychology or organizational psychology.

Facets of traits (subtraits)

So, how does it feel to be told that your entire personality can be summarized with scores on just five personality traits? Do you think these five scores capture the complexity of your own and others' characteristic patterns of thoughts, feelings, and behaviours? Most people would probably say no, pointing to some exception in their behaviour that goes against the general pattern that others might see. For instance, you may know people who are warm and friendly and find it easy to talk with strangers at a party, yet they are terrified if they have to perform in front of others or speak to large groups of people. The fact that there are different ways of being extraverted or conscientious shows that there is value in considering lower-level units of personality that are more specific than the Big Five traits. These more specific, lower-level units of personality are often called **facets**.

It is important to note that although personality researchers generally agree about the value of the Big Five traits as a way to summarize one's personality, there is no widely accepted list of facets that should be studied. The work by researchers Jeff McCrae and Paul Costa (1987) thus reflects just one possible list among many (see Figure 14.11). It should, however, give you an idea of some of the facets making up each of the five-factor model.

Trait	Facets of Trait
Openness	- Fantasy prone - Open to feelings - Open to diverse behaviors - Open to new and different ideas - Open to various values and beliefs
Conscientiousness	- Competent - Orderly - Dutiful - Achievement oriented - Self-disciplined - Deliberate
Extraversion	- Gregarious (sociable) - Warm - Assertive - Active - Excitement-seeking - Positive emotionality
Agreeableness	- Trusting - Straightforward - Altruistic - Compliant - Modest - Tender-minded
Neuroticism	- Anxious - Angry - Depressed - Self-consciousness - Impulsive - Vulnerable

Figure 14.11. Facets of traits (McCrae & Costa, 1987).

Facets can be useful because they provide more specific descriptions of what a person is like. For instance, if we take our friend who loves parties but hates public speaking, we might say that this person scores high on the "gregariousness" and "warmth" facets of extraversion, while scoring lower on facets such as "assertiveness" or "excitement-seeking." This precise profile of facet scores not only provides a better description, it might also allow us to better predict how this friend will do in a variety of different jobs, such as jobs that require public speaking versus jobs that involve one-on-one interactions with customers (Paunonen & Ashton, 2001). Because different facets within a broad, global trait like extraversion tend to go together (e.g., those who are gregarious are often, but not always, assertive), the broad trait often provides a useful summary of what a person is like, but when we really want to know a person, facet scores add to our knowledge in important ways.

Other traits beyond the five-factor model

Despite the popularity of the five-factor model, it is certainly not the only model that exists. Some suggest that there are more than five major traits or perhaps even fewer. For example, in one of the first comprehensive models to be proposed, Hans Eysenck suggested that extraversion and neuroticism are most important. Eysenck believed that by combining people's standing on these two major traits, we could account for many of the differences in personality that we see in people (Eysenck, 1981). So, for instance, a neurotic introvert would be shy and nervous, while a stable introvert might avoid social situations and prefer solitary activities but may do so with a calm, steady attitude and little anxiety or emotion. Interestingly, Eysenck attempted to link these two major dimensions to underlying differences in people's biology. For instance, he suggested that introverts experienced too much sensory stimulation and arousal, which made them want to seek out quiet settings and less stimulating environments. More recently, Jeffrey Gray suggested that these two broad traits are related to fundamental reward and avoidance systems in the brain. Extraverts might be motivated to seek reward, and thus exhibit assertive, reward-seeking behaviour, whereas people high in neuroticism might be motivated to avoid punishment, and thus may experience anxiety as a result of their heightened awareness of the threats in the world around them (Gray, 1981). This model has since been updated (Gray & McNaughton, 2000). These early theories have led to a burgeoning interest in identifying the physiological underpinnings of the individual differences that we observe.

Another revision of the Big Five is the **HEXACO model** of traits (Ashton & Lee, 2007). This model is similar to the Big Five, but it posits slightly different versions of some of the traits, and its proponents argue that one important class of individual differences was omitted from the five-factor model. The HEXACO adds honesty-humility as a sixth dimension of personality. People high in this trait are sincere, fair, and modest, whereas those low in the trait are manipulative, narcissistic, and self-centred. Thus, trait theorists are agreed that personality traits are important in understanding behaviour, but there are still debates on the exact number and composition of the traits that are most important.

There are other important traits that are not included in comprehensive models like the Big Five. Although the five factors capture much that is important about personality, researchers have suggested other traits that capture interesting aspects of our behaviour. Refer to the few, out of hundreds, of the other traits that have been studied by personologists (see Figure 14.12).

Personality Trait	Description
Machiavellianism	Named after the famous political philosopher, Niccolo Machiavelli, this trait refers to individuals who manipulate the behavior of others, often through duplicity. Machiavellians are often interested in money and power, and pragmatically use others in this quest.
Need for Achievement	Those high in need for achievement want to accomplish a lot and set high standards of excellence for themselves. They are able to work persistently and hard for distant goals. David McClelland argued that economic growth depends in part on citizens with high need for achievement.
Need for Cognition	People high in need for cognition find it rewarding to understand things, and are willing to use considerable cognitive effort in this quest. Such individuals enjoy learning, and the process of trying to understand new things.
Authoritarianism	Authoritarians believe in strict social hierarchies, in which they are totally obedient to those above them, and expect complete obedience from their subordinates. Rigid in adherence to rules, the authoritarian personality is very uncomfortable with uncertainty.
Narcissism	The narcissistic personality has self-love that is so strong that it results in high levels of vanity, conceit, and selfishness. The narcissistic individual often has problems feeling empathetic toward others and grateful to others.
Self-esteem	The tendency to evaluate oneself positively. Self-esteem does not imply that one believes that he or she is better than others, only that he or she is a person of worth.
Optimism	The tendency to expect positive outcomes in the future. People who are optimistic expect good things to happen, and indeed they often have more positive outcomes, perhaps because they work harder to achieve them.
Alexithymia	The inability to recognize and label emotions in oneself. The individual also has a difficult time recognizing emotions in others, and often has difficulties in relationships.

Figure 14.12. Other traits beyond those included in the Big Five.

Not all of the above traits are currently popular with scientists, yet each of them has experienced popularity in the past. Although the five-factor model has been the target of more rigorous research than some of the traits above, these additional personality characteristics give a good idea of the wide range of behaviours and attitudes that traits can cover.

The mini-IPIP scale

Below are phrases describing people's behaviours. Use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex and roughly your same age. Read each statement carefully, and put a number from 1 to 5 next to it to describe how accurately the statement describes you.

- 1 = Very inaccurate
- 2 = Moderately inaccurate
- 3 = Neither inaccurate nor accurate

- 4 = Moderately accurate
- 5 = Very accurate

1. _____ Am the life of the party (E)
2. _____ Sympathize with others' feelings (A)
3. _____ Get chores done right away (C)
4. _____ Have frequent mood swings (N)
5. _____ Have a vivid imagination (O)
6. _____Don't talk a lot (E)
7. _____ Am not interested in other people's problems (A)
8. _____ Often forget to put things back in their proper place (C)
9. _____ Am relaxed most of the time (N)
10. _____ Am not interested in abstract ideas (O)
11. _____ Talk to a lot of different people at parties (E)
12. _____ Feel others' emotions (A)
13. _____ Like order (C)
14. _____ Get upset easily (N)
15. _____ Have difficulty understanding abstract ideas (O)
16. _____ Keep in the background (E)
17. _____ Am not really interested in others (A)
18. _____ Make a mess of things (C)
19. _____ Seldom feel blue (N)
20. _____ Do not have a good imagination (O)

In terms of scoring, the first thing you must do is to reverse the items that are worded in the opposite direction. In order to do this, subtract the number you put for that item from 6. So, if you put a 4, for instance, it will become a 2. Cross out the score you put when you took the scale, and put the new number in representing your score subtracted from the number 6.

Items to be reversed in this way: 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20

Next, you need to add up the scores for each of the five OCEAN scales, including the reversed numbers where relevant. Each OCEAN score will be the sum of four items. Place the sum next to each scale below.

_____ Openness: Add items 5, 10, 15, 20

_____ Conscientiousness: Add items 3, 8, 13, 18

_____ Extraversion: Add items 1, 6, 11, 16

_____ Agreeableness: Add items 2, 7, 12, 17

_____ Neuroticism: Add items 4, 9,14, 19

Compare your scores to the norms below to see where you stand on each scale. If you are low on a trait, it means you are the opposite of the trait label. For example, low on extraversion is introversion, low on openness is conventional, and low on agreeableness is assertive.

19–20 Extremely High, 17–18 Very High, 14–16 High, 11–13 Neither high nor low, 8–10 Low, 6–7 Very low, 4–5 Extremely low

(Donnellan, Oswald, Baird, & Lucas, 2006)

Additional resources

The following YouTube link shows Gabriela Cintron's student-made video, which cleverly describes common behavioural characteristics of the Big Five personality traits through song:

- Video: 5 *Factors of Personality – OCEAN Song* (Nguyen, 2017)

The following Vimeo link shows Michael Harris's student-made video that looks at characteristics of the OCEAN traits through a series of funny vignettes and presents on the Person vs. Situation debate:

- Video: *Personality Traits – The Big 5 and More* (Harris, n.d.)

The following YouTube link shows David M. Cole's student-made video about the relationship between personality traits and behaviour using a handy weather analogy:

- Video: *Grouchy With a Chance of Stomping* (ObserveChange.org, 2017)

Source: Adapted from Diener and Lucas (2020).

Psychology in Everyday Life

Leaders and leadership

One trait that has been studied in thousands of studies is **leadership**, which is the ability to direct or inspire others to achieve goals. Trait theories of leadership are theories based on the idea that some people are simply "natural leaders" because they possess personality characteristics that make them effective (Zaccaro, 2007). Consider Elizabeth May, the leader of the Green Party of Canada (see Figure 14.13). What characteristics do you think she possessed that allowed her to function as the sole member of her party in Parliament when she was first elected?



Figure 14.13. Which personality traits do you think characterize good leaders? [Long description]

Research has found that being intelligent is an important characteristic of leaders, as long as the leader communicates to others in a way that is easily understood by their followers (Simonton, 1994, 1995). Other research has found that people with good social skills, such as the ability to accurately perceive the needs and goals of the group members and communicate with others, also tend to make good leaders (Kenny & Zaccaro, 1983). Because so many characteristics seem to be related to leaderhip skills, some researchers have attempted to account for leadership not in terms of individual traits, but rather in terms of a package of traits that successful leaders seem to have. Some have considered this in terms of charisma (Sternberg & Lubart, 1995; Sternberg, 2002). **Charismatic leaders** are leaders who are enthusiastic, committed, and self-confident; who tend to talk about the importance of group goals at a broad level; and who make personal sacrifices for the group. Charismatic leaders express views that support and validate existing group norms but that also contain a vision of what the group could or should be. Charismatic leaders use their referent power to motivate, uplift, and inspire others. Additionally, research has found a positive relationship between a leader's charisma and effective leadership performance (Simonton, 1988).

Another trait-based approach to leadership is based on the idea that leaders take either transactional or transformational leadership styles with their subordinates (Bass, 1999; Pieterse, van Knippenberg, Schippers, & Stam, 2010). **Transactional leaders** are the more regular leaders, who work with their subordinates to help them understand what is required of them and to get the job done. **Transformational leaders**, on the other

hand, are more like charismatic leaders — they have a vision of where the group is going and attempt to stimulate and inspire their followers to move beyond their present status and create a new and better future.

Despite the fact that there appear to be at least some personality traits that relate to leadership ability, the most important approaches to understanding leadership take into consideration both the personality characteristics of the leader as well as the situation in which the leader is operating. In some cases, the situation itself is important. For instance, during the Calgary flooding of 2013, Mayor Naheed Nenshi enhanced his popularity further with his ability to support and unify the community, thereby ensuring that the Calgary Stampede went ahead as planned despite severe damage to the fair grounds and arenas. In still other cases, different types of leaders may perform differently in different situations. Leaders whose personalities lead them to be more focused on fostering harmonious social relationships among the members of the group, for instance, are particularly effective in situations in which the group is already functioning well, and yet it is important to keep the group members engaged in the task and committed to the group outcomes. Leaders who are more task-oriented and directive, on the other hand, are more effective when the group is not functioning well and needs a firm hand for guidance (Ayman, Chemers, & Fiedler, 1995).

Key Takeaways

- Personality is driven in large part by underlying individual motivations, where motivation refers to a need or desire that directs behaviour.
- Personalities are characterized in terms of traits — relatively enduring characteristics that influence our behaviour across many situations.
- The most important and well-validated theory about the traits of normal personality is the five-factor model of personality.
- There is often a low correlation between the specific traits that a person expresses in one situation and those that they expresses in other situations.

Exercises and Critical Thinking

1. Consider your own personality and those of people you know. What traits do you enjoy in other people, and what traits do you dislike?
2. Consider some of the people who have had an important influence on you. What were the personality characteristics of these people that made them so influential?
3. Consider different combinations of the Big Five, such as O (Low), C (High), E (Low), A (High), and N (Low). What would this person be like? Do you know anyone who is like this? Can you select politicians, movie stars, and other famous people and rate them on the Big Five?

Image Attributions

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Long Descriptions

Figure 14.13. Leader of the Green Party of Canada, Elizabeth May (top left); Queen Mother with Prime Minister William Lyon MacKenzie King (top middle); Hayley Wikenheiser, Captain of Canadian Women's National Hockey team (top right); Prime Minister Stephen Harper and President Barack Obama signing Canadian Parliamentary guestbook (bottom).

[Return to Figure 14.13]

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14.3 Psychodynamic Origins of Personality

Learning Objectives

1. Describe the strengths and limitations of the psychodynamic approach to explaining personality.
2. Summarize the accomplishments of the neo-Freudians.

Although measures such as the Big Five and the Minnesota Multiphasic Personality Inventory (MMPI) are able to effectively assess personality, they do not say much about where personality comes from. In this section, we will consider Freud's psychodynamic theory of the origin of personality and subsequent neo-Freudian modifications the theory.

Psychodynamic theories of personality: The role of the unconscious

One of the most important psychological approaches to understanding personality is based on the theorizing of the Austrian physician and psychologist Sigmund Freud (1856–1939), who founded what today is known as the **psychodynamic approach**, an approach to understanding human behaviour that focuses on the role of unconscious thoughts, feelings, and memories. Many people know about Freud because his work has had a huge impact on our everyday thinking about psychology, and the psychodynamic approach is one of the most important approaches to psychological therapy (Roudinesco, 2003; Taylor, 2009). Freud is probably the best known of all psychologists, in part because of his impressive observation and analyses of personality — there are 24 volumes of his writings. As is true of all theories, many of Freud's ingenious ideas have turned out to be at least partially incorrect, yet other aspects of his theories are still influencing psychology.

Freud was influenced by the work of the French neurologist Jean-Martin Charcot (1825–1893), who had been interviewing patients, almost all women, who were experiencing what was at the time known as hysteria. Although it is no longer used to describe a psychological disorder, **hysteria** at the time referred to a set of personality and physical symptoms that included chronic pain, fainting, seizures, and paralysis.

Charcot could find no biological reason for the symptoms. For instance, some women experienced a loss of feeling in their hands but not in their arms, and this seemed impossible given that the nerves in the arms are the same as those in the hands. Charcot was experimenting with the use of hypnosis, and he and Freud found that under hypnosis many of the hysterical patients reported having experienced a traumatic sexual experience, such as sexual abuse, as children (Dolnick, 1998).

Freud and Charcot also found that during hypnosis the remembering of the trauma was often accompanied by an outpouring of emotion, known as **catharsis**, and that following the catharsis the patient's symptoms were frequently

reduced in severity. These observations led Freud and Charcot to conclude that these disorders were caused by psychological rather than physiological factors.

Freud used the observations that he and Charcot had made to develop his theory regarding the sources of personality and behaviour, and his insights are central to the fundamental themes of psychology. In terms of free will, Freud did not believe that we were able to control our own behaviours. Rather, he believed that all behaviours are predetermined by motivations that lie outside our awareness, in the unconscious. These forces show themselves in our dreams, in neurotic symptoms such as obsessions, while we are under hypnosis, and in Freudian "slips of the tongue" in which people reveal their unconscious desires in language. Freud argued that we rarely understand why we do what we do, although we can make up explanations for our behaviours after the fact. For Freud, the mind was like an iceberg (see Figure 14.14). In this analogy, the many motivations of the unconscious are much larger, but also out of sight, in comparison to the consciousness of which we are aware .

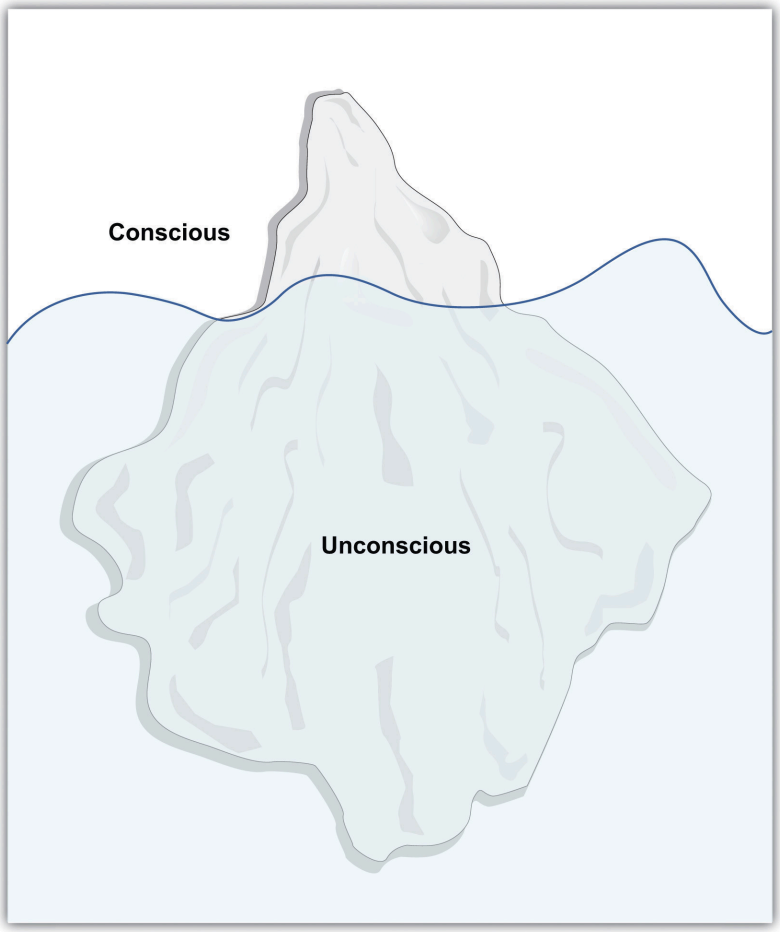


Figure 14.14. In Sigmund Freud's conceptualization of personality, the most important motivations are unconscious, just as the major part of an iceberg is under water.

Id, ego, and superego

Freud proposed that the mind is divided into three components — id, ego, and superego — and that the interactions and conflicts among the components create personality (Freud, 1923/1949). According to Freudian theory, the **id** is the component of personality that forms the basis of our most primitive impulses. The id is entirely unconscious, and it drives our most important motivations, including the sexual drive (i.e. libido) and the aggressive or destructive drive (i.e., thanatos). According to Freud, the id is driven by the **pleasure principle**, which is the desire for immediate gratification of our sexual and aggressive urges. The id is why we smoke cigarettes, drink alcohol, view pornography, tell mean jokes about people, and engage in other fun or harmful behaviours, often at the cost of doing more productive activities.

In stark contrast to the id, the **superego** represents our sense of morality and oughts. The superego tell us all the things that we shouldn't do, based on our interpretation of the duties and obligations of society. The superego strives for perfection, and when we fail to live up to its demands, we feel guilty. We have internalized the "shoulds" taught to us by parents and others in early childhood, and thus part of the superego exists in the unconscious, while actively exercising our moral codes may involve conscious deliberation.

In contrast to the id, which is about the pleasure principle, the function of the ego is based on the **reality principle**, which is the idea that we must delay gratification of our basic motivations until the appropriate time with the appropriate outlet. The **ego** is the largely conscious controller or decision-maker of personality. The ego serves as the intermediary between the desires of the id and the constraints of society contained in the superego (see Figure 14.15). We may wish to scream, yell, or hit, and yet our ego normally tells us to wait, reflect, and choose a more appropriate response.

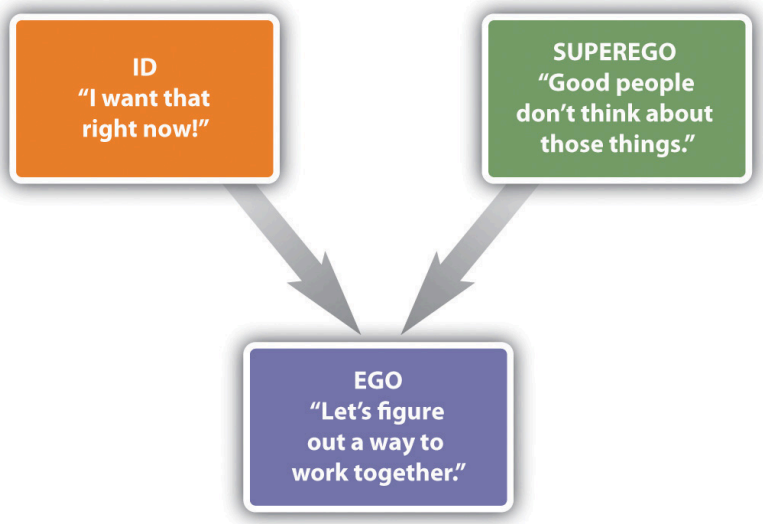


Figure 14.15. Interactions between the ego, id, and superego.

Freud believed that psychological disorders, and particularly the experience of anxiety, occur when there is conflict or imbalance among the motivations of the id, ego, and superego. When the ego finds that the id is pressing too hard for immediate pleasure, it attempts to correct for this problem, often through the use of **defence mechanisms**, which are

unconscious psychological strategies used to cope with anxiety and maintain a positive self-image. Freud believed that the defence mechanisms were essential for effective coping with everyday life, but that any of them could be overused. The table below identifies the major Freudian defence mechanisms.

Table 14.1. The major Freudian defence mechanisms

Defence Mechanism	Definition	Possible Behavioural Example
Displacement	Diverting threatening impulses away from the source of the anxiety and toward a more acceptable source	A student who is angry at her professor for a low grade lashes out at her roommate, who is a safer target of her anger.
Projection	Disguising threatening impulses by attributing them to others	A man with powerful unconscious sexual desires for women claims that women use him as a sex object.
Rationalization	Generating self-justifying explanations for our negative behaviours	A drama student convinces herself that getting the part in the play wasn't that important after all.
Reaction formation	Making unacceptable motivations appear as their exact opposite	Jane is sexually attracted to Jake, but she claims in public that she intensely dislikes him.
Regression	Retreating to an earlier, more childlike, and safer stage of development	A university student who is worried about an important test begins to suck on his thumb.
Repression (or denial)	Pushing anxiety-arousing thoughts into the unconscious	A person who witnesses his parents having sex is later unable to remember anything about the event.
Sublimation	Channeling unacceptable sexual or aggressive desires into acceptable activities	A person participates in sports to sublimate aggressive drives. A person creates music or art to sublimate sexual drives.

The most controversial, and least scientifically valid, part of Freudian theory is its explanations of personality development. Freud argued that personality is developed through a series of **psychosexual stages**, each focusing on pleasure from a different part of the body. The table below provides details on stages of psychosexual development. Freud believed that sexuality begins in infancy, and that the appropriate resolution of each stage has implications for later personality development.

Table 14.2. Freud's stages of psychosexual development

Stage	Approximate Ages	Description
Oral	Birth to 18 months	Pleasure comes from the mouth in the form of sucking, biting, and chewing.
Anal	18 months to three years	Pleasure comes from bowel, bladder elimination, and the constraints of toilet training.
Phallic	Three years to six years	Pleasure comes from the genitals, and the conflict is with sexual desires for the opposite-sex parent.
Latency	Six years to puberty	Sexual feelings are less important.
Genital	Puberty and older	If prior stages have been properly reached, mature sexual orientation develops.

In the first of Freud's proposed stages of psychosexual development, which begins at birth and lasts until about 18 months of age, the focus is on the mouth. During this **oral stage**, the infant obtains sexual pleasure by sucking and drinking. Infants who receive either too little or too much gratification become fixated or locked in the oral stage, and they are likely to regress to these points of fixation under stress, even as adults. According to Freud, a child who receives too little oral gratification (e.g., who was underfed or neglected) will become orally dependent as an adult and be likely to manipulate others to fulfill their needs rather than becoming independent. On the other hand, the child who was

overfed or overly gratified will resist growing up and try to return to the prior state of dependency by acting helpless, demanding satisfaction from others, and acting in a needy way.

The **anal stage**, lasting from about 18 months to three years of age, is when children first experience psychological conflict. During this stage children desire to experience pleasure through bowel movements, but they are also being toilet trained to delay this gratification. Freud believed that if this toilet training was either too harsh or too lenient, children would become fixated in the anal stage and become likely to regress to this stage under stress as adults. If the child received too little anal gratification (i.e., if the parents had been very harsh about toilet training), the adult personality will be **anal retentive**, characterized by being stingy with a compulsive seeking of order and tidiness. On the other hand, if the parents had been too lenient, the **anal expulsive** personality results, characterized by a lack of self-control and a tendency toward messiness and carelessness.

The **phallic stage**, which lasts from age three to age six is when the penis for boys and clitoris for girls become the primary erogenous zone for sexual pleasure. During this stage, Freud believed that children develop a powerful but unconscious attraction for the opposite-sex parent, as well as a desire to eliminate the same-sex parent as a rival. Freud based his theory of sexual development in boys, termed the **Oedipus complex**, on the Greek mythological character Oedipus, who unknowingly killed his father and married his mother before gouging his own eyes out when he learned what he had done. Freud argued that boys will normally abandon their love of the mother, eventually, and instead identify with the father, also taking on the father's personality characteristics. However, boys who do not successfully resolve the Oedipus complex will experience psychological problems later in life. Although it was not as important in Freud's theorizing, in girls the phallic stage is often termed the **Electra complex**, after the Greek character who avenged her father's murder by killing her mother. Freud believed that girls frequently experienced **penis envy**, the sense of deprivation supposedly experienced by girls because they do not have a penis.

The **latency stage** is a period of relative calm that lasts from about age six to age 12. During this time, Freud believed that sexual impulses were repressed, leading boys and girls to have little or no interest in members of the opposite sex.

The fifth and last stage, the **genital stage**, begins at about 12 years of age and lasts into adulthood. According to Freud, sexual impulses return during this time frame, and if development has proceeded normally to this point, the child is able to move into the development of mature romantic relationships. Yet, if earlier problems have not been appropriately resolved, difficulties with establishing intimate love attachments are likely.

Freud's followers: The neo-Freudians

Freudian theory was so popular that it led to a number of followers, including many of Freud's own students, who developed, modified, and expanded his theories. Taken together, these approaches are known as neo-Freudian theories. The **neo-Freudian theories** are theories based on Freudian principles that emphasize the role of the unconscious and early experience in shaping personality, but they place less evidence on sexuality as the primary motivating force in personality and are more optimistic concerning the prospects for personality growth and change in personality in adults.

Alfred Adler (1870–1937) was a follower of Freud's who developed his own interpretation of Freudian theory. Adler proposed that the primary motivation in human personality was not sex or aggression but rather the striving for superiority. According to Adler, we desire to be better than others, and we accomplish this goal by creating a unique and valuable life. We may attempt to satisfy our need for superiority through our school or professional accomplishments, or perhaps by our enjoyment of music, athletics, or other activities that seem important to us.

Adler believed that psychological disorders begin in early childhood. He argued that children who are either overly

nurtured or overly neglected by their parents are later likely to develop an **inferiority complex**, which is a psychological state in which people feel that they are not living up to expectations, leading them to have low self-esteem, with a tendency to try to overcompensate for the negative feelings. People with an inferiority complex often attempt to demonstrate their superiority to others at all costs, even if it means humiliating, dominating, or alienating them. According to Adler, most psychological disorders result from misguided attempts to compensate for the inferiority complex in order meet the goal of superiority.

Carl Jung (1875–1961) was another student of Freud's who developed his own theories about personality. Jung agreed with Freud about the power of the unconscious but felt that Freud overemphasized the importance of sexuality. Jung argued that in addition to the personal unconscious, there was also a **collective unconscious**, or a collection of shared ancestral memories. Jung believed that the collective unconscious contains a variety of **archetypes**, or cross-culturally universal symbols, which explain the similarities among people in their emotional reactions to many stimuli. Important archetypes include the mother, the goddess, the hero, and the mandala or circle, which Jung believed symbolized a desire for wholeness or unity. For Jung, the underlying motivation that guides successful personality is **self-realization**, which is learning about and developing the self to the fullest possible extent.

Karen Horney (1855–1952) was a German physician who applied Freudian theories to create a personality theory that she thought was more balanced between men and women. Horney believed that parts of Freudian theory, and particularly the ideas of the Oedipus complex and penis envy, were biased against women. Horney argued that women's sense of inferiority was not due to their lack of a penis but rather to their dependency on men, an approach that the culture made it difficult for them to break from. For Horney, the underlying motivation that guides personality development is the desire for **security**, the ability to develop appropriate and supportive relationships with others.

Another important neo-Freudian was Erich Fromm (1900–1980). Fromm's focus was on the negative impact of technology, arguing that the increases in its use have led people to feel increasingly isolated from others. Fromm believed that the independence that technology brings us also creates the need to "escape from freedom," that is, to become closer to others.

Strengths and limitations of Freudian and neo-Freudian approaches

Freud has probably exerted a greater impact on the public's understanding of personality than any other thinker, and he has also in large part defined the early field of psychology. Although Freudian psychologists no longer talk about oral, anal, or genital fixations, they do continue to believe that our childhood experiences and unconscious motivations shape our personalities and our attachments with others, and they still make use of psychodynamic concepts when they conduct psychological therapy.

Nevertheless, Freud's theories, as well as those of the neo-Freudians, have in many cases failed to pass the test of empiricism, and as a result, they are less influential now than they have been in the past (Crews, 1998). The problems are, first, that it has proved to be difficult to rigorously test Freudian theory because the predictions that it makes, particularly those regarding defence mechanisms, are often vague and unfalsifiable and, second, that the aspects of the theory that can be tested often have not received much empirical support.

As examples, although Freud claimed that children exposed to overly harsh toilet training would become fixated in the anal stage and thus be prone to excessive neatness, stinginess, and stubbornness in adulthood, research has found few reliable associations between toilet training practices and adult personality (Fisher & Greenberg, 1996). Additionally, since the time of Freud, the need to repress sexual desires would seem to have become much less necessary as societies have tolerated a wider variety of sexual practices, yet the psychological disorders that Freud thought we caused by this repression have not decreased.

There is also little scientific support for some of the Freudian defence mechanisms. For example, studies have failed to yield evidence for the existence of repression. People who are exposed to traumatic experiences in war have been found to remember their traumas only too well (Kihlstrom, 1997). Although we may attempt to push information that is anxiety-arousing into our unconscious, this often has the ironic effect of making us think about the information even more strongly than if we hadn't tried to repress it (Newman, Duff, & Baumeister, 1997). It is true that children remember little of their childhood experiences, but this is true of both negative as well as positive experiences, is true for animals as well, and probably is better explained in terms of the brain's inability to form long-term memories than in terms of repression. On the other hand, Freud's important idea that expressing or talking through one's difficulties can be psychologically helpful has been supported in current research (Baddeley & Pennebaker, 2009) and has become a mainstay of psychological therapy.

A particular problem for testing Freudian theories is that almost anything that conflicts with a prediction based in Freudian theory can be explained away in terms of the use of a defence mechanism. A man who expresses a lot of anger toward his father may be seen via Freudian theory to be experiencing the Oedipus complex, which includes conflict with the father, but a man who expresses no anger at all toward the father also may be seen as experiencing the Oedipus complex by repressing the anger. Because Freud hypothesized that either was possible, but did not specify when repression would or would not occur, the theory is difficult to falsify.

In terms of the important role of the unconscious, Freud seems to have been at least in part correct. Research demonstrates that a large part of everyday behaviour is driven by processes that are outside our conscious awareness (e.g., Kihlstrom, Barnhardt, & Tatryn, 1992). Although our unconscious motivations influence every aspect of our learning and behaviour, Freud probably overestimated the extent to which these unconscious motivations are primarily sexual and aggressive.

Taken together, it is fair to say that Freudian theory is largely unfalsifiable; the id, ego, and superego, for example, are concepts that are difficult to define, observe, and measure. Freud's ideas about the unconscious and its effects on human functioning are impossible to solidify into a set of rules for interpretation. Much of his theory has not been well supported by research; however, the fundamental ideas about personality that Freud proposed are nevertheless still major influences in popular culture, philosophy, art, film, and so on. Additionally, clinical psychologists frequently apply psychodynamic assumptions about the existence of an unconscious and the importance of early childhood in therapy.

Key Takeaways

- One of the most important psychological approaches to understanding personality is based on the psychodynamic approach to personality developed by Sigmund Freud.
- For Freud, the mind was like an iceberg, with the many motivations of the unconscious being much larger, but also out of sight, in comparison to the consciousness of which we are aware.
- Freud proposed that the mind is divided into three components: id, ego, and superego. The interactions

and conflicts among the components create personality.
- Freud proposed that we use defence mechanisms to cope with anxiety and maintain a positive self-image.
- Freud argued that personality is developed through a series of psychosexual stages, each focusing on pleasure from a different part of the body.
- The neo-Freudian theorists, including Adler, Jung, Horney, and Fromm, emphasized the role of the unconscious and early experience in shaping personality, but they placed less evidence on sexuality as the primary motivating force in personality.
- Although there is little empirical support for Freud's theory, it continues to play a role in popular culture.

Exercises and Critical Thinking

1. Based on your understanding of psychodynamic theories, how would you analyze your own personality? Are there aspects of the theory that might help you explain your own strengths and weaknesses?

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14.4 Behaviourist and Social-Cognitive Perspectives on Personality

Learning Objectives

1. Describe the behaviourist perspective on personality.
2. Describe the cognitive perspective on personality.
3. Describe the social cognitive perspective on personality.

In contrast to the psychodynamic approaches of Freud and the neo-Freudians, which relate personality to inner and hidden processes, the learning approaches discussed in this section focus only on observable behaviour. This illustrates a significant advantage of the learning approaches over psychodynamics. Because learning approaches involve observable and measurable phenomena, they can be scientifically tested.

The behavioural perspective

Behaviourists do not believe in biological determinism; they do not see personality traits as inborn. Instead, they view personality as significantly shaped by the reinforcements and consequences outside of the organism. In other words, people behave in a consistent manner based on prior learning. B. F. Skinner, a strict behaviourist, believed that environment was solely responsible for all behaviour, including the enduring, consistent behaviour patterns studied by personality theorists.

As you may recall from your study on the psychology of learning, Skinner proposed that we demonstrate consistent behaviour patterns because we have developed certain response tendencies (Skinner, 1953). In other words, we learn to behave in particular ways. We increase the behaviours that lead to positive consequences, and we decrease the behaviours that lead to negative consequences. Skinner disagreed with Freud's idea that personality is fixed in childhood. He argued that personality develops over our entire life, not only in the first few years. Our responses can change as we come across new situations; therefore, we can expect more variability over time in personality than Freud would anticipate. For example, consider a young woman, Greta, a risk taker. She drives fast and participates in dangerous sports such as hang gliding and kiteboarding, but after she gets married and has children, the system of reinforcements and punishments in her environment changes. Speeding and extreme sports are no longer reinforced, so she no longer engages in those behaviours. In fact, Greta now describes herself as a cautious person.

The social-cognitive perspective

Albert Bandura agreed with Skinner that personality develops through learning. He disagreed, however, with Skinner's strict behaviourist approach to personality development because he felt that thinking and reasoning are important components of learning. He presented a **social-cognitive theory** of personality that emphasizes both learning and cognition as sources of individual differences in personality. In social-cognitive theory, the concepts of reciprocal determinism, observational learning, and self-efficacy all play a part in personality development.

In contrast to Skinner's idea that the environment alone determines behaviour, Bandura (1986) proposed the concept of **reciprocal determinism**, in which cognitive processes, behaviour, and context all interact, each factor influencing and being influenced by the others simultaneously (see Figure 14.16). Cognitive processes refer to all characteristics previously learned, including beliefs, expectations, and personality characteristics. Behaviour refers to anything that we do that may be rewarded or punished. Finally, the context in which the behaviour occurs refers to the environment or situation, which includes rewarding and punishing stimuli.

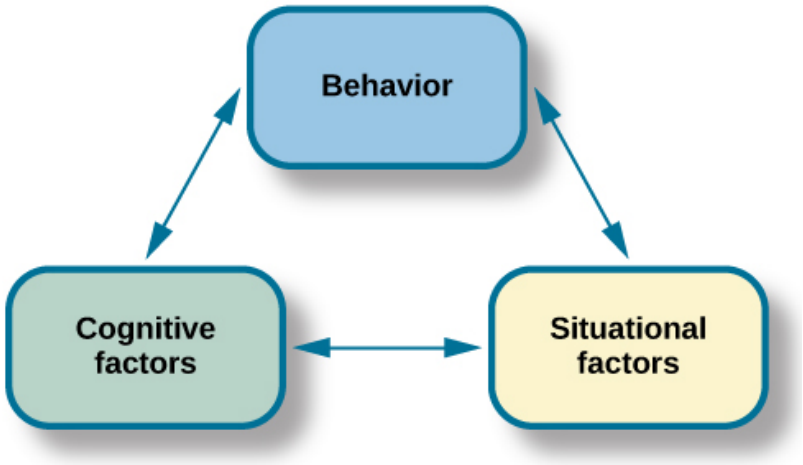


Figure 14.16. Albert Bandura proposed the idea of reciprocal determinism in which our behaviour, cognitive processes, and situational context all influence each other.

