Chapter 33: CBT and the Cognitive Behavioural Model

Juliette Drobny

Specialty of Psychiatry, The University of Sydney, Australia.

Introduction

Cognitive Behaviour Therapy or CBT is a psychological skills-based treatment for a wide variety of mental disorders. As its name suggests, it is based on a combination of cognitive and behavioural principles to assist individuals in identifying unhelpful and irrational thoughts and behaviours and replace them with more realistic and adaptive ones. Unlike traditional long-term psychodynamic psychotherapies that often require years, CBT is a short to medium term therapy focussed on current symptoms and problems, designed to equip patients with a range of skills to enable them to become their own therapist. To understand how CBT works, it is important to be familiar with the underlying theoretical principles.

Principles of Behaviour Therapy

There is a common misconception about what behavioural treatments are. Behaviour therapy is often misunderstood as a treatment that simply involves *behaving* in a certain way or *doing* certain things. However, behaviour therapy is based on learning theory involving classical conditioning (sometimes known as Pavlovian conditioning) and operant conditioning.

Classical Conditioning

Around the turn of the 20th century, Ivan Pavlov, a Russian physiologist, was the first to discover and study the phenomenon of classical conditioning, a type of associative learning (i.e., learning through association). While conducting experiments on the digestive processes of dogs, he observed that when presented with food (unconditioned stimulus) dogs would naturally salivate (unconditioned response). However, the dogs also salivated to neutral stimuli present at the time

food was delivered, such as hearing the footsteps of the assistant who fed them. He ran experiments where he used neutral stimuli such as ringing a bell immediately before delivering food. After several pairings, the dogs learned the bell signalled the delivery of food such that the bell on its own triggered the dogs to salivate (see Figure 33.1). The bell became a conditioned stimulus and salivation to the bell was the conditioned response.

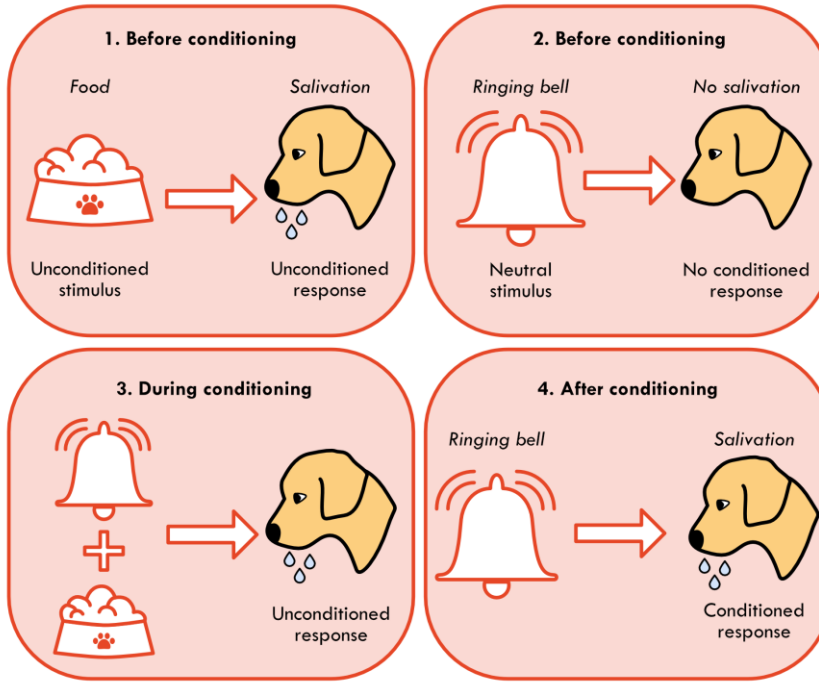

Figure 33.1. Pavlovian conditioning.

Classical Conditioning and Human Fear

Watson and Raynor (Watson and Rayner, 1920) demonstrated that human fears could be learned through Pavlovian conditioning principles with the case of Little Albert. Little Albert was an 11-month-old boy with no known fears, who was conditioned to fear a white rat. A loud noise (unconditioned stimulus) triggered a startle response and crying (unconditioned response). After repeated pairings of the white rat with the loud noise, the white rat alone triggered a conditioned fear response. The fear also generalised to include other furry animals and toys. Thus, classical conditioning is relevant to fear acquisition and the development of anxiety disorders, most notably post-traumatic stress disorder.

Operant Conditioning

Operant Conditioning was first introduced by the highly influential American psychologist and behaviourist, B.F. Skinner (Skinner and Vargas, 1957). It refers to modifying an individual's behaviour through providing consequences to either increase or decrease a behaviour. Operant conditioning is another type of associative learning where learning occurs through rewards and punishments for behaviour. In operant conditioning, the learner makes an association between a behaviour and its consequence. For example, if you tell a joke and everybody laughs, you're likely to tell that joke again. Here, people laughing is the reward or reinforcement which increases the joke telling behaviour. However, if you tell a joke and no one laughs, you're unlikely to tell that joke again. In this way, nobody laughing acts as a punishment and decreases the behaviour.

Components of Operant Conditioning

The components of operant conditioning involve reinforcement and punishment. A reinforcer is any event that strengthens or increases the behaviour, while a punishment is any adverse event or outcome that causes a decrease in the behaviour. Reinforcers and punishments can either be positive or negative. In operant conditioning, positive refers to the *addition* of a stimulus while negative refers to the *removal* of a stimulus. So, positive reinforcement involves adding a desirable stimulus after the behaviour, an example of which is praising children for putting away their toys. Here, praise is used as a positive reinforcer to increase good behaviour.

Negative reinforcement is often mistakenly confused with punishment. In negative reinforcement, a bad outcome or feeling is removed after the behaviour. For example, imagine a person with a dog phobia who feels very anxious around dogs. Whenever he avoids a dog, his anxiety rapidly reduces. The reduction in anxiety feels good and as such is reinforcing which then serves to strengthen or increase his avoidance behaviour around dogs.

Punishment can also be positive or negative. In positive punishment an aversive stimulus is added after the behaviour, for example receiving a speeding fine after speeding. In negative punishment, a desirable stimulus is removed after the behaviour, such as confiscating a favourite toy after bad behaviour. Both positive and negative punishment serve to decrease the frequency of the behaviour.

Negative Reinforcement and Avoidance

Negative reinforcement is extremely relevant to the maintenance of anxiety disorders and depression. Avoidance or escape is a ubiquitous response to anxiety provoking or distressing situations. As shown in the example of avoidance in a dog phobic displayed in Figure 33.2, distress rapidly rises in response to the dog. The distress is a highly unpleasant experience that triggers the urge to avoid or escape. In the short-term, avoiding the dog results in a rapid reduction in distress and therefore becomes very reinforcing. Through negative reinforcement, the person has learned avoidance helps to reduce their distress and so continues to use avoidance strategies to manage their distress. Avoidance therefore serves to maintain distress in the long-term.

