

## 2.2 Prevention and treatment

# The big picture

## Subtopic question(s)

During this subtopic, you will be working towards answering the following subtopic questions:

- How do you know whether a treatment is effective?
- Is the key to treating depression in biology or the mind?

The guiding questions in each section help to guide you towards answering the subtopic question(s) at the end of the subtopic. The subtopic questions require you to pull together your knowledge and skills from different sections, to see the bigger picture and to build your conceptual understanding.

When was the last time you had a headache? You may have taken a painkiller, such as ibuprofen, to relieve the symptoms of this headache. However, you will not have addressed the underlying cause of your headache.

Ideally, treatments for depression should also go beyond symptom management to address the root causes, known as etiologies. However, depression is a complex mental health disorder with a complex etiology, which makes the development of effective treatments challenging. Just as medical treatments should address the underlying causes of an ailment, treatments for depression should also be tailored to the individual, addressing the etiologies of the disorder.



**Figure 1.** Treatments for depression should be targeted towards the etiologies.

Credit: andersdahl65, Getty Images

While customising treatment to etiology is the goal, doing so is challenging, given our current knowledge regarding the precise causes of depression. Therefore, psychologists measure the effectiveness of treatments by the extent to which they alleviate symptoms and reduce relapse.

Treatment would be easy if there were a single, known cause for depression. For example, if low serotonin was the cause of depression, selective serotonin reuptake inhibitors (SSRIs) would be the most effective treatment. However, we know that this is not the case. It is becoming evident that an integrated approach to treatment, which targets several possible etiologies, may be most effective.

Understanding the effectiveness of treatments for mental health disorders has its own challenges. Often, assessing effectiveness relies on self-reported symptoms or clinical evaluations, which can be subjective (based on personal opinion). There is often a high placebo response rate ↗ ([https://doi.org/10.1016/S2215-0366\(20\)30036-5](https://doi.org/10.1016/S2215-0366(20)30036-5)) (many people who take a placebo get better!) in depression treatment trials, which can make it challenging to determine the true effectiveness of treatments. While the complex nature of depression makes it difficult to determine which treatments work best, all treatments for depression have their strengths and limitations.

## Making connections

- [section 2.1.5 ↗ \(https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/the-neurobiology-of-mental-health-id-49430/\)](https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/the-neurobiology-of-mental-health-id-49430/)  
Treatments for depression are based on etiological theories of depression, such as the neurobiological explanations for depression.
- [section 4.1.1 ↗ \(https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/can-your-environment-affect-your-behaviour-id-49127/\)](https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/can-your-environment-affect-your-behaviour-id-49127/)  
Cultural dimensions, such as individualism and collectivism, play a significant role in shaping the experience, expression and treatment of depression.
- [section 5.2.2 \(https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/what-factors-affect-the-reliability-and-validity-of-memory-id-50539/\)](https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/what-factors-affect-the-reliability-and-validity-of-memory-id-50539/)  
Schemas are mental frameworks influencing how people interpret and respond to information and events. Negative schemas are closely linked to cognitive treatments for depression, because treatments such as cognitive behavioural therapy (CBT) target these negative schemas.

## 2.2 Prevention and treatment

# How do you know whether a treatment is effective?

## Guiding question(s)

In this subtopic, you are thinking about the question, '**How do you know whether a treatment is effective?**'. This section will help you make an informed response by working through the following guiding question:

- Which methodologies are used to determine whether a treatment is effective?

You have previously investigated the etiology of depression. In subsequent sections of this subtopic, you will focus on examining treatment modalities and understanding which methods of treatment are most effective. In order to answer that question, you must have a clear understanding of what constitutes 'effective' treatment.

Keep the guiding question in mind as you progress through this section. The guiding questions build into the subtopic question(s). You will return to the subtopic question(s) at the end of each subtopic. The subtopic questions require you to pull together your knowledge and skills from different sections, to see the bigger picture and to build your conceptual understanding.

Depression is a common mental health disorder. According to the World Health Organization  (<https://www.who.int/news-room/fact-sheets/detail/depression>), approximately 280 million adults worldwide (about 5% of the global adult population) experience depression each year (data from 2021). The lifetime prevalence of depression is estimated to be 10–15%. Depression can lead to suicide. More than 700 000 people die from suicide each year, which is the fourth leading cause of death among individuals aged 15–29 years. It has a major societal and economic impact and causes significant impairment to those affected. Treatments for depression aim to improve the lives of people with the disorder. Hence, it is important that the effectiveness of these treatments is investigated.

Similar to any healthcare professional, mental health clinicians use evidence-based practice. This integrates the best available research evidence with their own expertise and patient values, to guide decision-making and improve patient

outcomes. This ensures that evidence-based treatments are being used in practice.

However, there is no single optimal treatment for depression. This is where studying the effectiveness of treatments is important. Clinicians can evaluate which treatments work best, for whom and under what circumstances. On this basis, they can create individualised treatment plans for their patients. However, it is difficult to predict who is most likely to benefit from specific treatments, due to the complex nature of the disorder. Depression looks different for everyone!

### Theory of knowledge

This section focuses on measuring the effectiveness of treatments based on research findings. In relation to this, what counts as good evidence for a claim? How might this be different here from other areas of knowledge?

## Which methods are used to assess the effectiveness of treatments?

Some common methods to assess effectiveness are:

- randomised control trials.
- meta-analyses.

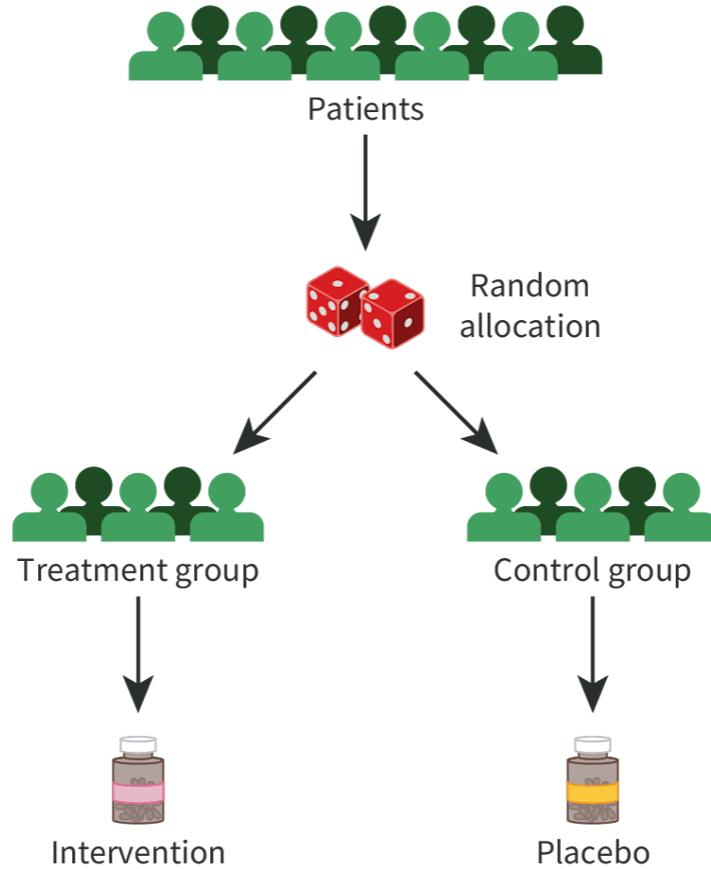
### Randomised control trials

Randomised control trials (RCTs) are a common method used to study treatments for depression. They allow for the effectiveness of treatments to be investigated under controlled conditions.

Participants are randomly assigned to either the treatment condition (for example, antidepressant medication) or a control group (**Figure 1**). The control group comprises one of two conditions:

- the placebo condition, or
- a standard care condition.

The control group in RCTs is useful as the researcher can compare the effects of the treatment being investigated against no treatment at all. Additionally, many RCTs use blinding, where participants, and sometimes even researchers, are unaware of the treatment that the participant is receiving. This can help reduce participant bias and researcher bias in assessing outcomes.



**Figure 1.** Randomised control trials are used extensively to study depression.

🔗 [More information for figure 1](#)

Diagram showing a group of patients being assigned by random allocation to two groups: a treatment group and a control group. The treatment group receives an intervention and the control group receives a placebo. The intervention and placebo are represented by bottles of pills.

In order to measure the outcomes of RCTs, depressive symptoms are measured using standardised scales that help to quantify changes in depression over time. These include the Center for Epidemiologic Studies Depression Scale ↗ (<https://www.apa.org/depression-guideline/epidemiologic-studies-scale.pdf>) (CES-D) or the Hamilton Depression Rating Scale ↗ (<https://dcf.psychiatry.ufl.edu/files/2011/05/HAMILTON-DEPRESSION.pdf>) (HDRS). Participants can be assessed at multiple points during or after the intervention, evaluating both immediate and long-term effects.

One prominent RCT that investigated the effects of treatments for depression was conducted by [Elkin et al. \(1989\)](#) (<https://doi.org/10.1001/archpsyc.1989.01810110013002>). In the RCT, 239 depressed patients were randomly assigned to one of four treatment conditions:

- Cognitive behavioural therapy (CBT)
- Interpersonal psychotherapy (IPT)
- Antidepressants
- Placebo.

Outcome measures for depression were assessed using the HDRS. From this RCT, they found that IPT and CBT were equally effective compared to the antidepressant condition.

However, RCTs often have narrow inclusion criteria, and hence, the generalisability of these findings may be limited. For example, Elkin's study excluded patients who were currently at risk of suicide or had another psychiatric disorder. Hence, the findings cannot be applied to the full spectrum of the disorder.

## Concept

## Responsibility

A randomised controlled trial (RCT) requires that some individuals receive the treatment while others receive a placebo (in the case of biological-based investigations) or no treatment at all (in the case of cognitive or behavioural approaches).

## Reflection questions

1. To what extent do you believe that researchers or clinicians are responsible for an individual in the placebo or control condition having a relapse or worsening of their depressive symptoms?
2. Do you believe that RCTs are ethical?

# Meta-analyses

A meta-analysis is a statistical method that combines and analyses results from multiple studies. A large amount of research on one topic is analysed and synthesised to conclude on the issue.

Meta-analyses are useful for studying the effectiveness of treatments for depression for several reasons.