Consider, for example, that you're at a festival, and one of the attractions is bungee jumping from a bridge. Do you do it? In this example, the behaviour is bungee jumping. Cognitive factors that might influence this behaviour include your beliefs, values, and your past experiences with similar behaviours. Finally, context refers to the reward structure for the behaviour. According to reciprocal determinism, all of these factors are in play.

Bandura's key contribution to learning theory was the idea that much learning is vicarious. We learn by observing someone else's behaviour and its consequences, which Bandura called observational learning. He felt that this type of learning also plays a part in the development of our personality. Just as we learn individual behaviours, we learn new behaviour patterns when we see them performed by other people or models. Drawing on the behaviourists' ideas about reinforcement, Bandura suggested that whether we choose to imitate a model's behaviour depends on whether we see the model reinforced or punished. Through observational learning, we come to learn what behaviours are acceptable and rewarded in our culture, and we also learn to inhibit deviant or socially unacceptable behaviours by seeing what behaviours are punished.

We can see the principles of reciprocal determinism at work in observational learning. For example, personal factors determine which behaviours in the environment a person chooses to imitate, and those environmental events in turn are processed cognitively according to other personal factors.

Bandura (1977, 1995) has studied a number of cognitive and personal factors that affect learning and personality development. Most recently, Bandura has focused on the concept of self-efficacy. **Self-efficacy** is our level of confidence in our own abilities, developed through our social experiences. Self-efficacy affects how we approach challenges and reach goals. In observational learning, self-efficacy is a cognitive factor that affects which behaviours we choose to imitate as well as our success in performing those behaviours.

People who have high self-efficacy believe that their goals are within reach, have a positive view of challenges by seeing them as tasks to be mastered, develop a deep interest in and strong commitment to the activities in which they are involved, and quickly recover from setbacks. Conversely, people with low self-efficacy avoid challenging tasks because they doubt their ability to be successful, tend to focus on failure and negative outcomes, and lose confidence in their abilities if they experience setbacks. Feelings of self-efficacy can be specific to certain situations. For instance, a student might feel confident in their ability in English class but much less so in math class, or vice versa.

Julian Rotter and locus of control

Julian Rotter (1966) proposed the concept of locus of control, another cognitive factor that affects learning and personality development. Distinct from self-efficacy, which involves our belief in our own abilities, **locus of control** refers to our beliefs about the power we have over our lives. In Rotter's view, people possess either an internal or an external locus of control (see Figure 14.17). Those of us with an internal locus of control tend to believe that most of our outcomes are the direct result of our efforts. Those of us with an external locus of control tend to believe that our outcomes are outside of our control and are instead controlled by other people, luck, or chance. For example, say you didn't spend much time studying for your psychology test and went out to dinner with friends instead. When you receive your test score, you see that you earned a D. If you possess an internal locus of control, you would most likely admit that you failed because you didn't spend enough time studying and decide to study more for the next test. On the other hand, if you possess an external locus of control, you might conclude that the test was too hard and not bother studying for the next test because you figure you will fail it anyway. Researchers have found that people with an internal locus of control perform better academically, achieve more in their careers, are more independent, are healthier, are better able to cope, and are less depressed than people who have an external locus of control (Benassi, Sweeney, & Durfour, 1988; Lefcourt, 1982; Maltby, Day, & Macaskill, 2013; Whyte, 1977, 1978, 1980).

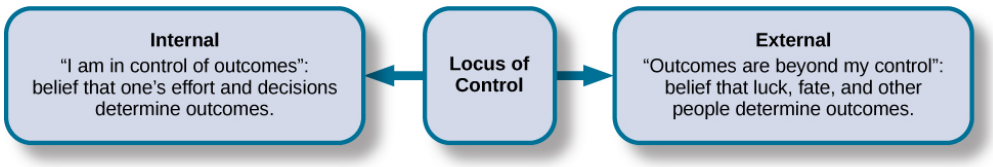


Figure 14.17. Locus of control occurs on a continuum from internal to external.

You may be interested in taking the "Locus of Control" (n.d.) questionnaire based on J. B. Rotter's (1966) "Generalized Expectancies for Internal Versus External Control of Reinforcement."

The person-situation debate and alternatives to the trait perspective

Walter Mischel (1930–2018), a student of Julian Rotter and a colleague of Albert Bandura, argued that understanding personality ought to be understood in the context of situations in which it is used. Mischel suggested that it wasn't personality that was consistent but behaviour in similar situations that was repeated. When Walter Mischel published a book called *Personality and Assessment* (1968), his suggestion that personality traits were an illusion and people are not consistent from one situation to the next shook the foundation of personality psychology. In this book, Mischel suggested that if one looks closely at people's behaviour across many different situations, the consistency is really not that impressive. In other words, children who cheat on tests at school may steadfastly follow all rules when playing games and may never tell a lie to their parents. In other words, he suggested there may not be any general trait of honesty that links these seemingly related behaviours. Furthermore, Mischel suggested that observers may believe that broad personality traits like honesty exist, when in fact, this belief is an illusion. The debate that followed the publication of Mischel's book was called the **person-situation debate** because it pitted the power of personality against the power of situational factors as determinants of the behaviour that people exhibit.



Figure 14.18. The way people behave is only in part a product of their natural personality. Situations also influence how a person behaves. Are you, for instance, a different person as a student in a classroom compared to when you're a member of a close-knit social group?

Because of the findings that Mischel emphasized, many psychologists focused on an alternative to the trait perspective. Instead of studying broad, context-free descriptions, like the trait terms we have described so far, Mischel thought that

psychologists should focus on people's distinctive reactions to specific situations. For instance, although there may not be a broad and general trait of honesty, some children may be especially likely to cheat on a test when the risk of being caught is low and the rewards for cheating are high. Others might be motivated by the sense of risk involved in cheating and may do so even when the rewards are not very high. Thus, the behaviour itself results from the child's unique evaluation of the risks and rewards present at that moment, along with their evaluation of their abilities and values. Because of this, the same child might act very differently in different situations. Thus, Mischel thought that specific behaviours were driven by the interaction between very specific, psychologically meaningful features of the situation in which people found themselves, the person's unique way of perceiving that situation, and their abilities for dealing with it. Mischel and others argued that it was these social-cognitive processes that underlie people's reactions to specific situations that provide some consistency when situational features are the same. If so, then studying these broad traits might be more fruitful than cataloging and measuring narrow, context-free traits like extraversion or neuroticism.

One of Mischel's most notable contributions to personality psychology was his ideas on self-regulation. According to Len Lecci and Jeffrey Magnavita (2013), "Self-regulation is the process of identifying a goal or set of goals and, in pursuing these goals, using both internal (e.g., thoughts and affect) and external (e.g., responses of anything or anyone in the environment) feedback to maximize goal attainment" (p. 6.3). Self-regulation is also known as will power. When we talk about will power, we tend to think of it as the ability to delay gratification. For example, Bettina's teenage daughter made strawberry cupcakes, and they looked delicious. However, Bettina forfeited the pleasure of eating one because she is training for a 5K race and wants to be fit and do well in the race. Would you be able to resist getting a small reward now in order to get a larger reward later? This is the question Mischel investigated in his now-classic marshmallow test.

Mischel designed a study to assess self-regulation in young children. In the marshmallow study, Walter Mischel, Ebbe Ebbesen, and Antonette Raskoff Zeiss placed a preschool child in a room with one marshmallow on the table. The child was told that they could either eat the marshmallow now or wait until the researcher returned to the room, and then they could have two marshmallows (Mischel, Ebbesen & Zeiss, 1972). This was repeated with hundreds of preschoolers. What the researchers found was that young children differ in their degree of self-control. Mischel and colleagues continued to follow this group of preschoolers through high school, and what do you think they discovered? The children who had more self-control in preschool — that is, the ones who waited for the bigger reward — were more successful in high school. They had higher SAT scores, had positive peer relationships, and were less likely to have substance abuse issues; as adults, they also had more stable marriages (Mischel, Shoda, & Rodriguez, 1989; Mischel et al., 2011). On the other hand, those children who had poor self-control in preschool — that is, the ones who grabbed the one marshmallow — were not as successful in high school, and they were found to have academic and behavioural problems.

In the years after the publication of Mischel's (1968) book, debates raged about whether personality truly exists, and if so, how it should be studied. As is often the case, it turns out that a more moderate middle ground than what the situationists proposed could be reached. It is certainly true, as Mischel pointed out, that a person's behaviour in one specific situation is not a good guide to how that person will behave in a very different specific situation. Someone who is extremely talkative at one specific party may sometimes be reticent to speak up during class and may even act like a wallflower at a different party. However, this does not mean that personality does not exist, nor does it mean that people's behaviour is completely determined by situational factors. Indeed, research conducted after the person-situation debate shows that, on average, the effect of the "situation" is about as large as that of personality traits. It is also true that if psychologists assess a broad range of behaviours across many different situations, there are general tendencies that emerge. Personality traits give an indication about how people will act on average, but frequently, they are not so good at predicting how a person will act in a specific situation at a certain moment in time. Thus, to best capture broad traits, one must assess aggregate behaviours, which are averaged over time and across many different types of situations. Most modern personality researchers agree that there is a place for broad personality traits and for the narrower units such as those studied by Walter Mischel.

Source: Adapted from Diener and Lucas (2020) and Spielman et al. (2019).

Key Takeaways

- Behaviourists view personality as significantly shaped by reinforcements and consequences from the environment.
- In social-cognitive theory, the concepts of reciprocal determinism, observational learning, and self-efficacy all play a part in personality development.
- Rotter proposed that locus of control is an important aspect of personality.
- Mischel's person-situation theory argued that cognitive interpretations of situations must be accounted for in personality.

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Figure 14.18: *2013 09 26 COE Orientation 679* by uoeducation is used under a CC BY-NC 2.0 license.

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14.5 Genetic and Environmental Influences on Personality

Learning Objectives

1. Explain how genes transmit personality from one generation to the next.
2. Outline the methods of behavioural genetics studies and the conclusions that we can draw from them about the determinants of personality.

One question that is exceedingly important for the study of personality concerns the extent to which it is the result of nature or nurture. If nature is more important, then our personalities will form early in our lives and may be difficult to change later. If nurture is more important, however, then our experiences are likely to be particularly important, and our personalities may change in response to experiences over time. While identical twins Paula Bernstein and Elyse Schein turned out to be very similar even though they had been raised separately, those traits that they share are likely to be the result of genes, but environments, particularly those that are unique to individuals, are important in shaping personality. In this section, we will see that personality traits seem to be determined by both genes and environments.

In the nucleus of each cell in your body are 23 pairs of chromosomes. One of each pair comes from your father, and the other comes from your mother. The **chromosomes** are made up of strands of the molecule deoxyribonucleic acid (DNA), and the DNA is grouped into segments known as genes. A **gene** is the basic biological unit that transmits characteristics from one generation to the next. Human cells have about 25,000 genes. The genes of different members of the same species are almost identical. The DNA in your genes, for instance, is about 99.9% the same as the DNA in my genes and in the DNA of every other human being. These common genetic structures lead members of the same species to be born with a variety of behaviours that come naturally to them and that define the characteristics of the species. These abilities and characteristics are known as **instincts**, which are complex inborn patterns of behaviours that help ensure survival and reproduction (Tinbergen, 1951). Different animals have different instincts. Birds naturally build nests, dogs are naturally loyal to their pack, and humans instinctively learn to walk, speak, and understand language.

However, the strength of different traits and behaviours also varies within species. Rabbits are naturally fearful, but some are more fearful than others; some dogs are more loyal than others; and some humans learn to speak and write better than others do. These differences are determined in part by the small amount — in humans, the 0.1% — of the differences in genes among the members of the species.

Personality is not determined by any single gene, but rather by the actions of many genes working together. There is no "IQ gene" that determines intelligence, and there is no "good marriage-partner gene" that makes a person a particularly good marriage bet. Furthermore, even working together, genes are not so powerful that they can control or create our personality. Some genes tend to increase a given characteristic, and others work to decrease that same characteristic. The complex relationship among the various genes, as well as a variety of random factors, produces the final outcome. Furthermore, genetic factors always work with environmental factors to create personality. Having a given pattern of

genes does not necessarily mean that a particular trait will develop because some traits might occur only in some environments. For example, a person may have a genetic variant that is known to increase their risk for developing emphysema from smoking, but if that person never smokes, then emphysema most likely will not develop.

Studying personality using behavioural genetics

Perhaps the most direct way to study the role of genetics in personality is to selectively breed animals for the trait of interest. In this approach, the scientist chooses the animals that most strongly express the personality characteristics of interest and breeds these animals with each other. If the selective breeding creates offspring with even stronger traits, then we can assume that the trait has genetic origins. In this manner, dog breeders have bred dogs to be friendly (e.g., labrador retrievers) or protective (e.g., rottweilers).

Although selective breeding studies can be informative, they are clearly not useful for studying humans. Obviously, we cannot do experiments on people to see what genes or environments produce specific personality traits. To understand the relative influence of genes and environments on human traits, psychologists rely on **behavioural genetics** — a variety of research techniques that scientists use to learn about the genetic and environmental influences on human behaviour by comparing the traits of biologically and nonbiologically related family members (Baker, 2004). Behavioural genetics is based on the results of family studies, twin studies, and adoptive studies.

A **family study** starts with one person who has a trait of interest — for instance, a personality trait such as extraversion — and examines the individual's family tree to determine the extent to which other members of the family also have the trait. The presence of the trait in first-degree relatives (e.g., parents, siblings, and children) is compared with the prevalence of the trait in second-degree relatives (e.g., aunts, uncles, grandchildren, grandparents, and nephews or nieces) and in more distant family members. The scientists then analyze the patterns of the trait in the family members to see the extent to which it is shared by closer and more distant relatives.

Although family studies can reveal whether a trait runs in a family, it cannot explain why. In a **twin study**, researchers study the personality characteristics of twins. Twin studies rely on the fact that identical (i.e., monozygotic) twins have essentially the same set of genes, while fraternal (i.e., dizygotic) twins share, on average 50% of their genes (half of the half from each parents – as in any set of full siblings). The idea is that if the twins are raised in the same household, then the twins will be influenced by their environments to an equal degree, and this influence will be pretty much equal for identical and fraternal twins. In other words, if environmental factors are the same, then the only factor that can make identical twins more similar than fraternal twins is their greater genetic similarity.

In a twin study, the data from many pairs of twins are collected, and the rates of similarity for identical and fraternal pairs are compared. If the correlation between degree of extraversion in identical twins were higher than the correlation for fraternal twins, it would be reasonable to argue that extraversion has some genetic influence.

However, we must also account for the environments of those being studied. In the example above, it is possible that the environments of identical and fraternal twins are different in some ways that relate to extraversion; furthermore, individual twins living in the same household as their twin may experience unique environmental influences. Within a family, some environments are shared (e.g., having the same parents); however, some are nonshared (e.g., friends, activities, or even treatment by a parent). Shared environments are likely to exert similar effects on family members, whereas nonshared environments are likely to result in differences between family members. Thus, any study of personality needs to account for genes, shared environmental effects, and nonshared environmental effects. In the typical twin study, all three sources of influence are operating simultaneously, and it is possible to determine the relative importance of each type. One key finding about environments is that, while parents do influence children's development of personality and behaviour in early childhood, shared environments (e.g., having the same parents) seem to have little

effect on personality differences in adulthood (Roberts & DelVecchio, 2000). Instead, the nonshared environments are more important in influencing personality differences.

Twin studies are complemented by **adoption studies,** which compare biologically related people, including twins, who have been reared either separately or apart. Nowadays, twins are less likely to be adopted by two different families, but past adoption practices have resulted in natural experiments, such as the example of Paula Bernstein and Elyse Schein discussed earlier. Evidence for genetic influence on a trait is found when children who have been adopted show traits that are more similar to those of their biological parents than to those of their adoptive parents. Evidence for environmental influence is found when the adoptee is more like their adoptive parents than their biological parents.

According to Thomas Bouchard, David Lykken, Matthew McGue, Nancy Segal, and Auke Tellegen (1990), twin and adoption studies show that approximately 40 to 50% of the individual differences in personality traits are the result of genetic differences between people, while the other 50 to 60% are the result of environmental differences. Thus, it is fair to say that your personality — in comparison to your siblings, for example — differs in part because of genetic differences and in part because of unique environmental experiences. In other words, both nature and nurture combine.

The major influence on personality is nonshared environmental influences, which include all the things that occur to us that make us unique individuals. These differences include variability in brain structure, nutrition, education, upbringing, and even interactions among the genes themselves. The genetic differences that exist at birth may be either amplified or diminished over time through environmental factors. The brains and bodies of identical twins are not exactly the same, and they become even more different as they grow up. As a result, even genetically identical twins have distinct personalities, resulting in large part from environmental effects.

Because these nonshared environmental differences are nonsystematic and largely accidental or random, it will be difficult to ever determine exactly what will happen to a child as they grow up. Although we do inherit our genes, we do not inherit personality in any fixed sense. The effect of our genes on our personality is entirely dependent on the context of our life as it unfolds day to day. Based on your genes, no one can say what kind of human being you will turn out to be or what you will do in life.

Key Takeaways

- Genes are the basic biological units that transmit characteristics from one generation to the next.
- Personality is not determined by any single gene, but rather by the actions of many genes working together.
- Behavioural genetics refers to a variety of research techniques that scientists use to learn about the genetic and environmental influences on human behaviour.
- Behavioural genetics is based on the results of family studies, twin studies, and adoptive studies.
- The largely unknown environmental influences, known as nonshared environmental effects, have the largest impact on personality.

Exercises and Critical Thinking

1. Think about the twins you know. Do they seem to be very similar to each other, or does it seem that their differences outweigh their similarities?
2. What does it mean to say that parents have an influence on personality in early childhood but that the influence diminishes in adulthood?

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14.6 Personality and Culture

Learning Objectives

1. Describe personality differences of people from collectivist and individualist cultures.
2. Describe different approaches to studying personality in a cultural context.

As you have learned in this chapter, personality is shaped by both genetic and environmental factors. The culture in which you live is one of the most important environmental factors that shapes your personality (Triandis & Suh, 2002). The term **culture** refers to all of the beliefs, customs, art, and traditions of a particular society. Culture is transmitted to people through language as well as through the modelling of culturally acceptable and nonacceptable behaviours that are either rewarded or punished (Triandis & Suh, 2002). With these ideas in mind, personality psychologists have become interested in the role of culture in understanding personality. They ask whether personality traits are the same across cultures or if there are variations. It appears that there are both universal and culture-specific aspects that account for variation in people's personalities.

Why might it be important to consider cultural influences on personality? Western ideas about personality may not be applicable to other cultures (Benet-Martinez & Oishi, 2008). In fact, there is evidence that the strength of personality traits varies across cultures. Let's take a look at some of the "Big Five" factors — that is, openness, conscientiousness, extraversion, agreeableness, and neuroticism — across cultures. Evolutionary psychologists argue that the five factors in the Big Five reflect universal responses to a repetitive and pervasive set of environmental challenges that existed throughout humans' ancestral environment and over millenia. According to that view, all humans should have personalities that can be explained by these five factors. There is evidence for this contention from a variety of cultures, although not all factors are seen in all cultures all of the time (Heine & Buchtel, 2009).

Thus, one way of viewing personality through a cultural lens is to see how people from different cultures respond to personality tests that are based on the assumption that personality is composed of a number of fundamental factors, like the Big Five. Let's look at some cultural variations in the five-factor model and then consider another way of conceptualizing the cultural study of personality.

Personality in individualist and collectivist cultures

Asian cultures are more collectivist, and people in these cultures tend to be less extroverted. In contrast, people in Central and South American cultures tend to score higher on openness to experience, whereas Europeans score higher on neuroticism (Benet-Martinez & Karakitapoglu-Aygun, 2003). Individualist cultures and collectivist cultures place emphasis on different basic values. People who live in individualist cultures tend to believe that independence, competition, and personal achievement are important. Individuals in Western nations such as the United States,

England, and Australia score high on individualism (Oyserman, Coon, & Kemmelmier, 2002). People who live in collectivist cultures value social harmony, respectfulness, and group needs over individual needs. Individuals who live in countries in Asia, Africa, and South America score high on collectivism (Hofstede, 2001; Triandis, 1995). These values influence personality. For example, Kuo-Shu Yang (2006) found that people in individualist cultures displayed more personally oriented personality traits, whereas people in collectivist cultures displayed more socially oriented personality traits.

There also seem to be regional personality differences within the United States (see Figure 14.19). Researchers analyzed responses from over 1.5 million individuals in the United States and found that there are three distinct regional personality clusters: Cluster 1, which is in the Upper Midwest and Deep South, is dominated by people who fall into the "friendly and conventional" personality; Cluster 2, which includes the West, is dominated by people who are more relaxed, emotionally stable, calm, and creative; and Cluster 3, which includes the Northeast, has more people who are stressed, irritable, and depressed. People who live in Clusters 2 and 3 are also generally more open (Rentfrow et al., 2013).

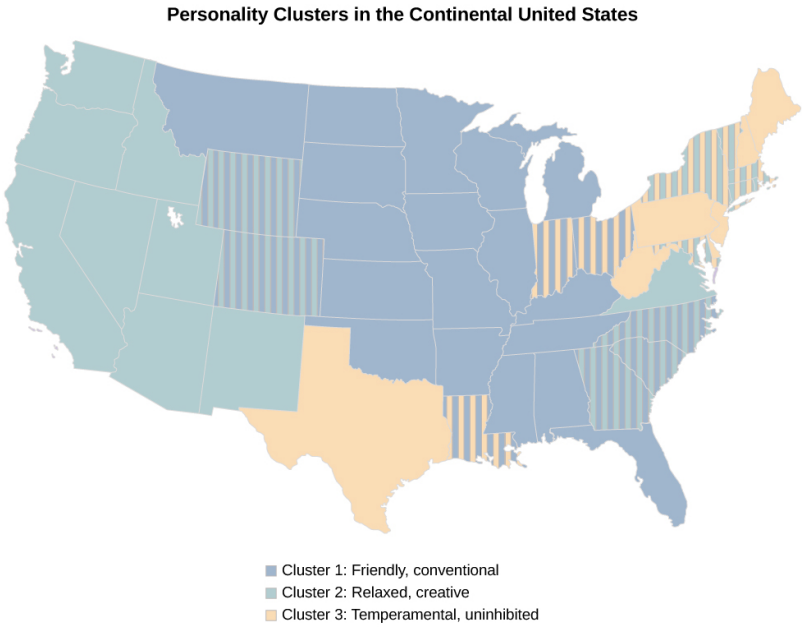


Figure 14.19. Researchers found three distinct regional personality clusters in the United States. People tend to be friendly and conventional in the Upper Midwest and Deep South; relaxed, emotionally stable, and creative in the West; and stressed, irritable, and depressed in the Northeast (Rentfrow et al., 2013).

One explanation for the regional differences is selective migration (Rentfrow et al., 2013). **Selective migration** is the concept that people choose to move to places that are compatible with their personalities and needs. For example, a person high on the agreeable scale would likely want to live near family and friends, and they would likely choose to settle or remain in such an area. In contrast, someone high on openness would prefer to settle in a place that is recognized as diverse and innovative, such as California.

Approaches to studying personality in a cultural context

Two approaches that can be used to study personality in a cultural context are the cultural-comparative approach and the indigenous approach. Because ideas about personality have a Western basis, the **cultural-comparative approach** seeks to test Western ideas about personality in other cultures to determine whether they can be generalized and if they have cultural validity (Cheung, van de Vijver, & Leong, 2011). For example, recall from the trait perspective discussed earlier in this chapter that researchers used the cultural-comparative approach to test the universality of McCrae and Costa's five-factor model. They found applicability in numerous cultures around the world, with the Big Five traits being stable in many cultures (McCrae & Costa, 1997; McCrae, Terracciano, Sánchez-Bernardos, Djuric-Jocic, & Halim, 2005).

The **indigenous approach** came about in reaction to the dominance of Western approaches to the study of personality in non-Western settings (Cheung et al., 2011). Because Western-based personality assessments cannot fully capture the personality constructs of other cultures, the indigenous model has led to the development of personality assessment instruments that are based on constructs relevant to the culture being studied (Cheung et al., 2011). This perspective has led to the translation of personality assessment instruments into other languages and cultural perspectives, and it has incorporated specifically Indigenous views on personality constructs and development.

Jacob Burack, Erin Gurr, Emily Stubbert, and Vanessa Weva (2019) argue that Indigenous identity in Canada is poorly understood because there is enormous variety in the culture, language, and traditions of Indigenous communities in Canada. The history before, during, and after the colonization by Europeans differs between Indigenous communities, as do social and economic conditions, resources, and geography. Indigenous Peoples in Canada share a history of colonization, oppression, displacement from traditional territories, forced cultural assimilation, and genocide. The Canadian government and its representatives — notably, various church groups — subjected Indigenous communities to forced relocation, family separation, and residential schools which were frequent sources of psychological, sexual, physical, and emotional abuse. The purpose of residential schools, as well as education, was to "kill the Indian in the child" (Royal Commission on Aboriginal Peoples, 1996, Vol. 1, p. 349). Thus, the collective history, trauma, and resilience of Indigenous Peoples in Canada provide multiple sources of influence on personality development that may have intergenerational effects.

As well as the influence of collective historical effects, personality is also shaped within one's own Indigenous community and its understanding of personality development, which may include constructs unfamiliar to people outside of that culture. Rather than seeing Indigenous experience as monolithic, Burack and colleagues (Burack et al., 2019) argued that understanding personality development requires knowledge of the specific culture as well as the collective history. Furthermore, in the development of personality, Indigenous youth must navigate a relationship with mainstream Canadian society and its environmental influences. Taken together, understanding personality in a culture different to one's own requires a careful and systematic study of all of the historical, shared, and individual environmental influences that shape personality. With respect to Canadian Indigenous communities, this requires a willingness to seek to understand the consequences of a long history of colonization, oppression, and resilience that followed an even longer history of self-sufficiency, sovereignty, and cultural and linguistic traditions.

Source: Adapted from Spielman et al. (2019).

Key Takeaways

1. Personality is shaped by environmental factors, genetic factors, and the interactions between them.
2. There are broad differences in the Big Five factors between collectivistic and individualistic cultures, and these differences can also be found within countries such as Canada and the United States.
3. Personality assessment instruments have been translated into other languages, but understanding the role of culture requires a deep understanding of the culture itself.
4. Indigenous identity in Canada is poorly understood by psychologists because the variability in culture, language, and traditions of Indigenous communities in Canada are not well understood outside of these communities.

Exercises and Critical Thinking

1. What distinct regional personality clusters might exist in Canada, and why?
2. Find a resource explaining culture in a First Nation in Canada, and speculate about the role of culture in the development of personality in that community.

Congratulations on completing Chapter 14! Remember to go back to the section on Approach and Pedagogy near the beginning of the book to learn more about how to get the most out of reading and learning the material in this textbook.

Image Attributions

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CHAPTER 15. PSYCHOLOGICAL DISORDERS

15.0 Introduction

Mental health is a topic that many people find difficult to discuss. In recent years, Canadian society has become more open to talking about mental illness. Celebrities like Howie Mandel and have disclosed their struggles with mental illness. Why does mental illness bear this stigma unlike other illnesses like diabetes or heart disease? In the past, it was sometimes thought that mental illness was simply the result of weakness, lack of confidence, or personal failure. The lingering effects of these mistaken beliefs are still with us, but things are improving.

One example of recent attempts to reduce the stigma of mental illness and encourage conversation, awareness, and recovery is the *Bell Let's Talk* (n.d.) campaign by Bell Canada. *Bell Let's Talk* has grown substantially over social media since it began in 2011 and has raised millions of dollars for mental health programs in Canada. Perhaps in the future, mental illnesses will be treated with the same level of acceptance as the chickenpox and the common cold. This chapter will review how to define mental illness and look at some of the more common psychological disorders.

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15.1 Psychological Disorder: The Challenges of Definition

Learning Objectives

1. Define psychological disorder, and summarize the general causes of disorder.
2. Explain why it is so difficult to define disorder.
3. Describe the stigma of psychological disorders and their impact on those who suffer from them.

In 2012, approximately 2.8 million people, or 10.1% of Canadians aged 15 and older, reported symptoms consistent with at least one of six mental or substance use disorders in the past 12 months (Pearson, Janz, & Ali, 2013). At least a half billion people are affected worldwide. The six disorders measured by the Canadian Mental Health Survey were major depressive episode, bipolar disorder, generalized anxiety disorder, and abuse of or dependence on alcohol, cannabis, or other drugs. The impact of mental illness is particularly strong on people who are poorer, of lower socioeconomic class, and from disadvantaged ethnic groups.

People with psychological disorders are also stigmatized by the people around them, resulting in feelings of shame and embarrassment as well as prejudice and discrimination against them. Thus, the understanding and treatment of psychological disorder has broad implications for the everyday life of many people. The table below shows the **prevalence**, the frequency of occurrence of a given condition in a population at a given time, of some of the major psychological disorders in Canada.

Table 15.1. Prevalence rates for psychological disorders in Canada, 2012

Disorder		Lifetime	12-Month
Substance use disorder	Alcohol abuse or dependence	18.1%	3.2%
	Cannabis abuse or dependence	6.8%	1.3%
	Other drug abuse or dependence	4%	0.7%
Total substance use disorders		**21.6%**	**4.4%**
Mood disorder	Major depressive episode	11.3%	4.7%
	Bipolar disorder	2.6%	1.5%
	Generalized anxiety disorder	8.7%	2.6%
Total mood disorders		**12.6%**	**5.4%**
Total mental or substance disorders		**33.1%**	**10.1%**
Data source: Pearson, Janz, and Ali, 2013.			

In this chapter, our focus is on the disorders themselves. We will review the major psychological disorders and consider their causes and their impact on the people who suffer from them. Then, in Chapter 16. Treating Psychological Disorders, we will turn to consider the treatment of these disorders through psychotherapy and drug therapy.

Defining disorder

A **psychological disorder** is an ongoing dysfunctional pattern of thought, emotion, and behaviour that causes significant distress and that is considered deviant in that person's culture or society (Butcher, Mineka, & Hooley, 2007). Psychological disorders have much in common with other medical disorders. They are out of the patient's control, they may in some cases be treated by drugs, and their treatment is often covered by medical insurance. Like medical problems, psychological disorders have both biological (i.e., nature) as well as environmental (i.e., nurture) influences. These causal influences are reflected in the bio-psycho-social model of illness (Engel, 1977).

The **bio-psycho-social model of illness** is a way of understanding disorder that assumes that disorder is caused by biological, psychological, and social factors (see Figure 15.1). The biological component of the bio-psycho-social model refers to the influences on disorder that come from the functioning of the individual's body; particularly important are genetic characteristics, which may make some people more vulnerable to a disorder than others, and the influence of neurotransmitters. The psychological component of the bio-psycho-social model refers to the influences that come from the individual, such as patterns of negative thinking and stress responses. The social component of the bio-psycho-social model refers to the influences on disorder due to social and cultural factors, such as socioeconomic status, homelessness, abuse, and discrimination.

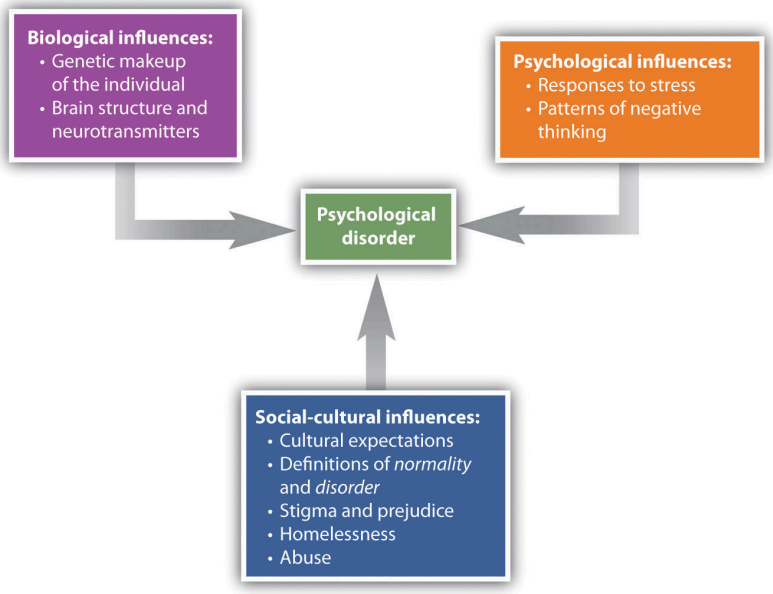


Figure 15.1. The bio-psycho-social model of disorder proposes that disorders are caused by biological, psychological, and social-cultural factors.

To consider one example, the psychological disorder of schizophrenia has a biological cause because it is known

that there are patterns of genes that make a person vulnerable to the disorder (Gejman, Sanders, & Duan, 2010). However, whether or not the person with a biological vulnerability experiences the disorder depends in large part on psychological factors, such as how the individual responds to the stress they experience, as well as social factors, such as whether or not the person is exposed to stressful environments in adolescence and whether or not the person has support from people who care about them (Sawa & Snyder, 2002; Walker, Kestler, Bollini, & Hochman, 2004). Similarly, mood and anxiety disorders are caused in part by genetic factors like hormones and neurotransmitters, in part by the individual's particular thought patterns, and in part by the ways that other people in the social environment treat the person with the disorder. We will use the bio-psycho-social model as a framework for considering the causes and treatments of disorder.

Although they share many characteristics with them, psychological disorders are nevertheless different from medical conditions in important ways. For one, diagnosis of psychological disorders can be more difficult. Although a medical doctor can see cancer in the lungs using an MRI scan or see blocked arteries in the heart using cardiac catheterization, there is no corresponding test for psychological disorders. Current research is beginning to provide more evidence about the role of brain structures in psychological disorders, but for now, the brains of people with severe mental disturbances often look identical to those of people without such disturbances.

Because there are no clear biological diagnoses, psychological disorders are instead diagnosed on the basis of clinical observations of the behaviours that the individual engages in. These observations find that emotional states and behaviours operate on a continuum, ranging from more normal and accepted to more deviant, abnormal, and unaccepted. The behaviours that are associated with disorder are in many cases the same behaviours that we engage in during our normal everyday life. Washing one's hands is a normal and healthy activity, but it can be overdone by those with an obsessive-compulsive disorder (OCD). Similarly, it is not unusual to worry about and try to improve one's body image; for example, a dancer may need to be thin for their career, but when does their dieting turn into a psychological disorder? Psychologists believe this happens when the behaviour becomes distressing and dysfunctional to the person.

Whether a given behaviour is considered a psychological disorder is determined not only by whether a behaviour is unusual (e.g., whether it is mild anxiety versus extreme anxiety), but also by whether a behaviour is **maladaptive** — that is, the extent to which it causes distress (e.g., pain and suffering to the person or those around them) and dysfunction (e.g., impairment in one or more important areas of functioning) to the individual (American Psychiatric Association, 2013). An intense fear of spiders, for example, would not be considered a psychological disorder unless it has a significant negative impact on the sufferer's life, such as causing them to be unable to step outside the house. The focus on distress and dysfunction means that behaviours that are simply unusual or statistically rare — such as some political, religious, or sexual practices — are not classified as disorders.

Put your psychology hat on for a moment, and consider the behaviours of the people listed in the table below. For each, indicate whether you think the behaviour is or is not a psychological disorder. If you're not sure, what other information would you need to know to be more certain of your diagnosis?

Table 15.2. Diagnosing disorder

Yes	No	Need More Information	Description
			Jackie frequently talks to herself while she is working out her math homework. Her roommate sometimes hears her and wonders if she is okay.
			Charlie believes that the noises made by cars and planes going by outside his house have secret meanings. He is convinced that he was involved in the start of a nuclear war and that the only way for him to survive is to find the answer to a difficult riddle.
			Harriet gets very depressed during the winter months when the light is low. She sometimes stays in her pajamas for the whole weekend, eating chocolate and watching TV.
			Frank seems to be afraid of a lot of things. He worries about driving on the highway and about severe weather that may come through his neighbourhood, but mostly, he fears mice and checks under his bed frequently to see if any are present.
			A worshiper speaking in "tongues" at an Evangelical church views himself as filled with the Holy Spirit and is considered blessed with the gift to speak the "language of angels."

A trained clinical psychologist would have checked off "need more information" for each of the examples in the table above, because although the behaviours may seem unusual, there is no clear evidence that they are distressing or dysfunctional for the person. Talking to ourselves out loud is unusual and can be a symptom of schizophrenia, but just because we do it once in a while does not mean that there is anything wrong with us. It is natural to be depressed, particularly in the long winter nights, but how severe should this depression be, and how long should it last? If the negative feelings last for an extended time and begin to lead the person to miss work or classes, then they may become symptoms of a mood disorder. It is normal to worry about things, but when does worry turn into a debilitating anxiety disorder? What about thoughts that seem to be irrational, such as being able to speak the language of angels? Are they indicators of a severe psychological disorder, or are they part of a normal religious experience? Again, the answer lies in the extent to which they are, or are not, interfering with the individual's functioning in society.

Psychological disorder is most commonly diagnosed using the *Diagnostic and Statistical Manual of Mental Disorders* (DSM). It is periodically updated and is currently in the 5th revision. We will examine the use of the DSM more closely in the next section.

Another difficulty in diagnosing psychological disorders is that they frequently occur together. For instance, people diagnosed with anxiety disorders also often have mood disorders (Hunt, Slade, & Andrews, 2004), and people diagnosed with one personality disorder frequently suffer from other personality disorders as well. **Comorbidity** occurs when people who suffer from one disorder also suffer at the same time from other disorders. Because many psychological disorders are comorbid, most severe mental disorders are concentrated in a small group of people, about 6% of the population, who have more than three of them (Kessler, Chiu, Demler, & Walters, 2005).