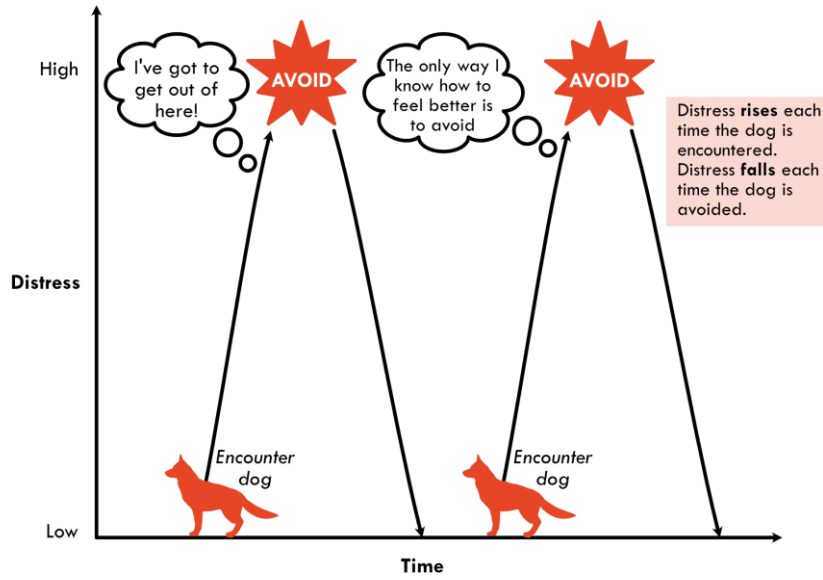

Figure 33.2. Role of avoidance in the maintenance of distress.

Additionally, it is imperative to recognise that by avoiding, the person never learns what happens if they remained in the situation. Would the dog actually bite? Avoidance prevents people from learning whether or not their fears come true, therefore perpetuating such fears, potentially over a lifetime.

Avoidance behaviours are critical to the maintenance of anxiety and depressive disorders. Though not always labelled as avoidance, behaviours designed to reduce distress and/or prevent feared outcomes can be considered a form of avoidance. In Obsessive Compulsive Disorder (OCD), such behaviours are termed compulsions or rituals (e.g., handwashing, checking). Safety seeking behaviours are another form of avoidance used in many psychological conditions. They refer to any behaviour the

person uses to minimise their feared outcome from eventuating. Consider the following safety seeking behaviours across different disorders and their impact on feared outcomes:

- A person with social anxiety disorder goes to a party. He fears others will think he is boring. He minimises speaking and keeps his answers brief.
- A person with post-traumatic stress disorder goes to a restaurant. He fears being harmed. He sits with his back to the wall, facing the entrance and constantly scans the environment for threatening people.
- A person with depression is in a new relationship. They believe they are unlovable and fear being rejected. They avoid expressing their opinions and always agree with their partner's requests.

In all these examples, the safety seeking behaviours function to reduce the person's distress in the short-term and prevent validation of the underlying fears, however they also prevent new learning and therefore directly contribute to the maintenance of such fears and beliefs over time.

Learning Theory

Different aspects of learning theory, namely classical and operant conditioning, have been highly influential in understanding the acquisition and maintenance of psychological disorders. Learning theory has also shaped the development of behavioural treatments for anxiety and depressive disorders, namely exposure therapy and behavioural activation, respectively. Exposure based treatments are based on unlearning learned associations from classical and operant conditioning principles, while behavioural activation is based purely on operant conditioning principles. Concepts involved in weakening learned associations will firstly be covered.

Extinction

When a conditioned stimulus is repeatedly presented *without* the unconditioned stimulus, it results in a reduction in the conditioned response. Returning to Pavlov's dogs, during the initial trial of an extinction program, the dog will continue to salivate to the bell. However, after repeated trials of hearing the bell without delivery of food, the dog learns the bell no longer signals food and salivation to the bell extinguishes.

Habituation

Habituation is a simple type of non-associative leaning that leads to reduced behavioural and physiological responses to repeated or prolonged stimuli. Shown in every animal species, it involves learning to ignore non-essential stimuli that are neither helpful nor harmful. Habituation does not require conscious awareness. Habituation is experienced in daily life, an example of which is hearing a loud jack hammer across the street. Initially, the sound grabs your attention and you find it distracting and annoying. Over the next few days, the sound continues at a constant pace such that eventually you end up tuning it out. You have habituated to the sound.

Exposure Therapy

Principles of learning theory described above lead to the development of behavioural treatments for human fears, namely exposure therapy. During exposure therapy, the patient is exposed to the feared stimulus in a safe environment. In lay terms, exposure therapy involves facing one's fears.

Imaginal Versus In Vivo Exposure

Exposure therapy can be conducted in imagination or in real life (in vivo). In imaginal exposure, the patient confronts the feared stimuli in their imagination whereas in in vivo exposure the patient interacts with the situation in reality, for example driving, catching a train, heights. In vivo exposure yields faster results and better transfer to the actual situation. However, imaginal exposure may be preferable when:

- It is difficult or impractical to obtain access to real life cues (e.g., flying, dogs)
- Anxiety provoking cues are internal (e.g., thoughts, traumatic memories, intrusive images)
- Anxiety to the real cue is too great

Whether imaginal or in vivo exposure is used, the procedures involved are largely identical.

Treatment Rationale

As confronting feared stimuli elicits some level of discomfort, the first and perhaps most important step involves providing a thorough treatment rationale (Addis and Jacobson, 2000). Patients should be introduced to the role of avoidance behaviours in the maintenance of anxiety and how graded and repeated exposure to

feared situations leads to reduced anxiety over time and the opportunity to allow disconfirmation of fears. The use of everyday examples can be helpful to demonstrate principles of habituation (e.g., repeatedly watching a horror movie scene, learning to drive). The importance of emphasising the *graded* nature of exposure therapy cannot be underscored enough. There is always a way to decrease the degree of difficulty to safe and manageable levels to engage even the most fearful patient.

Exposure Hierarchy

An exposure hierarchy of around 8 to 12 feared situations is constructed collaboratively with the patient who is the expert on the nature of their fears. Specific factors associated with their fears should be elicited and incorporated into the hierarchy. Situations are ranked from least to most anxiety provoking on a scale from 0 (no anxiety) to 100 (Extreme anxiety). Safety seeking behaviours and rituals may be incorporated into the exposure hierarchy in lower steps but should gradually be withdrawn and removed by completion of the hierarchy. Incorporating such safety seeking behaviours in the final step of an exposure hierarchy artificially reduces anxiety and prevents disconfirmation of fears, contributing to the maintenance of situational fears.

Table 33.1 displays an example hierarchy for a patient with agoraphobia wanting to catch an express train to the city. The factors that influence the level of anxiety include:

- Number of stations
- Alone vs accompanied with friend
- Presence of safety seeking behaviours (e.g., mobile phone, water bottle)
- Crowdedness of the train (e.g. peak hour, weekend)
- All stops vs express train

Table 33.1. Example in vivo exposure hierarchy.

Anxiety Rating	Traveling to the city by express train
100	Travel to city on an express train in peak hour alone without mobile phone or water bottle
90	Travel to city on an express train in peak hour alone with mobile phone and water bottle
80	Travel to city (6 stations) alone on a weekday in peak hour without mobile phone or water bottle
70	Travel to the city (6 stations) on the weekend alone without mobile phone or water bottle
60	Travel to work in peak hour (4 stations) alone without mobile phone or water bottle
50	Travel on a train to work in peak hour (4 stations) alone with mobile phone and water bottle
40	Travel on a train to work in peak hour (4 stations) with friend without mobile phone or water bottle
30	Travel on a train (2 stations) on a weekday but not in peak hour with friend, without mobile phone or water bottle
20	Travel on a train (2 stations) on weekend with friend, mobile phone and water bottle
10	Sit at the train station alone and read the timetable

Graded Exposure

Following construction of the exposure hierarchy, an initial item of mild to moderate anxiety (rated around 20-30) is selected for exposure, either imaginally or in vivo. Starting with lower-level items is useful to demonstrate the procedure and ensure early successful experiences to enhance confidence in the procedure and themselves. When conducting exposure, three conditions are essential:

- Exposure to the feared situation must be prolonged to enable reduction of anxiety.
- Avoidance, safety seeking behaviours or rituals must be prevented.
- Exposure is repeated and conducted in a variety of settings to facilitate new learning.