- Firstly, meta-analyses combine results from individual studies to provide a more precise estimate of treatment effectiveness. For example, a meta-analysis conducted by Cuijpers et al. (2011) ↗ (<https://doi.org/10.1176/appi.ajp.2010.10101411>) combined results from 38 studies involving over 4,000 patients to examine the effectiveness of IPT for depression. They were able to establish that IPT is an effective treatment for depression, one that works well by itself or in combination with medication.
- Meta-analyses enable comparison of multiple treatment types, even if the treatments have not been compared in individual trials.
- Meta-analyses can also investigate the factors across many studies that may influence the effectiveness of treatments and establish patterns. For example, patterns of treatment effectiveness for specific subgroups can be established, such as depression severity or demographic factors.

However, meta-analyses are not without limitation. There is potential for selective publication of positive results in studies ↗ (<https://doi.org/10.1056/NEJMsa065779>), which can skew meta-analysis findings. This is known as publication bias. In addition, many studies individually have methodological limitations or a high risk of bias, so the reliability of meta-analyses' conclusions can be affected.

## Concept

## Bias

A meta-analysis involves combining the findings of many research studies. However, bias may be present in the included studies, impacting the overall conclusions of the meta-analysis.

## Reflection questions

1. How do you think bias can impact our understanding of findings from methods such as meta-analyses?
2. How might this differ from individual RCTs?

# How do you measure the effectiveness of treatments?

Meta-analyses and RCTs are two common methods used to evaluate the effectiveness of treatments for depression. However, when you are assessing the effectiveness of treatments on an individual level, several other measures can be used.

## Concept

## Change

Treatments for depression are evaluated on the extent to which they change an individual's cognition and behaviours from those that are dysfunctional and detrimental to well-being to those that facilitate well-being.

Behavioural change is easier to measure than cognitive and affective (emotional) changes due to the internal nature of cognition. Measurement tools rely, therefore, on self-reported data, which can be both hard to express and to interpret.

Designing ways to accurately measure emotional and cognitive behaviours is crucial in order to assess the effectiveness of treatments. Psychologists must assess the patient before treatment and after treatment in order to know whether the treatment is effective.

## Reflection questions

1. What are the challenges to obtaining valid data in regard to patient behaviour both before and after treatment?
2. How might psychologists overcome these challenges to measure change in a person's behaviour before and after treatment?

## Self-report measures

Self-report measures are psychological tests or questionnaires that ask participants to report their own feelings, beliefs, behaviours or symptoms. When evaluating the effectiveness of treatments for depression, they are used to assess symptoms before and after treatment.

These tests or questionnaires are highly practical and easy to administer on a frequent basis. However, self-reports may be biased by patients' expectations of improvement and also by the difficulty of accurately assessing their own symptoms. Self-report measures are also limited as they do not fully capture all aspects of depression and the treatment outcomes.

## Clinician-administered scales

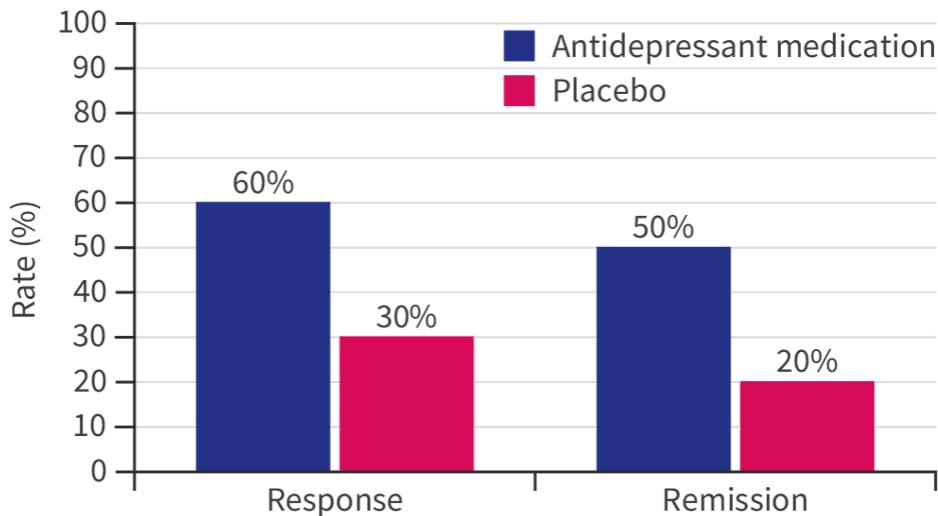
Clinician-administered scales utilise the expertise of trained professionals to evaluate symptoms through interviews and observations, which may negate the limitations of self-report measures. One of the most widely used is the HDRS ↗ (<https://dcf.psychiatry.ufl.edu/files/2011/05/HAMILTON-DEPRESSION.pdf>), which consists of 17 items designed to measure depression severity. The HDRS was used in Elkin's 1989 study to assess the effectiveness of four different treatments.

Both clinician-administered scales and self-report measures provide unique, useful information that is relevant to predicting and evaluating treatment outcomes. They provide a more comprehensive assessment than when used in combination with one another.

## Response and remission rates

Response rates and remission rates are commonly used metrics established from both self-report measures and clinician-administered scales. Response rate is the percentage of people in a study who see a 50% or higher reduction in symptoms due to the treatment. Remission is defined as a near-complete resolution of symptoms, usually indicated by scoring below a certain number on a depression rating scale.

Higher response and remission rates indicate greater treatment effectiveness and can be used to directly compare treatments. For example, in **Figure 2**, treatment with antidepressant medication appears to be more effective than the placebo condition. These rates are typically assessed at specific time points during treatment, such as 6–8 weeks for short-term treatment and 6–12 months for longer-term treatment outcomes.



**Figure 2.** Response and remission rates provide useful evidence for the effectiveness of depression treatments.

[More information for figure 2](#)

Bar chart with vertical axis labelled Rate in percent %. The bars show response and remission rates for antidepressant medication and for a placebo. The response rate for antidepressant medication is 60% and the response rate for the placebo is 30%. The remission rate for antidepressant medication is 50% and the remission rate for the placebo is 20%.

## Activity

IB learner profile attribute: Inquirer/Open-minded/Thinker

Approaches to learning: Thinking/Researching

Time required to complete activity: 25 minutes

Activity type: Pairs/Group

## Bias and limitations of tools

### Concept application: Bias

In small groups or pairs, choose one standardised tool that is used to measure outcomes of treatment for depression (for example, the Beck Depression Inventory or the Hamilton Depression Rating Scale). Investigate your chosen tool. Specifically, look at biases, and then answer the following questions.

1. Describe the tool and its method of data collection.
2. Describe the possible biases and limitations that this tool may suffer from, and why.
3. Suggest ways in which researchers can overcome these biases and limitations.

Present your findings on a poster to share with the class.

Treating mental health disorders is a primary focus of psychological investigation and research. While psychologists do have tools to evaluate the extent to which existing and new treatment modalities are effective, these tools have limitations. Additionally, research into different treatment modalities can successfully establish a correlation between the treatment and symptom reduction; however, given the complex nature of mental health disorders, it is quite challenging to establish causality. As with all research, it is important to think critically about possible confounds and causality.

## Learning outcomes

By the end of this section, you should be able to:

- Identify and explain one or more biological treatments for mental health disorders.
- Identify and explain the effectiveness of these treatments for treating mental health disorders.
- Discuss how measurement can be used to evaluate treatment effectiveness.
- Explain to what extent we can infer causality when assessing the effectiveness of treatment.
- Discuss to what extent it is possible to objectively measure change in a person's behaviour before and after treatment.

# How might social connection and culture reduce the risk of depression?

## Guiding question(s)

In this subtopic, you are thinking about the question, '**Is the key to treating depression in biology or the mind?**' This section will help you make an informed response by working through the following guiding question:

- How might social connection and culture help to reduce the risk of mental health disorders?

You previously explored ways in which culture and environments can create risk factors for depression. This section will take a positive approach and focus on how the environment can help to reduce the risk of mental health disorders.

Keep the guiding question in mind as you progress through this section. The guiding questions build into the subtopic question(s). You will return to the subtopic question(s) at the end of each subtopic. The subtopic questions require you to pull together your knowledge and skills from different sections, to see the bigger picture and to build your conceptual understanding.

## The social perspective and depression

Psychologists have long understood that humans are social creatures with a foundational need for belonging. Therefore, the social perspective in psychology views human behaviour through the lens of social interaction and belonging. Psychologists who analyse behaviour through this perspective seek to understand both the internal and external motivating factors that contribute to social interactions and belonging. Psychologists investigating mental health disorders from a social perspective will focus on how positive, healthy social interactions and belonging can reduce the prevalence of mental health disorders, as well as ways in which negative social interactions can contribute to their development.

Given that humans have an innate need to belong, it is not surprising that social connection has been found to play a crucial role in protecting against depression. Choi et al. (2020) ↗ (<https://www.sciencedaily.com/releases/2020/08/200814131007.htm>) investigated over 100 factors and even suggested that social connection is one of the strongest protective factors against depression. The protective effect of social connection was even present for high-risk individuals, who either had a genetic vulnerability or early-life trauma.

Social connections are relationships that foster a sense of belonging and community (**Figure 1**). They can be established by various types of interaction, such as your relationship with your family, friendships, romantic relationships or even community ties.



**Figure 1.** Social connection is an important protective factor in depression.

Credit: FatCamera, Getty Images

Social connection protects against depression in several key ways.

- It provides emotional support. Receiving care and empathy from others allows individuals to feel understood and supported during challenging times.

- It fosters a sense of belonging. Supportive networks can make individuals feel valued and connected, improving mental well-being.
- It buffers against stress. Social connections can help individuals manage and cope with stressors more effectively, by offering practical and emotional resources to cope with stress.
- It enhances resilience. When individuals have reliable support to lean on, this can reinforce coping strategies and help build resilience by allowing them to view challenges as manageable.

### Making connections

In section 2.1.3 ↗ (<https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/can-society-cause-mental-health-disorders-id-49428/>), you learned about the factors that can contribute to depression. In this subtopic, you will explore the social factors that can protect against depression.