Key Takeaways

- More psychologists are involved in the diagnosis and treatment of psychological disorder than in any other endeavour, and those tasks are probably the most important psychologists face.
- The impact on people with a psychological disorder comes both from the disease itself and from the stigma associated with disorder.
- A psychological disorder is an ongoing dysfunctional pattern of thought, emotion, and behaviour that causes significant distress and that is considered deviant in that person's culture or society.
- According to the bio-psycho-social model, psychological disorders have biological, psychological, and social causes.
- It is difficult to diagnose psychological disorders, although the DSM provides guidelines. The DSM is frequently revised, taking into consideration new knowledge as well as changes in cultural norms about disorder.

Exercises and Critical Thinking

1. Do you or your friends hold stereotypes about the mentally ill? Can you think of or find clips from any films or other popular media that portray mental illness positively or negatively? Is it more or less acceptable to stereotype the mentally ill than to stereotype other social groups?
2. Consider the diagnosis of attention-deficit/hyperactivity disorder (ADHD), autism, and Asperger's disorder from the biological, personal, and social-cultural perspectives. Do you think that these disorders are overdiagnosed? How might clinicians determine if ADHD is dysfunctional or distressing to the individual?

Image Attributions

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15.2 Insanity: A History of Mental Illness

Learning Objectives

1. Identify what the criteria used to distinguish normality from abnormality are.
2. Understand the difference among the three main etiological theories of mental illness.
3. Describe specific beliefs or events in history that exemplify each of the etiological theories discussed, such as hysteria, humourism, witch hunts, asylums, and moral treatments.
4. Explain the differences in treatment facilities for the mentally ill, such as mental hospitals, asylums, and community mental health centres.
5. Describe the features of the "moral treatment" approach used by Chiarughi, Pinel, and Tuke.
6. Describe the reform efforts of Dix and Beers and the outcomes of their work.
7. Describe Kräpelin's classification of mental illness and the current DSM system.

History of mental illness

References to mental illness can be found throughout history. However, the evolution of mental illness has been more cyclical than linear or progressive. Whether a behaviour is considered normal or abnormal depends on the context surrounding the behaviour and thus changes as a function of a particular time and culture. In the past, uncommon behaviour that deviated from the sociocultural norms and expectations of a specific culture and period has been used as a way to silence or control certain individuals or groups. As a result, a less cultural relativist view of abnormal behaviour has focused instead on whether behaviour poses a threat to oneself or others, or whether it causes so much pain and suffering that it interferes with one's work responsibilities or with one's relationships with family and friends.

Etiology is the causal description of all of the factors that contribute to the development of a disorder or illness. Throughout history there have been three general theories of the etiology of mental illness: supernatural, somatogenic, and psychogenic. **Supernatural theories** attribute mental illness to possession by evil or demonic spirits, displeasure of gods, eclipses, planetary gravitation, curses, and sin. **Somatogenic theories** identify disturbances in physical functioning resulting from either illness, genetic inheritance, or brain damage or imbalance. **Psychogenic theories** focus on traumatic or stressful experiences, learned maladaptive associations and cognitions, or distorted perceptions. Etiological theories of mental illness determine the care and treatment mentally ill individuals receive. As we will see below, an individual believed to be possessed by the devil will be viewed and treated differently from an individual believed to be suffering from an excess of yellow bile. Their treatments will also differ, from exorcism to blood-letting, but the theories remain the same. They coexist as well as recycle over time.

Trephination (see Figure 15.2) is an example of the earliest supernatural explanation for mental illness. Examination of prehistoric skulls and cave art from as early as 6500 BC has identified surgical drilling of holes in skulls to treat head

injuries and epilepsy as well as to allow evil spirits trapped within the skull to be released (Restak, 2000). Around 2700 BC, Chinese medicine's concept of complementary positive and negative bodily forces — that is, "yin" and "yang" — attributed mental and physical illness to an imbalance between these forces. As such, a harmonious life that allowed for the proper balance of yin and yang and movement of vital air was essential (Tseng, 1973).

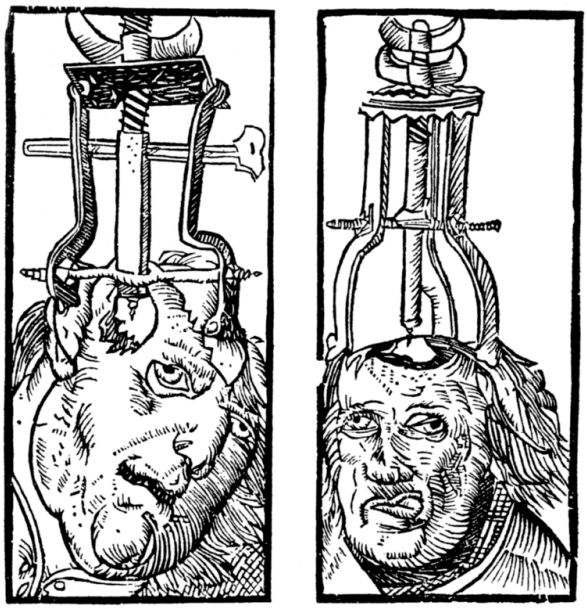


Figure 15.2. Engravings from 1525 showing trephination. It was believed that drilling holes in the skull could cure mental disorders.

Mesopotamian and Egyptian papyri from 1900 BC describe women suffering from mental illness resulting from a wandering uterus — later named **hysteria** by the Greeks. The uterus could become dislodged and attached to parts of the body like the liver or chest cavity, preventing their proper functioning or producing varied and sometimes painful symptoms. As a result, the Egyptians, and later the Greeks, also employed a somatogenic treatment of strong smelling substances — pleasant odours to lure and unpleasant ones to dispel — in order to guide the uterus back to its proper location.

Throughout classical antiquity, we see a return to supernatural theories of demonic possession or godly displeasure to account for abnormal behaviour that was beyond the person's control. Temple attendance with religious healing ceremonies and incantations to the gods were employed to assist in the healing process. Hebrews saw madness as punishment from God, so treatment consisted of confessing sins and repenting, but physicians were also believed to be able to comfort and cure madness.

Greek physicians rejected supernatural explanations of mental disorders. It was around 400 BC that Hippocrates (460–370 BC) attempted to separate superstition and religion from medicine by systematizing the belief that a deficiency in, or especially an excess of, one of the four essential bodily fluids (i.e., humours) — blood, yellow bile, black bile, and phlegm — was responsible for physical and mental illness. For example, someone who was too temperamental suffered from too much blood, and thus, blood-letting would be the necessary treatment. Hippocrates (see Figure 15.3) classified mental illness into one of four categories — epilepsy, mania, melancholia, and brain fever — and like other prominent

physicians and philosophers of his time, he did not believe mental illness was shameful or that mentally ill individuals should be held accountable for their behaviour. Mentally ill individuals were cared for at home by family members and the state shared no responsibility for their care. **Humourism** — the belief that an excess or deficiency in any of the four bodily fluids, or humours, directly affected health and temperment — remained a recurrent somatogenic theory up until the 19th century.

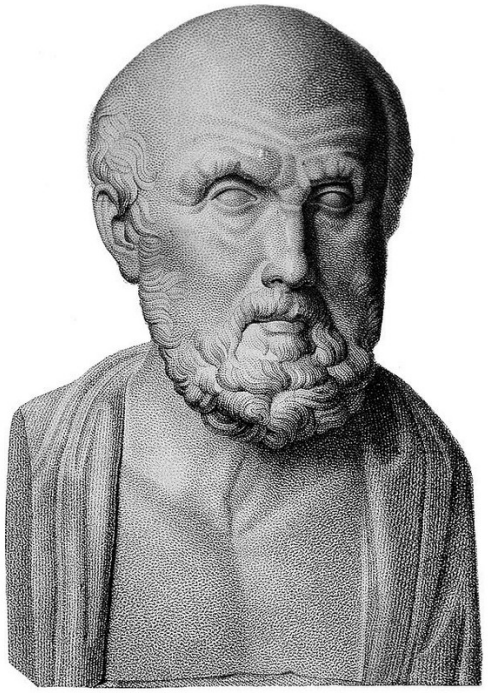


Figure 15.3. Many of Hippocrates' medical theories are no longer practised today. However, he pioneered medicine as an empirical practice and came up with the "Hippocratic oath," which all doctors must swear to before joining the profession (i.e., the promise to never intentionally harm a patient).

While Greek physician Galen (AD 130–201) rejected the notion of a uterus having an animistic soul, he agreed with the notion that an imbalance of the four bodily fluids could cause mental illness. He also opened the door for psychogenic explanations for mental illness, however, by allowing for the experience of psychological stress as a potential cause of abnormality. Galen's psychogenic theories were ignored for centuries, and physicians attributed mental illness to physical causes throughout most of the millennium.

By the late Middle Ages, economic and political turmoil threatened the power of the Roman Catholic church. Between the 11th and 15th centuries, supernatural theories of mental disorders again dominated Europe, fueled by natural disasters like plagues and famines that lay people interpreted as brought about by the devil. Superstition, astrology, and alchemy took hold, and common treatments included prayer rites, relic touching, confessions, and atonement. Beginning in the 13th century, the mentally ill, especially women, began to be persecuted as witches who were possessed. At the height of the witch hunts during the 15th through 17th centuries, with the Protestant Reformation having plunged Europe into religious strife, two Dominican monks wrote the *Malleus Maleficarum* in 1486 as the ultimate manual to guide witch hunts. Johann Weyer and Reginald Scot tried to convince people in the mid- to late-16th century

that accused witches were actually women with mental illnesses; they maintained that mental illness was not due to demonic possession but to faulty metabolism and disease, but the Church's Inquisition banned both of their writings. Witch-hunting did not decline until the 17th and 18th centuries, after more than 100,000 presumed witches had been burned at the stake (Schoeneman, 1977; Zilboorg & Henry, 1941).

Modern treatments of mental illness are most associated with the establishment of hospitals and asylums beginning in the 16th century. The mission of such institutions was to house and confine the mentally ill, the poor, the homeless, the unemployed, and the criminal. War and economic depression produced vast numbers of undesirables, and these were separated from society and sent to these institutions. Two of the most well-known institutions, St. Mary of Bethlehem in London, known as Bedlam, and the Hôpital Général of Paris — which included La Salpêtrière, La Pitié, and La Bicêtre — began housing mentally ill patients in the mid-16th and 17th centuries. As confinement laws focused on protecting the public from the mentally ill, governments became responsible for housing and feeding undesirables in exchange for their personal liberty. Most inmates were institutionalized against their will, lived in filth and chained to walls, and were commonly exhibited to the public for a fee. Mental illness was nonetheless viewed somatogenically, so treatments were similar to those for physical illnesses: purges, bleedings, and emetics.

While inhumane by today's standards, the view of insanity at the time likened the mentally ill to animals (i.e., animalism) who did not have the capacity to reason, could not control themselves, were capable of violence without provocation, did not have the same physical sensitivity to pain or temperature, and could live in miserable conditions without complaint. As such, instilling fear was believed to be the best way to restore a disordered mind to reason.

By the 18th century, protests rose over the conditions under which the mentally ill lived, and the 18th and 19th centuries saw the growth of a more humanitarian view of mental illness. In 1785, Italian physician Vincenzo Chiarughi (1759–1820) removed the chains of patients at his St. Boniface hospital in Florence, Italy, and encouraged good hygiene and recreational and occupational training. More well known, French physician Philippe Pinel (1745–1826) and former patient Jean-Baptise Pussin created a "traitement moral" at La Bicêtre and the Salpêtrière in 1793 and 1795 that also included unshackling patients, moving them to well-aired, well-lit rooms, and encouraging purposeful activity and freedom to move about the grounds (Micale, 1985).

In England, humanitarian reforms rose from religious concerns. William Tuke (1732–1822) urged the Yorkshire Society of (Quaker) Friends to establish the York Retreat in 1796, where patients were guests, not prisoners, and where the standard of care depended on dignity and courtesy as well as the therapeutic and moral value of physical work (Bell, 1980).

While America had asylums for the mentally ill, such as the Pennsylvania Hospital in Philadelphia and the Williamsburg Hospital, the somatogenic theory of mental illness of the time — promoted especially by the father of America psychiatry, Benjamin Rush (1745–1813) — had led to treatments such as blood-letting, gyrators, and tranquilizer chairs. However, when Tuke's York Retreat became the model for half of the new private asylums established in the United States, psychogenic treatments, such as compassionate care and physical labour, became the hallmarks of the new American asylums, such as the Friends Asylum in Frankford, Pennsylvania and the Bloomingdale Asylum in New York City (Grob, 1994).

Moral treatment had to be abandoned in America in the second half of the 19th century, however, when these asylums became overcrowded and custodial in nature and could no longer provide the space nor attention necessary. When retired school teacher Dorothea Dix (see Figure 15.4) discovered the negligence that resulted from such conditions, she advocated for the establishment of state hospitals. Between 1840 and 1880, she helped establish over 30 mental institutions in Canada and the United States (Viney & Zorich, 1982). By the late 19th century, moral treatment had given way to the mental hygiene movement, founded by former patient Clifford Beers with the publication of his 1908 memoir *Mind That Found Itself*. Riding on Louis Pasteur's breakthrough germ theory of the 1860s and 1870s, and especially on the early 20th century discoveries of vaccines for cholera, syphilis, and typhus, the mental hygiene movement reverted to a somatogenic theory of mental illness.



Figure 15.4. Dorothea Dix worked to change the negative perceptions of people with mental illness and helped create institutions where they could receive compassionate care.

European psychiatry in the late 18th century and throughout the 19th century, however, struggled between somatogenic and psychogenic explanations of mental illness, particularly hysteria, which caused physical symptoms, such as blindness or paralysis, with no apparent physiological explanation. Franz Anton Mesmer (1734–1815), influenced by contemporary discoveries in electricity, attributed hysterical symptoms to imbalances in a universal magnetic fluid found in individuals, rather than to a wandering uterus (Forrest, 1999). James Braid (1795–1860) shifted this belief in **mesmerism** to one in hypnosis, thereby proposing a psychogenic treatment for the removal of symptoms. At the time, famed Salpêtrière Hospital neurologist Jean-Martin Charcot (1825–1893) along with Ambroise Auguste Liébault (1823–1904) and Hyppolyte Bernheim (1840–1919) of the Nancy School in France, were engaged in a bitter etiological battle over hysteria. Charcot maintained that the hypnotic suggestibility underlying hysteria was a neurological condition, while Liébault and Bernheim believed it to be a general trait that varied in the population. Josef Breuer (1842–1925) and Sigmund Freud (1856–1939) would resolve this dispute in favour of a psychogenic explanation for mental illness by treating hysteria through hypnosis, which eventually led to the cathartic method that became the precursor for psychoanalysis during the first half of the 20th century.

Psychoanalysis was the dominant psychogenic treatment for mental illness during the first half of the 20th century, providing the launching pad for the more than 400 different schools of psychotherapy found today (Magnavita, 2006). Most of these schools cluster around broader behavioural, cognitive, cognitive-behavioural, psychodynamic, and client-centred approaches to psychotherapy applied in individual, marital, family, or group formats. However, negligible differences have been found among all these approaches. Their efficacy in treating mental illness is due to factors shared among all of the approaches, not particular elements specific to each approach. These include therapist-patient alliance, the therapist's allegiance to the therapy, therapist competence, and placebo effects (Luborsky et al., 2002; Messer & Wampold, 2002).

In contrast, the leading somatogenic treatment for mental illness can be found in the establishment of the first

psychotropic medications in the mid-20th century. Restraints, electro-convulsive shock therapy, and lobotomies continued to be employed in American state institutions until the 1970s, but they quickly made way for a burgeoning pharmaceutical industry that has viewed and treated mental illness as a chemical imbalance in the brain.

Both etiological theories coexist today in what the psychological discipline holds as the **biopsychosocial model** of explaining human behaviour. While individuals may be born with a genetic predisposition for a certain psychological disorder, certain psychological stressors need to be present for them to develop the disorder. Sociocultural factors such as sociopolitical or economic unrest, poor living conditions, or problematic interpersonal relationships are also viewed as contributing factors. Regardless of how much we want to believe that we are above the treatments described in this section, or that the present is always the most enlightened time, let us not forget that our thinking today continues to reflect the same underlying somatogenic and psychogenic theories of mental illness discussed throughout this cursory 9,000-year history.

Diagnosis of mental illness

Progress in the treatment of mental illness necessarily implies improvements in the diagnosis of mental illness. A standardized diagnostic classification system with agreed-upon definitions of psychological disorders creates a shared language among mental-health providers and aids in clinical research. While diagnoses were recognized as far back as the Greeks, it was not until 1883 that German psychiatrist Emil Kräpelin (1856–1926) published a comprehensive system of psychological disorders that centred around a pattern of symptoms (i.e., **syndrome**) suggestive of an underlying physiological cause. Other clinicians also suggested popular classification systems, but the need for a single, shared system paved the way for the American Psychiatric Association's 1952 publication of the first *Diagnostic and Statistical Manual* (DSM).

The DSM has undergone revisions in 1968, 1980, 1987, 1994, 2000, and 2013, but it is the 1980 DSM-III version that began a multiaxial classification system that took into account the entire individual rather than just the specific problem behaviour. Axes I and II contain the clinical diagnoses, including intellectual disability and personality disorders. Axes III and IV list any relevant medical conditions or psychosocial or environmental stressors, respectively. Axis V provides a global assessment of the individual's level of functioning. The most recent version — the DSM-5 (see Figure 15.5) — has combined the first three axes and removed the last two. These revisions reflect an attempt to help clinicians streamline diagnosis and work better with other diagnostic systems, such as health diagnoses outlined by the World Health Organization.

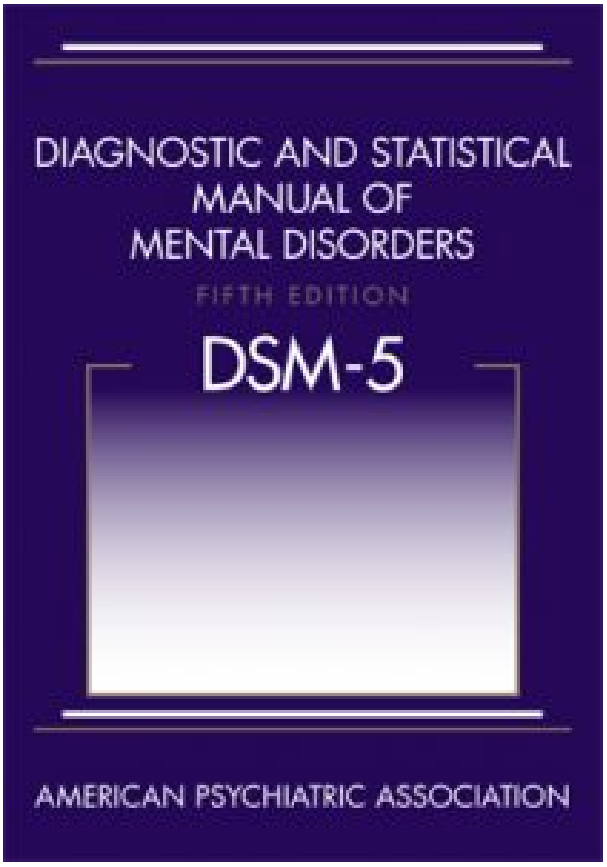


Figure 15.5. Up until the 1970's, homosexuality was included in the DSM as a psychological disorder. Thankfully, society and clinical understanding changed to recognize it did not belong.

While the DSM has provided a necessary shared language for clinicians, aided in clinical research, and allowed clinicians to be reimbursed by insurance companies for their services, it is not without criticism. The DSM is based on clinical and research findings from Western culture, primarily the United States. It is also a medicalized categorical classification system that assumes disordered behaviour does not differ in degree but in kind, as opposed to a dimensional classification system that would plot disordered behaviour along a continuum. Finally, the number of diagnosable disorders has tripled since it was first published in 1952, so that almost half of Americans will have a diagnosable disorder in their lifetime, contributing to the continued concern of labelling and stigmatizing mentally ill individuals.

Source: Adapted from Farreras (2020).

Key Takeaways

- The causes of mental illness have historically been a source of mystery and conjecture.
- Current theories agree that both biological and environmental factors contribute to mental illness.
- The diagnosis of mental illness in North America is currently guided by the DSM-5.

Exercises and Critical Thinking

1. What does it mean to say that someone is mentally ill? What criteria are usually considered to determine whether someone is mentally ill?
2. Describe the difference between supernatural, somatogenic, and psychogenic theories of mental illness and how subscribing to a particular etiological theory determines the type of treatment used.
3. How did the Greeks describe hysteria, and what treatment did they prescribe?
4. Describe humourism and how it explained mental illness.
5. Describe how the witch hunts came about and their relationship to mental illness.
6. Describe the development of treatment facilities for the mentally insane, from asylums to community mental health centres.
7. Describe the humane treatment of the mentally ill brought about by Chiarughi, Pinel, and Tuke in the late 18th and early 19th centuries and how it differed from the care provided in the centuries preceding it.

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15.3 Anxiety and Related Disorders

Learning Objectives

1. Understand the relationship between anxiety and anxiety disorders.
2. Identify key vulnerabilities for developing anxiety and related disorders.
3. Identify main diagnostic features of specific anxiety-related disorders.
4. Differentiate between disordered and non-disordered functioning.

Anxiety, the nervousness or agitation that we sometimes experience, often about something that is going to happen, is a natural part of life. We all feel anxious at times, maybe when we think about our upcoming visit to the dentist or the presentation we have to give to our class next week. Anxiety is an important and useful human emotion; it is associated with the activation of the sympathetic nervous system and the physiological and behavioural responses that help protect us from danger. However, too much anxiety can be debilitating, and every year millions of people suffer from **anxiety disorders**, which are psychological disturbances marked by irrational fears, often of everyday objects and situations (Kessler, Chiu, Demler, Merikangas, & Walters, 2005). Primary anxiety-related diagnoses include generalized anxiety disorder, panic disorder, specific phobia, social anxiety disorder or social phobia, post traumatic stress disorder, and obsessive-compulsive disorder. In this section, we summarize the main clinical features of each of these disorders and discuss their similarities and differences with everyday experiences of anxiety.

If anxiety begins to interfere in the person's life in a significant way, it is considered a disorder. Anxiety and closely related disorders emerge from "triple vulnerabilities," a combination of biological, psychological, and specific factors that increase our risk for developing a disorder (Barlow, 2002; Suárez, Bennett, Goldstein, & Barlow, 2009). **Biological vulnerabilities** refer to specific genetic and neurobiological factors that might predispose someone to develop anxiety disorders. No single gene directly causes anxiety or panic, but our genes may make us more susceptible to anxiety and influence how our brains react to stress (Drabant et al., 2012; Gelernter & Stein, 2009; Smoller, Block, & Young, 2009). **Psychological vulnerabilities** refer to the influences that our early experiences have on how we view the world. If we were confronted with unpredictable stressors or traumatic experiences at younger ages, we may come to view the world as unpredictable and uncontrollable, even dangerous (Chorpita & Barlow, 1998; Gunnar & Fisher, 2006). **Specific vulnerabilities** refer to how our experiences lead us to focus and channel our anxiety (Suárez et al., 2009). If we learned that physical illness is dangerous, maybe through witnessing our family's reaction whenever anyone got sick, we may focus our anxiety on physical sensations. If we learned that disapproval from others has negative, even dangerous consequences, such as being yelled at or severely punished for even the slightest offense, we might focus our anxiety on social evaluation. If we learn to expect a seemingly inevitable event, we may focus our anxiety on worries about the future. None of these vulnerabilities directly causes anxiety disorders on its own — instead, when all of these vulnerabilities are present, and we experience some triggering life stress, an anxiety disorder may be the result (Barlow, 2002; Suárez et al., 2009). We will briefly explore each of the major anxiety-based disorders, found in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders*, known as the DSM-5 (American Psychiatric Association, 2013).

Generalized anxiety disorder

Consider the following in which Chase, posting in an online forum, describes her feelings of a persistent and exaggerated sense of anxiety, even when there is little or nothing in her life to provoke it:

> For a few months now I've had a really bad feeling inside of me. The best way to describe it is like a really bad feeling of negative inevitability, like something really bad is impending, but I don't know what. It's like I'm on trial for murder or I'm just waiting to be sent down for something. I have it all of the time but it gets worse in waves that come from nowhere with no apparent triggers. I used to get it before going out for nights out with friends, and it kinda stopped me from doing it as I'd rather not go out and stress about the feeling, but now I have it all the time so it doesn't really make a difference anymore. (Chase, 2010, "Anxiety?" para. 1)

Chase is probably suffering from a **generalized anxiety disorder** (GAD), a psychological disorder diagnosed in situations in which a person has been excessively worrying about money, health, work, family life, or relationships for at least six months, even though they know that the concerns are exaggerated. In addition to their feelings of anxiety, people who suffer from GAD may also experience a variety of physical symptoms, including irritability, sleep troubles, difficulty concentrating, muscle aches, trembling, perspiration, and hot flashes. The sufferer cannot deal with what is causing the anxiety, nor avoid it, because there is no clear cause for anxiety. In fact, the sufferer frequently knows, at least cognitively, that there is really nothing to worry about. Nevertheless, the anxiety causes significant distress and dysfunction.

The *DSM*-5 criteria specify that at least six months of excessive anxiety and worry of this type must be ongoing, happening more days than not for a good proportion of the day, to receive a diagnosis of GAD. About 5.7% of the population has met criteria for GAD at some point during their lifetime (Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005), making it one of the most common anxiety disorders. Refer to the table below.

Table 15.3. Prevalence rates for major anxiety disorders

Disorder	1-Year Prevalence Rates[1]	Lifetime Prevalence Rates[2]	Prevalence by Gender	Median Age of Onset
Generalized anxiety disorder	3.1%	5.7%	67% female	31 years old
Obsessive-compulsive disorder	1.0%	1.6%	55% female	19 years old
Panic disorder	2.7%	4.7%	67% female	24 years old
Post-traumatic stress disorder	3.5%	6.8%	52% female[3]	23 years old
Social anxiety	6.8%	12.1%	50% female	13 years old
Specific phobia	8.7%	12.5%	60%–90% female[4]	7–9 years old

Data source: [1] Kessler, Berglund, et al., 2005; [2] Kessler, Chiu, et al., 2005; [3] Kessler, Sonnega, Bromet, Hughes, and Nelson, 1995; [4] Craske et al., 1996.

What makes a person with GAD worry more than the average person? Research shows that individuals with GAD are more sensitive and vigilant toward possible threats than people who are not anxious (Aikins & Craske, 2001; Barlow, 2002; Bradley, Mogg, White, Groom, & de Bono, 1999). This may be related to early stressful experiences, which can lead to a view of the world as an unpredictable, uncontrollable, and even dangerous place. Some have suggested that people with GAD worry as a way to gain some control over these otherwise uncontrollable or unpredictable experiences and against uncertain outcomes (Dugas, Gagnon, Ladouceur, & Freeston, 1998). By repeatedly going through all of the

possible "what if" scenarios in their mind, the person might feel like they are less vulnerable to an unexpected outcome, giving them the sense that they have some control over the situation (Wells, 2002). Others have suggested people with GAD worry as a way to avoid feeling distressed (Borkovec, Alcaine, & Behar, 2004). For example, Thomas Borkovec and Senqi Hu (1990) found that those who worried when confronted with a stressful situation had less physiological arousal than those who did not worry, maybe because the worry "distracted" them in some way.

The problem is, all of this "what if"-ing doesn't get the person any closer to a solution or an answer and, in fact, might take them away from important things they should be paying attention to in the moment, such as finishing an important project. Many of the catastrophic outcomes people with GAD worry about are very unlikely to happen, so when the catastrophic event does not materialize, the act of worrying becomes a **reinforced response** (Borkovec, Hazlett-Stevens, & Diaz, 1999). For example, if a mother spends all night worrying about whether her teenage daughter will get home safe from a night out and the daughter returns home without incident, the mother could easily attribute her daughter's safe return to her successful "vigil." What the mother hasn't learned is that her daughter would have returned home just as safe if she had been focusing on the movie she was watching with her husband, rather than being preoccupied with worries. In this way, the cycle of worry is perpetuated, and subsequently, people with GAD often miss out on many otherwise enjoyable events in their lives.

Panic disorder

Consider the following in which Ceejay, posting in a personal blog, describes feeling a sudden sense of panic:

> When I was about 30 I had my first panic attack. I was driving home, my three little girls were in their car seats in the back, and all of a sudden I couldn't breathe, I broke out into a sweat, and my heart began racing and literally beating against my ribs! I thought I was going to die. I pulled off the road and put my head on the wheel. I remember songs playing on the CD for about 15 minutes and my kids' voices singing along. I was sure I'd never see them again. And then, it passed. I slowly got back on the road and drove home. I had no idea what it was. (Ceejay, 2006, "My Dance With Panic," para. 2)

Ceejay is experiencing **panic disorder**, a psychological disorder characterized by sudden attacks of anxiety and terror that have led to significant behavioural changes in the person's life. Ceejay's alarm reaction is called the **fight-or-flight** response (Cannon, 1929), which is the body's natural reaction to fear, preparing you to either fight or escape in response to threat or danger. Yet, if this alarm reaction comes "out of the blue," for no apparent reason, or in a situation in which you didn't expect to be anxious or fearful, this is called an unexpected panic attack or a false alarm. Because there is no apparent reason or cue for the alarm reaction, you might react to the sensations with intense fear, maybe thinking you are having a heart attack, going crazy, or even dying. You might begin to associate the physical sensations you felt during this attack with this fear and may start to go out of your way to avoid having those sensations again. Symptoms of a panic attack include shortness of breath, heart palpitations, trembling, dizziness, choking sensations, nausea, and an intense feeling of dread or impending doom. Panic attacks can often be mistaken for serious physical illnesses, and they may lead the person experiencing them to go to a hospital emergency room. Panic attacks may last as little as one or as much as 20 minutes, but they often peak and subside within about 10 minutes.

Sufferers are often anxious because they fear that they will have another attack. They focus their attention on the thoughts and images of their fears, becoming excessively sensitive to cues that signal the possibility of threat (MacLeod, Rutherford, Campbell, Ebsworthy, & Holker, 2002). They may also become unsure of the source of their arousal, misattributing it to situations that are not actually the cause. People with panic disorder tend to interpret even normal physical sensations in a catastrophic way, which triggers more anxiety and, ironically, more physical sensations, creating a vicious cycle of panic (Clark, 1986, 1996). The person may begin to avoid a number of situations or activities

that produce the same physiological arousal that was present during the beginnings of a panic attack. For example, someone who experienced a racing heart during a panic attack might avoid exercise or caffeine, whereas someone who experienced choking sensations might avoid wearing high-necked sweaters or necklaces. Avoidance of these internal bodily or somatic cues for panic has been termed **interoceptive avoidance** (Barlow & Craske, 2007; Brown, White, & Barlow, 2005; Craske & Barlow, 2008; Shear et al., 1997).

The individual may also have experienced an overwhelming urge to escape during the unexpected panic attack. This can lead to a sense that certain places or situations — particularly situations where escape might not be possible — are not "safe." These situations become external cues for panic. If the person begins to avoid several places or situations, or still endures these situations but does so with a significant amount of apprehension and anxiety, then the person also has **agoraphobia** (Barlow, 2002; Craske & Barlow, 1988, 2008). People who suffer from agoraphobia may have great difficulty leaving their homes and interacting with other people. As such, agoraphobia can cause significant disruption to a person's life, such as adding hours to a commute to avoid taking the train or only ordering take-out to avoid having to enter a grocery store. In one tragic example, a woman suffering from agoraphobia had not left her apartment for 20 years and had spent the past 10 years confined to one small area of her apartment, away from the view of the outside. In some cases, agoraphobia develops in the absence of panic attacks and, therefore, is a separate disorder in DSM-5. However, agoraphobia often accompanies panic disorder.

About 4.7% of the population has met criteria for panic disorder or agoraphobia over their lifetime (Kessler, Chiu, et al., 2005; Kessler et al., 2006). In all of these cases of panic disorder, what was once an adaptive natural alarm reaction now becomes a learned, and much feared, false alarm.

Specific phobias

A **phobia** — from the Greek word *phobos*, which means fear — is a specific fear of a certain object, situation, or activity. The fear experience can range from a sense of unease to a full-blown panic attack. Most people learn to live with their phobias, but for others, the fear can be so debilitating that they go to extremes to avoid the fearful situation. A sufferer of arachnophobia (i.e., fear of spiders), for example, may refuse to enter a room until it has been checked thoroughly for spiders, or may refuse to vacation in the countryside because spiders may be there. Phobias are characterized by their specificity and their irrationality. A person with acrophobia (i.e., fear of heights) could fearlessly sail around the world on a sailboat with no concerns, yet they might refuse to go out onto the balcony on the fifth floor of a building.

The list of possible phobias is staggering, but four major subtypes of specific phobia are recognized: blood-injury-injection (BII) type, situational type (e.g., planes, elevators, or enclosed places), natural environment type for events one may encounter in nature (e.g., heights, storms, and water), and animal type.

A fifth subtype — labelled "other" — includes phobias that do not fit any of the four major subtypes (e.g., fears of choking, vomiting, or contracting an illness). Most phobic reactions cause a surge of activity in the sympathetic nervous system and increased heart rate and blood pressure, maybe even a panic attack. However, people with BII type phobias usually experience a marked drop in heart rate and blood pressure and may even faint. In this way, those with BII phobias almost always differ in their physiological reaction from people with other types of phobia (Barlow & Liebowitz, 1995; Craske, Antony, & Barlow, 2006; Hofmann, Alpers, & Pauli, 2009; Ost, 1992). BII phobia also runs in families more strongly than any phobic disorder known (Antony & Barlow, 2002; Page & Martin, 1998). Specific phobia is one of the most common psychological disorders, with 12.5% of the U.S. population reporting a lifetime history of fears significant enough to be considered a phobia (Arrindell et al., 2003; Kessler, Berglund, et al., 2005). Most people who suffer from specific phobia tend to have multiple phobias of several types (Hofmann, Lehman, & Barlow, 1997). Interestingly, phobias are about twice

as prevalent in women as in men (Fredrikson, Annas, Fischer, & Wik, 1996; Kessler, Meron-Ruscio, Shear, & Wittchen, 2009).

Social anxiety disorder

Many people consider themselves shy, and most people find social evaluation uncomfortable at best, or giving a speech somewhat mortifying. Yet, only a small proportion of the population fear these types of situations significantly enough to merit a diagnosis of social anxiety disorder (American Psychiatric Association, 2013). **Social anxiety disorder** (SAD) is more than exaggerated shyness (Bogels et al., 2010; Schneier et al., 1996). To receive a diagnosis of SAD, the fear and anxiety associated with social situations must be so strong that the person avoids them entirely, or if avoidance is not possible, the person endures them with a great deal of distress. Further, the fear and avoidance of social situations must get in the way of the person's daily life, or seriously limit their academic or occupational functioning. For example, a student may compromise their perfect grade point average because they could not complete a required oral presentation in one of their classes, causing them to fail the course. Fears of negative evaluation might make someone repeatedly turn down invitations to social events or avoid having conversations with people, leading to greater and greater isolation.

The specific social situations that trigger anxiety and fear range from one-on-one interactions (e.g., starting or maintaining a conversation), to performance-based situations (e.g., giving a speech or performing on stage), or to assertiveness (e.g., asking someone to change disruptive or undesirable behaviours). Fear of social evaluation might even extend to such things as using public restrooms, eating in a restaurant, filling out forms in a public place, or even reading on a train. Any type of situation that could potentially draw attention to the person can become a feared social situation (e.g., someone avoiding situations in which they might have to use a public restroom for fear that someone would hear them in the bathroom stall and think they were disgusting). If the fear is limited to performance-based situations, such as public speaking, a diagnosis of **SAD performance only** is assigned.

What causes someone to fear social situations to such a large extent? The person may have learned growing up that social evaluation in particular can be dangerous, creating a specific psychological vulnerability to develop social anxiety (Bruch & Heimberg, 1994; Lieb et al., 2000; Rapee & Melville, 1997). For example, the person's caregivers may have harshly criticized and punished them for even the smallest mistake, maybe even punishing them physically.



Figure 15.6. Social trauma in childhood may have long-lasting effects.

Alternatively, someone might have experienced a social trauma that had lasting effects, such as being bullied or humiliated. Interestingly, one group of researchers found that 92% of adults in their study sample with social phobia experienced severe teasing and bullying in childhood, compared with only 35% to 50% among people with other anxiety disorders (McCabe, Antony, Summerfeldt, Liss, & Swinson, 2003). Someone else might react so strongly to the anxiety provoked by a social situation that they have an unexpected panic attack. This panic attack then becomes associated with the social situation, becoming a conditioned response and causing the person to fear they will panic the next time they are in that situation. This is not considered panic disorder, however, because the person's fear is more focused on social evaluation than having unexpected panic attacks, and the fear of having an attack is limited to social situations. As many as 12.1% of the general population suffer from social phobia at some point in their lives (Kessler, Berglund, et al., 2005), making it one of the most common anxiety disorders, second only to specific phobia.