During imaginal exposure, the patient sits comfortably in their chair with their eyes closed (or initially with eyes open if too difficult) and the feared scenario is described in detail with the patient prompted to imagine and describe their sensory experiences:

- What can you see?
- What can you hear?
- What can you smell?
- What does it feel like?
- What's happening in your body?

When conducting imaginal and in vivo exposure, patients are asked to rate their level of anxiety throughout the exposure using the Subjective Units of Distress Scale (SUDS), where 0 represents no anxiety, 5 represents moderate anxiety and 10 represents extreme anxiety. The exposure task is repeated until the SUDS ratings decrease to low levels. Habituation of anxiety is typically achieved within around 40 minutes, though some patients require longer. Patients are encouraged to repeat the exposure task for homework between sessions. Once the exposure task elicits low levels of anxiety (or at least 50% reduction of the initial anxiety), mastery is considered to be achieved and the next step in the hierarchy is introduced. If the next item feels too difficult, flexibility is required and an intermediary step can be introduced (e.g., initially incorporating a safety seeking behaviour). The procedure is repeated until all steps in the hierarchy have been completed. Progression from imaginal to in vivo exposure (where appropriate) should then occur.

Figure 33.3 depicts the effect of exposure therapy on anxiety over time. In the first exposure trial, anxiety rises sharply and the patient has a strong urge to avoid in some way. However, by remaining in the situation, anxiety initially remains high but then gradually reduces *without* engaging in avoidance. During the second trial, anxiety continues to rise but not as high as the first time and takes less time to reduce. As the exposure trials progress, initial anxiety ratings decrease further and anxiety levels reduce faster.

In OCD (see Chapter 19), in vivo exposure is referred to as exposure plus response prevention (ERP). During ERP, the patient is exposed to a situation that elicits anxiety (e.g., using a stove) and is then prevented from engaging in the neutralising ritual or compulsion (e.g., checking). As with in vivo exposure, ERP adopts a graded approach, such that some rituals are initially permitted but are gradually reduced as the patient progresses through the hierarchy. For example, checking rituals may gradually be reduced from 10 checks, then 6 checks, then 4, 2,1 and until no checking is performed.

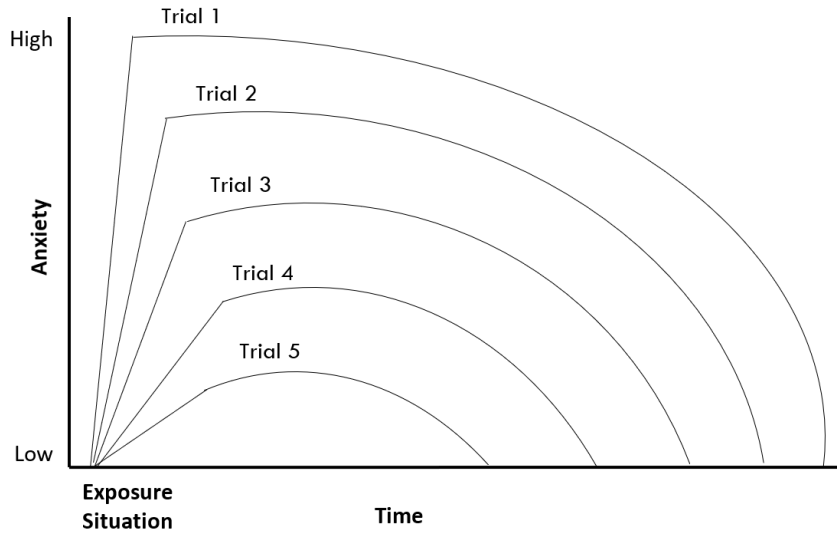

Figure 33.3. Effect of exposure therapy on anxiety over time.

The origins of exposure therapy date back to the 1920s, however it continues to remain a powerful intervention used in the treatment of a variety of disorders, particularly where fear and avoidance behaviours are prominent.

Behavioural Therapy for Depression: Behavioural Activation

The Behavioural Model of Depression

The behavioural model of depression is based on operant conditioning principles (Ferster, 1973). In brief, it suggests that individuals become depressed when there is an imbalance of reward and punishment in their environment, specifically, when there are low rates of reward and high rates of punishment. In this context punishment refers to events, stressors or circumstances that are aversive, controlling or stressful. Examples include social isolation, financial hardship, workplace bullying, marital tension, physical health problems and caring for a parent with dementia. In contrast, reward refers to any activity or experience that provides pleasure, achievement, meaning or fulfilment, such as spending time with a friend, watching a movie, going out to dinner or playing sport. The behavioural treatment of depression is referred to as *Behavioural Activation*. Behavioural activation is a relatively simple treatment that emphasizes the association between increased activity and improvement in mood (Lewinsohn and Graf, 1973). It encourages patients to engage with sources of reward in their environment and to reduce

potential sources of punishment. The following describes the major components of behavioural activation.

The Depression Cycle

When conducting behavioural activation, it is important to introduce the Depression Cycle depicted in Figure 33.4 which underscores the strong relationship between activity level and mood. The depression cycle starts with feeling depressed, which produces symptoms of decreased motivation, lack of interest and reduced energy. These symptoms promote avoidance behaviours whereby depressed individuals begin to avoid activities or withdraw from people or situations, such that they start doing less. They do fewer activities that give them pleasure and/or a sense of achievement, resulting in reduced rates of reward. It follows that the fewer activities individuals engage in, the less *opportunity* they have for experiencing pleasure and achievement, resulting in them *experiencing* less reward, thereby maintaining their depression. To break the cycle, individuals are encouraged to *increase* their level of activity to increase opportunities for experiencing pleasure and achievement as a means of improving mood.

A primary objective of behavioural activation is to highlight that behaviour can be changed before mood improves. Indeed, waiting for one's mood to change (e.g., "I'll go for a walk when I have the motivation") is likely to keep the person trapped in the cycle of depression. Instead, patients are encouraged to engage in the activity even if they are "not in the mood". Despite there being real biological and cognitive changes during depression, the individual is still physically capable of performing most behaviours. For example, in order to go for a walk, an individual must select and put on appropriate clothing, fill a water bottle, open the front door, walk outside etc., all of which can be completed during depression.

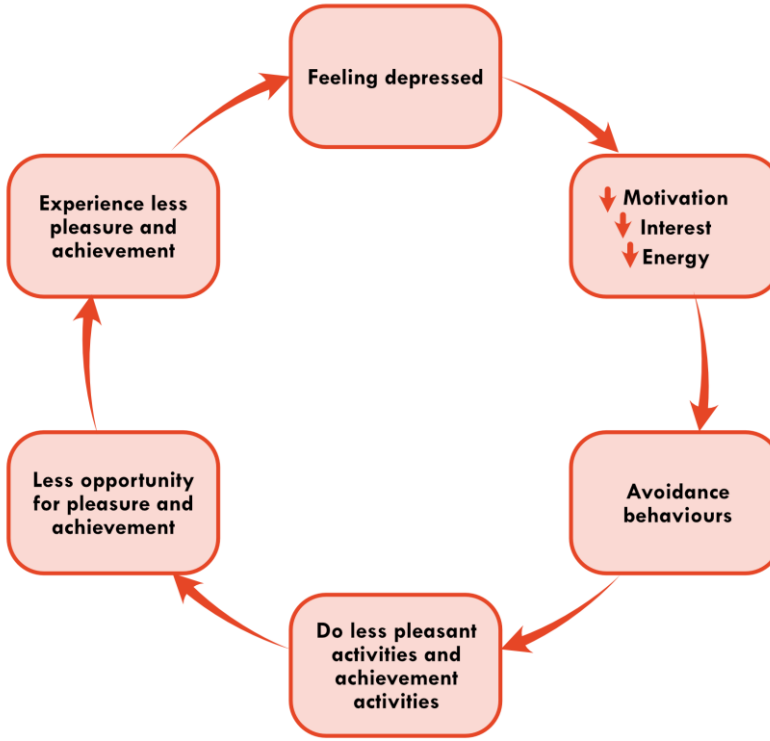

Figure 33.4. Behavioural cycle of depression.