## Does culture protect against depression?

Social connection can be heavily influenced by culture. Cultures that emphasise strong social bonds and frequent social interaction tend to have lower rates of depression ↗ (<https://doi.org/10.1176/appi.ajp.2020.19111158>). For example, some cultures encourage confiding in others and frequent visits with family and friends, which can provide a protective effect against depression. Social cohesion and connection can buffer against depression even for individuals with genetic vulnerability or early-life trauma. In addition, certain cultural dimensions appear to be more protective against depression. For example, collectivism, which emphasises group harmony and interdependence (social connection), may offer some protection against depression.

Chiao and Blizinsky (2009) ↗ (<https://doi.org/10.1098/rspb.2009.1650>) found that prevalence rates of depression are linked to both genetic and cultural factors. In their study, they found that while collectivistic cultures had higher frequencies of a depression-related gene variant (the 5-HTT gene, which has been associated with a higher risk for depression in response to stressful life events), these cultures had lower prevalence rates of depression compared to individualistic cultures. The researchers explained this phenomenon through a cultural lens.

They believed that lower prevalence rates of depression in collectivist cultures (for example, some East Asian cultures) can partly be explained through collectivism and its emphasis on social support and community. These values may protect individuals against the stress that may interact with the short variant of the 5-HTT gene and trigger depression.

These beliefs and values may explain the low prevalence rates of depression in collectivistic cultures. However, in many of these same cultures, mental health is still quite stigmatised. Therefore, the low prevalence rates may also be due to factors like under-reporting or not seeking mental health help.

## International mindedness

How can using an internationally minded approach in the treatment and understanding of depression improve outcomes for people from diverse backgrounds?

A strong cultural identity may also protect against depression. When people feel strong ties to their culture, they may experience self-esteem and life satisfaction. This can buffer against the feelings of worthlessness and hopelessness that are core symptoms of depression. This can be explained by social identity theory, which suggests that our self-concept can be derived from our group memberships. One study found that ethnic minorities and migrants in the USA who felt a stronger connection to their social groups experienced fewer symptoms of depression and anxiety ↗ (<https://doi.org/10.1016/j.cpr.2022.102216>). These groups tend to report lower rates of disorders such as depression and anxiety, despite facing socioeconomic challenges and discrimination. This contradicts the common expectation that social stress leads to worse mental health outcomes. Social belonging seems to be a key protective factor against depression, particularly in vulnerable groups.

## Activity

IB learner profile attribute: Thinker/Inquirer/Knowledgeable

Approaches to learning: Thinking/Researching

Time required to complete activity: 20 minutes

Activity type: Individual

# Depression around the globe

1. Explore the cultural dimensions of your country and one *other* country of your choice using the [Country Comparison Chart](https://cultureinworkplace.com/country-comparison-dashboard/) ↗ (<https://cultureinworkplace.com/country-comparison-dashboard/>).
2. Examine the map illustrating global prevalence rates from [Our World In Data on Depression](https://ourworldindata.org/grapher/depressive-disorders-prevalence-ihme) ↗ (<https://ourworldindata.org/grapher/depressive-disorders-prevalence-ihme>). Hypothesise possible social factors that could explain the differences in prevalence rates between the two countries that you selected above.
3. While it may be tempting to search for environmental factors that could cause depression, challenge yourself to consider environmental factors that may be protective. How might these factors be considered in the treatment of depression?
4. Share and contrast your findings with another student.

In individualistic cultures, social support is still a significant protective factor, despite not being at the forefront of individualistic values. A review conducted by Gariépy et al. (2018) ↗ (<https://doi.org/10.1192/bjp.bp.115.169094>) demonstrated that social support is among the most important factors in preventing depression across all ages in Western countries. However, the impact of the source of support differs. In young children and adolescents, parental support was the most important. In adults, support from a spouse, followed by that of family and then friends, was most important. Finally, in older adults, the most important was spousal support, followed by support from friends.

This may also explain the prevalence [rates of depression](https://ourworldindata.org/grapher/depressive-disorders-prevalence-by-age) ↗ (<https://ourworldindata.org/grapher/depressive-disorders-prevalence-by-age>) across a lifespan, when the source of social support may change.

## HL Extension

### Culture

As demonstrated by Chiao and Blizinsky (2009) ↗ (<https://doi.org/10.1098/rspb.2009.1650>) and Gariépy et al. (2018) ↗ (<https://doi.org/10.1192/bjp.bp.115.169094>), certain cultural norms and cultural values are correlated with reduced prevalence rates of depression.

## Reflection questions

1. Consider how the social perspective, and specifically social identity theory, might help to explain these findings.

## 2. Discuss the role of culture in the prevalence of depression.

One key challenge with the research into social support is how it is measured. In Gariépy's 2018 review alone, there were over 100 different ways of measuring social support. Additionally, self-report is a common way of measuring social support and can be prone to social desirability bias.

### Concept

### Measurement

Social support and social connection are difficult to measure.

### Reflection questions

1. Why do you think this is?
2. How do you think these concepts can be measured objectively?

## Does social media protect against depression?

So, what about social media? In **section 2.1.4** (<https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/social-media-and-depression-id-49429/>), you learned how social media can create 'disconnection' and may contribute to the rising levels of depression across the UK and USA. If social support is a protective factor, doesn't it make sense that having communities in any form, including online, would be protective?

There is some indication that certain types of digital connections can have positive effects. One review of 42 studies ↗ (<https://doi.org/10.2196/26584>) demonstrated the positive effect of online social connections for adolescents with depression. The review indicates that good quality social connections (characterised by feeling normalised, having a sense of belonging, developing an emotional connection and the presence of shared understanding) can improve mental health outcomes in adolescents with anxiety and depression. While these interactions were mainly through peer-support websites and online therapy sessions, these findings can help us understand what the key characteristics of good online social connections are.

## Perspective lens

### Sociocultural approach

When viewing human behaviour through a sociocultural lens, a common research question that emerges is around the impact of culture on the prevalence rate of a mental health disorder such as depression.

Chiao and Blizinsky (2009) ↗ (<https://doi.org/10.1098/rspb.2009.1650>) utilised the sociocultural approach to frame their investigation into the impact of the cultural dimension of collectivism/individualism on the prevalence rate of depression.

### Reflection question

1. Based on what you know about psychology and mental well-being, formulate three to five research questions from a sociocultural perspective that focus on investigating mental health.

While online interactions can help people feel connected to others (a source of social support), it depends on how technology is used and by whom. For example, during the COVID-19 pandemic ↗ (<https://doi.org/10.3389/fpubh.2021.793868>), rewarding social interactions, mutual friendships and humour were associated with reduced stress and loneliness in adolescents. Facebook users report ↗ (<https://doi.org/10.1145/2556288.2557094>) increases in closeness of relationships. This is stronger for actions that require greater effort, such as posting a message or a comment rather than simply ‘liking’ a post, demonstrating that meaningful interactions on social media can have a positive effect **Figure 2**).



**Figure 2.** Social connections can be increased and maintained through social networking.

Credit: Xavier Lorenzo, Getty Images

Marciano and Viswanath (2023) ↗

(<https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2023.1092109/full>) used data from 1,429 Swiss adolescents. They found that positive social media experiences and inspirational content were associated with higher levels of flourishing, while negative experiences had the opposite effect. Adolescents who engaged in positive online interactions or found inspiration through social media reported better well-being outcomes, such as increased happiness and life satisfaction. The study suggests that guiding adolescents towards positive and meaningful online activities could help enhance their well-being, going beyond the typical focus on reducing negative effects.

## What does this mean for the prevention and treatment of depression?

Given the strong protective role of social connection, fostering and maintaining social relationships should be a key focus in depression prevention and treatment strategies. Clinicians should consider assessing patients' social support networks and recommending interventions to enhance social connectedness as part of a holistic treatment approach for depression. Additionally, culture should be considered, especially understanding the protective role it can play.

## Learning outcomes

By the end of this section, you should be able to:

- Identify the role of environmental factors on mental health disorders.
- Identify the role of one or more cultural dimensions in understanding group behaviour(s).
- Identify factors contributing to variations in prevalence rates of mental health disorders across different cultures and populations.
- Examine cultural differences in approaches to mental health, citing specific examples to illustrate diverse perspectives.

### HL Extension

- Discuss the role of culture in health and well-being.
- Discuss cross-cultural comparisons of the prevalence of mental health issues.

## 2.2 Prevention and treatment

# What is the relationship between etiology and treatment?

## Guiding question(s)

In this subtopic, you are thinking about the question, '**Is the key to treating depression in biology or the mind?**' This section will help you make an informed response by working through the following guiding question:

- What is the relationship between etiological theory and treatment for major depressive disorder?

Quality treatment for any disorder, medical or mental, should focus on one or more causes of the disorder. For example, to treat strep throat, a doctor will prescribe an antibiotic such as penicillin to destroy the bacteria causing discomfort and pain. It is this crucial relationship between etiological theory and treatment that you will explore in this section.

Keep the guiding question in mind as you progress through this section. The guiding questions build into the subtopic question(s). You will return to the subtopic question(s) at the end of each subtopic. The subtopic questions require you to pull together your knowledge and skills from different sections, to see the bigger picture and to build your conceptual understanding.

As you learned in [subtopic 2.1](https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/the-big-picture-id-49425/) (<https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/the-big-picture-id-49425/>), depression is a complex and multifaceted disorder. There are many etiological theories regarding depression. The relationship between the etiologies of depression and treatments is just as complex as the disorder itself. If society knew the cause of depression, there would be a single, globally effective treatment for it. However, this is not the case. Multiple treatments exist, with others surely yet to be developed. Understanding the relationship between etiology and treatment is crucial for continuing research into effective treatments.