Obsessive-compulsive disorders

Although he is best known his perfect shots on the field, the British soccer star David Beckham (see Figure 15.7) also suffers from obsessive-compulsive disorder (OCD). As he describes it:

> I have got this obsessive-compulsive disorder where I have to have everything in a straight line or everything has to be in pairs. I'll put my Pepsi cans in the fridge, and if there's one too many, then I'll put it in another cupboard somewhere. I've got that problem. I'll go into a hotel room. Before I can relax, I have to move all the leaflets and all the books and put them in a drawer. Everything has to be perfect. (Dolan, 2006, para. 7)

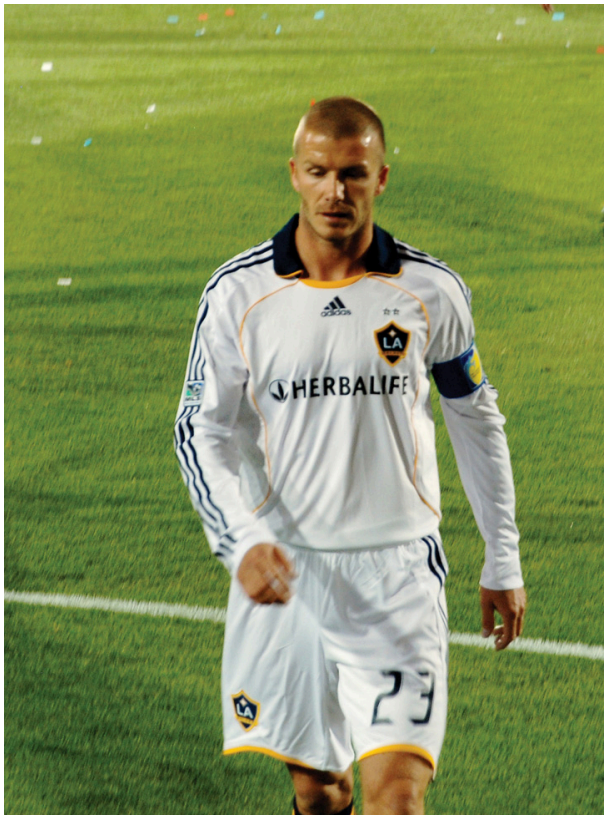


Figure 15.7. Picture of David Beckham.

David Beckham's experience with obsessive behaviour is not unusual. We all get a little obsessive at times. We may continuously replay a favorite song in our heads, worry about getting the right outfit for an upcoming party, or find ourselves analyzing a series of numbers that seem to have a certain pattern. Our everyday compulsions can be useful. Going back inside the house once more to be sure that we really did turn off the sink faucet or checking the mirror a couple of times to be sure that our hair is combed are not necessarily bad ideas.

Obsessive-compulsive disorder (OCD) is a psychological disorder that is diagnosed when an individual continuously experiences distressing or frightening thoughts, and engages in **obsessions** (e.g., repetitive thoughts) or **compulsions** (e.g., repetitive behaviours) in an attempt to calm these thoughts. OCD is diagnosed when the obsessive thoughts are so disturbing and the compulsive behaviours are so time consuming that they cause distress and significant dysfunction in a person's everyday life. Washing your hands once or even twice to make sure that they are clean is normal; washing them 20 times is not. Keeping your fridge neat is a good idea; spending hours a day on it is not. The sufferers know that these rituals are senseless, but they cannot bring themselves to stop them, in part because the relief that they feel after they perform them acts as a reinforcer, making the behaviour more likely to occur again.

Their strange or unusual thoughts are taken to mean something much more important and real, maybe even something dangerous or frightening. The urge to engage in some behaviour, such as straightening a picture, can become so intense that it is nearly impossible not to carry it out, or causes significant anxiety if it can't be carried out. Further, someone with OCD might become preoccupied with the possibility that the behaviour wasn't carried out to completion and feel compelled to repeat the behaviour again and again, maybe several times before they are satisfied.



Figure 15.8. People suffering from OCD may have an irrational fear of germs and "becoming contaminated."

To receive a diagnosis of OCD, a person must experience obsessive thoughts and compulsions that seem irrational or nonsensical, but that keep coming into their mind. Some examples of obsessions include doubting thoughts (e.g., doubting a door is locked or an appliance is turned off), thoughts of contamination (e.g., thinking that touching almost anything might give you cancer), or aggressive thoughts or images that are unprovoked or nonsensical. Compulsions may be carried out in an attempt to neutralize some of these thoughts, providing temporary relief from the anxiety the obsessions cause, or they may be nonsensical in and of themselves. Either way, compulsions are distinct in that they must be repetitive or excessive, the person feels "driven" to carry out the behaviour, and the person feels a great deal of distress if they can't engage in the behaviour. Some examples of compulsive behaviours are repetitive washing in response to contamination obsessions, repetitive checking of locks, door handles, and appliances in response to doubting obsessions, ordering and arranging things to ensure symmetry, or doing things according to a specific ritual or sequence, such as getting dressed or ready for bed in a specific order. To meet diagnostic criteria for OCD, engaging in obsessions and compulsions must take up a significant amount of the person's time, at least an hour per day, and must cause significant distress or impairment in functioning. About 1.6% of the population has met criteria for OCD over the course of a lifetime (Kessler, Berglund, et al., 2005). Whereas OCD was previously categorized as an anxiety disorder, in the DSM-5 it has been reclassified under the more specific category of "obsessive-compulsive and related disorders" (American Psychiatric Association, 2013).

People with OCD often confuse having an intrusive thought with their potential for carrying out the thought. For most people, when they have a strange or frightening thought, they are able to let it go; however, a person with OCD may

become "stuck" on the thought and be intensely afraid that they might somehow lose control and act on it, or worse, they believe that having the thought is just as bad as doing it. This is called **thought-action fusion**. For example, one known patient was plagued by thoughts that she would cause harm to her young daughter. She experienced intrusive images of throwing hot coffee in her daughter's face or pushing her face underwater when she was giving her a bath. These images were so terrifying to the patient that she would no longer allow herself any physical contact with her daughter and would leave her daughter in the care of a babysitter if her husband or another family was not available to supervise her. In reality, the last thing she wanted to do was harm her daughter, and she had no intention or desire to act on the aggressive thoughts and images, but these thoughts were so horrifying to her that she made every attempt to prevent herself from the potential of carrying them out, even if it meant not being able to hold, cradle, or cuddle her daughter. These are the types of struggles people with OCD face every day.

Sufferers of OCD may avoid certain places that trigger the obsessive thoughts or use alcohol or drugs to try to calm themselves down. OCD has a low prevalence rate, affecting around 1% of the population in a given year, in relation to other anxiety disorders, and it usually develops in adolescence or early adulthood (Horwath & Weissman, 2000; Samuels & Nestadt, 1997). The course of OCD varies from person to person. Symptoms can come and go, decrease, or worsen over time.

Post-traumatic stress disorder

People who have survived a terrible ordeal — such as combat, torture, sexual assault, imprisonment, abuse, natural disasters, or the death of someone close to them — may develop **post-traumatic stress disorder** (PTSD). The anxiety may begin months or even years after the event. While many people face traumatic events, not everyone who faces a trauma develops a disorder. Some, with the help of family and friends, are able to recover and continue on with their lives (Friedman, 2009). For some, however, the months and years following a trauma are filled with intrusive reminders of the event, a sense of intense fear that another traumatic event might occur, or a sense of isolation and emotional numbing. They may engage in a host of behaviours intended to protect themselves from being vulnerable or unsafe, such as constantly scanning their surroundings to look for signs of potential danger, never sitting with their back to the door, or never allowing themselves to be anywhere alone. This lasting reaction to trauma is what characterizes PTSD.

A diagnosis of PTSD begins with the traumatic event itself. An individual must have been exposed to an event that involves actual or threatened death, serious injury, or sexual violence. To receive a diagnosis of PTSD, exposure to the event must include either directly experiencing the event, witnessing the event happening to someone else, learning that the event occurred to a close relative or friend, or having repeated or extreme exposure to details of the event, such as in the case of first responders. The person subsequently re-experiences the event through both intrusive memories and nightmares. Some memories may come back so vividly that the person feels like they are experiencing the event all over again, what is known as having a **flashback**. The individual may avoid anything that reminds them of the trauma, including conversations, places, or even specific types of people. They may feel emotionally numb or restricted in their ability to feel, which may interfere in their interpersonal relationships. The person may not be able to remember certain aspects of what happened during the event. They may feel a sense of a foreshortened future, that they will never marry, have a family, or live a long, full life. They may be jumpy or easily startled, hypervigilant to their surroundings, or quick to anger. The symptoms may be felt especially when approaching the area where the event took place or when the anniversary of that event is near.

The prevalence of PTSD among the population as a whole is relatively low, with 6.8% having experienced PTSD at some point in their life (Kessler, Berglund, et al., 2005). Combat and sexual assault are the most common precipitating traumas (Kessler et al., 1995). Whereas PTSD was previously categorized as an anxiety disorder, in the DSM-5, it has

been reclassified under the more specific category of "trauma- and stressor-related disorders" (American Psychiatric Association, 2013).

A person with PTSD is particularly sensitive to both internal and external cues that serve as reminders of their traumatic experience. The physical sensations of arousal present during the initial trauma can become threatening in and of themselves, becoming a powerful reminder of the event. Someone might avoid watching intense or emotional movies in order to prevent the experience of emotional arousal. Avoidance of conversations, reminders, or even of the experience of emotion itself may also be an attempt to avoid triggering internal cues. External stimuli that were present during the trauma can also become strong triggers. For example, if a woman is raped by a man wearing a red t-shirt, she may develop a strong alarm reaction to the sight of red shirts, or perhaps even more indiscriminately to anything with a similar color red. A combat veteran who experienced a strong smell of gasoline during a roadside bomb attack may have an intense alarm reaction when pumping gas back at home. Individuals with a psychological vulnerability toward viewing the world as uncontrollable and unpredictable may particularly struggle with the possibility of additional future, unpredictable traumatic events, fueling their need for hypervigilance and avoidance, and perpetuating the symptoms of PTSD.

PTSD has affected approximately 8% of the population (Kessler, Berglund, et al., 2005). PTSD is a frequent outcome of childhood or adult sexualabuse. Women are more likely to develop PTSD than men (Davidson, 2000).

Romeo Dallaire (see Figure 15.9), who served as Canadian Lieutenant General and Force Commander of the United Nations Assistance Mission for Rwanda (UNAMIR), the ill-fated United Nations peacekeeping force for Rwanda in 1993 and 1994, attempted to stop the genocide that was being waged by Hutu extremists against Tutsis and Hutu moderates. Dallaire has worked to bring understanding of post-traumatic stress disorder to the general public. He was a visiting lecturer at several Canadian and American universities and a Fellow of the Carr Center for Human Rights Policy, Kennedy School of Government at Harvard University. He has also pursued research on conflict resolution and the use of child soldiers and written several articles and chapters in publications on conflict resolution, humanitarian assistance, and human rights. In 2010, he wrote a book about the use of child soldiers: *They Fight Like Soldiers, They Die Like Children*.



Figure 15.9. Picture of Roméo Dallaire.

Risk factors for PTSD include the degree of the trauma's severity, the lack of family and community support, and additional life stressors (Brewin, Andrews, & Valentine, 2000). Many people with PTSD also suffer from another mental disorder, particularly depression, other anxiety disorders, and substance abuse (Brady, Back, & Coffey, 2004).

Explaining anxiety disorders

Both nature and nurture contribute to the development of anxiety disorders. In terms of our evolutionary experiences, humans have evolved to fear dangerous situations. Those of us who had a healthy fear of the dark, of storms, of high places, of closed spaces, and of spiders and snakes were more likely to survive and have descendants. Our evolutionary experience can account for some modern fears as well. A fear of elevators may be a modern version of our fear of closed spaces, while a fear of flying may be related to a fear of heights.

Also supporting the role of biology, anxiety disorders, including PTSD, are heritable (Hettema, Neale, & Kendler, 2001), and molecular genetics studies have found a variety of genes that are important in the expression of such disorders (Smoller et al., 2008; Thoeringer et al., 2009). Neuroimaging studies have found that anxiety disorders are linked to areas

of the brain that are associated with emotion, blood pressure and heart rate, decision making, and action monitoring (Brown & McNiff, 2009; Damsa, Kosel, & Moussally, 2009). People who experience PTSD also have a somewhat smaller hippocampus in comparison with those who do not, and this difference leads them to have a very strong sensitivity to traumatic events (Gilbertson et al., 2002).

Whether the genetic predisposition to anxiety becomes expressed as a disorder depends on environmental factors. People who were abused in childhood are more likely to be anxious than those who had non-abusive childhoods, even with the same genetic disposition to anxiety sensitivity (Stein, Schork, & Gelernter, 2008). Additionally, the most severe anxiety and dissociative disorders, such as PTSD, are usually triggered by the experience of a major stressful event. One problem is that modern life creates a lot of anxiety. Although our life expectancy and quality of life have improved over the past 50 years, the same period has also created a sharp increase in anxiety levels (Twenge, 2006). These changes suggest that most anxiety disorders stem from perceived, rather than actual, threats to our wellbeing.

Anxieties are also learned through classical and operant conditioning. Just as rats that are shocked in their cages develop a chronic anxiety toward their laboratory environment, which has become a conditioned stimulus for fear, rape victims may feel anxiety when passing by the scene of the crime, and victims of PTSD may react to memories or reminders of the stressful event. Classical conditioning may also be accompanied by stimulus generalization. A single dog bite can lead to generalized fear of all dogs; a panic attack that follows an embarrassing moment in one place may be generalized to a fear of all public places. People's responses to their anxieties are often reinforced. Behaviours become compulsive because they provide relief from the torment of anxious thoughts. Similarly, leaving or avoiding fear-inducing stimuli leads to feelings of calmness or relief, which reinforces phobic behaviour.

Source: Adapted from Barlow and Ellard (2020).

Key Takeaways

- Anxiety is a natural part of life, but too much anxiety can be debilitating. Every year millions of people suffer from anxiety disorders.
- People who suffer from generalized anxiety disorder experience anxiety, as well as a variety of physical symptoms.
- Panic disorder involves the experience of panic attacks, including shortness of breath, heart palpitations, trembling, and dizziness.
- Phobias are specific fears of a certain object, situation, or activity. Phobias are characterized by their specificity and their irrationality.
- A common phobia is social phobia, which is extreme shyness around people or discomfort in social situations.
- Obsessive-compulsive disorder is diagnosed when a person's repetitive thoughts are so disturbing and their compulsive behaviours so time consuming that they cause distress and significant disruption in a person's everyday life.
- People who have survived a terrible ordeal — such as combat, torture, rape, imprisonment, abuse, natural

disasters, or the death of someone close to them — may develop PTSD.
- Both nature and nurture contribute to the development of anxiety disorders.

Exercises and Critical Thinking

1. Under what situations do you experience anxiety? Are these experiences rational or irrational? Does the anxiety keep you from doing some things that you would like to be able to do?
2. Do you or people you know suffer from phobias? If so, what are the phobias, and how do you think the phobias began? Do they seem more genetic or more environmental in origin?

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15.4 Dissociative Disorders

Learning Objectives

1. Define the basic terminology and historical origins of dissociative symptoms and dissociative disorders.
2. Describe the post-traumatic model of dissociation and the sleep-dissociation model, and describe the controversies and debate between these competing theories.
3. Describe how these two models can be combined into one conceptual scheme.
4. Define the innovative angle of the sleep-dissociation model.

In psychopathology, dissociation happens when thoughts, feelings, and experiences of our consciousness and memory do not collaborate well with each other. This section provides an overview of dissociative disorders, including the definitions of dissociation, its origins and competing theories, and their relation to traumatic experiences and sleep problems.

Think about the last time you were daydreaming. Perhaps it was while you were driving or attending class. Some portion of your attention was on the activity at hand, but most of your conscious mind was wrapped up in fantasy. Now, imagine that you could not control your daydreams. What if they intruded your waking consciousness unannounced, causing you to lose track of reality or experience the loss of time. Imagine how difficult it would be for you. This is similar to what people who suffer from dissociative disorders may experience. Of the many disorders listed in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) by the American Psychiatric Association (2013), dissociative disorders rank as among the most puzzling and controversial. Dissociative disorders encompass an array of symptoms, ranging from memory loss (i.e., **amnesia**) for autobiographical events to changes in identity and the experience of everyday reality (American Psychiatric Association, 2013).

Is it real?

Let's start with a little history. Multiple personality disorder — or dissociative identity disorder, as it is known now — used to be a mere curiosity. This is a disorder in which people present with more than one personality. For example, at times, they might act and identify as an adult, while at other times, they might identify and behave like a child. The disorder was rarely diagnosed until the 1980s. That's when multiple personality disorder became an official diagnosis in the DSM-III. From then on, the numbers of "multiples" increased rapidly. In the 1990s, there were hundreds of people diagnosed with multiple personality in every major city in the United States (Hacking, 1995). How could this be explained?

One possible explanation might be the media attention that was given to the disorder. It all started with the book *The Three Faces of Eve* (Thigpen & Cleckley, 1957). This book, and later the movie, was one of the first to speak of multiple

personality disorder. However, it wasn't until years later, when the fictional "as told to" book of *Sybil* (Schreiber, 1973) became known worldwide, that the prototype of what it was like to have multiple personalities was born. *Sybil* tells the story of how a clinician — Cornelia Wilbur — unravels the different personalities of her patient — Sybil — during a long course of treatment spanning over 2,500 office hours. She was one of the first to relate multiple personality to childhood sexual abuse. Probably, this relation between childhood abuse and dissociation has fueled the increase of numbers of multiples from that time on. It motivated therapists to actively seek for clues of childhood abuse in their dissociative patients. This suited well within the mindset of the 1980s, as childhood abuse was a sensitive issue then, in psychology as well as in politics (Hacking, 1995).



Figure 15.10. Sybil, a pseudonym for Shirley Ardell Mason, born 1923, a person who, over a period of 40 years, claimed to possess 16 distinct personalities. Mason was in therapy for many years trying to integrate these personalities into one complete self. A TV movie about Mason's life, starring Sally Field as Sybil, appeared in 1976.

From then on, many movies and books were made on the subject of multiple personality, and since then, we have see patients with dissociative identity disorder as guests visiting the Oprah Winfrey show, as if they were our modern-day circus acts. Some clinicians argue that the descriptions in the DSM accurately reflect the symptoms of these patients, whereas others believe that patients are faking, role-playing, or using the disorder as a way to justify behaviour (Barry-Walsh, 2005; Kihlstrom, 2004; Lilienfeld & Lynn, 2003; Lipsanen et al., 2004). Even the diagnosis of Shirley Ardell Mason, better known as Sybil, is disputed. Some experts claim that Mason was highly hypnotizable and that her therapist unintentionally suggested the existence of her multiple personalities (Miller & Kantrowitz, 1999).

Defining dissociation

The DSM-5 defines **dissociation** as "a disruption and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control and behavior" (American Psychiatric Association, 2013, p. 291). A distinction is often made between dissociative states and dissociative traits (e.g., Bremner, 2010; Bremner & Brett, 1997). **State dissociation** is viewed as a transient symptom, which lasts for a few minutes or hours (e.g., dissociation during a traumatic event). **Trait dissociation** is viewed as an integral aspect of personality. Dissociative symptoms occur in patients, but they also occur in the general population. Therefore, dissociation has commonly been conceptualized as ranging on a continuum, from nonsevere manifestations of daydreaming to more severe disturbances typical of dissociative disorders (Bernstein & Putnam, 1986). The dissociative disorders include:

- **Dissociative amnesia** — An extensive, but selective, memory loss, but in which there is no physiological explanation for the forgetting (van der Hart & Nijenhuis, 2009). Although the personality of people who experience dissociative amnesia remains fundamentally unchanged — and they recall how to carry out daily tasks such as reading, writing, and problem solving — they tend to forget things about their personal lives — for instance, their name, age, and occupation — and may fail to recognize family and friends (van der Hart & Nijenhuis, 2009).
- **Dissociative fugue** — A psychological disorder in which an individual loses complete memory of their identity and may even assume a new one, often far from home. It is not viewed as a separate disorder but is a feature of some, but not all, cases of dissociative amnesia. The fugue state may last for just a matter of hours or may continue for months. Recovery from the fugue state tends to be rapid, but when people recover, they commonly have no memory of the stressful event that triggered the fugue or of events that occurred during their fugue state (Cardeña & Gleaves, 2007).
- **Depersonalization or derealization disorder** — A feeling as though one is an outside observer of one's body.
- **Dissociative identity disorder** — Experiencing two or more distinct identities that recurrently take control over one's behaviour (American Psychiatric Association, 2000). In dissociative identity disorder (DID), there is an extreme memory disruption regarding personal information about the other personalities (van der Hart & Nijenhuis, 2009). Switches from one personality to another tend to occur suddenly, often triggered by a stressful situation (Gillig, 2009). The host personality is the personality in control of the body most of the time, and the alter personalities tend to differ from each other in terms of age, race, gender, language, manners, and even sexual orientation (Kluft, 1996). A shy, introverted individual may develop a boisterous, extroverted alter personality. Each personality has unique memories and social relationships (Dawson, 1990). Women are more frequently diagnosed with dissociative identity disorder than are men, and when they are diagnosed, they also tend to have more "personalities" (American Psychiatric Association, 2000).

Although the concept of dissociation lacks a generally accepted definition, the **Structural Clinical Interview for DSM-IV Dissociative Disorders** (SCID-D) assesses five symptom clusters that encompass key features of the dissociative disorders (Steinberg, 2001). These clusters are also found in the DSM-5:

1. Depersonalization
2. Derealization
3. Dissociative amnesia
4. Identity confusion
5. Identity alteration

Depersonalization refers to a feeling of detachment or estrangement from one's self. Imagine that you are outside of your own body, looking at yourself from a distance as though you were looking at somebody else. Maybe you can also imagine what it would be like if you felt like a robot, deprived of all feelings. These are examples of depersonalization. **Derealization** is defined as "an alteration in the perception of one's surroundings so that a sense of reality of the external

world is lost" (Steinberg, 2001, p. 101). Imagine that the world around you seems as if you are living in a movie or looking through a fog. These are examples of derealization. **Dissociative amnesia** does not refer to permanent memory loss, similar to the erasure of a computer disk, but rather to the hypothetical disconnection of memories from conscious inspection (Steinberg, 2001). Thus, the memory is still there somewhere, but you cannot reach it. **Identity confusion** is defined by Steinberg as "thoughts and feelings of uncertainty and conflict a person has related to his or her identity" (Steinberg, 2001, p. 101), whereas **identity alteration** describes the behavioural acting out of this uncertainty and conflict (Bernstein & Putnam, 1986).



Figure 15.11. Those experiencing depersonalization report "dreamlike feelings" and that their bodies, feelings, emotions, and behaviours are not their own.

Dissociative disorders are not as uncommon as you would expect. Several studies in a variety of patient groups show that dissociative disorders are prevalent in a 4–29% range (Ross, Anderson, Fleischer, & Norton, 1991; Sar, Tutkun, Alyanak, Bakim, & Baral, 2000; Tutkun et al., 1998; for reviews see: Foote, Smolin, Kaplan, Legatt, & Lipschitz, 2006; Spiegel et al., 2011). Studies generally find a much lower prevalence in the general population, with rates in the order of 1–3% (Lee, Kwok, Hunter, Richards, & David, 2010; Rauschenberger & Lynn, 1995; Sandberg & Lynn, 1992). Importantly, dissociative symptoms are not limited to the dissociative disorders. Certain diagnostic groups, notably patients with borderline personality disorder, post-traumatic stress disorder (PTSD), obsessive-compulsive disorder (Rufer, Fricke, Held, Cremer, & Hand, 2006), and schizophrenia (Allen & Coyne, 1995; Merckelbach, à Campo, Hardy, & Giesbrecht, 2005; Yu et al., 2010) also display heightened levels of dissociation.

Measuring dissociation

The **Dissociative Experiences Scale** (DES) is the most widely used self-report measure of dissociation (Bernstein &

Putnam, 1986; Carlson & Putnam, 2000; Wright & Loftus, 1999). A self-report measure is a type of psychological test in which a person completes a survey or questionnaire with or without the help of an investigator. This scale measures dissociation with items such as "Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something, and they actually see themselves as if they were looking at another person" and "Some people find that sometimes they are listening to someone talk, and they suddenly realize that they did not hear part or all of what was said."

The DES is suitable only as a screening tool. When somebody scores a high level of dissociation on this scale, this does not necessarily mean that they are suffering from a dissociative disorder. It does, however, give an indication to investigate the symptoms more extensively. This is usually done with a structured clinical interview, called the Structured Clinical Interview for DSM-IV Dissociative Disorders (Steinberg, 1994), which is performed by an experienced clinician. With the publication of the new DSM-5 there has been an updated version of this instrument.

Dissociation and trauma

The most widely held perspective on dissociative symptoms is that they reflect a defensive response to highly aversive events, mostly trauma experiences during the childhood years (Bremner, 2010; Spiegel et al., 2011; Spitzer, Vogel, Barnow, Freyberger, & Grabe, 2007).

One prominent interpretation of the origins of dissociative disorders is that they are the direct result of exposure to traumatic experiences: the **post-traumatic model** (PTM). According to the PTM, dissociative symptoms can best be understood as mental strategies to cope with or avoid the impact of highly aversive experiences (e.g., Spiegel et al., 2011). In this view, individuals rely on dissociation to escape from painful memories (Gershuny & Thayer, 1999). Once they have learned to use this defensive coping mechanism, it can become automatized and habitual, even emerging in response to minor stressors (van der Hart & Horst, 1989). The idea that dissociation can serve a defensive function can be traced back to Pierre Janet (1899/1973), one of the first scholars to link dissociation to psychological trauma (Hacking, 1995).

The PTM argues that trauma causes dissociative disorders (Gershuny & Thayer, 1999). For example, Vermetten and colleagues (Vermetten, Schmahl, Lindner, Loewenstein, & Bremner, 2006) found that the DID patients in their study all suffered from post-traumatic stress disorder and concluded that DID should be conceptualized as an extreme form of early-abuse–related post-traumatic stress disorder (Vermetten et al., 2006). However, the empirical evidence that trauma leads to dissociative symptoms is the subject of intense debate (Kihlstrom, 2005; Bremner, 2010; Giesbrecht, Lynn, Lilienfeld & Merckelbach, 2010). Three limitations of the PTM will be described below.

First, the majority of studies reporting links between self-reported trauma and dissociation are based on **cross-sectional designs**. This means that the data are collected at one point in time. When analyzing this type of data, one can only state whether scoring high on a particular questionnaire (e.g., a trauma questionnaire) is indicative of also scoring high on another questionnaire (e.g., the DES). This makes it difficult to state if one thing led to another and, therefore, if the relation between the two is causal. Thus, the data that these designs yield do not allow for strong causal claims (Merckelbach & Muris, 2002).

Second, whether somebody has experienced a trauma is often established using a questionnaire that the person completes themself. This is called a **self-report measure**. Herein lies the problem. Individuals suffering from dissociative symptoms typically have high **fantasy proneness**, which is a character trait to engage in extensive and vivid fantasizing. The tendency to fantasize a lot may increase the risk of exaggerating or understating self-reports of traumatic experiences (Merckelbach et al., 2005; Giesbrecht, Lynn, Lilienfeld, & Merckelbach, 2008).

Third, high dissociative individuals report more cognitive failures than low dissociative individuals. **Cognitive failures**

are everyday slips and lapses, such as failing to notice signposts on the road, forgetting appointments, or bumping into people. This can be seen, in part, in the DSM-5 criteria for DID, in which people may have difficulty recalling everyday events as well as those that are traumatic. People who frequently make such slips and lapses often mistrust their own cognitive capacities; they also tend to overvalue the hints and cues provided by others (Merckelbach, Horselenberg, & Schmidt, 2002; Merckelbach, Muris, Rassin, & Horselenberg, 2000). This makes them vulnerable to suggestive information, which may distort self-reports, and thus, this limits conclusions that can be drawn from studies that rely solely on self-reports to investigate the trauma-dissociation link (Merckelbach & Jelicic, 2004).

Most important, however, is that the PTM does not tell us how trauma produces dissociative symptoms. Therefore, researchers have searched for other explanations. One theory proposes that due to their dreamlike character, dissociative symptoms — such as derealization, depersonalization, and absorption — are associated with sleep-related experiences (Giesbrecht et al., 2008; Watson, 2001) such that trauma disrupts the sleep-wake cycle and increases vulnerability to dissociative symptoms.

Source: Adapted from van Heugten – van der Kloet (2020).

Key Takeaways

- The DSM-5 defines dissociation as "a disruption and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control and behavior" (American Psychiatric Association, 2013, p. 291).
- Dissociative disorders include dissociative amnesia, dissociative fugue, depersonalization or derealization disorder, and dissociative identity disorder.
- Dissociative identity disorder used to be thought of as multiple personality disorder and was popularized in books and movies. The disorder has always been controversial, with some believing that most cases are faked.
- The most widely held perspective on dissociative symptoms is that they reflect a defensive response to highly aversive events, mostly trauma during childhood.

Exercises and Critical Thinking

1. Why are dissociation and trauma related to each other?
2. Do you have any ideas regarding treatment possibilities for dissociative disorders?
3. Does dissociative identity disorder really exist?

Image Attributions

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15.5 Mood Disorders

Learning Objectives

1. Summarize and differentiate major depressive disorder and bipolar disorder.
2. Explain the genetic and environmental factors that increase the likelihood that a person will develop a mood disorder.

The everyday variations in our feelings of happiness and sadness reflect our **mood**, which can be defined as the positive or negative feelings that are in the background of our everyday experiences. In most cases, we are in a relatively good mood, and this positive mood has some positive consequences — it encourages us to do what needs to be done and to make the most of the situations we are in (Isen, 2003). When we are in a good mood, our thought processes open up, and we are more likely to approach others. We are more friendly and helpful to others when we are in a good mood than we are when we are in a bad mood, and we may think more creatively (De Dreu, Baas, & Nijstad, 2008). On the other hand, when we are in a bad mood, we are more likely to prefer to be alone rather than interact with others, we focus on the negative things around us, and our creativity suffers.

It is not unusual to feel down or low at times, particularly after a painful event such as the death of someone close to us, a disappointment at work, or an argument with a partner. We often get depressed when we are tired, and many people report being particularly sad during the winter when the days are shorter. These are normal life experiences that differ from mood, or affective, disorders. There are several types of mood disorders that are characterized into two basic categories: depression — either major depressive disorder or persistent depressive disorder — or bipolar disorder — previously known as manic-depression, of which there are three types. Mood disorders can occur at any age, and the median age of onset is 32 years (Kessler, Berglund, Demler, Jin, & Walters, 2005). Recurrence of depressive episodes is fairly common and is greatest for those who first experience depression before the age of 15 years.

Depressive Disorders

Major depressive disorder is a mental disorder characterized by an all-encompassing low mood accompanied by low self-esteem and loss of interest or pleasure in normally enjoyable activities. Those who suffer from major depressive disorder feel intense sadness, despair, and loss of interest in pursuits that once gave them pleasure (see Figure 15.12). These negative feelings profoundly limit the individual's day-to-day functioning and ability to maintain and develop interests in life (Fairchild & Scogin, 2008). Consider the feelings of this person, who was struggling with depression and was diagnosed with major depressive disorder:

> I didn't want to face anyone; I didn't want to talk to anyone. I didn't really want to do anything for myself . . . I couldn't sit down for a minute really to do anything that took deep concentration . . . It was like I had big huge

weights on my legs and I was trying to swim and just kept sinking. And I'd get a little bit of air, just enough to survive and then I'd go back down again. It was just constantly, constantly just fighting, fighting, fighting, fighting, fighting. (National Institute of Mental Health, 2009, "Transcript," para. 1, 3, 7)



Figure 15.12. Depression.

According to Statistics Canada, Health Reports (Findlay, 2017), about 5% of the Canadian population suffers from major depression in a given year, with another 1.5% experiencing bipolar disorder. The highest rates are in Canadian youth aged 15 to 24, at nearly 7% (Canadian Mental Health Association, 2013). Over the course of a lifetime, approximately 13% of Canadians will meet the criteria for a mood disorder. About twice as many women as men suffer from depression (Canadian Mental Health Association, 2013). This gender difference is consistent across many countries and cannot be explained entirely by the fact that women are more likely to seek treatment for their depression. Rates of depression have been increasing, although the reasons for this increase are not known (Kessler et al., 2003). Indigenous Canadians experience depression at twice the rate of the Canadian average (Canadian Mental Health Association, 2013).

As you can see in the list below (Public Health Agency of Canada, n.d.), the experience of depression involves the mind and the body. In addition to the loss of interest, productivity, and social contact that accompanies depression, the person's sense of hopelessness and sadness may become so severe that they consider or even succeed in committing suicide. Suicide is the leading cause of death in Canadians aged 15 to 24. In 2015, there were 4405 recorded suicides in Canada. More men commit suicide than women; however, more women are hospitalized for self-harm. Sadly, suicide is the second leading cause of death for children and youth aged 10 to 19 (Government of Canada, 2016). Depression is a significant risk factor for suicide and self-harm. Almost all the people who commit suicide have a diagnosable psychiatric disorder at the time of their death (Statistics Canada, 2019; Sudak, 2005). Indigenous Canadians have much higher rates of suicide than non-Indigenous Canadians: five times the national average for male youth, seven times the national average for First Nations women, and 11 times the national average for Inuit youth (Centre for Suicide Prevention, n.d.). Protective factors of self-government and control over local resources are associated with lower rates of suicide in some First Nations communities, all of whom are affected by the legacies of colonization, such as intergenerational trauma associated with residential school experiences and forced adoption that may increase feelings of depression and suicidal ideation.

Symptoms of depression include the following:

- Depressed mood

- Feelings of guilt, worthlessness, helplessness, or hopelessness
- Loss of interest or pleasure in usually-enjoyed activities
- Change in weight or appetite
- Sleep disturbances
- Decreased energy or fatigue without significant physical exertion
- Thoughts of death
- Poor concentration or difficulty making decisions

Bipolar disorders

Let's consider the case of Juliana, who is a 21-year-old single woman. Over the past several years, she had been treated by a psychologist for depression, but for the past few months she had been feeling a lot better. Juliana had landed a good job in a law office and found a steady boyfriend. She told her friends and parents that she had been feeling particularly good — her energy level was high and she was confident in herself and her life. One day Juliana was feeling so good that she impulsively quit her new job and left town with her boyfriend on a road trip, but the trip didn't turn out well because Juliana became impulsive, impatient, and easily angered. Her euphoria continued, and in one of the towns that they visited she left her boyfriend and went to a party with some strangers that she had met. She danced into the early morning and ended up having sex with several of the men. Eventually Juliana returned home to ask for money, but when her parents found out about her recent behaviour and confronted her, she acted aggressively and abusively to them, so they referred her to a social worker. Juliana was hospitalized, where she was diagnosed with bipolar disorder.

Bipolar disorders are experienced as cycles of depression and mania. Bipolar disorder is diagnosed in cases such as Juliana's, where experiences with depression are followed by a more normal period and then a period of mania or euphoria in which the person feels particularly awake, alive, excited, and involved in everyday activities but is also impulsive, agitated, and distracted. Without treatment, it is likely that Juliana would cycle back into depression and then eventually into mania again, with the risk that she would harm herself or others in the process.

It is commonly thought that Vincent van Gogh suffered from bipolar disorder, based on his intense bursts of artistic productivity (e.g., in one two-month period in 1889 he produced 60 paintings), personal writings, and behaviour (e.g., he cut off his own ear). He committed suicide at age 37 (Thomas & Bracken, 2001). His painting, *Starry Night* (see Figure 15.13), offers a glimpse of the world through his eyes.



Figure 15.13. Starry Night by Vincent van Gogh.

Bipolar disorder is an often chronic and lifelong condition that may begin in childhood. Although the normal pattern involves swings from high to low, in some cases the person may experience both highs and lows at the same time. Determining whether a person has bipolar disorder is difficult due to the frequent presence of comorbidity with both depression and anxiety disorders. Bipolar disorder is more likely to be diagnosed when it is initially observed at an early age, when the frequency of depressive episodes is high, and when there is a sudden onset of the symptoms (Bowden, 2001).

Although there have been important advances in research on the etiology, course, and treatment of bipolar disorder, there remains a need to understand the mechanisms that contribute to episode onset and relapse. There is compelling evidence for biological causes of bipolar disorder, which is known to be highly heritable (McGuffin, Rijsdijk, Andrew, Sham, Katz, & Cardno, 2003). However, there is much variability in the course of bipolar disorder both within a person across time and across people (Johnson, 2005). The triggers that determine how and when this genetic vulnerability is expressed are not yet understood; however, there is evidence to suggest that psychosocial triggers may play an important role (e.g., Johnson et al., 2008; Malkoff-Schwartz et al., 1998).

In addition to the genetic contribution, biological explanations of bipolar disorder have also focused on brain function. Many of the studies using functional magnetic resonance imaging (fMRI) techniques have focused on the processing of emotional stimuli based on the idea that bipolar disorder is fundamentally a disorder of emotion (American Psychiatric Association, 2000). Findings show that regions of the brain thought to be involved in emotional processing and regulation are activated differently in people with bipolar disorder relative to healthy controls (e.g., Altshuler et al., 2008; Hassel et al., 2008; Lennox, Jacob, Calder, Lupson, & Bullmore, 2004).

However, there is little consensus as to whether a particular brain region becomes more or less active in response to an emotional stimulus among people with bipolar disorder compared with healthy controls. Mixed findings are in part due to samples consisting of participants who are at various phases of illness at the time of testing (e.g., manic, depressed, or inter-episode). Sample sizes tend to be relatively small, making comparisons between subgroups difficult. Additionally, the use of a standardized stimulus (e.g., facial expression of anger) may not elicit a sufficiently strong

response. Personally engaging stimuli, such as recalling a memory, may be more effective in inducing strong emotions (Isaacowitz, Gershon, Allard, & Johnson, 2013).