Role of Avoidance in Depression

The role of avoidance in maintaining depression also needs to be highlighted to patients. When individuals become depressed, avoidance and escape behaviours are frequently used to reduce distress or avoid difficult interpersonal interactions. Avoidance behaviours can be conceptualised as a coping response, as illustrated in the following example.

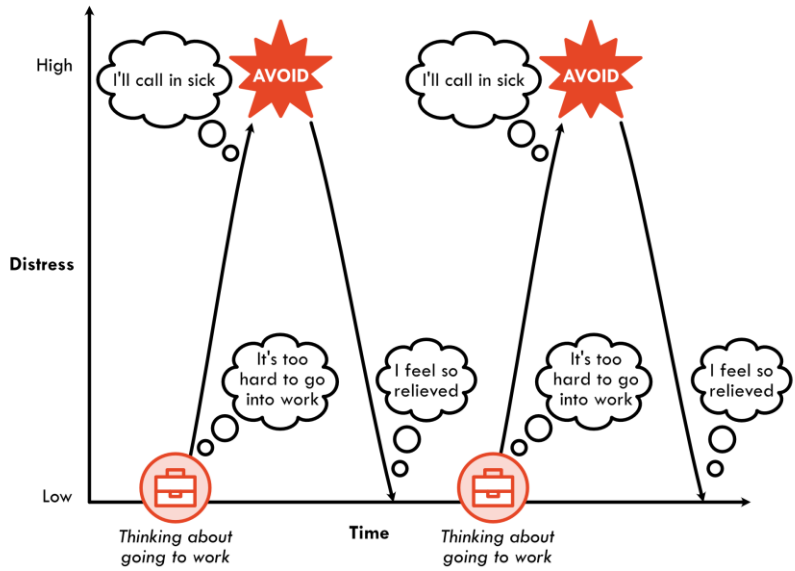

Figure 33.5. Role of avoidance in depression.

Diana is a 36-year-old lady with depression. She wakes in the morning feeling overwhelmed and filled with dread at the thought of having to go to work. As depicted in Figure 33.5, this situation rapidly increases her level of distress. In an attempt to cope with her negative feelings, she calls in sick (i.e., avoids going to work) and takes to bed. Instantly, her distress levels decrease as she feels relieved, she does not have to face the demands and pressures of going in. So, in the short-term, avoidance makes her feel better by taking her bad feelings away (negative reinforcement), and if something is reinforcing it increases the likelihood that the behaviour will be repeated. Hence the next time she wakes feeling overwhelmed at the thought of going to work, she is likely to call in sick again.

The problem with Diana's avoidance is that although it makes her feel better in the short term, it takes her away from naturally occurring sources of positive reinforcement in her environment. By avoiding work, she misses out on opportunities to experience a sense of achievement from her work or having enjoyable social interactions with co-workers. Additionally, her avoidance can contribute to secondary problems, such as an increased workload, time pressure, reduced income, financial pressures and even relationship tensions with her boss, serving to increase sources of punishment in her environment. The reduction in positive reinforcement and increase in punishment maintains the depression and promotes further avoidance. Countering avoidance with adaptive coping behaviours is an important component of behavioural activation.

Activity Monitoring

After presenting the depression cycle and role of avoidance, patients are instructed to complete activity monitoring forms where they are asked to record their level of activity and corresponding mood ratings to make connections between the two. Having the patient record their pleasure and achievement ratings for each activity can also be useful for selection of future activities, as high pleasure and achievement ratings suggest activities that should be encouraged, whereas low ratings suggest the activity may be less useful or may indicate the presence of maladaptive behaviours within the activity such as rumination.

Selecting Activities

The next step involves selecting rewarding activities for the person to engage in and scheduling them into their day. The choice of activities must be tailored to each patient's specific interests and circumstances. A useful method for selecting activities is to start by identifying specific goals in different life domains, such as family and relationships, work, study, health, fitness, spirituality, leisure and so on. Goals should be selected in relation to the patient's values for each domain. For each domain, a range of activities are developed and ranked from easiest to most difficult. For each activity, the frequency and duration are collaboratively discussed with the therapist.

Scheduling Activities

Once a range of activities has been identified, they need to be scheduled into a timetable. It is critical to schedule activities in advance, at least the night before. This way, patients are not relying on their mood to dictate their activity for the day. It is also imperative that patients write down their activities rather than mentally tell themselves what they are going to do the next day. Writing the activity into a timetable or diary serves as a 'contract' that maximises the likelihood of completing the activity. Patients are encouraged to tick off the activity after it has been completed which provides an additional sense of achievement. Patients often comment that by writing it down, it encourages them to complete the activity as they don't want to let themselves down.

Writing it down also minimises the chance of forgetting. With concentration and memory problems being commonplace in depression, forgetting to complete an activity contributes to unintentional treatment non-compliance and deprives the patient of a possible opportunity for positive reinforcement.

A range of pleasure and achievement-based activities should be selected when scheduling activities with a balance of each scheduled into each day. Previously avoided activities (e.g., replying to emails, completing tax returns) can be scheduled as achievement-based activities which should also help prevent secondary problems from developing. Again, patients are encouraged to record their level of pleasure and achievement for each task shortly after completing it to provide an accurate representation of their experience at the time.

When scheduling activities, the therapist wants to maximise success and minimise failure. Selecting an activity that is too challenging or overwhelming will result in either intentional non-compliance or a sense of failure, further perpetuating low mood. Breaking the task down into a series of smaller steps can be very helpful. The patient is encouraged to simply complete only the first or second steps. In this way, the activity is no longer viewed as overwhelming and the chance of success is maximised which serves to enhance mood.

Subsequent Sessions

In behavioural activation, the therapist and patient collaboratively work together in selecting and scheduling activities for the patient to complete between sessions as homework. Subsequent sessions involve reviewing how the patient went, drawing conclusions about the relationship between mood and activity level, identifying ongoing sources of avoidance as well as tackling obstacles to compliance.

After reviewing homework, activities are selected for the following week. In some instances, additional techniques may be incorporated to assist the patient in completing the activity. For example, a socially isolated patient wishing to increase his social contact may lack the necessary social skills to establish or maintain relationships. As such, social skills training may be incorporated. The primary objective, however, is to move patients from an avoidance to an active-based lifestyle where they are in contact with ongoing sources of positive reinforcement.

Key Aspects to Behavioural Activation

Routine Disruptions

Depressed patients frequently exhibit routine disruptions which serve to maintain their depression. Treatment needs to identify such routine disruptions and develop new, adaptive routines for basic activities such as sleeping, eating, showering, work etc. Often establishing a new routine in itself can provide a significant improvement in mood.

For example, a patient with a long history of depression developed a habit of playing computer games after coming home from work, often playing until the early hours of the morning, resulting in chronic sleep deprivation. He would typically sleep in, causing him to rush to work. When at work, he felt tired throughout the day, was irritable and unfriendly with co-workers which contributed to social exclusion and isolation and thus furthered his use of computer games. As part of treatment, he was initially encouraged to restrict using computer games during the week, engage in alternative sources of entertainment and experiment with going to bed at an earlier time. This change in his routine was effective in reducing his fatigue and irritability which also improved his interactions with his co-workers and lifted his mood.