The treatment etiology fallacy refers to the mistaken belief that if a treatment is effective for a condition, it must reveal the underlying cause of that condition. It assumes that the mechanism of a successful treatment indicates the etiology of

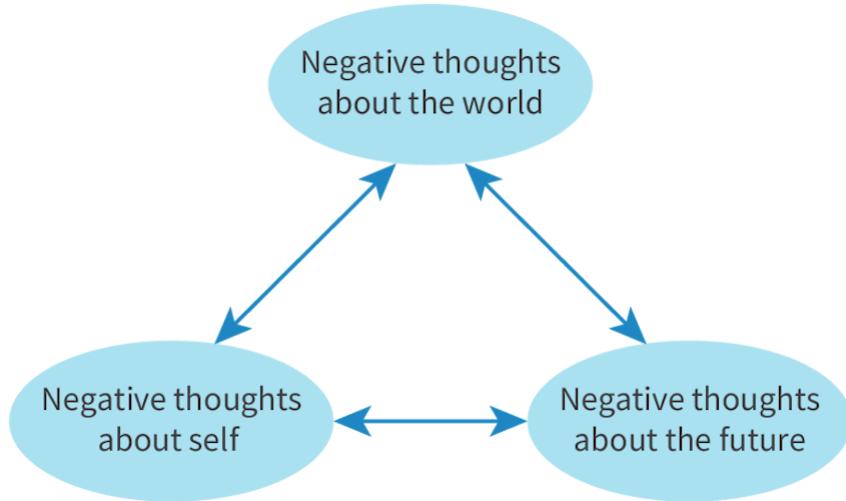
the disorder being treated. For example, if antidepressants improve depression symptoms, depression must be solely caused by a chemical imbalance in the brain. You know from your studies that this is not the case.

# The cognitive perspective of etiology and treatment

The cognitive perspective of the etiology of depression (see [section 2.1.4](#) (<https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/social-media-and-depression-id-49429/>)) forms the basis for many psychological treatments for depression, including cognitive behavioural therapy (CBT).

## Cognitive theory of depression and CBT

The cognitive theory of depression, developed by Aaron Beck, suggests that inaccurate beliefs and maladaptive information processing contribute to the onset of depression (**Figure 1**). It states that negative self-schemas, cognitive biases (such as overgeneralisation and catastrophising) and the negative cognitive triad interact with the environment to maintain depression (see [section 2.1.4](#) (<https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/social-media-and-depression-id-49429/>)).



**Figure 1.** Beck's negative cognitive triad.

The main principles of CBT target this etiology. The principles propose that psychological issues, such as depression, stem in part from distorted or unhelpful thinking patterns and from learned behaviours that are not beneficial. CBT posits that individuals facing psychological challenges can develop more effective coping strategies, which can alleviate their symptoms and improve their quality of life.

CBT aims to identify and modify negative, irrational thoughts (cognitive distortions) that are believed to maintain depression. The goal is to replace these with more positive, realistic thoughts. The cognitive element of CBT focuses on identifying negative thoughts related to the self, world, and future (Beck's negative cognitive triad) and challenging their accuracy. By changing these thoughts, mood and behaviour can also be changed.

## Making connections

### The dual process model of cognition and depressive etiology

The dual process model of cognition developed by psychologists such as Amos and Tversky over the past 50 years holds that humans have two 'systems' of thinking:

- System 1 — fast, automatic and largely based on past experience
- System 2 — slower and more logical.

It is very important to consider how this model could support cognitive etiological theories of depression, such as Beck's negative cognitive triad.

### Reflection questions

1. With a partner, discuss how the dual process model (system model) of cognition relates to Beck's negative cognitive triad theory of depressive etiology.
2. How might engaging in behaviour that frequently engages System 2 serve to prevent the onset of depression?

The cognitive etiology (see [section 2.1.4](#)

(<https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/social-media-and-depression-id-49429/>) is supported by a vast amount of evidence supporting the effectiveness of CBT. Some research ↗ (<https://doi.org/10.1016/j.psc.2010.04.005>) has shown that it is just as effective as antidepressant medications. In addition, CBT appears to have a long-term effect in preventing relapse after treatment ends. This aligns with the cognitive theory that modifying thought patterns leads to lasting change. The cognitive etiology of depression informs the principles used in psychological therapies, such as CBT, and in turn, the effectiveness of the treatments provides support for the cognitive etiology.

## Perspective lens

# Biological and cognitive approaches

A psychologist's theoretical perspective and understanding of psychological disorders significantly shapes their approach to treatment. While all psychologists must seek to understand the etiology of a disorder from all three approaches (biological, cognitive and sociocultural), it is very helpful to frame questions and investigations within a given approach.

As psychologists understand biological, cognitive and sociocultural etiological causes or triggers of a given disorder, they can then begin to design approaches to treatment that focus on addressing those specific etiological elements.

Approaching the treatment of mental health disorders in this way certainly has benefits, but may also have some limitations.

## Reflection questions

1. What are the strengths of approaching the treatment of mental health disorders through the lens of the approaches?
2. What are the weaknesses of approaching the treatment of mental health disorders through the lens of the approaches?
3. How do you think a psychologist's perspective on depressive etiology may influence their approach to treatment?
  - What types of treatments would emerge from a biological approach?
  - What types of treatments would emerge from a cognitive approach?

# Cognitive vulnerability—stress model and cognitive therapies

According to [Hammen \(2005\)](#) (<https://doi.org/10.1146/annurev.clinpsy.1.102803.143938>), most episodes of major depression are preceded by stressful life events. However, not everyone who experiences stressful life events will experience depression.

This can be explained by another cognitive etiology of depression that takes into consideration the role of our environment. The cognitive vulnerability—stress model (a type of diathesis—stress model) suggests that certain cognitive factors, such as negative thinking patterns and ruminations, interact with stressful life events to increase our vulnerability to depression. This

model integrates cognitive theories of depression (such as Beck's negative cognitive triad) with the role of stress, suggesting that a person's negative thought patterns and beliefs make them more susceptible to developing depression in response to stress. Examples of significant and impactful stressful life events include the death of a close family member or friend, divorce, marriage, and losing a job.

When a person with negative thinking patterns faces stress (for example, failing an exam), they are likely to interpret this situation negatively. For example, they may think they will never pass another exam again. This may make them more vulnerable to developing depressive symptoms.

Hankin (2008)  (<https://doi.org/10.1007/s10802-008-9228-6>) followed a group of 350 adolescents to investigate whether the cognitive vulnerability–stress model could predict specific depressive symptoms over time. They took measures of cognitive vulnerabilities, depressive symptoms and occurrence of stressors (for example, school/achievement problems, friendship and romantic difficulties, and family problems) at four time points over a five-month period. The researcher found that the interaction of a negative inferential style (a tendency to take a 'negative' view of the world) and stress predicted depressive symptoms.

Many cognitive therapies, such as CBT, target the cognitive stress–vulnerability model by addressing and modifying the negative thought patterns and beliefs that make them more vulnerable to depression. For example, individuals may be asked to identify the negative thought patterns and cognitive distortions and engage in cognitive restructuring. By actively challenging and reframing their thoughts, individuals can reduce their impact and hence, reduce the intensity of their responses to stress.

To address the interaction between an individual's vulnerability and stressors, cognitive therapies can help identify stressors and circumstances that may be triggering. Individuals can also reframe their interpretation of stressful events to be more balanced and realistic. Finally, cognitive therapies can also help individuals learn coping strategies to manage stress more effectively. These can include relaxation techniques, behavioural activation (for example, participating in activities that counter negative cognitive biases) or problem-solving skills.

## Activity

IB learner profile attribute: Open-minded/Inquirer/Thinker

Approaches to learning: Thinking/Researching/Social skills

Time required to complete activity: 60 minutes

Activity type: Pairs

## Linking the cognitive perspective of etiology and treatment

Read the following case study about Jordan, a teenager suffering from depression.

*Jordan is a 16-year-old student who has been feeling down for the past few months. They used to enjoy spending time with friends and participating in extracurricular activities. However, lately, they have been withdrawing from social events and no longer find joy in their hobbies.*

*Jordan describes feeling tired most of the time, even after a full night's sleep. They have been experiencing difficulty falling asleep, often lying awake at night, thinking about how everything seems to be going wrong. Jordan feels overwhelmed by thoughts, specifically their performance in school and how they compare to others.*

*Jordan's self-talk is filled with criticism about themselves. They think things such as, 'I am not good enough,' 'I will never succeed,' and, 'Everyone else seems to have their life together, but I don't.' These thoughts cause Jordan to feel hopeless about the future.*

*Jordan has also avoided talking to their friends about how they feel because they believe they are a burden. When they do spend time with friends, they often interpret neutral comments as criticisms or assume that their friends secretly dislike them. Jordan believes that no matter what they do, they will always fail and they have started to wonder if anything will ever get better.*

Work with a partner to complete the following tasks.

1. Identify cognitive patterns and behaviours that may be contributing to Jordan's depression based on your knowledge of cognitive etiology.
2. Based on your understanding of cognitive etiology, outline how a cognitive treatment could be used to treat Jordan. Describe specific techniques such as thought challenging and behavioural activation that could be applied.
3. Create a visual representation (such as a mind map or flow chart) that explains the link between cognitive etiology and one cognitive treatment. Your visual should clearly show how this etiology leads to depression and how the treatment works to target this etiology.
4. Share your visual representation with another pair, identifying any differences in your links.

## Reflection question

1. (Concept application: perspective) How do you think a cognitive perspective of etiology may influence approaches to treating depression? Discuss.

## Learning outcomes

By the end of this section, you should be able to:

- Explain the role and use of cognitive models in understanding mental health disorders.
- Identify the role of environmental factors on mental health disorders.
- Identify psychological treatments for mental health disorders and evaluate their effectiveness.
- Discuss how perspective on depressive etiology influences approaches to treatment.

# Which biological treatments for depression are the most effective?

## Guiding question(s)

In this subtopic, you are thinking about the question, ‘**Is the key to treating depression in biology or the mind?**’ This section will help you make an informed response by working through the following guiding question:

- Which biological treatments for MDD are the most effective according to evidence?

To answer this question, you should focus on identifying evidence in support of different biological treatment modalities, as well as evidence that calls into question their effectiveness. While doing this, keep in mind the guiding question in [section 2.2.3 ↗](https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/what-is-the-relationship-between-etiology-and-treatment-id-49441/) (<https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/what-is-the-relationship-between-etiology-and-treatment-id-49441/>), regarding the relationship between etiology and treatment.

Keep the guiding question in mind as you progress through this section. The guiding questions build into the subtopic question(s). You will return to the subtopic question(s) at the end of each subtopic. The subtopic questions require you to pull together your knowledge and skills from different sections, to see the bigger picture and to build your conceptual understanding.

Biological perspectives of etiologies of depression ([subtopic 2.1 ↗](https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/the-big-picture-id-49425/) (<https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/the-big-picture-id-49425/>))) inform biological treatments. They involve approaches that directly affect neurobiology and functioning to relieve symptoms. However, the brain is a complex structure, and the direct effects of these treatments are often not well understood. Additionally, biological treatments are used in combination with psychological treatments.