A series of studies show that environmental stressors, particularly severe stressors (e.g., loss of a significant relationship), can adversely impact the course of bipolar disorder. People with bipolar disorder have substantially increased risk of relapse (Ellicott, Hammen, Gitlin, Brown, & Jamison, 1990) and suffer more depressive symptoms (Johnson, Winett, Meyer, Greenhouse, & Miller, 1999) following a severe life stressor. Interestingly, positive life events can also adversely impact the course of bipolar disorder. People with bipolar disorder suffer more manic symptoms after life events involving attainment of a desired goal (Johnson et al., 2008). Such findings suggest that people with bipolar disorder may have a hypersensitivity to rewards.

Evidence from the life stress literature has also suggested that people with mood disorders may have a circadian vulnerability that renders them sensitive to stressors that disrupt their sleep or rhythms. According to **social zeitgeber theory** (Ehlers, Frank, & Kupfer, 1988; Frank et al., 1994), stressors that disrupt sleep, or that disrupt the daily routines that entrain the biological clock (e.g., meal times) can trigger episode relapse. Consistent with this theory, studies have shown that life events that involve a disruption in sleep and daily routines, such as overnight travel, can increase bipolar symptoms in people with bipolar disorder (Malkoff-Schwartz et al., 1998).

Explaining mood disorders

Research from family and twin studies suggests that genetic factors are involved in the development of major depressive disorder. The mode of inheritance is not fully understood, although no single genetic variation has been found to significantly increase the risk of major depressive disorder. Instead, several genetic variants and environmental factors most likely contribute to the risk for major depressive disorder (Lohoff, 2010).

One environmental stressor that has received much support in relation to major depressive disorder is stressful life events. In particular, severe stressful life events — those that have long-term consequences and involve loss of a significant relationship (e.g., divorce) or economic stability (e.g., unemployment) — are strongly related to depression (Brown & Harris, 1989; Monroe, Slavich, & Georgiades, 2009). Stressful life events are more likely to predict the first depressive episode than subsequent episodes (Lewinsohn, Allen, Seeley, & Gotlib, 1999). In contrast, minor events may play a larger role in subsequent episodes than the initial episodes (Monroe & Harkness, 2005).

Depression research has not been limited to examining reactivity to stressful life events. Much research, particularly brain imagining research using fMRI, has centred on examining neural circuitry — the interconnections that allow multiple brain regions to perceive, generate, and encode information in concert. A meta-analysis of neuroimaging studies showed that when viewing negative stimuli (e.g., a picture of an angry face or a picture of a car accident), compared with healthy control participants, participants with major depressive disorder have greater activation in brain regions involved in stress response and reduced activation of brain regions involved in positively motivated behaviours (Hamilton, Etkin, Furman, Lemus, Johnson, & Gotlib, 2012).

Other environmental factors related to increased risk for major depressive disorder include experiencing **early adversity**, such as childhood abuse or neglect (Widom, DuMont, & Czaja, 2007), chronic stress (e.g., poverty), and interpersonal factors. For example, marital dissatisfaction predicts increases in depressive symptoms in both men and women. On the other hand, depressive symptoms also predict increases in marital dissatisfaction (Whisman & Uebelacker, 2009). Research has found that people with major depressive disorder generate some of their interpersonal stress (Hammen, 2005). People with major depressive disorder whose relatives or spouses can be described as critical and emotionally overinvolved have higher relapse rates than do those living with people who are less critical and emotionally overinvolved (Butzlaff & Hooley, 1998).

People's **attributional styles** or their general ways of thinking, interpreting, and recalling information have also been examined in the etiology of major depressive disorder (Gotlib & Joormann, 2010). People with a pessimistic attributional style tend to make internal versus external, global versus specific, and stable versus unstable attributions to negative events, serving as a vulnerability to developing major depressive disorder. For example, someone who fails an exam and thinks that it was their fault (i.e., internal), that they are stupid (i.e., global), and that they will always do poorly (i.e., stable) has a pessimistic attribution style. Several influential theories of depression incorporate attributional styles (Abramson, Metalsky, & Alloy, 1989; Abramson, Seligman, & Teasdale, 1978).

Research Focus

Using molecular genetics to unravel the causes of depression

Avshalom Caspi and his colleagues (Caspi et al., 2003) used a longitudinal study to test whether genetic predispositions might lead some people, but not others, to suffer from depression as a result of environmental stress. Their research focused on a particular gene, the 5-HTT gene, which is known to be important in the production and use of the neurotransmitter serotonin. The researchers focused on this gene because serotonin is known to be important in depression and because selective serotonin reuptake inhibitors (SSRIs) have been shown to be effective in treating depression.

People who experience stressful life events — for instance, involving threat, loss, humiliation, or defeat — are likely to experience depression, but biological-situational models suggest that a person's sensitivity to stressful events depends on their genetic makeup. The researchers therefore expected that people with one type of genetic pattern would show depression following stress to a greater extent than people with a different type of genetic pattern.

The research included a sample of 1,037 adults from Dunedin, New Zealand. Genetic analysis on the basis of DNA samples allowed the researchers to divide the sample into two groups on the basis of the characteristics of their 5-HTT gene. One group had a short version, or allele, of the gene, whereas the other group did not have the short allele of the gene.

The participants also completed a measure where they indicated the number and severity of stressful life events that they had experienced over the past five years. The events included employment, financial, housing, health, and relationship stressors. The dependent measure in the study was the level of depression reported by the participant, as assessed using a structured interview test (Robins, Cottler, Bucholtz, & Compton, 1995).

As the number of stressful experiences the participants reported increased from 0 to 4, depression also significantly increased for the participants with the short version of the gene (see the top panel of Figure 15.14). However, for the participants who did not have a short allele, increasing stress did not increase depression (see the bottom panel of Figure 15.14). Furthermore, for the participants who experienced four stressors over the past five years, 33% of the participants who carried the short version of the gene became depressed, whereas only 17% of participants who did not have the short version did.

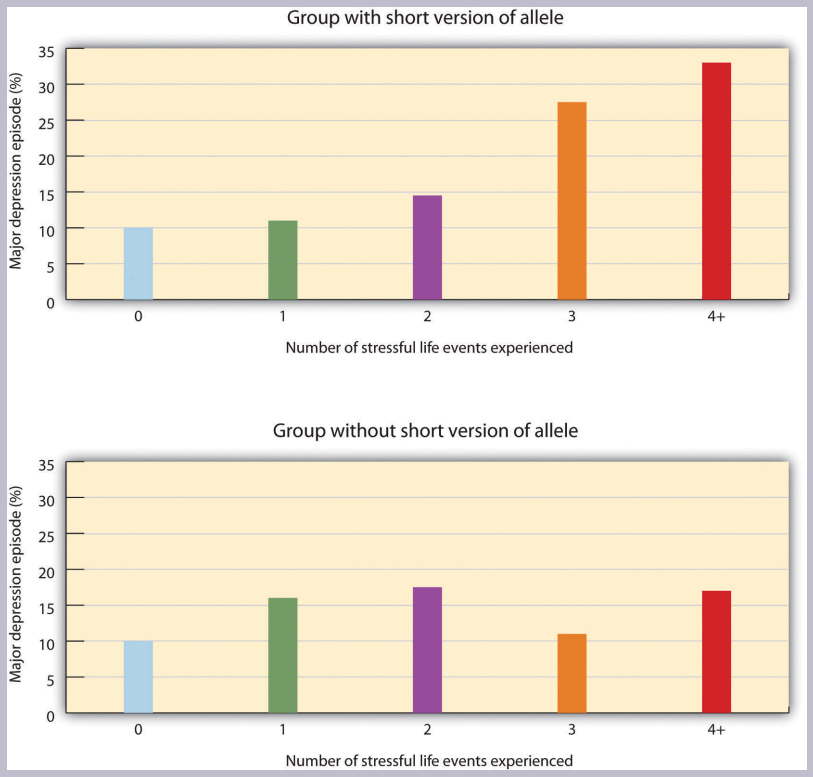


Figure 15.14. Genetics and causes of depression (Caspi et al., 2003). [Long description]

This important study provides an excellent example of how genes and environment work together. As per the findings, an individual's response to environmental stress was influenced by their genetic makeup.

However, psychological and social determinants are also important in creating mood disorders and depression. In terms of psychological characteristics, mood states are influenced in large part by our cognitions. Negative thoughts about ourselves and our relationships to others create negative moods, and a goal of cognitive therapy for mood disorders is to attempt to change people's cognitions to be more positive. Negative moods also create negative behaviours toward others, such as acting sad, slouching, and avoiding others, which may lead those others to respond negatively to the person — for instance, by isolating that person, which then creates even more depression (see Figure 15.15). You can see how it might become difficult for people to break out of this "cycle of depression."



Figure 15.15. Negative thoughts cause negative emotions, which may cause negative behaviours, which in turn may lead to negative responses from others, which may cause more negative thoughts.

Myrna Weissman and colleagues (Weissman et al., 1996) found that rates of depression varied greatly among countries, with the highest rates in European and North American countries and the lowest rates in Asian countries. These differences seem to be due to discrepancies between individual feelings and cultural expectations about what one should feel. People from European and North American cultures report that it is important to experience emotions such as happiness and excitement, whereas people from Asian cultures report that it is more important to be stable and calm. Because North Americans may feel that they are not happy or excited but that they are supposed to be, this may increase their depression (Tsai, Knutson, & Fung, 2006).

Source: Adapted from Gershon and Thompson (2020).

Key Takeaways

- Mood is the positive or negative feelings that are in the background of our everyday experiences.
- Major depressive disorder is characterized by extreme feelings of sadness and hopelessness, coupled with other behavioural symptoms.

- Bipolar disorder is characterized by swings in mood from mania to sadness and hopelessness, and back again, with periods of near-normal moods in between.
- Mood disorders are caused by the interplay among biological, psychological, and social variables.
- Mood disorders are significant risk factors for suicide.

Exercises and Critical Thinking

1. Give a specific example of the negative cognitions, behaviours, and responses of others that might contribute to a cycle of depression.
2. Given the discussion about the causes of negative moods and depression, what might people do to try to feel better on days that they are experiencing negative moods?
3. Why might overnight travel constitute a potential risk for a person with bipolar disorder?
4. What are some reasons positive life events may precede the occurrence of manic episode?

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Long Description

Figure 15.14. Genetics and causes of depression:

	Major Depression Episode (%)	
Number of stressful life events experienced	**Group with short version of allele**	**Group without short version of allele**
0	10%	10%
1	11%	16%
2	14%	18%
3	28%	11%
4 or more	33%	18%

[Return to Figure 15.14]

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15.6 Schizophrenia: The Edge of Reality

Learning Objectives

1. Describe the signs and symptoms of schizophrenia and related psychotic disorders.
2. Describe the most well-replicated cognitive and neurobiological changes associated with schizophrenia.
3. Describe the potential risk factors for the development of schizophrenia.

Schizophrenia and the other psychotic disorders are some of the most impairing forms of psychopathology, frequently associated with a profound negative effect on the individual's educational, occupational, and social function. Sadly, these disorders often manifest right at time of the transition from adolescence to adulthood, just as young people should be evolving into independent young adults. The spectrum of psychotic disorders includes schizophrenia, schizoaffective disorder, delusional disorder, schizotypal personality disorder, schizophreniform disorder, brief psychotic disorder, as well as psychosis associated with substance use or medical conditions. In this section, we summarize the primary clinical features of these disorders, describe the cognitive and neurobiological changes associated with schizophrenia, and describe potential risk factors and causes for the development of schizophrenia

The phenomenology of schizophrenia and related psychotic disorders

Most of you have probably had the experience of walking down the street in a city and seeing a person you thought was acting oddly. They may have been dressed in an unusual way, perhaps disheveled or wearing an unusual collection of clothes, makeup, or jewelry that did not seem to fit any particular group or subculture. They may have been talking to themselves or yelling at someone you could not see. If you tried to speak to them, they may have been difficult to follow or understand, or they may have acted paranoid or started telling a bizarre story about the people who were plotting against them. If so, chances are that you have encountered an individual with schizophrenia or another type of psychotic disorder. If you have watched the movie *A Beautiful Mind* (2001) or *The Fisher King* (1991), you have also seen a portrayal of someone thought to have schizophrenia. It is also likely that you have met people with schizophrenia without ever knowing it, as they may suffer in silence or stay isolated to protect themselves from the horrors they see, hear, or believe are operating in the outside world. As these examples begin to illustrate, psychotic disorders involve many different types of symptoms, including delusions, hallucinations, disorganized speech and behaviour, abnormal motor behaviour including catatonia, and negative symptoms such as anhedonia or amotivation and blunted affect or reduced speech.

Delusions are false beliefs that are often fixed, hard to change even when the person is presented with conflicting information, and are often culturally influenced in their content (e.g., delusions involving Jesus in Judeo-Christian cultures or delusions involving Allah in Muslim cultures). They can be terrifying for the person, who may remain

convinced that they are true even when loved ones and friends present them with clear information that they cannot be true. There are many different types or themes to delusions.



Figure 15.16. Abstract groups like the police or the government are commonly the focus of a schizophrenic's persecutory delusions.

The most common delusions are persecutory and involve the belief that individuals or groups are trying to hurt, harm, or plot against the person in some way. These can be people that the person knows (e.g., people at work, the neighbours, or family members), or more abstract groups (e.g., the FBI, the CIA, or aliens). Other types of delusions include grandiose delusions, where the person believes that they have some special power or ability (e.g., I am the new Buddha or I am a rock star); referential delusions, where the person believes that events or objects in the environment have special meaning for them (e.g., that song on the radio is being played specifically for me); or other types of delusions, where the person may believe that others are controlling their thoughts and actions, their thoughts are being broadcast aloud, others can read their mind, or they can read other people's minds.

When you see a person on the street talking to themselves or shouting at other people, they are experiencing **hallucinations**. These are perceptual experiences that occur even when there is no stimulus in the outside world generating the experiences. They can be auditory, visual, olfactory (i.e., smell), gustatory (i.e., taste), or somatic (i.e., touch). The most common hallucinations in psychosis for adults are auditory, and they can involve one or more voices talking about the person, commenting on the person's behaviour, or giving them orders. The content of the hallucinations is frequently negative (e.g., "you are a loser," "that drawing is stupid," or "you should go kill yourself") and can be the voice of someone the person knows or a complete stranger. Sometimes the voices sound as if they are coming

from outside the person's head. Other times the voices seem to be coming from inside the person's head but are not experienced the same as the person's inner thoughts or inner speech.

Talking to someone with schizophrenia is sometimes difficult, as their speech may be difficult to follow, either because their answers do not clearly flow from your questions or because one sentence does not logically follow from another. This is referred to as **disorganized speech**, and it can be present even when the person is writing. **Disorganized behaviour** can include odd dress, odd makeup (e.g., lipstick partially outlining their mouth), or unusual rituals (e.g., repetitive hand gestures). Abnormal motor behaviour can include **catatonia**, which refers to a variety of behaviours that seem to reflect a reduction in responsiveness to the external environment. This can include holding unusual postures for long periods of time, failing to respond to verbal or motor prompts from another person, or excessive and seemingly purposeless motor activity. The symptoms of schizophrenia discussed so far are known as **positive symptoms**, meaning that they are experiences that we typically expect most people not to have.

Some of the most debilitating symptoms of schizophrenia are difficult for others to see. These include what people refer to as **negative symptoms**, or the absence of certain things we typically expect most people to have. For example, **anhedonia and amotivation** reflect a lack of apparent interest in or drive to engage in social or recreational activities. These symptoms can manifest as a great amount of time spent in physical immobility. Importantly, anhedonia and amotivation do not seem to reflect a lack of enjoyment in pleasurable activities or events (Cohen & Minor, 2010; Kring & Moran, 2008; Llerena, Strauss, & Cohen, 2012), but rather a reduced drive or ability to take the steps necessary to obtain the potentially positive outcomes (Barch & Dowd, 2010). Flat affect and reduced speech (i.e., **alogia**) reflect a lack of showing emotions through facial expressions, gestures, and speech intonation, as well as a reduced amount of speech and increased pause frequency and duration.

In many ways, the types of symptoms associated with psychosis are the most difficult for us to understand, as they may seem far outside the range of our normal experiences. Unlike depression or anxiety, many of us may not have had experiences that we think of as on the same continuum as psychosis. However, just like many of the other forms of psychopathology described in this book, the types of psychotic symptoms that characterize disorders like schizophrenia are on a continuum with "normal" mental experiences. For example, work by Jim van Os in the Netherlands has shown that a surprisingly large percentage of the general population, over 10%, experience psychotic-like symptoms, though many fewer have multiple experiences and most will not continue to experience these symptoms in the long run (Verdoux & van Os, 2002). Similarly, work in a general population of adolescents and young adults in Kenya has also shown that a relatively high percentage of individuals, roughly 19%, experience one or more psychotic-like experiences at some point in their lives (Mamah et al., 2012; Ndetei et al., 2012), though again most will not go on to develop a full-blown psychotic disorder.

Schizophrenia is the primary disorder that comes to mind when we discuss psychotic disorders (see Figure 15.18), though there are a number of other disorders that share one or more features with schizophrenia. In the remainder of this section, we will use the terms "psychosis" and "schizophrenia" somewhat interchangeably, given that most of the research has focused on schizophrenia. In addition to schizophrenia, other psychotic disorders include schizophreniform disorder, which is a briefer version of schizophrenia, schizoaffective disorder, which is a mixture of psychosis and depression or mania symptoms, delusional disorder, which is the experience of only delusions, and brief psychotic disorder, which involves psychotic symptoms that last only a few days or weeks.

Schizophrenia (Lifetime prevalence about 0.3% to 0.7% [APA, 2013])
• Two or more of the following for at least 1 month: hallucinations, delusions, disorganized speech, grossly disorganized or catatonic behavior, negative symptoms. • Impairment in one or more areas of function (social, occupational, educational self-care) for a significant period of time since the onset of the illness. • Continuous signs of the illness for at least 6 months (this can include prodromal or residual symptoms, which are attenuated forms of the symptoms described above).
Schizophreniform Disorder (Lifetime prevalence similar to Schizophrenia [APA, 2013])
• The same symptoms of schizophrenia described above that are present for at least 1 month but less than 6 months.
Schizoaffective Disorder (Lifetime prevalence about 0.3% [APA, 2013])
• A period of illness where the person has both the psychotic symptoms necessary to meet criteria for schizophrenia and either a major depression or manic episode. •The person experiences either delusions or hallucinations for at least 2 weeks when they are not having a depressive or manic episode. • The symptoms that meet criteria for depressive or manic episodes are present for over half of the illness duration.
Delusional Disorder (Lifetime prevalence about 0.2% [APA, 2013])
• The presence of at least one delusion for at least a month. • The person has never met criteria for schizophrenia. • The person's function is not impaired outside the specific impact of the delusion. • The duration of any depressive or manic episodes have been brief relative to the duration of the delusion(s).
Brief Psychotic Disorder (Lifetime prevalence unclear [APA, 2013])
• One or more of the following symptoms present for at least 1 day but less than 1 month: delusions, hallucinations, disorganized speech, grossly disordered or catatonic behavior.
Attenuated Psychotic Disorder (In Section III of the [APA, 2013]-V, Lifetime presence unclear [APA, 2013])
• One or more of the following symptoms in an "attenuated" form: delusions, hallucinations, or disorganized speech. • The symptoms must have occurred at least once a week for the past month and must have started or gotten worse in the past year. • The symptoms must be severe enough to distress or disable the individual or to suggest to others that the person needs clinical help. • The person has never met the diagnostic criteria for a psychotic disorder, and the symptoms are not better attributed to another disorder, to substance use, or to a medical condition.

Figure 15.18. Types of psychotic disorders (American Psychiatric Association, 2013).

The cognitive neuroscience of schizophrenia

As described above, when we think of the core symptoms of psychotic disorders such as schizophrenia, we think of people who hear voices, see visions, and have false beliefs about reality (i.e., delusions). However, problems in cognitive function are also a critical aspect of psychotic disorders and of schizophrenia in particular. This emphasis on cognition in schizophrenia is in part due to the growing body of research suggesting that cognitive problems in schizophrenia are a major source of disability and loss of functional capacity (Green, 2006; Nuechterlein et al., 2011). The cognitive deficits that are present in schizophrenia are widespread and can include problems with **episodic memory** — that is, the ability to learn and retrieve new information or episodes in one's life — **working memory** — that is, the ability to maintain information over a short period of time, such as 30 seconds — and other tasks that require one to control or regulate one's behaviour (Barch & Ceaser, 2012; Bora, Yucel, & Pantelis, 2009a; Fioravanti, Carlone, Vitale, Cinti, & Clare, 2005; Forbes, Carrick, McIntosh, & Lawrie, 2009; Mesholam-Gately, Giuliano, Goff, Faraone, & Seidman, 2009). Individuals with schizophrenia also have difficulty with what is referred to as processing speed and are frequently slower than healthy individuals on almost all tasks. Importantly, these cognitive deficits are present prior to the onset of the illness (Fusar-Poli et al., 2007) and are also present, albeit in a milder form, in the first-degree relatives of people with schizophrenia (Snitz, Macdonald, & Carter, 2006). This suggests that cognitive impairments in schizophrenia reflect part

of the risk for the development of psychosis, rather than being an outcome of developing psychosis. Further, people with schizophrenia who have more severe cognitive problems also tend to have more severe negative symptoms and more disorganized speech and behaviour (Barch, Carter, & Cohen, 2003; Barch et al., 1999; de Garcia Dominguez, Viechtbauer, Simons, van Os, & Krabbendam, 2009; Ventura, Hellemann, Thames, Koellner, & Nuechterlein, 2009; Ventura, Thames, Wood, Guzik, & Hellemann, 2010). In addition, people with more cognitive problems have worse function in everyday life (Bowie et al., 2008; Bowie, Reichenberg, Patterson, Heaton, & Harvey, 2006; Fett et al., 2011).



Figure 15.19. Some with schizophrenia suffer from difficulty with social cognition. They may not be able to detect the meaning of facial expressions or other subtle cues that most other people rely on to navigate the social world.

Some people with schizophrenia also show deficits in what is referred to as social cognition, though it is not clear whether such problems are separate from the cognitive problems described above or the result of them (Hoe, Nakagami, Green, & Brekke, 2012; Kerr & Neale, 1993; van Hooren et al., 2008). This includes problems with the recognition of emotional expressions on the faces of other individuals (Kohler, Walker, Martin, Healey, & Moberg, 2010) and problems inferring the intentions of other people (theory of mind; Bora, Yucel, & Pantelis, 2009b). Individuals with schizophrenia who have more problems with social cognition also tend to have more negative and disorganized symptoms (Ventura, Wood, & Hellemann, 2011), as well as worse community function (Fett et al., 2011).

The advent of neuroimaging techniques — such as structural magnetic resonance imaging (MRI), functional magnetic resonance imaging (fMRI), and positron emission tomography (PET) — opened up the ability to try to understand the brain mechanisms of the symptoms of schizophrenia as well as the cognitive impairments found in psychosis. For example, a number of studies have suggested that delusions in psychosis may be associated with problems in salience

detection mechanisms supported by the ventral striatum (Jensen & Kapur, 2009; Jensen et al., 2008; Kapur, 2003; Kapur, Mizrahi, & Li, 2005; Murray et al., 2008) and the anterior prefrontal cortex (Corlett et al., 2006; Corlett, Honey, & Fletcher, 2007; Corlett, Murray, et al., 2007). These are regions of the brain that normally increase their activity when something important (i.e., salient) happens in the environment. If these brain regions misfire, it may lead individuals with psychosis to mistakenly attribute importance to irrelevant or unconnected events. Further, there is good evidence that problems in working memory and cognitive control in schizophrenia are related to problems in the function of the dorsolateral prefrontal cortex (DLPFC), a region of the brain (Minzenberg, Laird, Thelen, Carter, & Glahn, 2009; Ragland et al., 2009). These problems include changes in how the DLPFC works when people are doing working-memory or cognitive-control tasks, and problems with how this brain region is connected to other brain regions important for working memory and cognitive control, including the posterior parietal cortex (e.g., Karlsgodt et al., 2008; J. J. Kim et al., 2003; Schlosser et al., 2003), the anterior cingulate (Repovs & Barch, 2012), and temporal cortex (e.g., Fletcher et al., 1995; Meyer-Lindenberg et al., 2001). In terms of understanding episodic memory problems in schizophrenia, many researchers have focused on medial temporal lobe deficits, with a specific focus on the hippocampus (e.g., Heckers & Konradi, 2010). This is because there is much data from humans and animals showing that the hippocampus is important for the creation of new memories (Squire, 1992). However, it has become increasingly clear that problems with the DLPFC also make important contributions to episodic memory deficits in schizophrenia (Ragland et al., 2009), probably because this part of the brain is important for controlling our use of memory.

In addition to problems with regions such as the DLPFC and medial temporal lobes in schizophrenia described above, magnitude resonance neuroimaging studies have also identified changes in cellular architecture, white matter connectivity, and gray matter volume in a variety of regions that include the prefrontal and temporal cortices (Bora et al., 2011). People with schizophrenia also show reduced overall brain volume; as people get older, these reductions in brain volume may be larger in those with schizophrenia than in healthy people (Olabi et al., 2011). Taking antipsychotic medications or taking drugs such as marijuana, alcohol, and tobacco may cause some of these structural changes. However, these structural changes are not completely explained by medications or substance use alone. Further, both functional and structural brain changes are seen, again to a milder degree, in the first-degree relatives of people with schizophrenia (Boos, Aleman, Cahn, Pol, & Kahn, 2007; Brans et al., 2008; Fusar-Poli et al., 2007; MacDonald, Thermenos, Barch, & Seidman, 2009). This again suggests that that neural changes associated with schizophrenia are related to a genetic risk for this illness.

Many researchers believe that schizophrenia is caused in part by excess dopamine, and this theory is supported by the fact that most of the drugs useful in treating schizophrenia inhibit dopamine activity in the brain (Javitt & Laruelle, 2006). Levels of serotonin may also play a part (Inayama et al., 1996), but recent evidence suggests that the role of neurotransmitters in schizophrenia is more complicated than was once believed. It also remains unclear whether observed differences in the neurotransmitter systems of people with schizophrenia cause the disease, or if they are the result of the disease itself or its treatment (Csernansky & Grace, 1998).

Risk factors for developing schizophrenia

It is clear that there are important genetic contributions to the likelihood that someone will develop schizophrenia, with consistent evidence from family, twin, and adoption studies. (Sullivan, Kendler, & Neale, 2003). The likelihood of developing schizophrenia increases dramatically if a close relative also has the disease (see Figure 15.20).

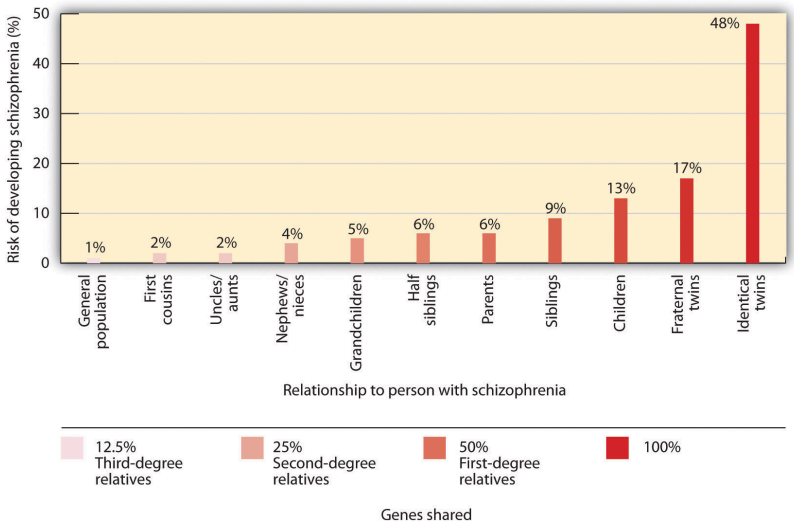


Figure 15.20. There is a genetic disposition to develop schizophrenia. The risk of developing schizophrenia increases substantially if a person has a relative with the disease. [Long description]

However, there is no schizophrenia gene, and it is likely that the genetic risk for schizophrenia reflects the summation of many different genes that each contribute something to the likelihood of developing psychosis (Gottesman & Shields, 1967; Owen, Craddock, & O'Donovan, 2010). Further, schizophrenia is a very heterogeneous disorder, which means that two different people with schizophrenia may each have very different symptoms (e.g., one has hallucinations and delusions, while the other has disorganized speech and negative symptoms). This makes it even more challenging to identify specific genes associated with risk for psychosis. Importantly, many studies also now suggest that at least some of the genes potentially associated with schizophrenia are also associated with other mental health conditions, including bipolar disorder, depression, and autism (Gejman, Sanders, & Kendler, 2011; Y. Kim, Zerwas, Trace, & Sullivan, 2011; Owen et al., 2010; Rutter, Kim-Cohen, & Maughan, 2006).



Figure 15.21. There are a number of genetic and environmental risk factors associated with higher likelihood of developing schizophrenia including older fathers, complications during pregnancy or delivery, family history of schizophrenia, and growing up in an urban environment.

There are also a number of environmental factors that are associated with an increased risk of developing schizophrenia. For example, problems during pregnancy such as increased stress, infection, malnutrition, and diabetes have been associated with increased risk of schizophrenia. In addition, complications that occur at the time of birth and which cause hypoxia (i.e., lack of oxygen) are also associated with an increased risk for developing schizophrenia (M. Cannon, Jones, & Murray, 2002; Miller et al., 2011). Children born to older fathers are also at a somewhat increased risk of developing schizophrenia. Further, using cannabis increases risk for developing psychosis, especially if you have other risk factors (Casadio, Fernandes, Murray, & Di Forti, 2011; Luzi, Morrison, Powell, di Forti, & Murray, 2008). The likelihood of developing schizophrenia is also higher for kids who grow up in urban settings (March et al., 2008) and for some minority ethnic groups (Bourque, van der Ven, & Malla, 2011). Both of these factors may reflect higher social and environmental stress in these settings. Unfortunately, none of these risk factors is specific enough to be particularly useful in a clinical setting, and most people with these risk factors do not develop schizophrenia. However, together they are beginning to give us clues as the neurodevelopmental factors that may lead someone to be at an increased risk for developing this disease.

An important research area on risk for psychosis has been work with individuals who may be at "clinical high risk." These are individuals who are showing attenuated (i.e., milder) symptoms of psychosis that have developed recently and who are experiencing some distress or disability associated with these symptoms. When people with these types of symptoms are followed over time, about 35% of them develop a psychotic disorder (T. D. Cannon et al., 2008), most frequently schizophrenia (Fusar-Poli, McGuire, & Borgwardt, 2012). In order to identify these individuals, a new category of diagnosis, called "attenuated psychotic syndrome," was added to Section III, the section for disorders in need of further study, of the DSM-5 (American Psychiatric Association, 2013); for symptoms, see Figure 15.18. However,

adding this diagnostic category to the DSM-5 created a good deal of controversy (Batstra & Frances, 2012; Fusar-Poli & Yung, 2012). Many scientists and clinicians have been worried that including risk states in the DSM-5 would create mental disorders where none exist, that these individuals are often already seeking treatment for other problems, and that it is not clear that we have good treatments to stop these individuals from developing to psychosis. However, the counterarguments have been that there is evidence that individuals with high-risk symptoms develop psychosis at a much higher rate than individuals with other types of psychiatric symptoms and that the inclusion of attenuated psychotic syndrome in Section III will spur important research that might have clinical benefits. Further, there is some evidence that non-invasive treatments, such as omega-3 fatty acids and intensive family intervention, may help reduce the development of full-blown psychosis (Preti & Cella, 2010) in people who have high-risk symptoms.

Source: Adapted from Barch (2020).

Key Takeaways

- Schizophrenia is a serious psychological disorder marked by delusions, hallucinations, and loss of contact with reality.
- Schizophrenia is accompanied by a variety of symptoms, but not all patients have all of them.
- Because the schizophrenic patient has lost contact with reality, we say that they are experiencing psychosis.
- Positive symptoms of schizophrenia include hallucinations, delusions, derailment, disorganized behaviour, inappropriate affect, and catatonia.
- Negative symptoms of schizophrenia include social withdrawal, poor hygiene and grooming, poor problem-solving abilities, and a distorted sense of time.
- Cognitive symptoms of schizophrenia include difficulty comprehending and using information and problems maintaining focus.
- There is no single cause of schizophrenia. Rather, there are a variety of biological and environmental risk factors that interact in a complex way to increase the likelihood that someone might develop schizophrenia.

Exercises and Critical Thinking

1. What are the major differences between the psychotic disorders discussed in this section?
2. How would one be able to tell when an individual is delusional versus having non-delusional beliefs that differ from the societal normal? How should cultural and sub-cultural variations be taken into account when assessing psychotic symptoms?
3. Why are cognitive impairments important to understanding schizophrenia?
4. Why has the inclusion of attenuated psychotic syndrome in Section III of the DSM-5 created controversy?
5. What are some of the factors associated with increased risk for developing schizophrenia? If we know whether or not someone has these risk factors, how well can we tell whether they will develop schizophrenia?

Image Attributions

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Long Descriptions

Figure 15.20. Genetic disposition to develop schizophrenia:

Genes shared	Relationship to person with schizophrenia	Risk of developing schizophrenia (%)
Third-degree relatives (12.5%)	First cousins	2%
	Uncles and aunts	2%
Second-degree relatives (25%)	Nephews and nieces	4%
	Grandchildren	5%
First-degree relatives (50%)	Half-siblings	6%
	Parents	6%
100%	Siblings	9%
	Children	13%
	Fraternal twins	17%
	Identical twins	48%

[Return to Figure 15.20]

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15.7 Personality Disorders

Learning Objectives

1. Categorize the different types of personality disorders, and differentiate antisocial personality disorder from borderline personality disorder.
2. Outline the biological and environmental factors that may contribute to a person developing a personality disorder.

A **personality disorder** is a disorder characterized by inflexible patterns of thinking, feeling, or relating to others that cause problems in personal, social, and work situations. Personality disorders tend to emerge during late childhood or adolescence and usually continue throughout adulthood (Widiger, 2006). The disorders can be problematic for the people who have them, but they are less likely to bring people to a therapist for treatment.

The personality disorders are summarized in the table below. They are categorized into three clusters: those characterized by odd or eccentric behaviour, those characterized by dramatic or erratic behaviour, and those characterized by anxious or inhibited behaviour. As you consider the personality disorders described, think of people that you know who might seem a bit suspicious and paranoid, who feel that other people are always "ganging up on" them, and who really do not trust other people very much. Perhaps you know someone who fits the bill of being overly dramatic, someone who is always raising a stir and whose emotions seem to turn everything into a big deal, or you might have a friend who is overly dependent on others and can't seem to get a life of their own.

Table 15.4. Descriptions of the personality disorders

Cluster	Personality Disorder	Characteristics
A. Odd/ eccentric	Schizotypal	Peculiar or eccentric manners of speaking or dressing. Strange beliefs. "Magical thinking" such as belief in ESP or telepathy. Difficulty forming relationships. May react oddly in conversation, not respond, or talk to self. Speech elaborate or difficult to follow. Possibly a mild form of schizophrenia.
	Paranoid	Distrust in others, suspicion that people have sinister motives. Apt to challenge the loyalties of friends and read hostile intentions into others' actions. Prone to anger and aggressive outbursts but otherwise emotionally cold. Often jealous, guarded, secretive, overly serious.
	Schizoid	Extreme introversion and withdrawal from relationships. Prefers to be alone, little interest in others. Humourless, distant, often absorbed with own thoughts and feelings, a daydreamer. Fearful of closeness, with poor social skills, often seen as a loner.
B. Dramatic/ erratic	Antisocial	Impoverished moral sense or conscience. History of deception, crime, legal problems, impulsive and aggressive or violent behaviour. Little emotional empathy or remorse for hurting others. Manipulative, careless, callous. At high risk for substance abuse and alcoholism.
	Borderline	Unstable moods and intense, stormy personal relationships. Frequent mood changes and anger, unpredictable impulses. Self-mutilation or suicidal threats or gestures to get attention or manipulate others. Self-image fluctuation and a tendency to see others as "all good" or "all bad."
	Histrionic	Constant attention seeking. Grandiose language, provocative dress, exaggerated illnesses, all to gain attention. Believes that everyone loves them. Emotional, lively, overly dramatic, enthusiastic, and excessively flirtatious.
	Narcissistic	Inflated sense of self-importance, absorbed by fantasies of self and success. Exaggerates own achievement, assumes others will recognize they are superior. Good first impressions, but poor longer-term relationships. Exploitative of others.
C. Anxious/ inhibited	Avoidant	Socially anxious and uncomfortable unless they are confident of being liked. In contrast with schizoid people, yearns for social contact. Fears criticism and worries about being embarrassed in front of others. Avoids social situations due to fear of rejection.
	Dependent	Submissive, dependent, requiring excessive approval, reassurance, and advice. Clings to people and fears losing them. Lacking self-confidence. Uncomfortable when alone. May be devastated by end of close relationship or suicidal if breakup is threatened.
	Obsessive-compulsive	Conscientious, orderly, perfectionist. Excessive need to do everything just right. Inflexibly high standards and caution can interfere with their productivity. Fear of errors can make this person strict and controlling. Poor expression of emotions. Not the same as obsessive-compulsive disorder.

Data source: American Psychiatric Association, 2013.

The personality traits that make up the personality disorders are common — we see them in the people with whom we interact every day — yet they may become problematic when they are rigid, overused, or interfere with everyday behaviour (Lynam & Widiger, 2001). What is perhaps common to all the disorders is the person's inability to accurately understand and be sensitive to the motives and needs of the people around them.