Role of Choice

A basic tenet of behavioural activation involves highlighting the role of 'choice' in maintaining depression. Although patients do not choose to be depressed, it is important to highlight they can *choose* to engage in behaviours that will likely make them feel better, or they can choose to use avoidance behaviours and stay depressed. Patients are encouraged to take responsibility for the behavioural choices they make as well as the consequences such behaviours bring.

To illustrate, a depressed patient agreed to help her elderly neighbour go shopping but shortly after regretted doing so. She acknowledged that calling to cancel their arrangements would instantly give her a sense of relief, but would subsequently make her feel guilty and worthless, fuelling her depression which she would then manage by taking to bed and avoiding her neighbour, a lady whom she often enjoyed socialising with. Alternatively, she could recognise she was not in the mood to go, but take her neighbour shopping anyway, which, based on previous experience, always resulted in her feeling better as she enjoyed knowing she had helped someone and she typically enjoyed the social contact. Discussing her choices and the consequences in this way enhanced the patient's motivation to engage in active, healthy behaviour.

Rewarding Depressed Behaviours

Consistent with behavioural principles of operant conditioning, therapists and patients need to be vigilant for ways in which the patient may be accessing positive and negative reinforcement for *depressed* behaviour. As previously discussed, avoidance behaviours are often negatively reinforcing, in that they temporarily alleviate distress or reduce responsibilities. However, some depressed behaviours may also attract *positive* reinforcement, for example, in the form of sympathy or increased attention from others.

Troubleshooting Techniques

An issue in behavioural activation that often comes up early in treatment is when patients' depressive symptoms (e.g., passivity, lethargy, poor motivation) interfere in their ability to implement the treatment. If this occurs, a number of strategies can be considered.

Acceptance of the Treatment Rationale

Firstly, it is essential patients are on board with the treatment rationale. If they do not believe that their inactivity and avoidance is causing them problems, they are unlikely to comply with homework exercises to increase their activity levels (Addis and Jacobson, 2000). In such instances, patients are encouraged to adopt an empirical perspective. Having them record their activity and mood ratings for homework and discussing these ratings in session can help them see the connection between their behaviour and their feelings. In addition, encouraging a "wait and see" approach can be helpful where they implement some small changes and observe the effect it has on their mood.

Between-Session Contact

To enhance motivation and compliance, increased contact with the patient can be incorporated between sessions. This can be done through several methods such as calling the patient, or having the patient call in or email after the activity was due to be completed. As patients often do not want to disappoint the therapist or let them down, this can be quite effective in increasing their compliance. Of course, this technique should only be used early in treatment so as not to foster dependency, however it can also be briefly brought back in at other times when there has been a setback and the patient is struggling to make changes.

Use of Rewards and Punishments

Another approach to enhancing compliance involves using operant techniques, that is, using rewards for compliance or punishment for non-compliance. For example, Jeannette, a patient who was passionate about animal welfare said she would donate $50 to the National Hunters' Association as a punishment if she did not complete her assigned treatment activity.

Rumination

Finally, sometimes patients report that they completed their assigned activation task but it failed to improve their mood. For example, a patient was encouraged to do some gardening, having previously derived great pleasure and achievement from her garden. After weeding the entire garden bed, she reported her mood remained low. When questioned on what she was thinking about while gardening, she reported ruminating about her marriage breakdown and was therefore only partially engaged with the activity. If rumination occurs during the assigned activity, patients should be encouraged to focus their attention onto the task at hand and their surrounding environment, becoming fully aware of their sensory experiences, including sounds, smells, colours, tastes etc. This is similar to mindfulness practices which have been shown to be helpful in reducing rumination (van der Velden et al., 2023).

Rumination can also be conceptualised as a form of avoidance (Moulds et al., 2007). By ruminating on their problems they are not taking active steps in solving or reducing such problems. A husband who was ruminating about an argument he had with his wife, was not actually doing anything productive to improve the relationship. Therefore, assessing the presence and function of rumination can be critical in enhancing the success of behavioural activation treatments.

Effectiveness of Behavioural Activation

Behavioural activation is an effective treatment for individuals with major depression and compares well to other empirically validated treatments for depression (Uphoff et al., 2020). Mazzuchelli and colleagues (Mazzucchelli et al., 2009) conducted a large meta-analysis of studies examining the effectiveness of behavioural activation. They found behavioural activation to be superior to control conditions comprising waiting lists and treatment as usual (Hedges $g = 0.78$, $p < .001$) and equally effective as cognitive therapy (Hedges $g = -0.01$, $p > .05$). In comparison to antidepressant medication, a randomised controlled trial by Dimidjian and colleagues in 2006 (Dimidjian et al., 2006) comparing behavioural activation (BA) with the antidepressant (AD) paroxetine found behavioural activation to be at least as effective as the antidepressant in treating adults with mild depression (remission rates of 44% for BA and 42% for AD, $p > .05$) and more effective in improving remission rates for adults with severe depression (BA = 56%, AD = 23%, $p = .002$) (Dimidjian et al., 2006).

Advantages of Behavioural Activation

Behavioural activation as a treatment is relatively easy for patients to understand, and combined with its effectiveness, makes it a suitable first-line treatment. Meta-analyses on behavioural activation included participants from a wide range of populations, finding it to be a suitable treatment for mild to severely depressed patients, depressed older adults, children and adolescents, and even individuals with dementia and intellectual disabilities.

Unlike cognitive therapy, behavioural activation does not require patients to be psychologically minded or possess high verbal skills. As a non-pharmacological intervention, it does not carry the side-effects commonly experienced with antidepressant medication such as nausea, insomnia, sedation and sexual dysfunction, and has also been found to protect against relapse after antidepressant discontinuation (Dobson et al., 2008).

Finally, due to its simplicity, it is easy to disseminate. It has been effectively delivered in a group therapy format, as well as brief and longer-term individual therapy. It is also suitable for self-help approaches, including bibliotherapy and Internet-based delivery, though it is likely that some therapist input would be necessary due to the potential for depressive symptoms to promote dropout or interfere with compliance. Behavioural activation therefore has the potential to improve the accessibility of effective treatments for depression, helping to reduce the burden of depression for the individual and greater community.

Cognitive Theory

Cognitive therapy is based on the cognitive model of emotion, often referred to as the ABC model. In the ABC model, A refers to a situation or *Activating Event*, and C refers to the feeling or *Emotional Consequence*. Throughout life, people typically make the erroneous assumption that A leads to C, that is, that situations cause feelings. However, according to the ABC model, the situation triggers thoughts, interpretations or *Beliefs* (B) which are responsible for driving the emotional response (A → B → C; see Figure 33.6).

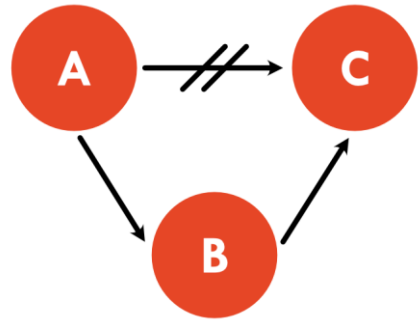

Figure 33.6. The ABC or cognitive model of emotion.