## Making connections

In [section 2.1.5 ↗](https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/the-neurobiology-of-mental-health-id-49430/) (<https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/the-neurobiology-of-mental-health-id-49430/>), you learned about the neurobiology of depression. These etiologies help inform our understanding of treatments for depression because these treatments target the biological mechanisms.

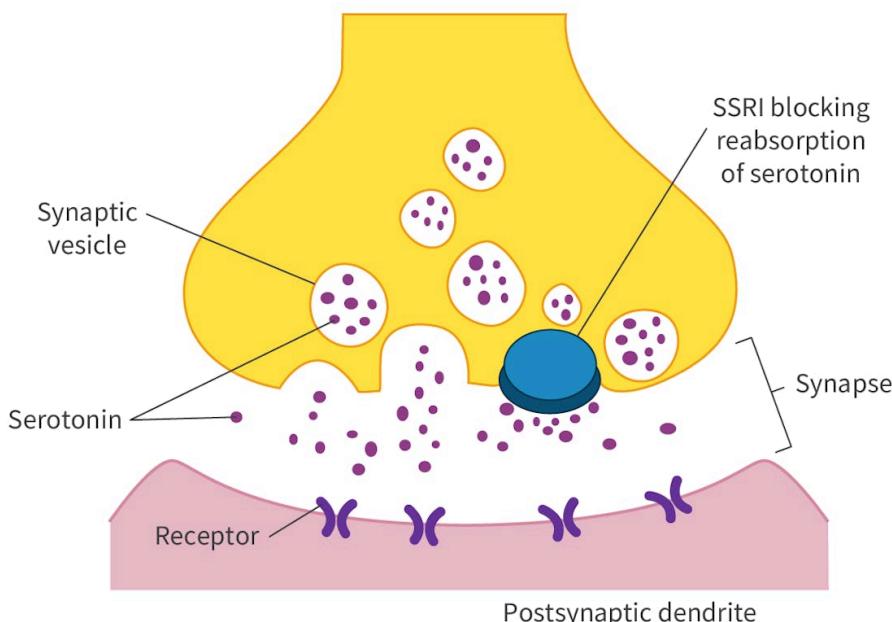
# Neurotransmitters and treatments for depression

The relationship between biological etiology and treatment is perhaps one of the most interesting, due to the mixed research evidence on the theory. The biological etiology of depression has led to the development of various pharmacological treatments. In the 1950s, several medications, such as reserpine for high blood pressure, were discovered to cause depression as a side effect. These drugs impacted a group of neurotransmitters known as monoamines (serotonin, noradrenaline, and dopamine), which were subsequently believed to play a role in regulating mood. This led to the hypothesis that monoamine levels are central to depression, resulting in the creation of the first class of antidepressants designed to regulate these neurotransmitters in the synapse.

## Antidepressants

Antidepressant medications are currently the most widely used biological treatment for depression. A recent study ↗ (<https://doi.org/10.1542/peds.2023-064245>) found that antidepressant prescriptions for young adults and teenagers in the USA increased by nearly 64% from 2020. According to the National Center for Health Statistics ↗ (<https://www.cdc.gov/nchs/products/databriefs/db377.htm>), approximately 13% of adults in the USA are taking antidepressant medication. Globally, as of 2022, Iceland, Portugal and the United Kingdom have the highest rates of antidepressant consumption ↗ (<https://www.statista.com/statistics/283072/antidepressant-consumption-in-selected-countries/>).

These drugs are meant to provide relief of depressive symptoms by altering the presence of certain neurotransmitters in the brain. Different types of antidepressants work to affect different neurotransmitters. Selective serotonin reuptake inhibitors (SSRIs) are commonly prescribed and increase the level of serotonin, a neurotransmitter that affects mood, by blocking the reuptake into the presynaptic neuron (**Figure 1**). Other types of antidepressants include serotonin-norepinephrine reuptake inhibitors (SNRIs) and monoamine oxidase inhibitors (MAOIs).



**Figure 1. SSRIs work to block serotonin reuptake at the synapse level.** More information for figure 1

Junction between two cells. The gap between the cells is labelled synapse. The second cell is labelled postsynaptic dendrite. In the first cell, synaptic vesicles are depicted as pockets containing serotonin particles. Serotonin is released from the vesicles into the synapse and travels towards the receptors on the postsynaptic dendrite. Also shown is an SSRI, which blocks one of the vesicles on the surface of the presynaptic cell. It is labelled SSRI blocking reabsorption of serotonin.

There is minimal evidence to suggest that serotonin is responsible for depression, yet antidepressant prescription rates have increased over the past 20 years ↗ (<https://doi.org/10.3399/BJGPO.2021.0020>). Several meta-analyses do suggest antidepressants have modest but clinically significant benefits compared to a placebo for treating major depression. Cipriani et al. (2018) ↗ ([https://doi.org/10.1016/S0140-6736\(17\)32802-7](https://doi.org/10.1016/S0140-6736(17)32802-7)) found that all 21 antidepressant drugs studied were more effective than the placebo in treating depression. It is important to note that in many of the studies in these reviews, there was a high risk of bias, short follow-up periods and potential overestimation of benefits of antidepressants.

Jakobsen, Gluud and Kirsch (2020) ↗ (<https://doi.org/10.1136/bmjebm-2019-111238>) found that while there was a statistically significant effect of antidepressants on depression, there was a questionable effect size. In addition, they concluded that the negative side effects of antidepressants seem to outweigh their benefits.

## Concept

### Bias

Bias in research publications, particularly in studies on the effectiveness of antidepressants, can influence how findings are presented and interpreted. Examining the potential for such bias raises critical questions about the reliability of evidence and its impact on knowledge construction in psychology.

### Reflection questions

1. Why might research publications that investigate the effectiveness of antidepressants be biased towards demonstrating a positive effect of antidepressants?
2. What implications does this have for knowledge construction in psychology?

There are several limitations to the use of antidepressants when treating depression. Unfortunately, a statistically significant number of individuals ↗ (<https://doi.org/10.1001/jamainternmed.2014.1053>) actually experience an increase in suicidality and suicidal thoughts when undergoing antidepressant treatment. Other possible side effects of these drugs include gastrointestinal issues, sleep disturbances and sexual dysfunction. In addition, many patients experience withdrawal symptoms when discontinuing antidepressants, and this

can last from two weeks up to months. This has implications for treatment, as many participants may find it difficult to stop taking antidepressants once the treatment has started.

Additionally, the placebo effect may be an explanation for the improvements seen in patients in antidepressant trials. A meta-analysis by [Kirsch et al. \(2008\)](#) (<https://doi.org/10.1371/journal.pmed.0050045>) found that while drug-placebo differences increased as a function of initial depression severity, the differences were relatively small, even for severely depressed patients, indicating that the placebo effect may explain the response in symptoms.

## Activity

IB learner profile attribute: Thinker/Open-minded/Inquirer

Approaches to learning: Researching/Communicating

Time required to complete activity: 45–60 minutes

Activity type: Pairs

### The placebo effect

Read through the [Kirsch et al. \(2008\)](#) (<https://doi.org/10.1371/journal.pmed.0050045>) study that suggests the effectiveness of antidepressants is due to the placebo effect.

In pairs, discuss the following questions.

1. **(Concept application: measurement)** How do researchers measure the placebo effect compared to improvement from antidepressants?
2. How does the placebo effect challenge our understanding of the effectiveness of antidepressants?
3. How can understanding the placebo effect be beneficial in the treatment of depression?
4. What ethical considerations arise in clinical trials that use the placebo effect?
5. Do you think that placebos should be used as a treatment for depression?  
Why or why not?
6. Overall, do you think that the placebo effect is a help or hindrance to patients?
7. Share your thoughts with the class.

A meta-analysis conducted by Recchia et al. (2022) (<https://doi.org/10.1136/bjsports-2022-105964>) investigated 21 random controlled trials (RCTs) comparing antidepressants and exercise for non-severe depression. They found that exercise was equally as beneficial as antidepressants at relieving symptoms. This indicates that treatments like exercise can be just as effective as antidepressants, without the same side effects. However, it is important to note that the drop-out rate was much higher for exercise studies than antidepressants.

## Creativity, activity, service

## Strand

### Activity

#### Learning outcomes

- Show commitment to and perseverance in CAS experiences.

Recent research [\[4\] \(https://theconversation.com/running-or-yoga-can-help-beat-depression-research-shows-even-if-exercise-is-the-last-thing-you-feel-like-223441\)](https://theconversation.com/running-or-yoga-can-help-beat-depression-research-shows-even-if-exercise-is-the-last-thing-you-feel-like-223441) has suggested that various forms of exercise can be effective in improving mental health. Challenge yourself to incorporate exercise, such as yoga, running or walking, into your weekly routine.

## Neural networks and treatments for depression

Depression may be a result of abnormalities in our brain's neural networks. For example, fMRI has shown that the default mode network (DMN) is most active during your cognitive resting state. Many researchers have theorised that an overactive DMN may result in rumination and misprocessing of emotional stimuli.

Additionally, there is MRI evidence that suggests neuroplasticity is impaired in the brains of humans with depression. This is particularly evident in the medial prefrontal cortex (a region of the brain involved in cognitive processes, regulation of emotion, motivation, and sociability) and the hippocampus (involved in learning and memory). As a result, these areas of the brain become reduced in volume.

However, any changes to the brain are not permanent, and it is possible to reverse these changes!

Based on this etiology of depression, many treatments aim to *induce* neuroplasticity in the brain. Neuroplasticity can help reverse the negative structural changes associated with depression, such as the reduced volume of the hippocampus, and allow the brain to 'rewire' itself. New neural connections in areas such as the prefrontal cortex can also help individuals to regain emotional control, which can then relieve symptoms such as sadness and irritability. Overall, inducing neuroplasticity promotes changes in the brain's structure and function, restoring normal functioning, and improving mood regulation and cognitive control.

### HL Extension

#### Technology

Technology such as fMRI, MRI, and PET scan have played an important role in building knowledge within psychology and neuroscience.

Research into the biological etiology of depression and treatments for depression needs to utilise these technologies to better understand the biological correlates of depression.

Effective treatments for depression can provide important insights into depressive etiology, though researchers need to be careful not to mistake correlation for causation.