The personality disorders create a bit of a problem for diagnosis. For one, it is frequently difficult for the clinician to accurately diagnose which of the many personality disorders a person has, although the friends and colleagues of the person can generally do a good job of it (Oltmanns & Turkheimer, 2006). Personality disorders are usually first evident in childhood or adolescence, and they are highly comorbid; if a person has a personality disorder, it is likely that they have others as well. Also, the number of people with personality disorders is estimated to be as high as 15% of the population (Grant et al., 2004), which might make us wonder if these are really disorders in any real sense of the word. It is clear that having a personality disorder makes it difficult for people to navigate social relationships, and those around them are likely to have some challenges in adjusting to their behaviour. The causes of personality disorders are not well known. Interactions between genetic, social, personal, and early environmental influences are likely to be involved.

Although it is not possible to consider the characteristics of each of the personality disorders in this book, let's focus on two that have important implications for behaviour. The first, borderline personality disorder (BPD), is important

because it is so often associated with suicide, and the second, antisocial personality disorder (APD), is important because it is the foundation of criminal behaviour. Borderline and antisocial personality disorders are also good examples to consider because they are so clearly differentiated in terms of their focus. BPD, more frequently found in women than men, is known as an internalizing disorder because the behaviours that it entails (e.g., suicide and self-mutilation) are mostly directed toward the self. APD, mostly found in men, on the other hand, is a type of externalizing disorder in which the problem behaviours (e.g., lying, fighting, vandalism, and other criminal activity) focus primarily on harm to others.

Borderline personality disorder

Borderline personality disorder (BPD) is a psychological disorder characterized by a prolonged disturbance of personality accompanied by mood swings, unstable personal relationships, identity problems, threats of self-destructive behaviour, fears of abandonment, and impulsivity. BPD is widely diagnosed — up to 20% of psychiatric patients are given the diagnosis, and it may occur in up to 2% of the general population (Hyman, 2002). About three-quarters of diagnosed cases of BDP are women.

People with BPD fear being abandoned by others. They often show a clinging dependency on the other person and engage in manipulation to try to maintain the relationship. They become angry if the other person limits the relationship, but they also deny that they care about the person. As a defence against fear of abandonment, borderline people are compulsively social, but their behaviours, including their intense anger, demands, and suspiciousness, repel people.

People with BPD often deal with stress by engaging in self-destructive behaviours, such as being sexually promiscuous, getting into fights, binge eating and purging, engaging in self-mutilation or drug abuse, and threatening suicide. These behaviours are designed to call forth a "saving" response from the other person. People with BPD are a continuing burden for police, hospitals, and therapists. Borderline individuals also show disturbance in their concepts of identity; they are uncertain about self-image, gender identity, values, loyalties, and goals. They may have chronic feelings of emptiness or boredom and be unable to tolerate being alone.

BPD has both genetic and environmental roots. In terms of genetics, research has found that those with BPD frequently have neurotransmitter imbalances (Zweig-Frank et al., 2006), and the disorder is heritable (Minzenberg, Poole, & Vinogradov, 2008). In terms of environment, many theories about the causes of BPD focus on a disturbed early relationship between the child and their parents. Some theories focus on the development of attachment in early childhood, while others point to parents who fail to provide adequate attention to the child's feelings. Others focus on sexual and physical parental abuse in adolescence, as well as on divorce, alcoholism, and other stressors (Lobbestael & Arntz, 2009). The dangers of BPD are greater when they are associated with childhood sexual abuse, early age of onset, substance abuse, and aggressive behaviours. The problems are amplified when the diagnosis is comorbid, as it often is, with other disorders, such as substance abuse disorder, major depressive disorder, post-traumatic stress disorder (PTSD), and so on (Skodol et al., 2002).

Research Focus

Affective and cognitive deficits in BPD

Michael Posner and colleagues (Posner et al. 2003) hypothesized that the difficulty that individuals with BPD have in regulating their lives (e.g., in developing meaningful relationships with other people) may be due to imbalances in the fast and slow emotional pathways in the brain. Specifically, they hypothesized that the fast emotional pathway through the amygdala is too active, and the slow cognitive-emotional pathway through the prefrontal cortex is not active enough in those with BPD.

The participants in their research were 16 patients with BPD and 14 healthy comparison participants. All participants were tested in a functional magnetic resonance imaging (fMRI) machine while they performed a task that required them to read emotional and nonemotional words. They were asked to press a button as quickly as possible whenever a word appeared in a normal font and not press the button whenever the word appeared in an italicized font.

The researchers found that while all participants performed the task well, the patients with BPD had more errors than the controls, both in terms of pressing the button when they should not have and not pressing it when they should have. These errors primarily occurred on the negative emotional words.

Below is a comparison of the level of brain activity in the emotional centres in the amygdala in the left panel and the prefrontal cortex in the right panel (see Figure 15.22). In comparison to the controls, the BPD patients showed relatively larger affective responses when they were attempting to quickly respond to the negative emotions, and they showed less cognitive activity in the prefrontal cortex in the same conditions. This research suggests that excessive affective reactions and lessened cognitive reactions to emotional stimuli may contribute to the emotional and behavioural volatility of borderline patients.

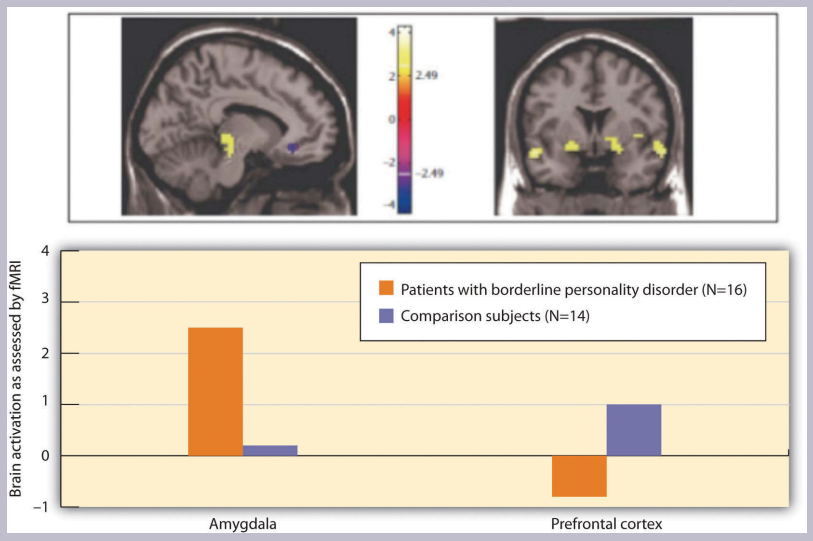


Figure 15.22. Individuals with BPD showed less cognitive and greater emotional brain activity in response to negative emotional words (Posner et al., 2003).

Antisocial personality disorder

In contrast to borderline personality disorder, which involves primarily feelings of inadequacy and a fear of abandonment, **antisocial personality disorder** (APD) is characterized by a disregard of the rights of others and a tendency to violate those rights without being concerned about doing so. APD is a pervasive pattern of violation of the rights of others that begins in childhood or early adolescence and continues into adulthood. APD is about three times more likely to be diagnosed in men than in women. To be diagnosed with APD, the person must be 18 years of age or older and have a documented history of conduct disorder before the age of 15. People diagnosed with antisocial personality disorder are sometimes referred to as "sociopaths" or "psychopaths."

People with APD feel little distress for the pain they cause others. They lie, engage in violence against animals and people, and frequently have drug and alcohol abuse problems. They are egocentric and frequently impulsive, being prone to suddenly change jobs or relationships. They tend to be thrill-seekers and irresponsible. People with APD are likely to end up with a criminal record and often spend time incarcerated. The intensity of antisocial symptoms tends to peak during the 20s and then may decrease over time.

Biological and environmental factors are both implicated in the development of antisocial personality disorder (Rhee & Waldman, 2002). Twin and adoption studies suggest a genetic predisposition (Rhee & Waldman, 2002), and biological abnormalities include low autonomic activity during stress, biochemical imbalances, right hemisphere abnormalities, and reduced gray matter in the frontal lobes (Lyons-Ruth et al., 2007; Raine, Lencz, Bihrle, LaCasse, & Colletti, 2000). Environmental factors include neglectful and abusive parenting styles, such as the use of harsh and inconsistent discipline and inappropriate modelling (Huesmann & Kirwil, 2007).

Key Takeaways

- A personality disorder is a disorder characterized by inflexible patterns of thinking, feeling, or relating to others that causes problems in personal, social, and work situations.
- Personality disorders are categorized into three clusters, characterized by odd or eccentric behaviour, dramatic or erratic behaviour, and anxious or inhibited behaviour.
- Although they are considered as separate disorders, the personality disorders are essentially milder versions of more severe Axis I disorders.
- Borderline personality disorder is a prolonged disturbance of personality accompanied by mood swings, unstable personal relationships, and identity problems, and it is often associated with suicide.
- Antisocial personality disorder is characterized by a disregard of others' rights and a tendency to violate those rights without being concerned about doing so.

Exercises and Critical Thinking

1. What characteristics of men and women do you think make them more likely to have APD and BDP, respectively? Do these differences seem to you to be more genetic or more environmental?
2. Do you know people who suffer from antisocial personality disorder? What behaviours do they engage in, and why are these behaviours so harmful to them and others?

Congratulations on completing Chapter 15! Remember to go back to the section on Approach and Pedagogy near the beginning of the book to learn more about how to get the most out of reading and learning the material in this textbook.

Image Attributions

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CHAPTER 16. TREATING PSYCHOLOGICAL DISORDERS

16.0 Introduction

Psychology in Everyday Life

Therapy on four legs

Lucien Masson, a 60-year-old veteran, put it simply: "Sascha is the best medicine I've ever had" (Alaimo, 2010, para. 9).

Lucien is speaking about his friend, companion, and perhaps even his therapist, a Russian wolfhound named Sascha. Lucien suffers from post-traumatic stress disorder (PTSD), a disorder that has had a profoundly negative impact on his life for many years. His symptoms include panic attacks, nightmares, and road rage. Lucien has tried many solutions, consulting with doctors, psychiatrists, and psychologists, and using a combination of drugs, group therapy, and anger-management classes.

However, his four-legged friend Sascha seems to be the best therapist of all. He helps out in many ways. If a stranger gets too close to Lucien in public, Sascha will block the stranger with his body. Sascha is trained to sense when Lucien is about to have a nightmare, waking him before it starts. Before road rage can set in, Sascha gently whimpers, reminding his owner that it doesn't pay to get upset about nutty drivers.

In the same way, former military medic Jo Hanna Schaffer speaks of her chihuahua, Cody: "I never took a pill for PTSD that did as much for me as Cody has done" (Shim, 2008, para. 2). Veteran Karen Alexander feels the same way about her Bernese mountain dog, Cindy: "She'll come up and touch me, and that is enough of a stimulus to break the loop, bring me back to reality. Sometimes I'll scratch my hand until it's raw and won't realize until she comes up to me and brings me out. She's such a grounding influence for me" (Shim, 2008, para. 6).

These dramatic stories of improvement from debilitating disorders can be attributed to an alternative psychological therapy, based on established behavioural principles, provided by **psychiatric service dogs** (see Figure 16.1). The dogs are trained to help people with a variety of mental disorders, including panic attacks, anxiety disorder, obsessive-compulsive disorder, and bipolar disorder. They help veterans of Iraq and Afghanistan cope with their traumatic brain injuries as well as with PTSD.

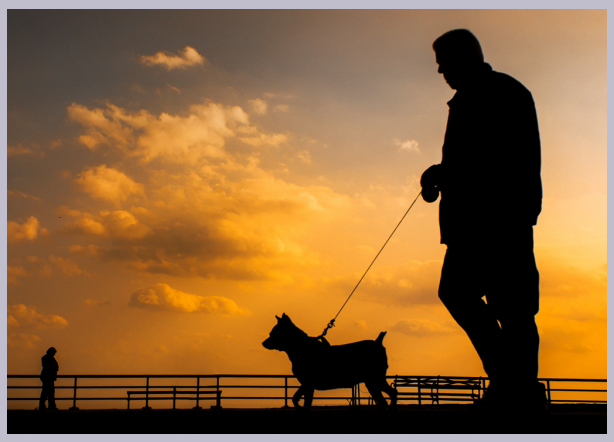


Figure 16.1. Psychiatric therapy dogs.

The dogs are trained to perform specific behaviours that are helpful to their owners. If the dog's owner is depressed, the dog will snuggle up and offer physical comfort; if the owner is having a panic attack, the owner can calm themself by massaging the dog's body. The serenity shown by the dogs in all situations seems to reassure the PTSD sufferer that all must be well. Service dogs are constant, loving companions who provide emotional support and companionship to their embattled, often isolated, owners (Shim, 2008; Lorber, 2010; Alaimo, 2010; Schwartz, 2008).

Despite the reports of success from many users, it is important to keep in mind that the utility of psychiatric service dogs has not yet been tested. As such, these dogs would never be offered as a therapy by a trained clinician or paid for by an insurance company. Although interaction between humans and dogs can create positive physiological responses (Odendaal, 2000), whether the dogs actually help people recover from PTSD is not yet known.

Psychological disorders are tremendously costly to individuals and society. Disorders make it difficult for people to engage in productive lives and effectively contribute to their family and to society. Disorders lead to disability and absenteeism in the workplace, as well as physical problems, premature death, and suicide. At a societal level, the costs are staggering. In 2012, 7.5 million people in Canada were living with a mental health issue, and of those receiving treatment, two-thirds were cared for by a family physician (Mental Health Commission of Canada & College of Family Physicians of Canada, 2018). A substantial number of people are not treated, possibly due to social stigma, cost, or not knowing where to get help from. One-third of emergency department visits for mental health or substance use in Ontario were by people who had never been assessed previously (Brien, Grenier, Kapral, Kurdyak, & Vigod, 2015). According to the 2014 Survey on Living with Chronic Diseases in Canada (Government of Canada, 2015), three million Canadians reported a mood or anxiety disorder in 2013, about three-quarters consulted a health professional, and the vast majority had been prescribed medication, while only 20% received any psychological counselling.

The goal of this chapter is to review the techniques that are used to treat psychological disorders. Just as psychologists consider the causes of disorder in terms of the bio-psycho-social model of illness, treatment is also based on psychological, biological, and social approaches.

- The **psychological approach** to reducing disorder involves providing help to individuals or families through psychological therapy, including psychoanalysis, humanistic-oriented therapy, cognitive behavioural therapy

(CBT), and other approaches.

- The **biomedical approach** to reducing disorder is based on the use of medications to treat mental disorders such as schizophrenia, depression, and anxiety, as well as the employment of brain intervention techniques, including electroconvulsive therapy (ECT), transcranial magnetic stimulation (TMS), and psychosurgery.
- The **social approach** to reducing disorder focuses on changing the social environment in which individuals live to reduce the underlying causes of disorders. These approaches include group, couples, and family therapy, as well as community outreach programs. The community approach is likely to be the most effective of the three approaches because it focuses not only on treatment, but also on prevention of disorders (World Health Organization, 2004).

A clinician may focus on any or all of the three approaches to treatment, but in making a decision about which to use, they will always rely on their knowledge about existing empirical tests of the effectiveness of different treatments. These tests, known as **outcome studies**, carefully compare people who receive a given treatment with people who do not receive a treatment or with people who receive a different type of treatment. Taken together, these studies have confirmed that many types of therapies are effective in treating disorders.

Image Attributions

Figure 16.1. *Walking the Dog* by Bob Jagendorf is used under a CC BY-NC 2.0 license.

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16.1 Reducing Disorder by Confronting It: Psychotherapy

Learning Objectives

1. Outline and differentiate different types of care providers.
2. Explain the behavioural and cognitive aspects of cognitive-behavioural therapy and how it is used to reduce psychological disorders.

Treatment for psychological disorders is provided in a wide variety of settings by practitioners who come from different backgrounds. For many people, their first interaction is with a family physician who may prescribe medication or refer the individual for further mental health services. The type of care the individual receives will depend on a number of factors, including the training and experience of the care provider and the theoretical and philosophical orientation of the care provider. In this section, we will consider some of the most common care providers.

Clinical psychologists have advanced degrees in clinical psychology, usually a master's degree and a doctorate, with a clinical internship under the supervision of an established clinical psychologist. Thus, training takes several years after first earning a bachelor's degree. Once the training is complete, the individual registers with a professional body, such as College of Psychologists in British Columbia, and is bound by a professional code of conduct. Some clinical psychologists specialize, for example, in the treatment of children or in specific disorders, such as schizophrenia. Clinical psychologists may work in private practice or be attached to a clinic, jail, rehabilitation centre, university, and so on. They may conduct individual, couples, family, and group therapy. They treat people with a variety of disorders and may work from one theoretical perspective, such as behaviourist, or they may use an eclectic array of techniques from several orientations. Clinical psychologists are not allowed to prescribe medication but may work in tandem with a physician. As well as treating people for psychological disorders or distress, clinical psychologists also assess cognitive functioning, and they provide help to people with physical conditions.

A psychiatrist is a physican who has completed a specialization in psychiatry. Psychiatrists and clinical psychologists do much of the same work; however, psychiatrists may prescribe medication and may be more likely to focus on biological treatments.

A counsellor is typically a care provider with a master's degree in counselling psychology. Their work is to help people who feel challenged in some area of life, such as marriage or personal relationships, substance use, recovery from trauma, and so on. Professional organizations, such as the BC Association of Clinical Counsellors, oversee the registration of counsellors. Some counsellors attain doctorates and then become registered psychologists.

There are many other professions that provide care for psychological distress or mental illness, such as art therapists, clinical social workers, psychiatric nurses, and so on. It is also possible for people who are untrained in any type of

therapy to call themselves a therapist or psychotherapist. This highlights the need for those seeking therapy to inquire about the education, training, and experience of the individual providing care.

Whatever therapist provides care, it is important that they explain the goals of therapy and agree on a course of action with the person seeking therapy. A successful therapeutic alliance maximizes the chance that therapy will be effective. While therapists differ in theoretical orientations, it is important for the therapist to be warm, non-judgmental, and empathic. Sometimes, finding a therapist who understands the cultural background can be important. For example, Indigenous Canadians may find it more comfortable and effective to seek therapy from a therapist who has a deep understanding of the complex intergenerational effects of colonization and genocide of Indigenous Peoples; this may include elders and traditional healers as cultural supports (National Inquiry into Missing and Murdered Indigenous Women and Girls, 2019).

One approach to treatment is **psychotherapy**, the professional treatment for psychological disorder through techniques designed to encourage communication of conflicts and insight. The fundamental aspect of psychotherapy is that the patient directly confronts the disorder and works with the therapist to help reduce it. Therapy includes assessing the patient's issues and problems, planning a course of treatment, setting goals for change, the treatment itself, and an evaluation of the patient's progress. Therapy is practised by thousands of psychologists and other trained practitioners in Canada, responsible for billions of dollars of the health budget.

To many people, therapy involves a patient lying on a couch with a therapist sitting behind and nodding sagely as the patient speaks. Though this approach to therapy, known as psychoanalysis, is still practised, it is in the minority. It is estimated that there are over 400 different kinds of therapy practised by people in many fields, and the most important of these are psychodynamic, humanistic, cognitive behavioural therapy, and eclectic (i.e., a combination of therapies).

Psychology in Everyday Life

Seeking treatment for psychological difficulties

Many people who would benefit from psychotherapy do not get it, either because they do not know how to find it or because they feel that they will be stigmatized and embarrassed if they seek help. The decision to not seek help is a very poor choice because the effectiveness of mental health treatments is well documented. No matter where a person lives, there are treatments available (Canadian Mental Health Association, 2013).

The first step in seeking help for psychological problems is to accept the stigma. It is possible that some of your colleagues, friends, and family members will know that you are seeking help, and some may at first think more negatively of you for it. However, you must get past these unfair and close-minded responses. Feeling good about yourself is the most important thing you can do, and seeking help may be the first step in doing so.

One question is how to determine if someone needs help. This question is not always easy to answer because there is no clear demarcation between normal and abnormal behaviour. Most generally, you will know that you

or others need help when the person's psychological state is negatively influencing their everyday behaviour, when the behaviour is adversely affecting those around the person, and when the problems continue over a period of time. Often people seek therapy as a result of a life-changing event — such as diagnosis of a fatal illness, an upcoming marriage or divorce, or the death of a loved one — but therapy is also effective for general depression and anxiety, as well as for specific everyday problems.

There are a wide variety of therapy choices, many of which are free. Begin in your school, community, or church by asking about community health or counselling centres and pastoral counselling. You may want to ask friends and family members for recommendations. You'll probably be surprised at how many people have been to counselling and how many recommend it.

There are many therapists who offer a variety of treatment options. Be sure to ask about the degrees that the therapist has earned and about the reputation of the centre in which the therapy occurs. If you have choices, try to find a person or location that you like, respect, and trust. This will allow you to be more open, and you will get more out of the experience. Your sessions with the help provider will require discussing your family history, personality, and relationships, and you should feel comfortable sharing this information.

Remember that confronting issues requires time to reflect, energy to get to the appointments and deal with consequential feelings, and discipline to explore your issues on your own. Success at therapy is difficult, and it takes effort.

The bottom line is that going for therapy should not be a difficult decision for you. All people have the right to appropriate mental health care, just as they have a right to general health care. Just as you go to a dentist for a toothache, you may go to therapy for psychological difficulties.

Psychoanalysis and psychodynamic therapy

The earliest organized therapy for mental disorders was psychoanalysis. Made famous in the early 20th century by one of the best-known clinicians of all time, Sigmund Freud, this approach stresses that mental health problems are rooted in unconscious conflicts and desires. In order to resolve the mental illness, then, these unconscious struggles must be identified and addressed. Psychoanalysis often does this through exploring one's early childhood experiences that may have continuing repercussions on one's mental health in the present and later in life. Psychoanalysis is an intensive, long-term approach in which patients and therapists may meet multiple times per week, often for many years.

History of psychoanalytic therapy

Freud initially suggested that mental health problems arise from efforts to push inappropriate sexual urges out of conscious awareness (Freud, 1895/1955). Later, Freud suggested more generally that psychiatric problems are the result of tension between different parts of the mind: the id, the superego, and the ego. In Freud's structural model, the id represents pleasure-driven unconscious urges (e.g., our animalistic desires for sex and aggression), while the superego is the semi-conscious part of the mind where morals and societal judgment are internalized (e.g., the part of you that automatically knows how society expects you to behave). The ego — also partly conscious — mediates between the id and superego. Freud believed that bringing unconscious struggles like these, where the id demands one thing and the

superego another, into conscious awareness would relieve the stress of the conflict (Freud, 1920/1955), which became the goal of **psychoanalytic therapy**.

Although psychoanalysis is still practised today, it has largely been replaced by the more broadly defined **psychodynamic therapy**. This latter approach has the same basic tenets as psychoanalysis, but it is briefer, makes more of an effort to put clients in their social and interpersonal context, and focuses more on relieving psychological distress than on changing the person.

Techniques in psychoanalysis

Psychoanalysts and psychodynamic therapists employ several techniques to explore patients' unconscious mind. One common technique is called **free association**. Here, the patient shares any and all thoughts that come to mind, without attempting to organize or censor them in any way. For example, if you took a pen and paper and just wrote down whatever came into your head, letting one thought lead to the next without allowing conscious criticism to shape what you were writing, you would be partaking in free association. The analyst then uses their expertise to discern patterns or underlying meaning in the patient's thoughts.

Sometimes, free association exercises are applied specifically to childhood recollections. That is, psychoanalysts believe a person's childhood relationships with caregivers often determine the way that person relates to others and predicts later psychiatric difficulties. Thus, exploring these childhood memories, through free association or otherwise, can provide therapists with insights into a patient's psychological makeup.

Since we do not always have the ability to consciously recall these deep memories, psychoanalysts also discuss their patients' dreams. In Freudian theory, dreams contain not only **manifest**, or literal, content but also **latent**, or symbolic, content (Freud, 1900/1955). For example, someone may have a dream that their teeth are falling out — the manifest content of the dream. However, dreaming that one's teeth are falling out could be a reflection of the person's unconscious concern about losing their physical attractiveness — the latent content of the dream. It is the therapist's job to help discover the latent content underlying one's manifest content through dream analysis.

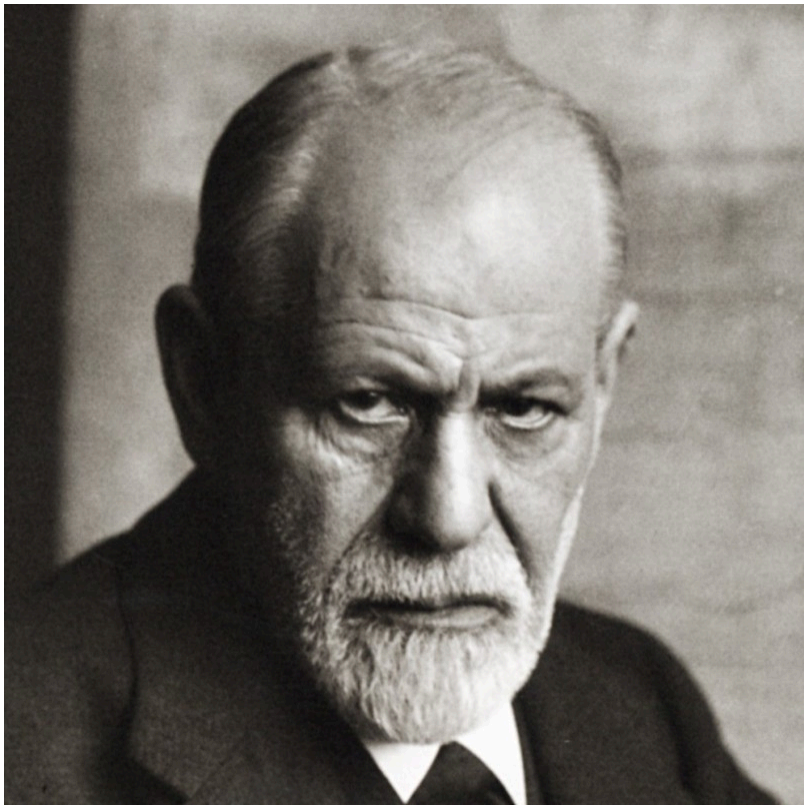


Figure 16.2. Building on the work of Josef Breuer and others, Sigmund Freud developed psychotherapeutic theories and techniques that became widely known as psychoanalysis or psychoanalytic therapy.

In psychoanalytic and psychodynamic therapy, the therapist plays a receptive role, interpreting the patient's thoughts and behaviour based on clinical experience and psychoanalytic theory. For example, if during therapy a patient begins to express unjustified anger toward the therapist, the therapist may recognize this as an act of transference. That is, the patient may be displacing feelings for people in their life (e.g., anger toward a parent) onto the therapist. At the same time, though, the therapist has to be aware of their own thoughts and emotions, because, in a related process called counter-transference, the therapist may displace their own emotions onto the patient.

The key to psychoanalytic theory is to have patients uncover the buried, conflicting content of their mind, and therapists use various tactics, such as seating patients to face away from them, to promote a freer self-disclosure. As a therapist spends more time with a patient, the therapist can come to view their relationship with the patient as another reflection of the patient's mind.

Advantages and disadvantages of psychoanalytic therapy

Psychoanalysis was once the only type of psychotherapy available, but presently, the number of therapists practising this approach is decreasing around the world. Psychoanalysis is not appropriate for some types of patients, including those with severe psychopathology or intellectual disability. Further, psychoanalysis is often expensive because treatment usually lasts many years. Still, some patients and therapists find the prolonged and detailed analysis very rewarding.

Perhaps the greatest disadvantage of psychoanalysis and related approaches is the lack of empirical support for their

effectiveness. The limited research that has been conducted on these treatments suggests that they do not reliably lead to better mental health outcomes (e.g., Driessen et al., 2010). Although there are some reviews that seem to indicate that long-term psychodynamic therapies might be beneficial (e.g., Leichsenring & Rabung, 2008), other researchers have questioned the validity of these reviews. Nevertheless, psychoanalytic theory was history's first attempt at formal treatment of mental illness, setting the stage for the more modern approaches used today.

Humanistic therapies

Just as psychoanalysis is based on the personality theories of Freud and the neo-Freudians, **humanistic therapy** is a psychological treatment based on the personality theories of Carl Rogers and other humanistic psychologists. Humanistic therapy is based on the idea that people develop psychological problems when they are burdened by limits and expectations placed on them by themselves and others, and the treatment emphasizes the person's capacity for self-realization and fulfillment. Humanistic therapies attempt to promote growth and responsibility by helping clients consider their own situations and the world around them and how they can work to achieve their life goals.

Carl Rogers (see Figure 16.3) developed **person-centred (or client-centred) therapy**, which is an approach to treatment in which the client is helped to grow and develop as the therapist provides a comfortable, nonjudgmental environment. In his book *A Way of Being* (1980), Rogers argued that therapy was most productive when the therapist created a positive relationship with the client — a therapeutic alliance. The **therapeutic alliance** is a relationship between the client and the therapist that is facilitated when the therapist is genuine (i.e., they create no barriers to free-flowing thoughts and feelings), when the therapist treats the client with unconditional positive regard (i.e., they value the client without any qualifications, displaying an accepting attitude toward whatever the client is feeling at the moment), and when the therapist develops empathy with the client (i.e., they actively listen to and accurately perceive the personal feelings that the client experiences).

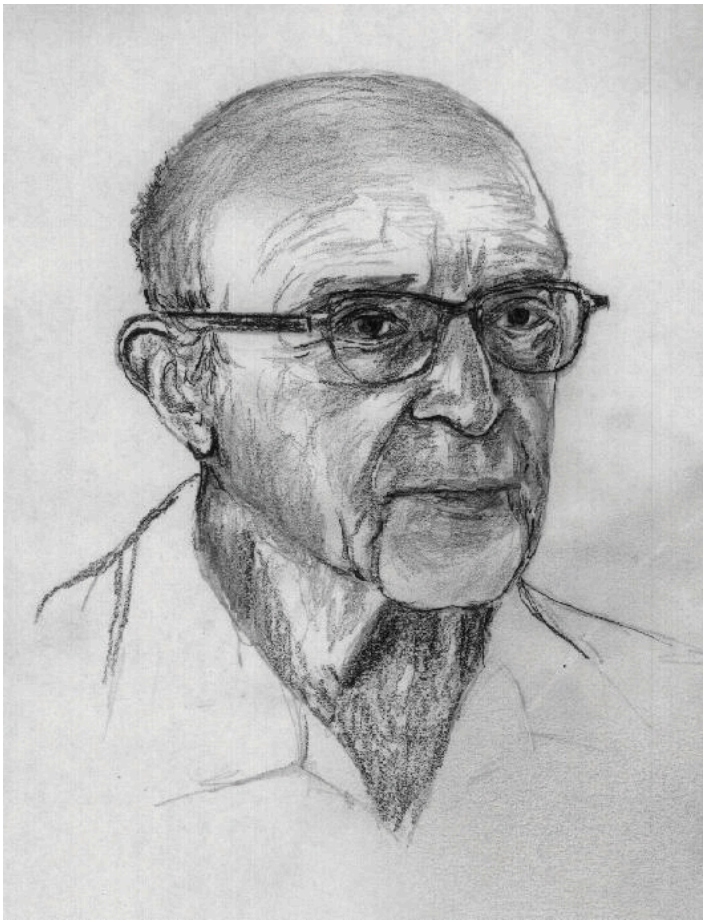


Figure 16.3. Portrait of Carl Rogers.

The development of a positive therapeutic alliance has been found to be exceedingly important to successful therapy. The ideas of genuineness, empathy, and unconditional positive regard in a nurturing relationship in which the therapist actively listens to and reflects the feelings of the client is probably the most fundamental part of contemporary psychotherapy (Prochaska & Norcross, 2007).

Advantages and disadvantages of person-centred therapy

One key advantage of person-centred therapy (PCT) is that it is highly acceptable to patients. In other words, people tend to find the supportive, flexible environment of this approach very rewarding. Furthermore, some of the themes of PCT translate well to other therapeutic approaches. For example, most therapists of any orientation find that clients respond well to being treated with nonjudgmental empathy. The main disadvantage to PCT, however, is that findings about its effectiveness are mixed. One possibility for this could be that the treatment is primarily based on unspecific treatment factors. That is, rather than using therapeutic techniques that are specific to the patient and the mental problem (i.e., specific treatment factors), the therapy focuses on techniques that can be applied to anyone, such as establishing a good relationship with the patient (Cuijpers et al., 2012; Friedli, King, Lloyd, & Horder, 1997). Similar to how "one-size-fits-all" doesn't really fit every person, PCT uses the same practices for everyone, which may work for some people but not others. Further research is necessary to evaluate its utility as a therapeutic approach.

Psychodynamic and humanistic therapies are recommended primarily for people suffering from generalized anxiety or mood disorders and for those who desire to feel better about themselves overall. However, the goals of people with other psychological disorders — such as phobias, sexual problems, and obsessive-compulsive disorder (OCD) — are more specific. A person with a social phobia may want to be able to leave their house, a person with a sexual dysfunction may want to improve their sex life, and a person with OCD may want to learn to stop letting their obsessions or compulsions interfere with everyday activities. In these cases, it is not necessary to revisit childhood experiences or consider our capacities for self-realization; we simply want to deal with what is happening in the present.

Cognitive behavioural therapy (CBT) is a structured approach to treatment that attempts to reduce psychological disorders through systematic procedures based on cognitive and behavioural principles. CBT is based on the idea that there is a recursive link among our thoughts, our feelings, and our behaviour. For instance, if we are feeling depressed, our negative thoughts (e.g., "I am doing poorly in my chemistry class") lead to negative feelings (e.g., "I feel hopeless and sad"), which then contribute to negative behaviours, such as lethargy or lack of interest. When we or other people look at the negative behaviour, the negative thoughts are reinforced and the cycle repeats itself (A. T. Beck, 1976). Similarly, in panic disorder, a patient may misinterpret their feelings of anxiety as a sign of an impending physical or mental catastrophe (e.g., a heart attack), leading to an avoidance of a particular place or social situation. The fact that the patient is avoiding the situation reinforces the negative thoughts. Again, the thoughts, feelings, and behaviour amplify and distort each other.

CBT is a very broad approach that is used for the treatment of a variety of problems, including mood, anxiety, personality, eating, substance abuse, attention-deficit, and psychotic disorders. CBT treats the symptoms of the disorder (i.e., the behaviours or the cognitions) and does not attempt to address the underlying issues that cause the problem. The goal is simply to stop the negative cycle by intervening to change cognition or behaviour. The client and the therapist work together to develop the goals of the therapy, the particular ways that the goals will be reached, and the timeline for reaching them. The procedures are problem-solving and action-oriented, and the client is forced to take responsibility for their own treatment. The client is assigned tasks to complete that will help improve the disorder and takes an active part in the therapy. The treatment usually lasts between 10 and 20 sessions. Depending on the particular disorder, some CBT treatments may be primarily behavioural in orientation, focusing on the principles of classical, operant, and observational learning, whereas other treatments are more cognitive, focused on changing negative thoughts related to the disorder. However, almost all CBT treatments use a combination of behavioural and cognitive approaches.

Behavioural aspects of CBT

In some cases, the primary changes that need to be made are behavioural. **Behaviour therapy** is psychological treatment that is based on principles of learning. The most direct approach is through operant conditioning using reward or punishment. Reinforcement may be used to teach new skills to people, such as with those with autism or schizophrenia (Granholm et al., 2008; Herbert et al., 2005; Scattone, 2007). If the patient has trouble dressing or grooming, then reinforcement techniques, such as providing tokens that can be exchanged for snacks, are used to reinforce appropriate behaviours, such as putting on one's clothes in the morning or taking a shower at night. If the patient has trouble interacting with others, reinforcement will be used to teach the client how to respond more appropriately in public, for instance, by maintaining eye contact, smiling when appropriate, and modulating tone of voice.

As the patient practises the different techniques, the appropriate behaviours are shaped through reinforcement to allow the client to manage more complex social situations. In some cases, observational learning may also be used; the client may be asked to observe the behaviour of others who are more socially skilled to acquire appropriate behaviours. People

who learn to improve their interpersonal skills through skills training may be more accepted by others, and this social support may have substantial positive effects on their emotions.

When the disorder is anxiety or phobia, then the goal of the CBT is to reduce the negative affective responses to the feared stimulus. **Exposure therapy** is a behavioural therapy based on the classical conditioning principle of extinction, in which people are confronted with a feared stimulus with the goal of decreasing their negative emotional responses to it (Wolpe, 1973). Exposure treatment can be carried out in real situations or through imagination, and it is used in the treatment of panic disorder, agoraphobia, social phobia, OCD, and post-traumatic stress disorder (PTSD).

In **flooding**, a client is exposed to the source of their fear all at once. An agoraphobic might be taken to a crowded shopping mall, or someone with an extreme fear of heights might be taken to the top of a tall building. The assumption is that the fear will subside as the client habituates to the situation while receiving emotional support from the therapist during the stressful experience. An advantage of the flooding technique is that it is quick and often effective, but a disadvantage is that the patient may relapse after a short period of time.

More frequently, the exposure is done more gradually. **Systematic desensitization** is a behavioural treatment that combines imagining or experiencing the feared object or situation with relaxation exercises (Wolpe, 1973). The client and the therapist work together to prepare a hierarchy of fears, starting with the least frightening and moving to the most frightening scenario surrounding the object. Refer to the table below for an example. The patient then confronts the fears in a systematic manner, sometimes using their imagination but usually, when possible, in real life.

Table 16.1. Hierarchy of fears used in systematic desensitization

Behaviour	Fear Rating
Think about a spider.	10
Look at a photo of a spider.	25
Look at a real spider in a closed box.	50
Hold the box with the spider.	60
Let a spider crawl on your desk.	70
Let a spider crawl on your shoe.	80
Let a spider crawl on your pants leg.	90
Let a spider crawl on your sleeve.	95
Let a spider crawl on your bare arm.	100

Desensitization techniques use the principle of **counter-conditioning**, in which a second incompatible response (e.g., relaxation through deep breathing) is conditioned to an already conditioned response (e.g., the fear response). The continued pairing of the relaxation responses with the feared stimulus as the patient works up the hierarchy gradually leads the fear response to be extinguished and the relaxation response to take its place.