To illustrate, Sarah is lying in bed at 3 am only to be awoken by a loud noise outside (A). She thinks, "There's a burglar outside!" (B) and feels scared (C). Her neighbour Mary hears the same noise and thinks, "The neighbour's dogs are going through the bins and have made a mess" causing her to feel annoyed. This example highlights that the situation cannot cause their emotion, as two different emotions were experienced from the same situation. Instead, their *thoughts* are the real driver of their emotional responses. The ABC model can also be extended to explain differing behavioural responses. Upon hearing the noise, Sarah gets out of bed, turns on the light and checks outside, while Mary simply rolls over and falls asleep. Their differing behaviours were directly influenced by their individual cognitions. Thus, the cognitive model highlights the importance of our thoughts in influencing our emotional and behavioural responses. The primary purpose of cognitive therapy is to assist individuals in challenging irrational and unhelpful thoughts and beliefs and replace them with more balanced, realistic ones.

Negative Thoughts That Drive Anxiety and Depression

Anxiety and related emotions such as feeling frightened, scared, worried or nervous are driven by thoughts about danger or threat. Common themes involve threats to health, safety, finances, property as well as psychological threats such as negative evaluation and rejection. While anxiety is obviously the primary emotion in anxiety disorders, it is also a feature of many other psychiatric conditions such as obsessive-compulsive disorder, post-traumatic stress disorder, eating disorders, body dysmorphic disorder, and even psychosis. Consider the corresponding diagnosis for the following threat-based cognitions.

- "If I have a panic attack I could have a heart attack and die."

- "People might think I'm boring and stupid."
- "If I make a mistake I could get fired."
- "The balcony might collapse."
- "People will see my cheeks are not symmetrical and will think I'm ugly and abnormal."
- "I have pain in my stomach. I think it might be cancer."
- "The bank could get robbed again."
- "I touched the door handle. I might get HIV."
- "I just ate a banana. I'm going to get fat."
- "People in the street were laughing at me. My phone calls have been posted on the Internet."

Depression and sadness are driven by negative thoughts about the self, the world or the future, often referred to as the *cognitive triad*. Common depressive cognitions include:

- "I'm worthless."
- "I'm a failure."
- "I'm not good enough."
- "I'm unlovable."
- "People are selfish and untrustworthy."
- "The world is unfair."
- "Things never work out for me."
- "My circumstances won't change."
- "My future is hopeless."

Cognitive Therapy

Cognitive therapy, as discussed above, is based on the notion that thoughts mediate the relationship between situations and feelings. For anxiety and depressive disorders, it is argued that the thoughts driving and maintaining those negative emotional states are in some way irrational, unrealistic or unhelpful. To change feelings, the thoughts causing those feelings need to be challenged and replaced with more realistic and helpful thoughts. However, for thoughts to be changed, they must firstly be identified. Indeed, a primary aim in cognitive therapy is to assist individuals in identifying the thoughts or beliefs driving their emotions.

Identifying Negative Thoughts

Thought Monitoring

Based on the ABC model described above, thought monitoring records are commonly employed to help individuals identify their thoughts. For homework, individuals may be instructed to write down the situation, thoughts and emotions when feeling distressed. As the thoughts identified are present when the emotion is present, monitoring thoughts in this way is a good place to start. However, the thoughts recorded may not always identify the *causal thought*, namely the thought that is directly responsible for causing the experienced emotion.

Downward Arrow Technique

Once individuals have some thoughts from their thought monitoring, they can apply the downward arrow technique to identify likely causal thoughts. Like peeling back the layers of an onion to get at the core, the downward arrow technique is a useful method to peel back the layers of thoughts to identify the core or causal thought.

The downward arrow technique involves asking the question, "What would be so bad about that?" Upon receiving the answer, the question is repeated, "If that were true, what would be so bad about that?" and continues to be repeated until the causal thought is identified. There is no set number of times the question needs to be repeated. Typically, the individual will have a 'gut reaction' when they have identified the causal thought. The following example illustrates the technique.

Diane is a 21-year-old university student referred for cognitive therapy for depression. Her therapist asked her to complete some thought monitoring based on the ABC model for homework.

Therapist:	*"Let's start by having a look at your thought monitoring form. The situation was you lying in bed thinking about your exam. The emotion was feeling depressed. And the thought?"*
Diane:	*"I failed my exam."*
Therapist:	*"Applying the downward arrow technique, if you did fail your exam, what would be so bad about that?"*
Diane:	*"Then I'd have to redo the subject again next semester."*
Therapist:	*"And if that were true, what would be so bad about that?"*
Diane:	*"I'd be overloaded next semester."*
Therapist:	*"And if you were overloaded next semester, what would be so bad about that?"*

Diane:	*"Then I'd probably fail more subjects."*
Therapist:	*"So if you failed more subjects, what would be so bad about that?"*
Diane:	*"Then my academic transcript would look horrible."*
Therapist:	*"And if that were true, what would be so bad about that?"*
Diane:	*"If my academic transcript was horrible, I wouldn't get a decent job and I'd amount to nothing."*

By using the downward arrow technique, it can be seen that behind the initial thought about failing one exam, there are very negative beliefs about her future ("I'll never get a decent job") and herself ("I'll amount to nothing").

Working Backwards from Behaviour

Another method of identifying thoughts involves examining an individual's behaviours for clues as to their causal thoughts. A patient with panic attacks who always carries a plastic bag is more likely to be worried about vomiting than having a heart attack. A patient with OCD with cleaning compulsions may say they clean because they like things to look perfect, however their use of expensive antibacterial cleaning products suggests they are fearful of germs and illness.

Assisting patients to develop skills in identifying their thoughts is a crucial first step in cognitive therapy as identification of their causal thought lays the foundation for thought challenging. If the causal thought fails to be accurately identified, subsequent thought challenging will be ineffective in changing their mood.

Cognitive Challenging

Cognitive challenging involves asking questions to undermine the individual's belief in the negative thought. There are five key methods of thought challenging which will be described below.

Challenging the Probability

A common thinking distortion that drives distress is overestimating the probability or likelihood of the negative event (e.g., "I'm having a heart attack", "Everyone will think I'm boring", "I'm going to get fired", "People are out to hurt me"). Inflated perceptions of threat are responsible for maintaining many psychological disorders and cognitive therapy in the form of challenging the probability is aimed at helping the individual establish more realistic estimates of threat. There are several different methods for challenging the probability.

Jury Method

Patients are asked to imagine their thought is on trial in front of a jury and generate evidence to present to the jury so the jury can determine whether the thought is true or untrue. Patients are often very good at generating evidence that supports their negative thought. The jury method helps them to develop a more balanced perspective by considering evidence that may disconfirm the thought as well as encouraging them to question the quality and veracity of the evidence they use in support of the thought.

Thought: *"My husband could have a car accident driving home from work and be seriously injured or killed"*

Evidence For	Evidence Against
He's driving at night He's tired after work Driver fatigue kills more than drink driving I won't be there to point out potential hazards on the road	He's an experienced driver He has had zero serious car accidents He's driven home from work for the last 15 years, i.e. over 3,500 trips at night with only 1 minor accident (rear ended, no injury) Even when I'm not in the car he still gets home safely every day He's only driving home from work for 30 minutes, not long-distance interstate driving where driver fatigue is most relevant as being dangerous.

Step Method

Asking the individual what steps would be necessary in order for the thought to come true can also be a useful way of challenging a negative thought. Using the previous example of Diane who worried she would amount to nothing if she failed her exam, from the starting point of failing one exam to the end point of amounting to nothing, what steps would need to occur in between? Each step has its own unique probability. By multiplying the probability of each step, a more accurate estimate of the feared outcome can be obtained. In order to amount to nothing, each one of those steps must be 100% guaranteed to come true. If even just one of those steps does not come true, the chain of events is broken (i.e., multiplying a number by 0 equals 0) and therefore the end result cannot occur. Often by identifying all the necessary steps, individuals are able to recognise that certain steps are very unlikely, and in this way they can realise that the situation is not as dire or likely as they feared.