There are examples of research in this subtopic that allow you to discuss the role of technology in understanding depression, both from etiological and treatment perspectives.

For example, research by [Robin Carhart Harris and his team ↗](#) (<https://doi.org/10.1038/s41598-017-13282-7>) found that participants with depression who took psilocybin experienced a decrease in brain activity in the amygdala and an increased resting state functionality in the DMN post-treatment. These individuals also experienced a significant decrease in depressive symptoms. By using technology to understand specific neurological changes that correlate with a decrease in symptoms, psychologists may better understand the biological origins of depression.

Research into the neuroplasticity induced by drugs such as psilocybin and ketamine has done much to [inform researchers ↗](#) (<https://doi.org/10.1016/j.neuron.2019.02.005>) about the underlying neurological correlates of depressive behaviour. Specifically, the possible role of dysfunction in the limbic system and the power of inducing neuroplasticity through drugs or meditation to 'fix' this dysfunction. This understanding is only possible through technology.

## Reflection questions

1. What is the difference between an fMRI and a PET scan?
2. Which errors could exist as a result of relying on technology to construct knowledge?
3. What role might AI play in aiding the understanding of mental health disorders?

## Electroconvulsive therapy (ECT)

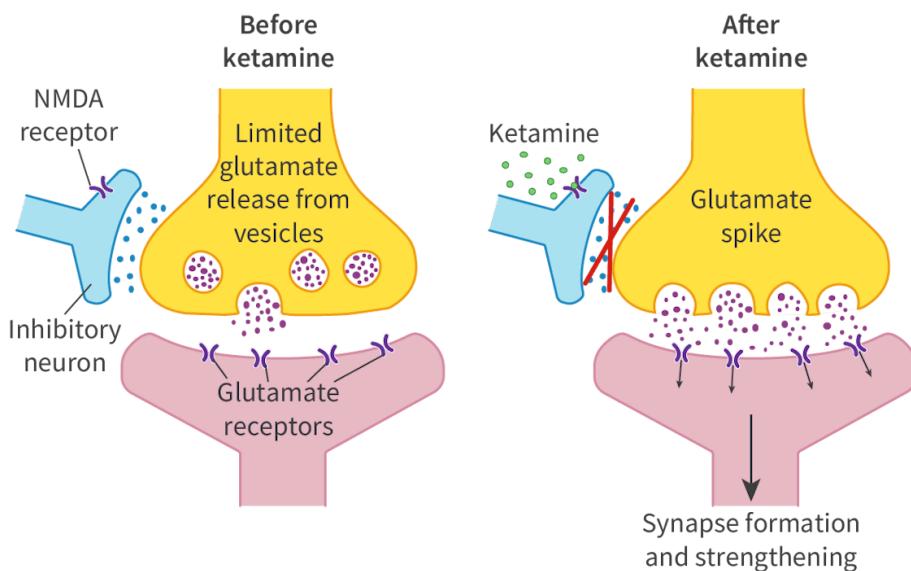
[Electroconvulsive therapy](#) (ECT) is a biological treatment that involves applying electrical currents to the brain to trigger a brief seizure. A controlled electric current is passed through the brain via electrodes, inducing a seizure that lasts 30 to 60 seconds. This seizure is thought to 'reset' the brain and relieve symptoms for cases of moderate-to-severe depression. While the exact mechanism of ECT is not fully understood, it is believed to affect neurotransmitters such as serotonin, dopamine, and norepinephrine, which are linked to mood regulation.

Additionally, it is believed to stimulate the growth of new neural connections (in other words, neuroplasticity) in brain regions linked to mood and emotional regulation, including the hippocampus, the limbic system and DMN.

[ECT is highly effective in the short-term for severe depression ↗](#) ([https://journals.lww.com/ectjournal/abstract/2004/03000/efficacy\\_of\\_ect\\_in\\_depression\\_a\\_meta\\_anal](https://journals.lww.com/ectjournal/abstract/2004/03000/efficacy_of_ect_in_depression_a_meta_anal)) or when patients are not responsive to other types of treatment. However, memory-related side effects are common. Patients often suffer from short-term memory loss, confusion and headaches after the treatment, which can sometimes persist for months.

## Emerging drug treatments

Growing research has shown that the neurotransmitters targeted by antidepressants account for less than 20% of all neurotransmitters in the brain. The other 80% of neurotransmitters consist mainly of two key types, GABA and glutamate, which are believed to regulate most brain activity. Ketamine is a drug that stimulates glutamate production by acting as an antagonist at N-methyl-D-aspartate (NMDA) receptors, a specific kind of glutamate receptor. Through a complex and not fully understood series of processes, ketamine encourages the brain to create new neural connections, leading to enhanced neuroplasticity (**Figure 2**).



**Figure 2.** The effect of ketamine in the synapse.

More information for figure 2

Synapse diagrams labelled Before ketamine and After ketamine. In both diagrams, a presynaptic cell releases glutamates from its vesicles towards glutamate receptors on the postsynaptic cell. In both diagrams, an inhibitory neuron releases neurotransmitters towards the presynaptic cell and an NMDA receptor is shown on the inhibitory neuron's surface. In the diagram labelled before ketamine, neurotransmitters travel freely between the inhibitory neuron and the presynaptic cell. There is limited glutamate release from the presynaptic cell. In the diagram labelled after ketamine, the inhibitory neuron is exposed to ketamine. Its ketamine receptor receives ketamine and this blocks the release of the inhibitory neurotransmitter. Much more glutamate is released from the presynaptic cell and reaches the postsynaptic cell. This glutamate spike leads to synapse formation and strengthening.

Ketamine has shown promising results in treating severe depression, particularly when patients are not responsive to other types of treatments. In 2019, the US Food and Drug Administration approved a nasal spray, esketamine, for treatment-resistant depression. Since then, there have been numerous studies [↗](https://doi.org/10.1016/j.neuron.2019.02.005) (<https://doi.org/10.1016/j.neuron.2019.02.005>) demonstrating the effectiveness of this drug.

Unlike ECT, there are fewer side effects associated with the use of ketamine as a treatment for depression. Anand et al. 2023 [↗](https://doi.org/10.1056/NEJMoa2302399) (<https://doi.org/10.1056/NEJMoa2302399>) conducted a study in the USA on 365 patients and found that ketamine was more effective than ECT for adults with

treatment-resistant major depression. A review conducted by [Ramos et al. \(2022\)](#)

(<https://doi.org/10.7759/cureus.23647>) of over 416 studies also indicated that ketamine is effective for treating substance use disorder, PTSD and suicidal thoughts, as well as depression.

However, as this is a relatively new treatment for depression, much more research is needed into its effectiveness. There is minimal research into ketamine for patients with other comorbidities, such as anxiety and bipolar disorder. In addition, some studies are showing that the combination of ketamine with other treatments, such as ECT, is effective.

## Psilocybin

Another relatively new and promising treatment for depression is psilocybin. It is a naturally occurring psychedelic compound found in certain species of mushrooms, often referred to as ‘magic mushrooms.’ When administered, it is believed to decrease brain activity in the amygdala, and increase resting state functionality in the DMN (<https://doi.org/10.1038/s41598-017-13282-7>) post-treatment. It is thought to interrupt patterns of negative thoughts and allow the brain to ‘remodel’ itself, almost as if it is allowing brain regions such as the DMN and limbic system to reset. These brain areas are believed to be involved in depression (see [section 2.1.5](#) (<https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/the-neurobiology-of-mental-health-id-49430/>)).

An RCT conducted by [Davis et al. \(2020\)](#)

(<https://doi.org/10.1001/jamapsychiatry.2020.3285>) of 24 patients found that just two doses of psilocybin produced large, rapid and sustained antidepressant effects in patients with major depressive disorder. Additionally, a review of eight studies conducted by [Hristova \(2023\)](#) (<https://doi.org/10.3390/bs13040297>) found that psilocybin in combination with psychotherapy is promising in the treatment of depression.

There has been a lack of scientific research on psychedelic drugs since the 1970s because of the negative stigmatisation surrounding their use. Hence, the benefits of agents like psilocybin have only recently been explored. Current research findings are based on studies with small sample sizes and several lack a control group, making any comparison difficult. Larger trials, with larger samples, are needed to investigate the effectiveness of psilocybin in treating depression, as well as potential side effects.

### Learning outcomes

By the end of this section, you should be able to:

- Identify and explain one or more biological treatments for mental health disorders.
- Identify and explain the effectiveness of these treatments for treating mental health disorders.
- Explain the process of neuroplasticity and the role that environmental factors play on brain development.
- Discuss the role of external variables in drawing conclusions about causality.

- Discuss how measurement can be used to evaluate treatment effectiveness.
- Explain the process of neurotransmission and how an understanding of it allows psychologists to improve health and well-being.

**HL Extension**

- Discuss the role of technology in assisting in the prevention and treatment of health problems.

## 2.2 Prevention and treatment

# Which psychological treatments for depression are the most effective?

## Guiding question(s)

In this subtopic, you are thinking about the question, '**Is the key to treating depression in biology or the mind?**' This section will help you make an informed response by working through the following guiding question:

- Which cognitive-based treatment approaches are the most effective according to the evidence?

In the previous section, you considered the effectiveness of biological treatments. In this section, you will explore the same ideas but applied to cognitive-based treatment approaches.

Keep the guiding question in mind as you progress through this section. The guiding questions build into the subtopic question(s). You will return to the subtopic question(s) at the end of each subtopic. The subtopic questions require you to pull together your knowledge and skills from different sections, to see the bigger picture and to build your conceptual understanding.