Behaviour therapy works best when people directly experience the feared object. Fears of spiders are more directly habituated when the patient interacts with a real spider, and fears of flying are best extinguished when the patient gets on a real plane. However, it is often difficult and expensive to create these experiences for the patient. Recent advances in virtual reality have allowed clinicians to provide CBT in what seem like real situations to the patient. In **virtual reality CBT**, the therapist uses computer-generated, three-dimensional, lifelike images of the feared stimulus in a systematic desensitization program. Specially designed computer equipment, often with a head-mount display, is used to create a simulated environment. A common use is in helping patients who are experiencing PTSD return to the scene of the trauma and learn how to cope with the stress it invokes.

Some of the advantages of the virtual reality treatment approach are that it is economical, the treatment session can be held in the therapist's office with no loss of time or confidentiality, the session can easily be terminated as soon as a patient feels uncomfortable, and many patients who have resisted live exposure to the object of their fears are willing to try the new virtual reality option first.

Aversion therapy is a type of behaviour therapy in which positive punishment is used to reduce the frequency of an undesirable behaviour. An unpleasant stimulus is intentionally paired with a harmful or socially unacceptable behaviour until the behaviour becomes associated with unpleasant sensations and is hopefully reduced. For example, a child who wets their bed may be required to sleep on a pad that sounds an alarm when it senses moisture. Over time, the positive punishment produced by the alarm reduces the bedwetting behaviour (Houts, Berman, & Abramson, 1994). Aversion therapy is also used to stop other specific behaviours, such as nail biting (Allen, 1996).

Alcoholism has long been treated with aversion therapy (Baker & Cannon, 1988). In a standard approach, patients are treated at a hospital where they are administered a drug, antabuse, that makes them nauseous if they consume any alcohol. The technique works very well if the user keeps taking the drug (Krampe et al., 2006), but unless it is combined with other approaches, the patients are likely to relapse after they stop taking the drug.

Cognitive aspects of CBT

While behavioural approaches focus on the actions of the patient, **cognitive therapy** is a psychological treatment that helps clients identify incorrect or distorted beliefs that are contributing to disorder. In cognitive therapy, the therapist helps the patient develop new, healthier ways of thinking about themselves and about the others around them. The idea of cognitive therapy is that changing thoughts will change emotions and that the new emotions will then influence behaviour.

The goal of cognitive therapy is not necessarily to get people to think more positively, but rather to think more accurately. For instance, a person who thinks "no one cares about me" is likely to feel rejected, isolated, and lonely. If the therapist can remind the person that they have a parent, partner, or child who does care about them, more positive feelings will likely follow. Similarly, changing beliefs from "I have to be perfect" to "no one is always perfect; I'm doing pretty good," from "I am a terrible student" to "I am doing well in some of my courses," or from "they did that on purpose to hurt me" to "maybe they didn't realize how important it was to me" may all be helpful.

The psychiatrist Aaron Beck and the psychologist Albert Ellis (1913–2007) together provided the basic principles of cognitive therapy. Ellis (2004) called this approach **rational emotive behaviour therapy** (REBT) or **rational emotive therapy** (RET) and focused on pointing out the flaws in the patient's thinking. Ellis noticed that people experiencing strong negative emotions tend to personalize and overgeneralize their beliefs, leading to an inability to see situations accurately (Leahy, 2003). In REBT, the therapist's goal is to challenge these irrational thought patterns, helping the patient replace the irrational thoughts with more rational ones, leading to the development of more appropriate emotional reactions and behaviours.

Aaron Beck's cognitive therapy was based on his observation that people who were depressed generally had a large number of highly accessible negative thoughts that influenced their thinking (J. S. Beck, 1995; A. T. Beck, Freeman, & Davis, 2004). His goal was to develop a short-term therapy for depression that would modify these unproductive thoughts. Beck's approach challenges the client to test their beliefs against concrete evidence. If a client claims that "everybody at work is out to get me," the therapist might ask the client to provide instances to corroborate the claim. At the same time, the therapist might point out contrary evidence, such as the fact that a certain coworker is actually a loyal friend or that the patient's boss had recently praised them.

Advantages and disadvantages of CBT

CBT interventions tend to be relatively brief, making them cost-effective for the average consumer. In addition, CBT is an intuitive treatment that makes logical sense to patients. It can also be adapted to suit the needs of many different populations. One disadvantage, however, is that CBT does involve significant effort on the patient's part because the patient is an active participant in treatment. Therapists often assign "homework" (e.g., worksheets for recording one's thoughts and behaviours) between sessions to maintain the cognitive and behavioural habits the patient is working on. The greatest strength of CBT is the abundance of empirical support for its effectiveness. Studies have consistently found CBT to be equally or more effective than other forms of treatment, including medication and other therapies (Butler, Chapman, Forman, & Beck, 2006; Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012). For this reason, CBT is considered a first-line treatment for many mental disorders.

Acceptance and mindfulness-based approaches

Unlike the preceding therapies, which were developed in the 20th century, this next one was born out of age-old Buddhist and yoga practices. **Mindfulness**, or a process that tries to cultivate a nonjudgmental, yet attentive, mental state, is a therapy that focuses on one's awareness of bodily sensations, thoughts, and the outside environment. Whereas other therapies work to modify or eliminate these sensations and thoughts, mindfulness focuses on nonjudgmentally accepting them (Kabat-Zinn, 2003; Baer, 2003). For example, whereas CBT may actively confront and work to change a maladaptive thought, mindfulness therapy works to acknowledge and accept the thought, understanding that the thought is spontaneous and not what the person truly believes. There are two important components of mindfulness: self-regulation of attention and orientation toward the present moment (Bishop et al., 2004). Mindfulness is thought to improve mental health because it draws attention away from past and future stressors, encourages acceptance of troubling thoughts and feelings, and promotes physical relaxation.

Techniques in mindfulness-based therapy

Psychologists have adapted the practice of mindfulness as a form of psychotherapy, generally called **mindfulness-based therapy** (MBT). Several types of MBT have become popular in recent years, including mindfulness-based stress reduction (Kabat-Zinn, 1982) and mindfulness-based cognitive therapy (Segal, Williams, & Teasdale, 2002).

Mindfulness-based stress reduction (MBSR) uses meditation, yoga, and attention to physical experiences to reduce stress (see Figure 16.4). The hope is that reducing a person's overall stress will allow that person to more objectively evaluate their thoughts. In **mindfulness-based cognitive therapy** (MBCT), rather than reducing one's general stress to address a specific problem, attention is focused on one's thoughts and their associated emotions. For example, MBCT helps prevent relapses in depression by encouraging patients to evaluate their own thoughts objectively and without value judgment (Baer, 2003). Although cognitive behavioural therapy (CBT) may seem similar to this, it focuses on "pushing out" the maladaptive thought, whereas mindfulness-based cognitive therapy focuses on "not getting caught up" in it. The treatments used in MBCT have been used to address a wide range of illnesses, including depression, anxiety, chronic pain, coronary artery disease, and fibromyalgia (Hofmann, Sawyer, Witt & Oh, 2010).



Figure 16.4. One of the most important advantages of mindfulness-based therapy is its level of accessibility to patients.

Mindfulness and acceptance — in addition to being therapies in their own right — have also been used as "tools" in other cognitive-behavioural therapies, particularly in dialectical behaviour therapy (e.g., Linehan, Amstrong, Suarez, Allmon, & Heard, 1991). **Dialectical behaviour therapy** (DBT), often used in the treatment of borderline personality disorder, focuses on skills training. That is, it often employs mindfulness and cognitive behavioural therapy practices, but it also works to teach its patients "skills" they can use to correct maladaptive tendencies. For example, one skill DBT teaches patients is called distress tolerance — that is, ways to cope with maladaptive thoughts and emotions in the moment. For example, people who feel an urge to cut themselves may be taught to snap their arm with a rubber band instead. The primary difference between DBT and CBT is that DBT employs techniques that address the symptoms of the problem (e.g., cutting oneself) rather than the problem itself (e.g., understanding the psychological motivation to cut oneself). CBT does not teach such skills training because of the concern that the skills — even though they may help in the short-term — may be harmful in the long-term, by maintaining maladaptive thoughts and behaviours.

DBT is founded on the perspective of a **dialectical worldview**. That is, rather than thinking of the world as "black and white," or "only good and only bad," it focuses on accepting that some things can have characteristics of both "good" and "bad." So, in a case involving maladaptive thoughts, instead of teaching that a thought is entirely bad, DBT tries to help patients be less judgmental of their thoughts, as with mindfulness-based therapy, and encourages change through therapeutic progress, using cognitive-behavioural techniques as well as mindfulness exercises.

Another form of treatment that also uses mindfulness techniques is acceptance and commitment therapy (Hayes, Strosahl, & Wilson, 1999). In **acceptance and commitment therapy** (ACT), patients are taught to observe their thoughts from a detached perspective (Hayes et al., 1999). ACT encourages patients not to attempt to change or avoid thoughts and emotions they observe in themselves, but instead to recognize which are beneficial and which are harmful. However,

the differences among ACT, CBT, and other mindfulness-based treatments are a topic of controversy in the current literature.

Advantages and disadvantages of mindfulness-based therapy

Two key advantages of mindfulness-based therapies are their acceptability and accessibility to patients. Because yoga and meditation are already widely known in popular culture, consumers of mental healthcare are often interested in trying related psychological therapies. Currently, psychologists have not come to a consensus on the efficacy of MBT, though growing evidence supports its effectiveness for treating mood and anxiety disorders. For example, one review of MBT studies for anxiety and depression found that mindfulness-based interventions generally led to moderate symptom improvement (Hofmann et al., 2010).

Emerging treatment strategies

With growth in research and technology, psychologists have been able to develop new treatment strategies in recent years. Often, these approaches focus on enhancing existing treatments, such as cognitive-behavioural therapies, through the use of technological advances. For example, internet- and mobile-delivered therapies make psychological treatments more available, through smartphones and online access. Clinician-supervised online CBT modules allow patients to access treatment from home on their own schedule — an opportunity particularly important for patients with less geographic or socioeconomic access to traditional treatments. Furthermore, smartphones help extend therapy to patients' daily lives, allowing for symptom tracking, homework reminders, and more frequent therapist contact.



Figure 16.5. Recent improvements in video chat technology, along with the proliferation of mobile devices like smartphones and tablets, has made online delivery of therapy more commonplace.

Another benefit of technology is **cognitive bias modification**. Here, patients are given exercises, often through the use of video games, aimed at changing their problematic thought processes. For example, researchers might use a mobile app to train alcohol abusers to avoid stimuli related to alcohol. One version of this game flashes four pictures on the screen — three alcohol cues (e.g., a can of beer or the front of a bar) and one health-related image (e.g., someone drinking water). The goal is for the patient to tap the healthy picture as fast as they can. Games like these aim to target patients' automatic, subconscious thoughts that may be difficult to direct through conscious effort. That is, by repeatedly tapping the healthy image, the patient learns to "ignore" the alcohol cues, so when those cues are encountered in the environment, they will be less likely to trigger the urge to drink. Approaches like these are promising because of their accessibility; however, they require further research to establish their effectiveness.

Yet another emerging treatment employs **CBT-enhancing pharmaceutical agents**. These are drugs used to improve the effects of therapeutic interventions. Based on research from animal experiments, researchers have found that certain drugs influence the biological processes known to be involved in learning. Thus, if people take these drugs while going through psychotherapy, they are better able to "learn" the techniques for improvement. For example, the antibiotic d-cycloserine improves treatment for anxiety disorders by facilitating the learning processes that occur during exposure therapy. Ongoing research in this exciting area may prove to be quite fruitful.

Pharmacological treatments

Up until this point, all the therapies we have discussed have been talk-based or meditative practices. However, psychiatric medications are also frequently used to treat mental disorders, including schizophrenia, bipolar disorder, depression, and anxiety disorders. Psychiatric drugs are commonly used, in part, because they can be prescribed by general medical practitioners, whereas only trained psychologists are qualified to deliver effective psychotherapy. While drugs and CBT therapies tend to be almost equally effective, choosing the best intervention depends on the disorder and individual being treated, as well as factors such as treatment availability and **comorbidity** (i.e., having multiple mental or physical disorders at once). Although many new drugs have been introduced in recent decades, there is still much we do not understand about their mechanism in the brain. Further research is needed to refine our understanding of both pharmacological and behavioural treatments before we can make firm claims about their effectiveness.

Combination (eclectic) approaches to therapy

We have considered the different approaches to psychotherapy under the assumption that a therapist will use only one approach with a given patient, but this is not necessarily the case. The most commonly practised approach to therapy is an **eclectic therapy**, an approach to treatment in which the therapist uses whichever techniques seem most useful and relevant for a given patient. For bipolar disorder, for instance, the therapist may use both psychological skills training to help the patient cope with the severe highs and lows, but they are likely to also suggest that the patient consider drug therapies (Newman, Leahy, Beck, Reilly-Harrington, & Gyulai, 2002). Treatment for major depressive disorder usually involves antidepressant drugs as well as CBT to help the patient deal with particular problems (McBride, Farvolden, & Swallow, 2007).

Source: Adapted from Boettcher, Hofmann, and Wu (2020).

Key Takeaways

- Care providers with a variety of training, education, and experience provide help for mental disorders and psychological distress.
- Psychoanalysis is based on the principles of Freudian and neo-Freudian personality theories. The goal is to explore the unconscious dynamics of personality.
- Humanist therapy, derived from the personality theory of Carl Rogers, is based on the idea that people experience psychological problems when they are burdened by limits and expectations placed on them by themselves and others. Its focus is on helping people reach their life goals.
- Behaviour therapy applies the principles of classical and operant conditioning, as well as observational learning, to the elimination of maladaptive behaviours and their replacement with more adaptive responses.
- Albert Ellis and Aaron Beck developed cognitive-based therapies to help clients stop negative thoughts and replace them with more objective thoughts.
- Mindfulness approaches to therapy emphasize self-regulation of attention and orientation toward the present moment.
- Eclectic therapy is the most common approach to treatment. In eclectic therapy, the therapist uses whatever treatment approaches seem most likely to be effective for the client.

Exercises and Critical Thinking

1. Imagine that your friend has been feeling depressed for several months but refuses to consider therapy as an option. What might you tell them that might help them feel more comfortable about seeking treatment?
2. Imagine that you have developed a debilitating fear of bees after recently being attacked by a swarm of them. What type of therapy do you think would be best for your disorder?
3. Imagine that your friend has a serious drug abuse problem. Based on what you've learned in this section, what treatment options would you explore in your attempt to provide them with the best help available? Which combination of therapies might work best?

4. Psychoanalytic theory is no longer the dominant therapeutic approach because it lacks empirical support. Yet, many consumers continue to seek psychoanalytic or psychodynamic treatments. Do you think psychoanalysis still has a place in mental health treatment? If so, why?
5. What might be some advantages and disadvantages of using technology in psychological treatment? What will psychotherapy look like 100 years from now?

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16.2 Psychopharmacology and Brain-Based Therapies

Learning Objectives

1. Describe how the majority of psychoactive drugs work in the brain.
2. Describe the most common drugs used in the treatment of disorders.
3. Describe why grapefruit is dangerous to consume with many psychotropic medications.
4. Explain why there is controversy regarding pharmacotherapy for children and adolescents.

Psychopharmacology, which is the study of how drugs affect the brain and behaviour, is a relatively new science, although people have probably been taking drugs to change how they feel from early in human history. Consider the of eating fermented fruit, ancient beer recipes, chewing on the leaves of the cocaine plant for stimulant properties as just some examples. The word psychopharmacology itself tells us that this is a field that bridges our understanding of behaviour and the brain with pharmacology. The range of topics included within this field is extremely broad.

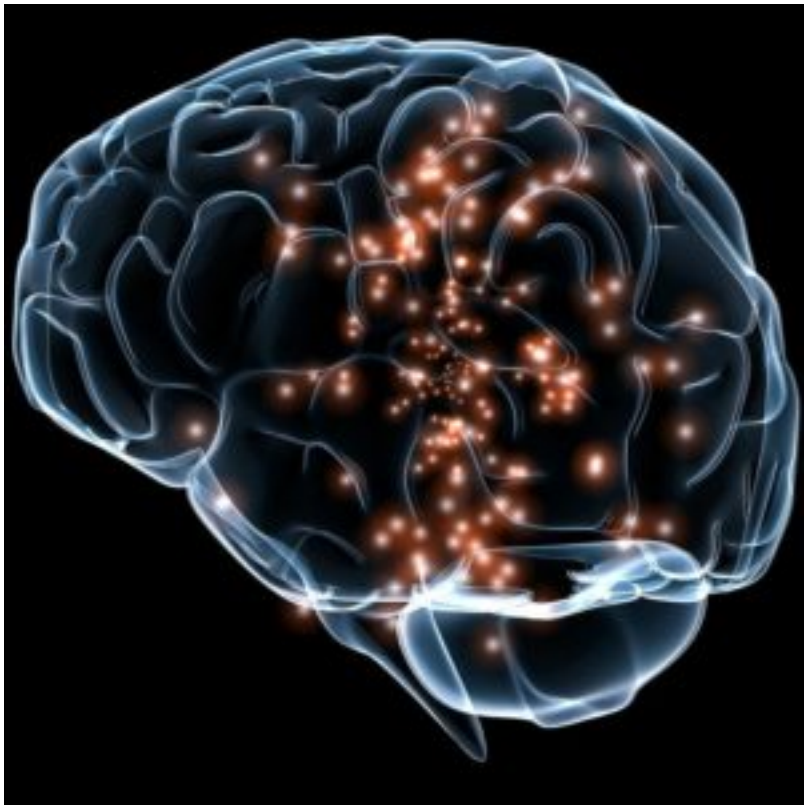


Figure 16.6. Drugs that alter our feelings and behaviour do so by affecting the communication between neurons in the brain.

Virtually any drug that changes the way you feel does this by altering how neurons communicate with each other. Neurons, more than 100 billion in your nervous system, communicate with each other by releasing a chemical (i.e., neurotransmitter) across a tiny space between two neurons (i.e., synapse). When the neurotransmitter crosses the synapse, it binds to a postsynaptic receptor (i.e. protein) on the receiving neuron, and the message may then be transmitted onward. Obviously, neurotransmission is far more complicated than this, but the first step is understanding that virtually all psychoactive drugs interfere with or alter how neurons communicate with each other.

There are many neurotransmitters. Some of the most important in terms of psychopharmacological treatment and drugs of abuse are outlined in the table below. The neurons that release these neurotransmitters, for the most part, are localized within specific circuits of the brain that mediate these behaviours.

Table 16.2. Psychopharmacological drug behaviour

Neurotransmitter	Abbreviation	Behaviour or Diseases Related
Acetylcholine	ACh	Learning and memory; Alzheimer's disease muscle movement in the peripheral nervous system
Dopamine	DA	Reward circuits; motor circuits involved in Parkinson's disease; schizophrenia
Norepinephrine	NE	Arousal; depression
Serotonin	5HT	Depression; aggression; schizophrenia
Glutamate	GLU	Learning; major excitatory neurotransmitter in the brain
Gamma-Aminobutyric Acid	GABA	Anxiety disorders; epilepsy; major inhibitory neurotransmitter in the brain
Endogenous Opioids	Endorphins, Enkephalins	Pain; analgesia; reward

Psychoactive drugs can either increase activity at the synapse (i.e., agonists) or reduce activity at the synapse (i.e., antagonists). Different drugs do this by different mechanisms, and some examples of agonists and antagonists are presented in the table below. For each example, the drug's trade name, which is the name of the drug provided by the drug company, and generic name are provided.

Table 16.3. Psychopharmacological drug use

Drug	Mechanism	Use	Agonist/Antagonist
L-dopa	Increase synthesis of DA	Parkinson's disease	Agonist for DA
Adderall (mixed salts amphetamine)	Increase release of DA, NE	ADHD	Agonist for DA, NE
Ritalin (methylphenidate)	Blocks removal of DA, NE, and lesser (5HT) from synapse	ADHD	Agonist for DA, NE mostly
Aricept (donepezil)	Blocks removal of ACh from synapse	Alzheimer's disease	Agonist for ACh
Prozac (flouxetine)	Blocks removal of 5HT from synapse	Depression, obsessive-compulsive disorder	Agonist for 5HT
Seroquel (quetiapine)	Blocks DA and 5HT receptors	Schizophrenia, bipolar disorder	Antagonist for DA, 5HT
Revia (naltrexone)	Blocks opioid post-synaptic receptors	Alcoholism, opioid addiction	Antagonist for opioids

It is very important to realize that drugs also have effects on other neurotransmitters. This contributes to the kinds of side effects that are observed when someone takes a particular drug. The reality is that no drugs currently available work only exactly where we would like in the brain or only on a specific neurotransmitter. In many cases, individuals are prescribed one **psychotropic drug** — a drug that changes mood or emotion, usually drugs prescribed for various mental conditions, such as depression, anxiety, or schizophrenia — but then may also have to take additional drugs to reduce the side effects caused by the initial drug. Sometimes individuals stop taking medication because the side effects can be so profound. The table below shows some common medications for various disorders, along with their side effects.

Table 16.4. Commonly prescribed psychotropic medications

Type of Medication	Used to Treat	Brand Names of Commonly Prescribed Medications	How They Work	Side Effects
Antipsychotics (developed in the 1950s)	Schizophrenia and other types of severe thought disorders	Haldol, Mellaril, Prolixin, Thorazine	Treat positive psychotic symptoms such as auditory and visual hallucinations, delusions, and paranoia by blocking the neurotransmitter dopamine	Long-term use can lead to tardive dyskinesia, involuntary movements of the arms, legs, tongue and facial muscles, resulting in Parkinson's-like tremors
Atypical Antipsychotics (developed in the late 1980s)	Schizophrenia and other types of severe thought disorders	Abilify, Risperdal, Clozaril	Treat the negative symptoms of schizophrenia, such as withdrawal and apathy, by targeting both dopamine and serotonin receptors; newer medications may treat both positive and negative symptoms	Can increase the risk of obesity and diabetes as well as elevate cholesterol levels; constipation, dry mouth, blurred vision, drowsiness, and dizziness
Anti-Depressants	Depression and increasingly for anxiety	Paxil, Prozac, Zoloft (selective serotonin reuptake inhibitors); Tofranil and Elavil (tricyclics)	Alter levels of neurotransmitters such as serotonin and norepinephrine	Selective serotonin reuptake inhibitors: headache, nausea, weight gain, drowsiness, reduced sex drive Tricyclics: dry mouth, constipation, blurred vision, drowsiness, reduced sex drive, increased risk of suicide
Anti-Anxiety Agents	Anxiety and agitation that occur in OCD, PTSD, panic disorder, and social phobia	Xanax, Valium, Ativan	Depress central nervous system activity	Drowsiness, dizziness, headache, fatigue, lightheadedness
Mood Stabilizers	Bipolar disorder	Lithium, Depakote, Lamictal, Tegretol	Treat episodes of mania as well as depression	Excessive thirst, irregular heartbeat, itching or rash, swelling (face, mouth, and extremities), nausea, loss of appetite
Stimulants	ADHD	Adderall, Ritalin	Improve ability to focus on a task and maintain attention	Decreased appetite, difficulty sleeping, stomachache, headache

Data source: Spielman et al., 2019.

Using stimulants to treat ADHD

Attention-deficit/hyperactivity disorder (ADHD) is frequently treated with biomedical therapy, usually along with cognitive behavioural therapy (CBT). The most commonly prescribed drugs for ADHD are psychostimulants, including Ritalin, Adderall, and Dexedrine. Short-acting forms of the drugs are taken as pills and last between four to 12 hours, but some of the drugs are also available in long-acting forms, such as skin patches that can be worn on the hip and last up to 12 hours. In most cases, the patch is applied early in the morning and worn all day.

Stimulants improve the major symptoms of ADHD, including inattention, impulsivity, and hyperactivity, often dramatically, in about 75% of the children who take them (Greenhill, Halperin, & Abikof, 1999), but the effects of the drugs wear off quickly. Additionally, the best drug and best dosage varies from person to person, so it may take some time to find the correct combination.

It may seem surprising to you that a disorder that involves hyperactivity is treated with a psychostimulant, a drug that normally increases activity. The answer lies in the dosage. When large doses of stimulants are taken, they increase

activity, but in smaller doses, the same stimulants improve attention and decrease motor activity (Zahn, Rapoport, & Thompson, 1980).

The most common side effects of psychostimulants in children include decreased appetite, weight loss, sleeping problems, and irritability as the effect of the medication tapers off. Stimulant medications may also be associated with a slightly reduced growth rate in children, although in most cases growth is not permanently affected (Spencer, Biederman, Harding, & O'Donnell, 1996).

Antidepressant medications

Antidepressant medications are drugs designed to improve moods. Although they are used primarily in the treatment of depression, they are also effective for patients who suffer from anxiety, phobias, and obsessive-compulsive disorders. Antidepressants work by influencing the production and reuptake of neurotransmitters that relate to emotion, including serotonin, norepinephrine, and dopamine. Although exactly why they work is not yet known, as the amount of the neurotransmitters in the central nervous system (CNS) is increased through the action of the drugs, the person often experiences less depression.

The original antidepressants were the **tricyclic antidepressants**, with the brand names of Tofranil and Elavil, and the **monamine oxidase inhibitors** (MAOIs). These medications work by increasing the amount of serotonin, norepinephrine, and dopamine at the synapses, but they also have severe side effects including potential increases in blood pressure and the need to follow particular diets.

The antidepressants most prescribed today are the **selective serotonin reuptake inhibitors** (SSRIs), including Prozac, Paxil, and Zoloft, which are designed to selectively block the reuptake of serotonin at the synapse, thereby leaving more serotonin available in the CNS. SSRIs are safer and have fewer side effects than the tricyclics or the MAOIs (Fraser, 2000; Hollon, Thase, & Markowitz, 2002). SSRIs are effective, but patients taking them often suffer a variety of sometimes unpleasant side effects, including dry mouth, constipation, blurred vision, headache, agitation, drowsiness, as well as a reduction in sexual enjoyment.

There has been concern that SSRIs may increase the risk of suicide among teens and young adults, probably because when the medications begin working they give patients more energy, which may lead them to commit the suicide that they had been planning but lacked the energy to go through with (Barbui, Esposito, & Cipriani, 2009). This concern has led doctors to be more selective about prescribing antidepressants to this age group (Healy & Whitaker, 2003; Simon, 2006; Simon, Savarino, Operskalski, & Wang, 2006).

Because the effects of antidepressants may take weeks or even months to develop, doctors usually work with each patient to determine which medications are most effective and may frequently change medications over the course of therapy. In some cases, other types of antidepressants may be used instead of, or in addition to, the SSRIs. These medications also work by blocking the reuptake of neurotransmitters, including serotonin, norepinephrine, and dopamine. Brand names of these medications include Effexor and Wellbutrin.

Patients who are suffering from bipolar disorder are not helped by the SSRIs or other antidepressants because their disorder also involves the experience of overly positive moods. Treatment is more complicated for these patients, often involving a combination of antipsychotics and antidepressants along with mood stabilizing medications (McElroy & Keck, 2000). The most well-known mood stabilizer, lithium carbonate, simply referred to as lithium, is used widely to treat mania associated with bipolar disorder. Available in Canada for more than 60 years, the medication is used to treat acute manic episodes and as a long-term therapy to reduce their frequency and severity. Anticonvulsant medications

can also be used as mood stabilizers. Another drug, Depakote, has also proven very effective, and some bipolar patients may do better with it than with lithium (Kowatch et al., 2000).

People who take lithium must have regular blood tests to be sure that the levels of the drug are in the appropriate range. Potential negative side effects of lithium are loss of coordination, slurred speech, frequent urination, and excessive thirst. Though side effects often cause patients to stop taking their medication, it is important that treatment be continuous, rather than intermittent. Recently, Health Canada updated safety information and treatment recommendations for lithium after finding that taking lithium carries a risk of high blood calcium, or hypercalcemia, and is sometimes associated with a hormone disorder known as hyperparathyroidism (Canadian Press, 2014). There is no cure for bipolar disorder, but drug therapy does help many people.

Antianxiety medications

Antianxiety medications are drugs that help relieve fear or anxiety. They work by increasing the action of the neurotransmitter GABA. The increased level of GABA helps inhibit the action of the sympathetic division of the autonomic nervous system, creating a calming experience.

The most common class of antianxiety medications is the tranquilizers, known as benzodiazepines. These drugs, which are prescribed millions of times a year, include Ativan, Valium, and Xanax. The benzodiazepines act within a few minutes to treat mild anxiety disorders but also have major side effects. They are addictive, frequently leading to tolerance, and they can cause drowsiness, dizziness, and unpleasant withdrawal symptoms including relapses into increased anxiety (Otto et al., 1993). Furthermore, because the effects of the benzodiazepines are very similar to those of alcohol, they are very dangerous when combined with it.

Antipsychotic medications

Until the middle of the 20th century, schizophrenia was inevitably accompanied by the presence of positive symptoms, including bizarre, disruptive, and potentially dangerous behaviour. As a result, schizophrenics were locked in asylums to protect them from themselves and to protect society from them. In the 1950s, a drug called chlorpromazine (e.g., Thorazine) was discovered that could reduce many of the positive symptoms of schizophrenia. Chlorpromazine was the first of many antipsychotic drugs.

Antipsychotic drugs, known as neuroleptics, are drugs that treat the symptoms of schizophrenia and related psychotic disorders. Today, there are many antipsychotics, including Thorazine, Haldol, Clozaril, Risperdal, and Zyprexa. Some of these drugs treat the positive symptoms of schizophrenia, and some treat the positive, negative, and cognitive symptoms.

The discovery of chlorpromazine and its use in clinics has been described as the single greatest advance in psychiatric care because it has dramatically improved the prognosis of patients in psychiatric hospitals worldwide. Using antipsychotic medications has allowed hundreds of thousands of people to move out of asylums into individual households or community mental health centres, and in many cases, it has allowed sufferers to live near-normal lives.

Antipsychotics reduce the positive symptoms of schizophrenia by reducing the transmission of dopamine at the synapses in the limbic system, and they improve negative symptoms by influencing levels of serotonin (Marangell, Silver, Goff, & Yudofsky, 2003). Despite their effectiveness, antipsychotics have some negative side effects, including restlessness, muscle spasms, dizziness, and blurred vision. In addition, their long-term use can cause permanent

neurological damage, a condition called **tardive dyskinesia** that causes uncontrollable muscle movements, usually in the mouth area (National Institute of Mental Health, 2008). Newer antipsychotics treat more symptoms with fewer side effects than older medications (Casey, 1996).

Direct brain intervention therapies

In cases of severe disorder, it may be desirable to directly influence brain activity through electrical activation of the brain or through brain surgery. **Electroconvulsive therapy** (ECT) is a medical procedure designed to alleviate psychological disorder in which electric currents are passed through the brain, deliberately triggering a brief seizure (see Figure 16.7). ECT has been used since the 1930s to treat severe depression.

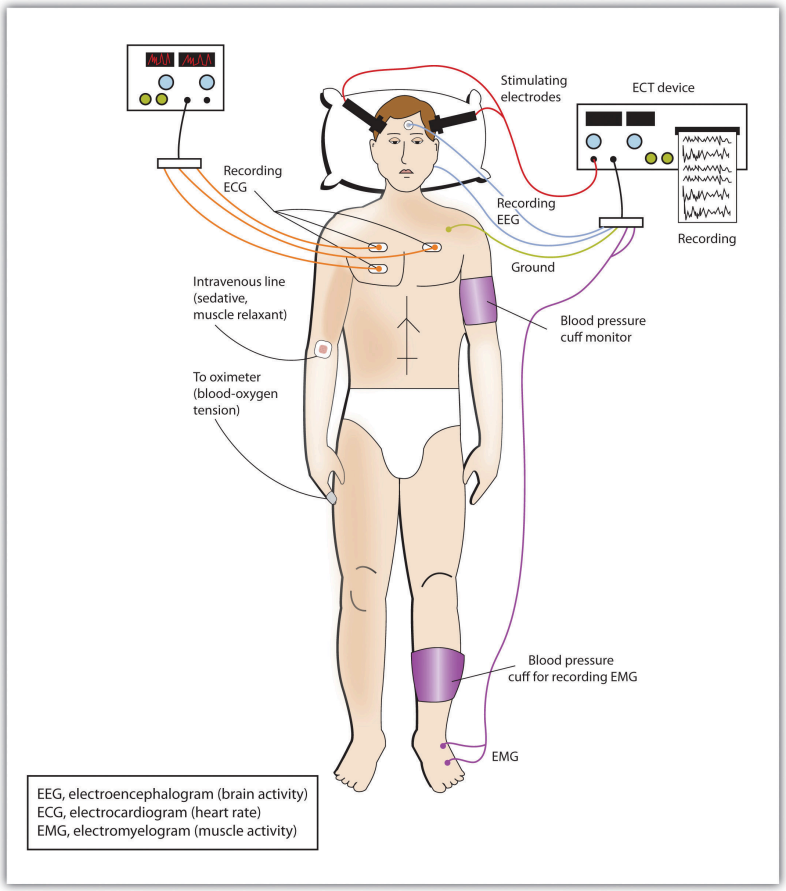


Figure 16.7. Today's electroconvulsive therapy (ECT) uses precisely calculated electrical currents to achieve the most benefit with the fewest possible risks.

When it was first developed, the procedure involved strapping the patient to a table before the electricity was administered. The patient was knocked out by the shock, went into severe convulsions, and awoke later, usually without any memory of what had happened. Today, ECT is used only in the most severe cases when all other treatments have

failed, and the practice is more humane. The patient is first given muscle relaxants and a general anesthesia, and precisely calculated electrical currents are used to achieve the most benefit with the fewest possible risks.

ECT is very effective. About 80% of people who undergo three sessions of ECT report dramatic relief from their depression. ECT reduces suicidal thoughts and is assumed to have prevented many suicides (Kellner et al., 2005). On the other hand, the positive effects of ECT do not always last; over one-half of patients who undergo ECT experience relapse within one year, although antidepressant medication can help reduce this outcome (Sackheim et al., 2001). ECT may also cause short-term memory loss or cognitive impairment (Abrams, 1997; Sackheim et al., 2007).

Although ECT continues to be used, newer approaches to treating chronic depression are also being developed. A newer and gentler method of brain stimulation is **transcranial magnetic stimulation** (TMS), which is a medical procedure designed to reduce psychological disorder that uses a pulsing magnetic coil to electrically stimulate the brain (see Figure 16.8). TMS seems to work by activating neural circuits in the prefrontal cortex, which is less active in people with depression, causing an elevation of mood. TMS can be performed without sedation, does not cause seizures or memory loss, and may be as effective as ECT (Loo, Schweitzer, & Pratt, 2006; Rado, Dowd, & Janicak, 2008). TMS has also been used in the treatment of Parkinson's disease and schizophrenia.

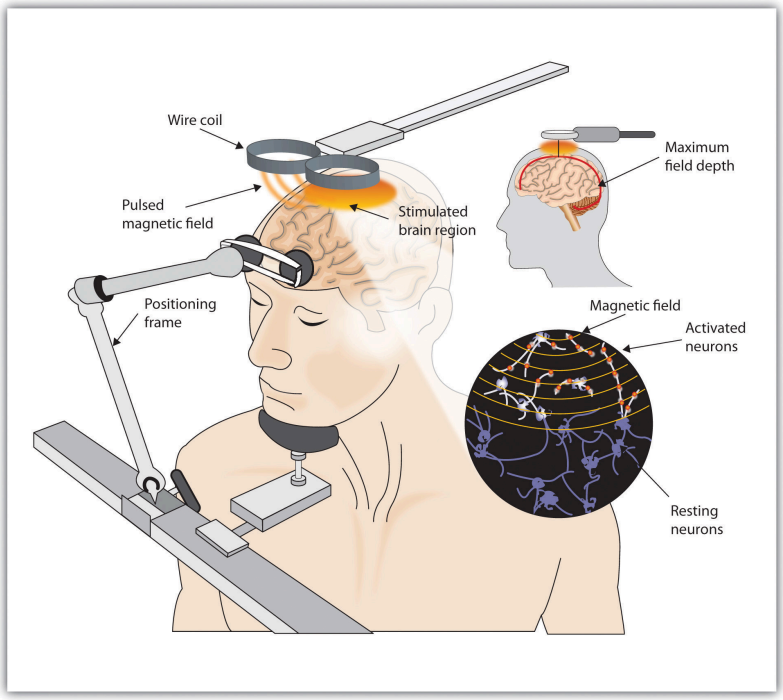


Figure 16.8. Transcranial magnetic stimulation (TMS) is a noninvasive procedure that uses a pulsing magnetic coil to electrically stimulate the brain. Recently, TMS has been used in the treatment of Parkinson's disease.

Still other biomedical therapies are being developed for people with severe depression that persists over years. One approach involves implanting a device in the chest that stimulates the vagus nerve, a major nerve that descends from the brain stem toward the heart (Corcoran, Thomas, Phillips, & O'Keane, 2006; Nemeroff et al., 2006). When the vagus nerve is stimulated by the device, it activates brain structures that are less active in severely depressed people.

Psychosurgery, that is, surgery that removes or destroys brain tissue in the hope of improving disorder, is reserved for the most severe cases. The most well-known psychosurgery is the prefrontal lobotomy. Developed in 1935 by Nobel Prize winner Egas Moniz to treat severe phobias and anxiety, the procedure destroys the connections between the prefrontal cortex and the rest of the brain. Lobotomies were performed on thousands of patients. The procedure, which was never validated scientifically, left many patients in worse condition than before, subjecting the already suffering patients and their families to further heartbreak (Valenstein, 1986). Perhaps the most notable failure was the lobotomy performed on Rosemary Kennedy, the sister of U.S. President John F. Kennedy, which left her severely incapacitated.