World Method

Another method for examining the likelihood of a thought is to ask what

the world would look like if the thought was true. If failing an exam meant a person would amount to nothing, what would the world look like? Presumably, all people who had failed even one exam would be unemployed and unemployable. This is definitely not the case. Moreover, after failing an exam, students would immediately drop out of university rather than repeat the subject, as according to the thought, repeating the subject would be pointless; they would inevitably amount to nothing and repeating would just be a waste of time and money. Again, this is not the case. Many students who fail an exam will go on to repeat the subject and pass, ultimately completing their degree and going on to have successful careers. By challenging the probability in these ways, individuals are able to start questioning the validity of their thoughts and in doing so, their anxiety reduces and mood starts to improve.

Challenging the Cost

Another thinking distortion individuals frequently make involves overestimating the cost or badness of a negative event. When worrying about a negative event, or even after a negative event has occurred, there is a tendency to view the situation as worse or more costly than it is in reality, often referred to as *catastrophising*. When challenging the cost, patients are encouraged to focus on the realistic consequences (i.e., non-emotional consequences) of the negative event to determine its true degree of badness. Comparing the realistic consequences of their feared negative event with the consequences of other negative events (e.g., head-cold, burglary, house fire, paraplegia, terminal illness) can help them put things in perspective. The distress associated with a negative event should be proportionate to its cost; an event with short-term trivial consequences (e.g., bad haircut) should therefore be less distressing than events with long-term significant deleterious consequences (e.g., paraplegia). For example, a patient with social anxiety worried a woman he spoke to at a party thought he was stupid, resulting in high anxiety and low mood. He was asked to consider the realistic consequences of this woman's opinion of him, that is, will her opinion cause him to get fired, cause him to get cancer, prevent him from driving, buying his groceries or holidaying in Fiji? Recognising there were no realistic consequences to her opinion was helpful in lowering his cost estimates and reducing his distress.

In situations where there are realistic negative consequences, asking individuals to look at the consequences over time can be helpful. For example, how bad will this be in a week, a month, a year, in 5 years and so on. Of course, challenging the cost of high-cost events (e.g., plane crash, death etc.) should be avoided, in which case other thought challenging methods should be considered.

Questioning Control

Questioning control involves asking individuals whether they are worrying about an outcome beyond their control. If they have control over an outcome, then a solution should be implemented. For example, a high-school student worried she would perform poorly in her public speaking presentation. Does she have any control over her performance? Yes. She could practice her speech, seek feedback, perform in front of her family etc. However, it is common for individuals to worry about things they cannot control or over which they have little control (e.g., "*What if I get cancer?*" "*What if the plane crashes?*" "*What if my wife leaves me?*").

Going back to Diane who thinks she has failed her exam. Perhaps she did fail. However, the examination is now complete. At this point in time, she has no control over the results. What will be, will be. Continuing to worry and feel depressed about the potential failure is going to lead to weeks or months of unnecessary distress and suffering until the results are eventually released. A useful mantra to keep in mind is, "I'll cross that bridge when I come to it". If there is no control over the event, let the thought go and deal with the problem if or when it arises. Learning to let go of things out of one's control is an important part of cognitive restructuring. This point ties in strongly with the concept of helpfulness.

Challenging the Helpfulness

Challenging the helpfulness involves encouraging the individual to consider the advantages and disadvantages of their thought. "What is the thought doing for you? Is it helpful in any way?" Individuals frequently believe there are advantages in thinking the way they do (Wells, 2005). Commonly endorsed positive beliefs about worry include:

- Worrying helps me solve problems.
- Worrying helps me be organized.
- Worrying helps me nip problems in the bud.
- Worrying helps me emotionally prepare.
- If I worry about it, it's less likely to happen.
- Worrying shows I'm a caring person.

Where individuals endorse benefits to worrying, it's important to help them consider the downside to worrying. Are there negative impacts on sleep, concentration, muscle tension, productivity, mood, irritability, anxiety, health, relationships? Do the benefits of worrying outweigh these disadvantages? Are the perceived benefits able to be achieved in other, more helpful ways? Encouraging

individuals to challenge the helpfulness of thoughts can move them in the right direction. When the thought re-occurs, they can acknowledge it is unhelpful to engage with and choose to redirect their thinking to more productive pursuits.

External Perspectives

A lot of individuals with anxiety and depression can be very good at advising others. They know what others should be thinking, yet they do not apply it to themselves. Asking them, "What would you tell a friend to help them if they had the thought?" is a useful question to encourage a healthier way of thinking. Individuals can often be very good at generating these sorts of alternative thoughts if it is for someone else. Therefore, externalising the situation to others can be a very useful method for changing an individual's thought. After externalising the situation to a friend, Diane says, "Ok, you failed the exam. Getting depressed about it won't help the situation. You're better off looking at what went wrong in the first instance and correcting those problems. Did you not leave enough time to study because you were spending all your time with your boyfriend? Did you not understand the information and were too embarrassed to ask for help? Just get back in there, make the necessary changes and move on. Thinking you're a failure and feeling sorry for yourself is not going to help anyone!"

Another useful question commonly used in cognitive restructuring is, "What would your most relaxed and rational friend or family member say?" If thoughts drive emotion, and negative thoughts drive anxiety and depression, it follows that relaxed, rational people must have very realistic, evidence-based thinking. They do not jump to irrational, negative or threat-based conclusions. By imagining how a rational friend would view the same situation can help individuals adopt a more balanced and helpful perspective about their thoughts.

Conclusion

Put simply, cognitive therapy encourages individuals to stop believing the irrational or unhelpful thoughts in their head. As human beings, we have a strong tendency to believe the thoughts that arise in our mind. In depressed individuals, those thoughts and beliefs have caused them great despair and suffering, restriction of activities and strained relationships with family and friends. Cognitive therapy, through the use of these thought challenging methods, is designed to undermine this human tendency.

Behavioural Experiments

What are Behavioural Experiments?

Despite its name, behavioural experiments are a very powerful method for testing and challenging negative thoughts. Their purpose is to test the validity or accuracy of the patient's belief system and help construct more adaptive, realistic beliefs. Behavioural experiments involve planned experiential activities, typically based on either experimentation or observation. Patients' negative thoughts or beliefs are elicited and then an experiment is set up to test out their thoughts. Results from the experiment are gathered and then compared to patients' initial predictions of what they thought would occur. Results that contradict their predictions help to decrease their belief in the negative thought, which can then assist in reducing distress and increasing self-confidence.

A key advantage of behavioural experiments is that they can be tailored to patients' unique cognitions. An experiment is set up to directly target a specific thought and patients experience the results first-hand, making the evidence highly relevant and convincing.

Conducting a Behavioural Experiment

A number of steps are required to implement and conduct an effective behavioural experiment (Bennett-Levy et al., 2004). The first and most important step is defining the target cognition or belief to be tested. Specifying the cognition in this way allows an experiment to be tailored to the patient's belief. The second step involves planning an experiment to conduct in order to test out the patient's belief. This is done collaboratively with the patient. Step 3 involves identifying what the patient *predicts* will occur in the experiment and rating the degree of belief (0-100%) in the prediction. The prediction must be operationalised in an observable, testable way. Predictions involving mind-reading (e.g., "He will not like me") are not suitable. Instead, behavioural markers of the prediction must be identified (e.g., He will look at his watch and make excuses to leave within 15 seconds of talking to me. He will not smile or laugh while talking to me).