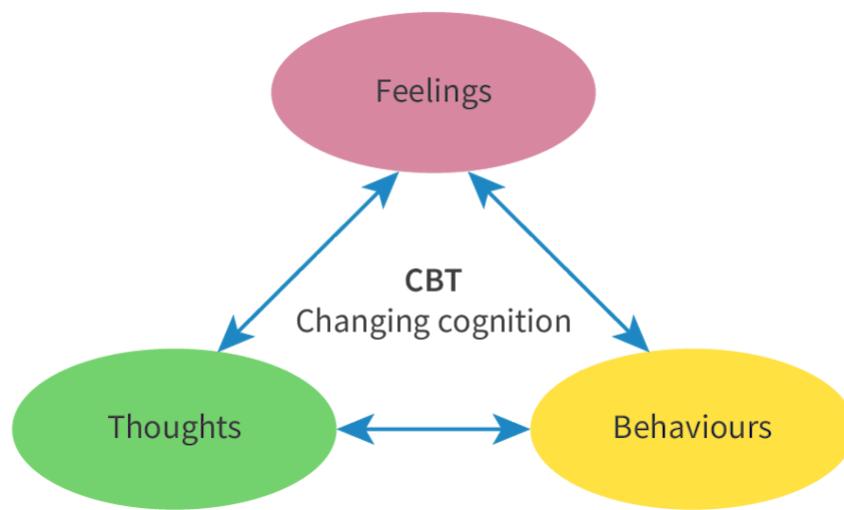
What if the key to treating depression is within our own thoughts and behaviours? Psychological treatments for depression target the cognitive etiology of depression and are very different from biological treatments. Psychological treatments primarily work by addressing thought patterns, behaviours, and emotional responses, while biological treatments (such as antidepressant medications) directly alter neurobiology.

Psychological treatments focus on changing cognitive processes and behaviours, teach coping skills and problem-solving techniques, and address underlying psychological issues. Typically, these treatments require more active participation from the patient and require more time to see the effects of the treatment, ranging from weeks to months.

# Cognitive behavioural therapy (CBT)

CBT is one of the most widely researched and effective treatments for depression (<https://doi.org/10.3389/fpsyg.2018.00004>). It helps patients to identify and modify negative thought patterns and behaviours that contribute to depression. As you learned in section 2.2.3 (<https://app.kognity.com/study/app/psychology-new/sid-540-cid-763690/book/what-is-the-relationship-between-etiology-and-treatment-id-49441/>), this treatment is based on Beck's theory of depression. The key components of this treatment are cognitive restructuring and behavioural activation (**Figure 1**).

Cognitive restructuring involves identifying and challenging negative thought patterns and cognitive distortions. This could be through identifying automatic negative thoughts, examining reasons for and against these thoughts, and developing a more balanced, realistic alternative. Behavioural activation focuses on increasing positive behaviours and decreasing avoidance behaviours. Generally, CBT lasts between 5 and 20 sessions and takes place face-to-face.



**Figure 1.** CBT targets both behaviours and thoughts.

## Concept

## Perspective

Etiological perspectives, which focus on the causes of psychological disorders, play a significant role in shaping approaches to treatment.

## Reflection question

1. What role does etiological perspective play in approaches to treatment?

Overall, CBT is a highly effective treatment for depression and many other mental health disorders ↗ (<https://doi.org/10.1007/s10608-012-9476-1>), and has fewer side effects than biological treatments. Riggs et al. (2007) ↗ (<https://doi.org/10.1001/archpedi.161.11.1026>) conducted a double-blind RCT, comparing participants assigned to either CBT and a placebo, or CBT and SSRI. Improvements were seen in 67% of participants receiving CBT and placebo, and 76% of participants receiving CBT and SSRI. This provides evidence of the effectiveness of both CBT alone and CBT paired with a biological treatment for treating depression.

Wiles et al. (2016) ↗ ([https://doi.org/10.1016/S2215-0366\(15\)00495-2](https://doi.org/10.1016/S2215-0366(15)00495-2)) found that when CBT was given to patients in addition to treatment as usual (including antidepressants), depressive symptoms improved. The CBT condition reported at least a 50% reduction in their depressive symptoms, compared with 27% who continued their usual treatment. These benefits were not only short-term, they continued for an average of 40 months after the therapy had ended.

There is, however, limited evidence for the effectiveness of CBT in certain populations, such as low-income populations and ethnic minorities. Many trials have been conducted in white participants ↗ (<https://doi.org/10.1037/a0037929>), which questions the generalisability of the findings. Standard CBT treatments may not be appropriate or adapted to some cultural groups. Even so, there is mixed support for culturally adapted CBT ↗ (<https://doi.org/10.1146/annurev-clinpsy-080921-072750>), as there is limited research on its effectiveness. Studies that use culturally adapted approaches also make it difficult to compare results with standard CBT, so there is limited information about which adaptations are beneficial.

## HL Extension

### Culture

CBT (cognitive behavioural therapy) is very much derived from Beck's theory of the negative cognitive triad.

While humans across all cultures are certainly more similar than they are different, it is undeniable that culture and individual experiences derived from culture have an impact on human behaviour and cognition.

Therefore, it is reasonable to ask whether or not the negative cognitive triad would hold outside of the cultural context in which it was largely developed —the USA. It would also be reasonable to ask whether or not treatment modalities and methods derived from the etiological framework of the triad would also be valid in diverse cultural contexts.

Researchers such as Huey et al. (2023) ↗

(<https://www.annualreviews.org/content/journals/10.1146/annurev-clinpsy-080921-072750>) have indeed investigated questions such as these and found that while cultural minorities in the United States do indeed benefit from CBT, it is at a slightly lower rate than members of the culturally dominant culture.

Therefore, the researchers suggest that psychologists attempt to adopt a culturally sensitive approach to CBT. They found that practitioners who worked with a specific cultural group frequently (such as Mexican Americans or African Americans) benefitted their clients greatly by engaging in cultural sensitivity training and customising the CBT in a culturally sensitive way.

## Reflection questions

1. Explain why CBT would work for individuals across all cultures to treat depression. Ensure that, during this discussion, you consider what would need to be true about depressive etiology.
2. Explain why CBT would **not** work for individuals across all cultures.
3. How might biological treatments have an advantage over cognitive treatments when applied to diverse cultural groups or contexts?
4. Discuss the concepts of etic and emic research and explain how each can serve to increase the efficacy of treatment for depression within and across cultures.

The research into CBT may also be prone to publication bias. Cuijpers et al. (2010) ↗ (<https://doi.org/10.1192/bjp.bp.109.066001>) examined 117 trials and concluded that the effects of psychotherapy for adult depression may be overestimated because of publication bias.

## Interpersonal psychotherapy (IPT)

IPT is another type of psychological treatment for depression. IPT is a talking therapy, which is targeted at improving interpersonal relationships and social functioning to help relieve the symptoms of depression. The basis of IPT is that psychological symptoms can be understood as a response to current difficulties in everyday relationships. Similar to CBT, participants work with a therapist to take an active, supportive role. However, IPT does not focus on changing thought patterns, and instead aims to improve communication skills and support networks. IPT usually lasts for 12–16 sessions and is commonly used in combination with medication. Studies show that IPT combined with medication ↗ (<https://doi.org/10.1002/wps.20089>), such as antidepressants, is more effective at treating depression than medication alone.

# Mindfulness-based cognitive therapy (MBCT)

Another prominent psychological treatment for depression is a variation of CBT called mindfulness-based cognitive therapy (MBCT). MBCT integrates mindfulness meditation techniques with cognitive therapy principles to help individuals develop greater awareness and acceptance of their thoughts, emotions and experiences. The goal is to develop resilience and prevent relapse. It helps patients let go of negative thoughts that may be affecting their depression.

An RCT conducted by Kuyken et al. (2015) ↗ ([http://dx.doi.org/10.1016/S0140-6736\(14\)62222-4](http://dx.doi.org/10.1016/S0140-6736(14)62222-4)) found that MBCT was just as effective as antidepressants at preventing relapse. It has also been shown to reduce the risk of relapse to depression ↗ (<https://doi.org/10.1007/s12671-018-1087-9>) when added to usual care, such as antidepressants. MBCT may also be more cost-effective for people with depression. A recent study ↗ (<https://doi.org/10.1001/jamapsychiatry.2023.0222>) found that MBCT self-help was both clinically effective and cost-effective compared to CBT self-help, indicating that this treatment should be made more accessible to people with mild to moderate depression. However, while the effectiveness of MBCT is promising, MBCT is not superior to other psychological treatments such as CBT. More research is needed into its effectiveness across various populations, as well as its long-term effectiveness, as it is a relatively new treatment.

## Are psychological or biological treatments more effective?

Now that you have learned about both biological and psychological treatments, the question still remains: are psychological or biological treatments more effective at treating depression?

Based on the evidence available, it is difficult to definitively answer this question for a number of reasons. While both approaches have shown effectiveness, neither is superior to the other. Often, a combination of both approaches is recommended.

Psychological treatments appear to be more effective in the long term compared to antidepressants. A study by Hollon et al. (2005) ↗ (<https://doi.org/10.1001/archpsyc.62.4.417>) found that only 31% of CBT patients suffered a relapse within 12 months, compared to 76% of those treated with drugs alone. However, participating in therapy may be seen as quite demanding for some patients and, hence, less suitable as a treatment. The Treatment of Adolescents with Depression Study (TADS) ↗

(<https://doi.org/10.1001/jama.292.7.807>) found that a combination of CBT and antidepressants outperforms all other treatments in the short term. However, CBT gradually becomes just as effective as medication over time.

## HL Extension

### Motivation

Consider the role that motivation plays in cognitive (psychological)-based treatments for depression.

The theory of planned behaviour is a motivational theory developed by Ajzen and Fishbein ([https://doi.org/10.1016/0022-1031\(69\)90033-X](https://doi.org/10.1016/0022-1031(69)90033-X)) holds that, in order for a health-related behaviour to occur, the individual must:

- be motivated to engage in the behaviour.
- be in a social environment in which the behaviour is considered desirable and good (this is referred to as normative attitudes toward the behaviour).
- be capable of engaging in the behaviour.

### Reflection questions

1. In what ways might a psychologist work with a patient to address one of the three elements of the Theory of Planned Behaviour to increase the effectiveness of a cognitive-based treatment for depression?
2. In what ways might motivation be a weakness or limitation of cognitive-based treatments for depression?

Biological treatments may take effect more quickly. Medication takes weeks to be effective; however, cognitive therapy can take months. For people with more severe depression or suicidal thoughts, biological treatments may be more effective. For example, ketamine as a treatment sees immediate relief after only one session ([https://doi.org/10.4103/psychiatry.IndianJPschiatry\\_484\\_18](https://doi.org/10.4103/psychiatry.IndianJPschiatry_484_18)), and long-term relief after four to six sessions. In early trials, psilocybin has seen immediate and lasting effects (<https://doi.org/10.1056/NEJMoa2206443>) after just one session. However, the side effects are quite significant for biological treatments. Psychological treatments have minimal side effects.