There are very few centres that still conduct psychosurgery today, and when such surgeries are performed, they are much more limited in nature and called cingulotomy (Dougherty et al., 2002). The ability to more accurately image and localize brain structures using modern neuroimaging techniques suggests that new, more accurate, and more beneficial developments in psychosurgery may soon be available (Sachdev & Chen, 2009).

Pharmacokinetics: What it is, and why it is important

While this section may sound more like pharmacology, it is important to realize how important pharmacokinetics can be when considering psychoactive drugs. **Pharmacokinetics** refers to how the body handles a drug that we take. As mentioned earlier, psychoactive drugs exert their effects on behaviour by altering neuronal communication in the brain, and the majority of drugs reach the brain by travelling in the blood. The acronym ADME is often used, which stands for absorption (i.e., how the drug gets into the blood), distribution (i.e., how the drug gets to the organ of interest — in this case, the brain), metabolism (i.e., how the drug is broken down so it no longer exerts its psychoactive effects), and excretion (i.e., how the drug leaves the body). We will talk about a couple of these to show their importance for considering psychoactive drugs.

Drug administration

There are many ways to take drugs, and these routes of drug administration can have a significant impact on how quickly that drug reaches brain. The most common route of administration is oral administration, which is relatively slow and — perhaps surprisingly — often the most variable and complex route of administration. Drugs enter the stomach and then get absorbed by the blood supply and capillaries that line the small intestine. The rate of absorption can be affected by a variety of factors, including the quantity and the type of food in the stomach (e.g., fats versus proteins). This is why the medicine label for some drugs (e.g., antibiotics) may specifically state foods that you should or should not consume within an hour of taking the drug because they can affect the rate of absorption. Two of the most rapid routes of administration include inhalation (e.g., smoking or gaseous anesthesia) and intravenous (IV) in which the drug is injected directly into the vein and, hence, the blood supply. Both of these routes of administration can get the drug to the brain in less than 10 seconds. IV administration also has the distinction of being the most dangerous because if there is an adverse drug reaction, there is very little time to administer any antidote, as in the case of an IV heroin overdose.



Figure 16.9. A drug delivered by IV reaches the brain more quickly than if the drug is taken orally. While rapid delivery has advantages, there are also risks involved with IV administration.

Why might the speed in which a drug gets to the brain be important? If a drug activates the reward circuits in the brain and it reaches the brain very quickly, the drug has a high risk for abuse and addiction. Psychostimulants like amphetamine or cocaine are examples of drugs that have high risk for abuse because they are agonists at DA neurons involved in reward and because these drugs exist in forms that can be either smoked or injected intravenously. Some argue that cigarette smoking is one of the hardest addictions to quit, and although part of the reason for this may be that smoking gets the nicotine into the brain very quickly and indirectly acts on DA neurons, it is a more complicated story. For drugs that reach the brain very quickly, not only is the drug very addictive, but so are the cues associated with the drug (Rohsenow, Niaura, Childress, Abrams, & Monti, 1990). For a "crack" cocaine user, this could be the pipe that they use to smoke the drug. For a cigarette smoker, however, it could be something as normal as finishing dinner or waking up in the morning, if that is when the smoker usually has a cigarette. For both the crack user and the cigarette smoker, the cues associated with the drug may actually cause craving that is alleviated by lighting a cigarette or using crack (i.e., relapse). This is one of the reasons individuals that enroll in drug treatment programs, especially out-of-town programs, are at significant risk of relapse if they later find themselves in proximity to old haunts, friends, and so on. However, this is much more difficult for a cigarette smoker. How can someone avoid eating or avoid waking up in the morning? These examples help you begin to understand how important the route of administration can be for psychoactive drugs.

Drug metabolism

Metabolism involves the breakdown of psychoactive drugs, and this occurs primarily in the liver. The liver produces

enzymes, which are proteins that speed up a chemical reaction, and these enzymes help catalyze a chemical reaction that breaks down psychoactive drugs. Enzymes exist in "families," and many psychoactive drugs are broken down by the same family of enzymes, the cytochrome P450 superfamily. There is not a unique enzyme for each drug; rather, certain enzymes can break down a wide variety of drugs. Tolerance to the effects of many drugs can occur with repeated exposure; that is, the drug produces less of an effect over time, so more of the drug is needed to get the same effect. This is particularly true for sedative drugs like alcohol or opiate-based painkillers. Metabolic tolerance is one kind of tolerance, and it takes place in the liver. Some drugs (e.g., alcohol) cause **enzyme induction**, which is an increase in the enzymes produced by the liver. For example, chronic drinking results in alcohol being broken down more quickly, so the alcoholic needs to drink more to get the same effect — of course, until so much alcohol is consumed that it damages the liver, since alcohol can cause fatty liver or cirrhosis.

Recent issues related to psychotropic drugs and metabolism

Certain types of food in the stomach can alter the rate of drug absorption, and other foods can also alter the rate of drug metabolism. The most well known is grapefruit juice. Grapefruit juice suppresses cytochrome P450 enzymes in the liver, and these liver enzymes normally break down a large variety of drugs, including some of the psychotropic drugs. If the enzymes are suppressed, drug levels can build up to potentially toxic levels. In this case, the effects can persist for extended periods of time after the consumption of grapefruit juice. As of 2013, there are at least 85 drugs shown to adversely interact with grapefruit juice (Bailey, Dresser, & Arnold, 2013). Some psychotropic drugs that are likely to interact with grapefruit juice include carbamazepine (e.g., Tegretol), prescribed for bipolar disorder; diazepam (e.g., Valium), used to treat anxiety, alcohol withdrawal, and muscle spasms; and fluvoxamine (e.g., Luvox), used to treat obsessive-compulsive disorder and depression.



Figure 16.10. Grapefruit can interfere with enzymes in the liver that help the body to process certain drugs.

Individualized therapy, metabolic differences, and potential prescribing approaches for the future

Mental illnesses contribute to more disability in Western countries than all other illnesses, including cancer and heart disease. Depression alone is predicted to be the second largest contributor to disease burden by 2020 (World Health Organization, 2004). The numbers of people affected by mental health issues are pretty astonishing, with estimates that 25% of adults experience a mental health issue in any given year, and this affects not only the individual but their friends and family. One in 17 adults experiences a serious mental illness (Kessler, Chiu, Demler, & Walters, 2005). Newer antidepressants are probably the most frequently prescribed drugs for treating mental health issues, although there is no "magic bullet" for treating depression or other conditions. Pharmacotherapy with psychological therapy may be the most beneficial treatment approach for many psychiatric conditions, but there are still many unanswered questions. For example, why does one antidepressant help one individual yet have no effect for another? Antidepressants can take four to six weeks to start improving depressive symptoms, and we don't really understand why. Many people do not respond to the first antidepressant prescribed and may have to try different drugs before finding something that works for them. Other people just do not improve with antidepressants (Ioannidis, 2008). As we better understand why individuals differ, the easier and more rapidly we will be able to help people in distress.

One area that has received interest recently has to do with an individualized treatment approach. We now know that there are genetic differences in some of the cytochrome P450 enzymes and their ability to break down drugs. Members of the general population fall into one the following four categories: **ultra-extensive metabolizers** break down certain drugs (e.g., antidepressants) very quickly, **extensive metabolizers** are also able break down drugs fairly

quickly, **intermediate metabolizers** break down drugs more slowly than either of the two above groups, and finally, **poor metabolizers** break down drugs much more slowly than all of the other groups. Now, consider someone receiving a prescription for an antidepressant; what would the consequences be if they were either an ultra-extensive metabolizer or a poor metabolizer? The ultra-extensive metabolizer would be given antidepressants and told it will probably take four to six weeks to begin working, which is true, but they metabolize the medication so quickly that it will never be effective for them. In contrast, the poor metabolizer given the same daily dose of the same antidepressant may build up such high levels in their blood because they are not breaking the drug down, that they will have a wide range of side effects and feel terrible — also not a positive outcome. What if, instead, prior to prescribing an antidepressant, the doctor could take a blood sample and determine which type of metabolizer a patient actually was? They could then make a much more informed decision about the best dose to prescribe. There are new genetic tests now available to better individualize treatment in just this way. A blood sample can determine, at least for some drugs, which category an individual fits into, but we need data to determine if this actually is effective for treating depression or other mental illnesses (Zhou, 2009). Currently, this genetic test is expensive, and not many health insurance plans cover this screen, but this may be an important component in the future of psychopharmacology.

Children and Psychopharmacology

A recent Centers for Disease Control and Prevention report (2013) has suggested that as many as one in five children between the ages of five and 17 may have some type of mental disorder (e.g., ADHD, autism, anxiety, or depression). The incidence of bipolar disorder in children and adolescents has also increased 40 times in the past decade (Moreno et al., 2007), and it is now estimated that one in 88 children have been diagnosed with an autism spectrum disorder (Centers for Disease Control and Prevention, 2011). Why has there been such an increase in these numbers? There is no single answer to this important question. Some believe that greater public awareness has contributed to increased teacher and parent referrals. Others argue that the increase stems from changes in criterion currently used for diagnosing. Still others suggest environmental factors, either prenatally or postnatally, have contributed to this upsurge.



Figure 16.11. There are concerns about both the safety and efficacy of drugs like Prozac for children and teens.

We do not have a clearly defined answer, but the question does bring up an additional controversy related to how we should treat this population of children and adolescents. Many psychotropic drugs used for treating psychiatric disorders have been tested in adults, but few have been tested for safety or efficacy with children or adolescents. The most well-established psychotropics prescribed for children and adolescents are the psychostimulant drugs used for treating attention-deficit/hyperactivity disorder (ADHD), and there are clinical data on how effective these drugs are. However, we know far less about the safety and efficacy in young populations of the drugs typically prescribed for treating anxiety, depression, or other psychiatric disorders. The young brain continues to mature until probably well after age 20, so some scientists are concerned that drugs that alter neuronal activity in the developing brain could have significant consequences. There is an obvious need for clinical trials in children and adolescents to test the safety and effectiveness of many of these drugs, which also brings up a variety of ethical questions about who decides what children and adolescents will participate in these clinical trials, who can give consent, who receives reimbursements, and so on.

Source: Adapted from Barron (2020).

Key Takeaways

- Psychoactive drugs are commonly used in the treatment of mental disorders.
- All psychoactive drugs have side effects.
- Electroconvulsive therapy is a controversial procedure used to treat severe depression, in which electric currents are passed through the brain, deliberately triggering a brief seizure.
- A newer method of brain stimulation is transcranial magnetic stimulation, which is a noninvasive procedure that employs a pulsing magnetic coil to electrically stimulate the brain.
- Certain types of food in the stomach can alter the rate of drug absorption, and other foods can also alter the rate of drug metabolism.
- Treating children and adolescents with psychoactive drugs is controversial.

Critical Thinking Exercises

1. What are some of the issues surrounding prescribing medications for children and adolescents? How might this be improved?
2. What are some of the factors that can affect relapse to an addictive drug?
3. How might prescribing medications for depression be improved in the future to increase the likelihood that a drug would work and minimize side effects?

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Figure 16.11. *Happy Feet* by The Monkey is used under a CC BY-NC-ND 2.0 license.

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16.3 Reducing Disorder by Changing the Social Situation

Learning Objectives

1. Explain the advantages of group therapy and self-help groups for treating disorder.
2. Evaluate the procedures and goals of community mental health services.

Although the individual therapies that we have discussed so far in this chapter focus primarily on the psychological and biological aspects of the bio-psycho-social model of disorder, the social dimension is never out of the picture. Therapists understand that disorder is caused, and potentially prevented, in large part by the people with whom we interact. A person with schizophrenia does not live in a vacuum; they interact with their family members and with the other members of the community, and the behaviour of those people have an influence the schizophrenic. Additionally, depression and anxiety are created primarily by the affected individual's perceptions, and misperceptions, of the important people around them. Thus, prevention and treatment are influenced in large part by the social context in which the person is living.

Group, couples, and family therapy

Practitioners sometimes incorporate the social setting in which disorder occurs by conducting therapy in groups. **Group therapy** is psychotherapy in which clients receive psychological treatment together with others. A professionally trained therapist guides the group, usually between six and 10 participants, to create an atmosphere of support and emotional safety for the participants (Yalom & Leszcz, 2005).

Group therapy provides a safe place where people come together to share problems or concerns, to better understand their own situations, and to learn from and with each other (see Figure 16.12). Group therapy is often cheaper than individual therapy, as the therapist can treat more people at the same time, but economy is only one part of its attraction. Group therapy allows people to help each other, by sharing ideas, problems, and solutions. It provides social support, offers the knowledge that other people are facing and successfully coping with similar situations, and allows group members to model the successful behaviours of other group members. Group therapy makes explicit the idea that our interactions with others may create, intensify, and potentially alleviate disorders.



Figure 16.12. Group therapy provides a therapeutic setting where people meet with others to share problems or concerns, to better understand their own situation, and to learn from and with each other.

Group therapy has met with much success in the more than 50 years it has been in use, and it has generally been found to be as or more effective than individual therapy (McDermut, Miller, & Brown, 2001). Group therapy is particularly effective for people who have life-altering illness, as it helps them cope better with their disease, enhances the quality of their lives, and in some cases has even been shown to help them live longer (American Group Psychotherapy Association, 2000).

Sometimes group therapy is conducted with people who are in close relationships. **Couples therapy** is treatment in which two people who are cohabitating, married, or dating meet together with the practitioner to discuss their concerns and issues about their relationship. These therapies are in some cases educational, providing the couple with information about what is to be expected in a relationship. The therapy may focus on such topics as sexual enjoyment, communication, or the symptoms of one of the partners (e.g., depression).

Family therapy involves families meeting together with a therapist. In some cases, the meeting is precipitated by a particular problem with one family member, such as a diagnosis of bipolar disorder in a child. Family therapy is based on the assumption that the problem, even if it is primarily affecting one person, is the result of an interaction among the people in the family.

Self-help groups

Group therapy is based on the idea that people can be helped by the positive social relationships that others provide. One way for people to gain this social support is by joining a **self-help group**, which is a voluntary association of people who share a common desire to overcome psychological disorder or improve their wellbeing (Humphreys & Rappaport, 1994). Self-help groups have been used to help individuals cope with many types of addictive behaviours. Three of the best known self-help groups are Alcoholics Anonymous, Gamblers Anonymous, and Overeaters Anonymous.

The idea behind self-help groups is very similar to that of group therapy, but the groups are open to a broader spectrum of people. As in group therapy, the benefits include social support, education, and observational learning. Religion and

spirituality are often emphasized, and self-blame is discouraged. Regular group meetings are held with the supervision of a trained leader.

Community mental health: Service and prevention

The social aspect of disorder is also understood and treated at the community level. **Community mental health services** are psychological treatments and interventions that are distributed at the community level. Community mental health services are provided by nurses, psychologists, social workers, and other professionals in sites such as schools, hospitals, police stations, drug treatment clinics, and residential homes. The goal is to establish programs that will help people get the mental health services that they need (Gonzales, Kelly, Mowbray, Hays, & Snowden, 1991).

Unlike traditional therapy, the primary goal of community mental health services is prevention. Just as widespread vaccination of children has eliminated diseases such as polio and smallpox, mental health services are designed to prevent psychological disorder (Institute of Medicine, 1994). Community prevention can be focused on one or more of three levels: primary prevention, secondary prevention, and tertiary prevention.

Primary prevention is prevention in which all members of the community receive the treatment. Examples of primary prevention are programs designed to encourage all pregnant women to avoid cigarettes and alcohol, because of the risk of health problems for the fetus, and programs designed to remove dangerous lead paint from homes.

Secondary prevention is more limited and focuses on people who are most likely to need it — those who display risk factors for a given disorder. **Risk factors** are the social, environmental, and economic vulnerabilities that make it more likely than average that a given individual will develop a disorder (Werner & Smith, 1992). The following presents a list of potential risk factors for psychological disorders.

Community mental health workers practising secondary prevention will focus on youths with the following markers of future problems:

- Academic difficulties
- Attention-deficit/hyperactivity disorder (ADHD)
- Child abuse and neglect
- Developmental disorders
- Drug and alcohol abuse
- Dysfunctional family
- Early pregnancy
- Emotional immaturity
- Homelessness
- Learning disorder
- Low birth weight
- Parental mental illness
- Poor nutrition
- Poverty

Finally, **tertiary prevention** is treatment, such as psychotherapy or biomedical therapy, that focuses on people who are already diagnosed with disorder.

Community prevention programs are designed to provide support during childhood or early adolescence with the hope that the interventions will prevent disorders from appearing or will keep existing disorders from expanding.

Interventions include such things as help with housing, counselling, group therapy, emotional regulation, job and skills training, literacy training, social responsibility training, exercise, stress management, rehabilitation, family therapy, or removal of a child from a stressful or dangerous home situation.

The goal of community interventions is to make it easier for individuals to continue to live a normal life in the face of their problems. Community mental health services are designed to make it less likely that vulnerable populations will end up in institutions or on the streets. In summary, their goal is to allow at-risk individuals to continue to participate in community life by assisting them within their own communities.

Research Focus

The Implicit Association Test as a behavioural marker for suicide

Secondary prevention focuses on people who are at risk for disorder or harmful behaviours. Suicide is a leading cause of death worldwide, and prevention efforts can help people consider other alternatives, particularly if it can be determined who is most at risk. Determining whether a person is at risk of suicide is difficult, however, because people are motivated to deny or conceal such thoughts to avoid intervention or hospitalization. One recent study found that 78% of patients who die by suicide explicitly deny suicidal thoughts in their last verbal communications before killing themselves (Busch, Fawcett, & Jacobs, 2003).

Matthew Nock and colleagues (Nock et al., 2010) tested the possibility that implicit measures of the association between the self-concept and death might provide a more direct behavioural marker of suicide risk that would allow professionals to more accurately determine whether a person is likely to commit suicide in comparison to existing self-report measures. They measured implicit associations about death and suicide in 157 people seeking treatment at a psychiatric emergency department.

The participants all completed a version of the Implicit Association Test (IAT), which was designed to assess the strength of a person's mental associations between death and the self (Greenwald, McGhee, & Schwartz, 1998). Using a notebook computer, participants classified stimuli representing the constructs of "death" (i.e., die, dead, deceased, lifeless, and suicide) and "life" (i.e., alive, survive, live, thrive, and breathing) and the attributes of "me" (i.e., I, myself, my, mine, and self) and "not me" (i.e., they, them, their, theirs, and other). Response latencies for all trials were recorded and analyzed, and the strength of each participant's association between "death" and "me" was calculated.

The researchers then followed participants over the next six months to test whether the measured implicit association of death with self could be used to predict future suicide attempts. The authors also tested whether scores on the IAT would add to prediction of risk above and beyond other measures of risk, including questionnaire and interview measures of suicide risk. Scores on the IAT predicted suicide attempts in the next six months above all the other risk factors that were collected by the hospital staff, including past history of

suicide attempts. These results suggest that measures of implicit cognition may be useful for determining risk factors for clinical behaviours such as suicide.

Key Takeaways

- Group therapy is psychotherapy in which clients receive psychological treatment together with others. A professionally trained therapist guides the group. Types of group therapy include couples therapy and family therapy.
- Self-help groups have been used to help individuals cope with many types of disorder.
- The goal of community health service programs is to act during childhood or early adolescence with the hope that interventions might prevent disorders from appearing or keep existing disorders from expanding. The prevention provided can be primary, secondary, or tertiary.

Exercises and Critical Thinking

1. Imagine the impact of a natural disaster like the 2013 floods in Calgary would have on the population of that city and cities like it. How would you expect such an event to affect the prevalence of psychological disorders in the community? What recommendations would you make in terms of setting up community support centres to help the people in the city?

Image Attributions

Figure 16.12. *Family Constellation* by Arden Wong is used under a CC BY-SA 3.0 license.

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16.4 Evaluating Treatment and Prevention: What Works?

Learning Objectives

1. Summarize the ways that scientists evaluate the effectiveness of psychological, behavioural, and community service approaches to preventing and reducing disorders.
2. Summarize which types of therapy are most effective for which disorders.

We have seen that psychologists and other practitioners employ a variety of treatments in their attempts to reduce the negative outcomes of psychological disorders. However, we have not yet considered the important question of whether these treatments are effective, and if they are, which approaches are most effective for which people and for which disorders. Accurate empirical answers to these questions are important as they help practitioners focus their efforts on the techniques that have been proven to be most promising and will guide societies as they make decisions about how to spend public money to improve the quality of life of their citizens (Hunsley & Di Giulio, 2002).

Psychologists use **outcome research**, that is, studies that assess the effectiveness of medical treatments, to determine the effectiveness of different therapies. In these studies, the independent variable is the type of the treatment — for instance, whether it was psychological or biological in orientation or how long it lasted (see Figure 16.13). In most cases, characteristics of the client (e.g., their gender, age, disease severity, and prior psychological histories) are also collected as control variables. The dependent measure is an assessment of the benefit received by the client. In some cases, we might simply ask the client if they feel better, and in other cases, we may directly measure behaviour. Can the client now get in the airplane and take a flight? Has the client remained out of juvenile detention?

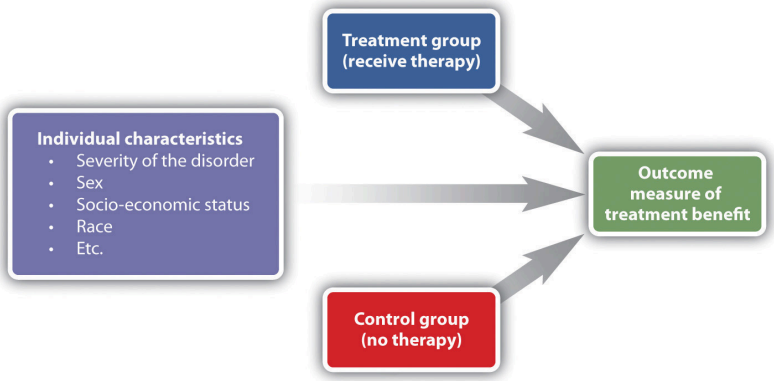


Figure 16.13. The design of an outcome study includes a dependent measure of benefit received by the client, as predicted by independent variables, including type of treatment and characteristics of the individual. [Long description]

In every case, the scientists evaluating the therapy must keep in mind the potential that other effects rather than the treatment itself might be important, that some treatments that seem effective might not be, and that some treatments might actually be harmful, at least in the sense that money and time are spent on programs or drugs that do not work.

One threat to the validity of outcome research studies is **natural improvement**, which is the possibility that people might get better over time, even without treatment. People who begin therapy or join a self-help group do so because they are feeling bad or engaging in unhealthy behaviours. After being in a program over a period of time, people frequently feel that they are getting better, but it is possible that they would have improved even if they had not attended the program and that the program is not actually making a difference. To demonstrate that the treatment is effective, the people who participate in it must be compared with another group of people who do not get treatment.

Another possibility is that therapy works, but that it does not really matter which type of therapy it is. **Nonspecific treatment effects** occur when the patient gets better over time simply by coming to therapy, even though it doesn't matter what actually happens at the therapy sessions. The idea is that therapy works, in the sense that it is better than doing nothing, but that all therapies are pretty much equal in what they are able to accomplish. Finally, **placebo effects** are improvements that occur as a result of the expectation that one will get better rather than from the actual effects of a treatment.

Effectiveness of psychological therapy

Thousands of studies have been conducted to test the effectiveness of psychotherapy, and by and large, they find evidence that it works. Some outcome studies compare a group that gets treatment with a control group that gets no treatment. For instance, Jeroen Ruwaard, Janneke Broeksteeg, Bart Schrieken, Paul Emmelkamp, and Alfred Lange (2010) found that patients who interacted with a therapist over a website showed more reduction in symptoms of panic disorder than did a similar group of patients who were on a waiting list but did not get therapy. Although studies such as this one control for the possibility of natural improvement (e.g., the treatment group improved more than the control group, which would not have happened if both groups had only been improving naturally over time), they do not control for either nonspecific treatment effects or for placebo effects. The people in the treatment group might have improved simply by being in the therapy (i.e., nonspecific effects), or they may have improved because they expected the treatment to help them (i.e., placebo effects).

An alternative is to compare a group that gets real therapy with a group that gets only a placebo. For instance, Martin Keller and colleagues (Keller et al., 2001) had adolescents who were experiencing anxiety disorders take pills that they thought would reduce anxiety for eight weeks. However, one-half of the patients were randomly assigned to actually receive the antianxiety drug Paxil, while the other half received a placebo drug that did not have any medical properties. The researchers ruled out the possibility that only placebo effects were occurring because they found that both groups improved over the eight weeks, but the group that received Paxil improved significantly more than the placebo group did.

Studies that use a control group that receives no treatment or a group that receives only a placebo are informative, but they also raise ethical questions. If the researchers believe that their treatment is going to work, why would they deprive some of their participants, who are in need of help, of the possibility for improvement by putting them in a control group?

Another type of outcome study compares different approaches with each other. For instance, James Herbert and colleagues (Herbert et al., 2005) tested whether social skills training could boost the results received for the treatment of social anxiety disorder with cognitive behavioural therapy (CBT) alone. They found that people in both groups improved, but CBT coupled with social skills training showed significantly greater gains than CBT alone (see Figure 16.14).

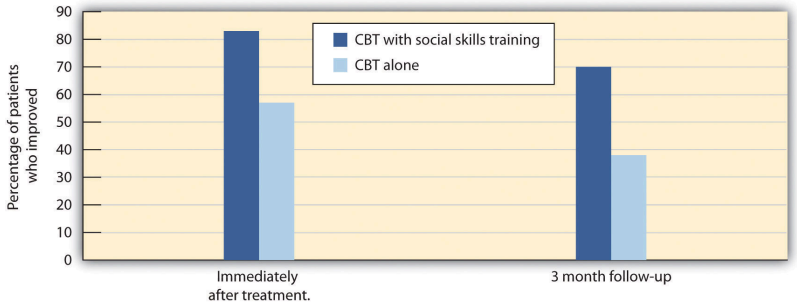


Figure 16.14. Researchers compared the effectiveness of CBT alone with CBT along with social skills training. Both groups improved, but the group that received both therapies had significantly greater gains than the group that received CBT alone (Herbert et al., 2005). [Long description]

Other studies (Crits-Christoph, 1992; Crits-Christoph et al., 2004) have compared brief sessions of psychoanalysis with longer-term psychoanalysis in the treatment of anxiety disorder, humanistic therapy with psychodynamic therapy in treating depression, and cognitive therapy with drug therapy in treating anxiety (Dalgleish, 2004; Hollon, Thase, & Markowitz, 2002). These studies are advantageous because they compare the specific effects of one type of treatment with another, while allowing all patients to get treatment.

Research Focus

Meta-analyzing clinical outcomes

Because there are thousands of studies testing the effectiveness of psychotherapy, and the independent and dependent variables in the studies vary widely, the results are often combined using a meta-analysis. A **meta-analysis** is a statistical technique that uses the results of existing studies to integrate and draw conclusions about those studies. In one important meta-analysis analyzing the effect of psychotherapy, Mary Lee Smith, Gene Glass, and Thomas Miller (1980) summarized studies that compared different types of therapy or that compared the effectiveness of therapy against a control group. To find the studies, the researchers systematically searched computer databases and the reference sections of previous research reports to locate every study that met the inclusion criteria. Over 475 studies were located, and these studies used over 10,000 research participants.

The results of each of these studies were systematically coded, and a measure of the effectiveness of treatment known as the **effect size** was created for each study. Smith, Glass, and Miller found that the average effect size for the influence of therapy was 0.85, indicating that psychotherapy had a relatively large positive effect on recovery. What this means is that, overall, receiving psychotherapy for behavioural problems is substantially better for the individual than not receiving therapy (see Figure 16.5). Although they did not measure it, psychotherapy presumably has large societal benefits as well — the cost of the therapy is likely more than made up for by the increased productivity of those who receive it.

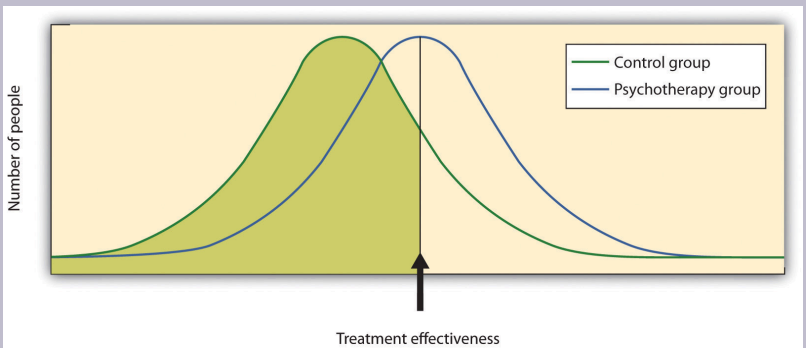


Figure 16.15. Meta-analyses of the outcomes of psychotherapy have found that, on average, the distribution for people who get treatment is higher than for those who do not get treatment.

Other meta-analyses have also found substantial support for the effectiveness of specific therapies, including cognitive therapy, CBT (Butler, Chapman, Forman, & Beck, 2006; Deacon & Abramowitz, 2004), couples and family therapy (Shadish & Baldwin, 2002), and psychoanalysis (Shedler, 2010). On the basis of these and other

meta-analyses, a list of **empirically supported therapies** — that is, therapies that are known to be effective — has been developed (Chambless & Hollon, 1998; Hollon, Stewart, & Strunk (2006). These therapies include cognitive therapy and behaviour therapy for depression; cognitive therapy, exposure therapy, and stress inoculation training for anxiety; CBT for bulimia; and behaviour modification for bed-wetting.

Smith, Glass, and Miller (1980) did not find much evidence that any one type of therapy was more effective than any other type, and more recent meta-analyses have not tended to find many differences either (Cuijpers, van Straten, Andersson, & van Oppen, 2008). What this means is that a good part of the effect of therapy is nonspecific, in the sense that simply coming to any type of therapy is helpful in comparison to not coming. This is true partly because there are fewer distinctions among the ways that different therapies are practised than the theoretical differences among them would suggest. What a good therapist practising psychodynamic approaches does in therapy is often not much different from what a humanist or a cognitive-behavioural therapist does, so no one approach is really likely to be better than the other.

What all good therapies have in common is that they give people hope, help them think more carefully about themselves and about their relationships with others, and provide a positive, empathic, and trusting relationship with the therapist — the therapeutic alliance (Ahn & Wampold, 2001). This is why many self-help groups are also likely to be effective and perhaps why having a psychiatric service dog may also make us feel better.

Effectiveness of biomedical therapies

Although there are fewer of them because fewer studies have been conducted, meta-analyses also support the effectiveness of drug therapies for psychological disorder. For instance, the use of psychostimulants to reduce the symptoms of attention-deficit/hyperactivity disorder (ADHD) is well known to be successful, and many studies find that the positive and negative symptoms of schizophrenia are substantially reduced by the use of antipsychotic medications (Lieberman et al., 2005).

People who take antidepressants for mood disorders or antianxiety medications for anxiety disorders almost always report feeling better, although drugs are less helpful for phobic disorder and obsessive-compulsive disorder. Some of these improvements are almost certainly the result of placebo effects (Cardeña & Kirsch, 2000), but the medications do work, at least in the short term. An analysis of the Health Canada database found a success rate of 26% for Prozac and Zoloft, 24% for Celexa, and 31% for Lexapro and Cymbalta (Deshauer et al., 2008). The overall average success rate for antidepressant medications approved by Health Canada and the FDA between 1987 and 2004 was 30% (Deshauer et al., 2008; Turner, Matthews, Linardatos, Tell, & Rosenthal, 2008).

One problem with drug therapies is that although they provide temporary relief, they do not treat the underlying cause of the disorder. Once the patient stops taking the drug, the symptoms often return in full force. In addition, many drugs have negative side effects, and some also have the potential for addiction and abuse. Different people have different reactions, and all drugs carry warning labels. As a result, although these drugs are frequently prescribed, doctors attempt to prescribe the lowest doses possible for the shortest possible periods of time.

Older patients face special difficulties when they take medications for mental illness. Older people are more sensitive to drugs, and drug interactions are more likely because older patients tend to take a variety of different drugs every day. They are more likely to forget to take their pills, to take too many or too few, or to mix them up due to poor eyesight or faulty memory.

Like all types of drugs, medications used in the treatment of mental illnesses can carry risks to an unborn infant. Tranquilizers should not be taken by women who are pregnant or expecting to become pregnant because they may cause birth defects or other infant problems, especially if taken during the first trimester. Some selective serotonin reuptake inhibitors (SSRIs) may also increase risks to the fetus (Louik, Lin, Werler, Hernandez, & Mitchell, 2007; U.S. Food and Drug Administration, 2004), as do antipsychotics (Diav-Citrin et al., 2005).

Decisions on medication should be carefully weighed and based on each person's needs and circumstances. Medications should be selected based on available scientific research, and they should be prescribed at the lowest possible dose. All people must be monitored closely while they are on medications.

Effectiveness of social-community approaches

Measuring the effectiveness of community action approaches to mental health is difficult because they occur in community settings and impact a wide variety of people, and it is difficult to find and assess valid outcome measures. Nevertheless, research has found that a variety of community interventions can be effective in preventing a variety of psychological disorders (Price, Cowen, Lorion, & Ramos-McKay, 1988). Data suggest that prevention programs that provide supplemental foods, health-care referral, and nutrition education for low-income families are successful in leading to higher birthweight in babies and lower infant mortality (Ripple & Zigler, 2003).

Although some of the many community-based programs designed to reduce alcohol, tobacco, and drug abuse, violence and delinquency, and mental illness have been successful, the changes brought about by even the best of these programs are, on average, modest (Wandersman & Florin, 2003; Wilson, Gottfredson, & Najaka, 2001). This does not necessarily mean that the programs are not useful. What is important is that community members continue to work with researchers to help determine which aspects of which programs are most effective and to concentrate efforts on the most productive approaches (Weissberg, Kumpfer, & Seligman, 2003). The most beneficial preventive interventions for young people involve coordinated, systemic efforts to enhance their social and emotional competence and health. Many psychologists continue to work to promote policies that support community prevention as a model of preventing disorder.

Key Takeaways

- Outcome research is designed to differentiate the effects of a treatment from natural improvement, nonspecific treatment effects, and placebo effects.
- Meta-analysis is used to integrate and draw conclusions about studies.
- Research shows that getting psychological therapy is better at reducing disorder than not getting it, but many of the results are due to nonspecific effects. All good therapies give people hope and help them

think more carefully about themselves and about their relationships with others.
- Biomedical treatments are effective, at least in the short term, but overall they are less effective than psychotherapy.
- One problem with drug therapies is that although they provide temporary relief, they do not treat the underlying cause of the disorder.
- Federally funded community mental health service programs are effective, but their preventive effects may in many cases be minor.

Exercises and Critical Thinking

1. Revisit the chapter opener that focuses on the use of psychiatric service dogs. What factors might lead you to believe that such therapy would or would not be effective? How would you propose to empirically test the effectiveness of the therapy?
2. Given your knowledge about the effectiveness of therapies, what approaches would you take if you were making recommendations for a person who is seeking treatment for severe depression?

Congratulations on completing Chapter 16! Remember to go back to the section on Approach and Pedagogy near the beginning of the book to learn more about how to get the most out of reading and learning the material in this textbook.

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Long Descriptions

Figure 16.13. In outcome research, individual characteristics like severity of the disorder, sex, socio-economic status, and race are controlled for. The treatment group receives therapy while the control group receives no therapy. By comparing the two groups, the researcher can determine the outcome benefits of the therapy.

[Return to Figure 16.13]

Figure 16.14. Effectiveness of CBT combined with social skills training:

	Percentage of patients who improved with CBT alone	**Percentage of patients who improved with CBT and social skills training**
Immediately after treatment	57%	83%
3 month follow-up	38%	70%

[Return to Figure 16.14]

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About the Authors

Adapting Author



Sally Walters earned a PhD in evolutionary psychology from Simon Fraser University in 1998. Since then, she has taught numerous introductory psychology classes in various formats — face-to-face, online, and mixed-mode — at Capilano University. She also teaches a variety of upper level courses and has developed a new course on Psychology and the Internet. Since 2012, she has been an Open Learning Faculty Member at Thompson Rivers University, Open Learning. She enjoys interacting with students in a variety of online courses. At TRU, Dr. Walters has been responsible for designing online courses and revising existing ones. She enjoys the challenge of making psychology interesting and accessible to students from diverse backgrounds. In her spare time, she enjoys reading, genealogy, listening to podcasts while walking, creating art, and an excellent cup of coffee.

Original Author

Charles Stangor is professor and associate chair of psychology within the Social, Decisional, and Organizational Sciences Specialty Area at the University of Maryland. He has also taught at the New School for Social Research, Michigan State University, and at the University of Tübingen in Germany.

He received his BA from Beloit College in 1973 and his PhD from New York University in 1986. Dr. Stangor is the recipient of research grants from the National Institute of Mental Health and from the National Science Foundation. He has published seven books and over 70 research articles and book chapters and has served as an associate editor of the *European Journal of Social Psychology*. He is a charter fellow of the American Psychological Society. He has served as the chair of the executive committee and is currently executive officer for the Society for Experimental Social Psychology.

Dr. Stangor's research interests concern the development of stereotypes and prejudice and their influences upon individuals who are potential victims of discrimination. Dr. Stangor regularly teaches Social Psychology, Research Methods, and at the graduate level, Fundamentals of Social Psychology and Group Processes. Dr. Stangor is chair of the undergraduate committee in the psychology department and has won the distinguished teaching award from the University of Maryland. Dr. Stangor also serves as the chair of the department's human subjects committee.

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