Most of the evidence suggests that an integrated approach is best. One reason for this may be that antidepressants give immediate symptom relief that could enable patients to engage effectively in CBT. Keller et al. (2001)  (<https://doi.org/10.1056/NEJM200005183422001>) found recovery rates of 55% using medication alone, 52% using CBT alone and 85% when the two therapies were used together.

Overall, there is no one therapy that is suitable for *everyone* with depression. A combination of treatments that are tailored to the individual patient's needs and preferences seems to be the most effective approach. Treatments for depression continue to evolve over time and adapt to the changing needs of societies and individuals. Hence, ongoing research into the effectiveness of both psychological and biological treatments is highly important.

## Activity

IB learner profile attribute: Thinker/Inquirer/Reflective

Approaches to learning: Thinking/Communicating

Time required to complete activity: 45–60 minutes

Activity type: Group

## Exploring approaches to treatment

You will now further investigate biological and cognitive treatments for depression. In pairs, choose either a biological treatment or a cognitive treatment.

1. For your treatment, research the following:
  - a. **(Concept application: perspective)** Articulate the evidence-based underpinnings of the treatment's theoretical success. Consider its mechanisms, the etiologies on which it is based, and so on.
  - b. Which techniques are used? Does it make use of, for example, medications or exercises?
  - c. What are the strengths and limitations of the treatment? Consider its effectiveness and side effects, for example.
  - d. For which types of patients would this treatment be a 'best fit'?
2. Collaborate with another pair that has investigated a different treatment. Teach them about your selected treatment.
3. As a class, discuss the following:

- a. Which treatments seem most effective in the short term? Long term?
- b. Could any of these treatments be used in conjunction with one another? How?
- c. How might patient or clinician preferences play a role in choosing a treatment?

## Learning outcomes

By the end of this section, you should be able to:

- Explain the role and use of cognitive models in understanding mental health disorders.
- Identify psychological treatments for mental health disorders and evaluate their effectiveness.
- Discuss how psychological treatments contribute to change in behaviour.

## HL Extension

- Identify the motivational strategies to change individual behaviours.

## 2.2 Prevention and treatment

# Activity sheet: How do you know whether a treatment is effective?

In this activity, you will investigate the effectiveness of the treatments for depression discussed in this subtopic. In addition, you will look at some of the key issues related to measuring effectiveness.

## Subtopic question(s)

During this activity sheet, you will be working towards answering the following subtopic question:

- How do you know whether a treatment is effective?

## Part A

### Knowledge and understanding

Which of the following is **not** true about the relationship between etiology and treatment?

- 1 There is one single treatment approach that works for everyone.
- 2 Treatments that target the biological etiology (such as antidepressants) can be effective for many people.
- 3 Understanding a specific etiology can help guide the choice of treatment.
- 4 Depression has a complex and multifaceted etiology that often requires a combination of treatments.

Which is **not** a key difference between biological- and psychological-based treatments for depression?

- 1 Biological treatments require more active participation from the patient than psychological treatments.
- 2 Psychological treatments aim to modify thought patterns, behaviours and coping strategies.

3 Biological treatments modify brain chemistry by changing levels of neurotransmitters.

4 Biological treatments often have side effects, whereas psychological treatments have minimal side effects.

Which term is used to describe a situation in which studies with significant or positive results are more likely to be published than studies with negative or non-significant results?

 Type here

The negative \_\_\_\_\_ refers to a model of negative thinking in which individuals have negative thoughts about the world, their present self in the world and future possibilities.

Which of the following is **not** a social factor that can decrease the risk of depression?

1 Antidepressant medication

2 Regular exercise

3 Healthy diet

4 Increased social connection

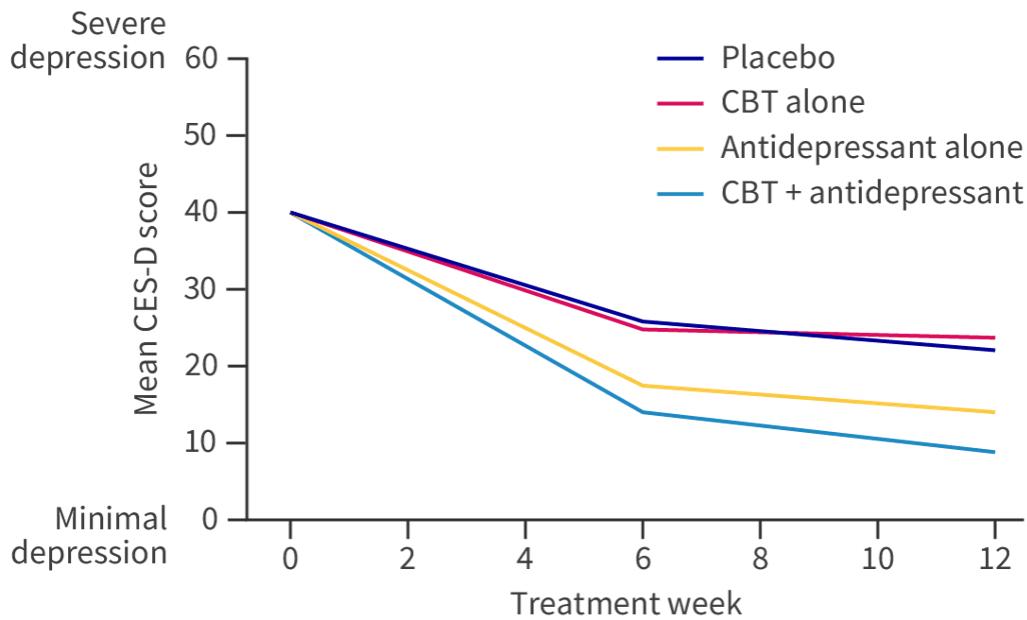
## Part B

### Application and analysis

A study investigated the effectiveness of antidepressants, cognitive behavioural therapy (CBT) and their combination in treating adolescents with depression over 12 weeks. A total of 350 adolescents were randomly allocated to the following conditions:

- placebo
- antidepressant medication
- CBT
- antidepressant medication and CBT.

Participants were assessed using the Center for Epidemiologic Studies Depression Scale (CES-D) at 0, 6 and 12 weeks. The results are illustrated in **Figure 1**.



**Figure 1.** Results of the study (using CES-D scores).



[More information for figure 1](#)

Line graph with vertical axis labelled Mean CES-D score from 0, meaning minimal depression, to 60, meaning severe depression. The horizontal axis is labelled with treatment weeks from 0 to 12. The four lines on the graph represent the scores for different interventions. They all begin at a mean CES-D score of 40 in week 0 and trend downwards. Each downward trend is faster up to week 6 and then slower from week 6 to week 12. For a placebo, the mean score decreases from 40 in week 0 to roughly 26 in week 6, then to roughly 22 in week 12. For CBT alone, the score decreases from 40 in week 0 to roughly 25 in week 6, and is only just below 25 in week 12. For an antidepressant alone, the score decreases from 40 in week 0 to roughly 18 in week 6, then to roughly 14 in week 12. For CBT plus an antidepressant, the score decreases from 40 in week 0 to roughly 14 in week 6, then to roughly 10 in week 12.

According to the findings of the above study, which treatment was the most effective? How do you know this?



Your answer

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0/2000

Analyse the results from the placebo condition. Why was there an improvement in this condition despite receiving no treatment?

 Your answer

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0/2000

How do the findings of this study inform your understanding of the effectiveness of treatments for depression?

 Your answer

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0/2000

The participants in this study were a volunteer sample of 350 patients from the United Kingdom, aged 12–17. Explain one limitation with the use of this sample.



Your answer

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0/2000

Several of the tools used to measure the effectiveness of the treatments involved self-reporting. How do you think the use of self-reporting may influence the findings of the study?

 Your answer

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0/2000

Can causality be inferred when assessing the effectiveness of treatment in this study? Explain your answer.

 Your answer

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0/2000

To what extent can the findings of this study be generalised to different populations? Are there any cultural considerations in the use of antidepressants and CBT in treatment?



Your answer

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0/2000

## Part C

### Synthesis and evaluation

Create a table to summarise and contrast at least three types of treatment that you have reviewed in this subtopic.

For each treatment, include:

- a description of the treatment (include the etiology on which it is based)
- type (psychological or biological)
- supporting research (at least one recent research study that assesses its effectiveness)
- evaluation of the treatment.



JPEG or PNG, max 10 MB

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Select from device

## Summary

In this activity, you have identified and contrasted a range of treatments for depression. You have also evaluated these treatments, identifying some of the issues with the treatments themselves, and measuring their effectiveness.

# Checklist

## Learning outcomes

By the end of **subtopic 2.2**, you should be able to:

- Identify and explain one or more biological treatments for mental health disorders.
- Identify and explain the effectiveness of these treatments for treating mental health disorders.
- Discuss how measurement can be used to evaluate treatment effectiveness.
- Explain to what extent we can infer causality when assessing the effectiveness of treatment.
- Discuss to what extent it is possible to objectively measure change in a person's behaviour before and after treatment.
- Identify the role of environmental factors on mental health disorders.
- Identify the role of one or more cultural dimensions in understanding group behaviour(s).
- Identify factors contributing to variations in prevalence rates of mental health disorders across different cultures and populations.
- Examine cultural differences in approaches to mental health, citing specific examples to illustrate diverse perspectives.
- Explain the role and use of cognitive models in understanding mental health disorders.
- Identify psychological treatments for mental health disorders and evaluate their effectiveness.
- Discuss how perspective on depressive etiology influences approaches to treatment.
- Identify and explain one or more biological treatments for mental health disorders and explain the effectiveness of these treatments for treating mental health disorders.
- Explain the process of neuroplasticity and the role that environmental factors play on brain development.
- Discuss the role of external variables in drawing conclusions about causality.
- Explain the process of neurotransmission and how an understanding of it allows psychologists to improve health and well-being.

- Discuss how psychological treatments contribute to change in behaviour.
- Identify different treatment methods and explain the effectiveness of those methods.

## HL Extension

- Discuss the role of culture in health and well-being.
- Discuss cross-cultural comparisons of the prevalence of mental health issues.
- Discuss the role of technology in assisting in the prevention and treatment of health problems.
- Identify the motivational strategies to change individual behaviours.