The next step involves the patient conducting the experiment and gathering the results. It is essential to define the results in accordance with the prediction (e.g., "We talked for 10 minutes) rather than the patient's subjective experience of the experiment (e.g., "I felt anxious the whole time). After collecting the results, the patient needs to reflect on the conclusion of the experiment. What was learned from the experiment? What does this say about the validity of the original belief? Do the results of the experiment support or disconfirm the belief? Finally, how much does

the patient now believe this thought? Ideally, post-experiment belief ratings should decrease, however if they remain unchanged or even increase, factors that might be contributing to this should be explored.

Types of Behavioural Experiments

There are several different types of behavioural experiments, although active experiments and observational experiments are the most common.

Active Experiments

Active experiments are very useful for combating the avoidance behaviours responsible for the maintenance of negative thoughts. An experiment is set up to test patients' negative cognitions or beliefs. Their predictions or hypotheses of what will occur during the experiment are identified and operationalised. They are then asked to behave in a way that is different from how they would usually act (typically some form of avoidance behaviour). The results of the experiment are recorded and they are encouraged to reflect on the implications of the experiment on their original thought or underlying belief.

To illustrate using Sarah, a patient with panic disorder, her cognition is, "If I panic at the supermarket, I'll collapse". To prevent collapsing, she holds onto her trolley for support (safety behaviour). To test her belief, she was encouraged *not* to hold onto the trolley when experiencing panic sensations to enable her to learn that even if she does nothing to save herself, she does not collapse. In this way, the active experiment reduces her belief about the dangerousness of panic symptoms such that she can experience the sensation without anxiety. Active behavioural experiments operate as a form of exposure therapy but with a strong cognitive component.

Observational Experiments

Observational experiments, as the name suggests, are where patients gather data to test their cognitions of beliefs. This can be done through direct observation or through conducting a survey. Indeed, a variety of creative approaches can be employed to test patients' beliefs. Raj, a patient with body dysmorphic disorder believed he was hideously ugly but in reality was of normal appearance. A survey was used to test his belief which involved placing a photo of his face amongst a selection of 15 photos of other faces from a similar ethnic background, in this case, Indian. Each face was labelled from 1 to 16, with Raj's face as number 9. The photos were shown to a group of people and each person was asked to identify the face they believed was the ugliest. The patient predicted more people would select number 9. The results revealed that no one chose 9 as the ugliest face. Indeed, 9 received

spontaneous compliments such as "9 is cute" and "9 has a nice smile". The survey was useful to highlight that others did not perceive him to be ugly which made him feel less anxious and improved his functioning.

Case Study

Kaye was a 46-year-old single mother with a teenage son employed full-time as a sales manager in a department store. Premorbidly, she was a high functioning, extremely independent, competent, capable, assertive woman. At the time she came to treatment, she was experiencing a major depressive episode that started 8 months prior in the context of watching her mother die from cancer, and her mood deteriorated further after her mother's death. Part of Kaye's depression was a natural grief reaction, however 5 months after her mother died she had a 3-week admission to a private psychiatric hospital for severe depression. She was discharged on an antidepressant and a benzodiazepine to assist with anxiety symptoms. She was referred by her GP for psychological treatment.

Her presenting symptoms, despite the medications, were common depressive symptoms of pervasive low mood, marked anhedonia, impaired sleep and poor appetite. She also experienced severe anxiety, waking in the morning with her stomach in knots and continuous churning sensations, though she did not have an anxiety disorder. The other striking feature of her presentation, given her high premorbid functioning, was her marked avoidance behaviour. Kaye had worked as a manager in the same company for 20 years, acknowledged she was good at her job, but had stopped working for 3 months. Moreover, she moved out of home to live with a cousin for the last 6 months believing she was unable to cope on her own. Her cognition driving this avoidance behaviour was, "I've lost my confidence, I can't cope".

In the first session, the rationale for how avoidance maintains negative beliefs was presented. Kaye related very well to the way in which avoidance was maintaining her negative belief about not coping and was on board with the idea of testing it out using an active behavioural experiment. Returning to work was collaboratively selected as the initial target for treatment. Kaye's target cognition was, *"I have lost all self-confidence. I will not be able to cope with going back to work".* Fortunately, she had a supportive boss and arranged to return to work in a graded capacity, initially starting with just three hours. She was asked to interact with staff and customers. Her prediction was, *"I will not be able to cope. I will not know what to say to customers and will have a breakdown and start crying on the shop floor".* Her belief in this prediction was 80%.

A week later in her second session she reported the results of the experiment as, *"I helped customers. They were satisfied with my service and seemed happy when they left. I did not have a breakdown or cry at all".* When asked to reflect on the conclusion of her experiment, she said, *"I am good at my job. I know what I'm doing and can cope".* Her post-experiment belief rating reduced to 20%. Repetition of the experiment was required for homework, incorporating longer shifts and increased levels of responsibility.

Within the second session, a second behavioural experiment was selected aimed at helping her return home. Previously she reported enjoying living at home, appreciating the privacy and her own space and company. The target cognition for this second experiment was, *"I will not be able to cope being at home on my own".* The behavioural experiment involved returning home on the weekend with her son. Her prediction was, *"I will feel so anxious at home I will not be able to tolerate it and will feel paralysed with anxiety. I will not be able to function".* Her belief rating was 90%. As she had previously returned home on numerous occasions for short periods to water the plants and do some simple cleaning, it was considered reasonable for her to test her belief by staying overnight.

The following week, Kaye attended the session looking bright, smiling and wearing make-up. She had returned home that weekend, felt mildly anxious initially, unpacked her belongings, did some cleaning and cooked dinner. She said she enjoyed watching TV and slept well in her own bed. For her conclusion, she said, *"I coped being at home. It was actually good to be in my own home again*". Her post-experiment belief rating had dropped to zero. Kaye's case provides an example of a patient with a severe depressive episode, who with the use of some behavioural experiments, was able to test her negative cognitions and tackle her avoidance behaviour, which was effective in improving her mood and functioning within a short time frame.

A Cognitive or Behavioural Technique?

There is some debate amongst theorists as to whether behavioural experiments are a cognitive or behavioural technique. From a cognitive perspective, behavioural experiments are considered a cognitive method as they are designed to test the validity of negative thoughts. However, from a behavioural model, behavioural experiments help reduce the depressive avoidance behaviours thereby increasing access to sources of reward while decreasing sources of punishment. Moreover, they often involve exposure to feared or avoided situations, and exposure therapy is at the core of behavioural treatment. Behavioural experiments are perhaps best conceptualized as a true cognitive-behavioural treatment. They can provide rapid results, hence for patients with testable thoughts, behavioural experiments are an extremely useful therapeutic technique.

Effectiveness of CBT

CBT has repeatedly been demonstrated to be an effective treatment across the entire range of anxiety and depressive disorders. It has shown effectiveness for adults, as well as child and adolescent populations and older adults (James et al., 2020). Effect sizes for CBT (in comparison to waitlist controls and treatment as usual) across anxiety and depressive disorders are large, with no significant differences between cognitive and behavioural treatment packages. CBT has demonstrated long-term treatment gains, with follow-up periods up to 19 years (Benjamin et al., 2013).

CBT can be effectively delivered in individual, group and internet-based formats (Olthuis et al., 2016; Young-Southward et al., 2020). Internet-based CBT offers a cost-effective alternative to traditional face-to-face CBT with research finding equivalent outcomes, provided some level of support is available (Olthuis et al., 2016).

CBT is frequently combined with antidepressant medication in clinical practice for both anxiety and depressive disorders (Andrews et al., 2018; Malhi et al., 2021). Randomised controlled trials comparing CBT alone, medication alone or CBT plus medication are few, with most studies finding CBT plus medication slightly superior to medication alone but offers little advantage over CBT alone at both post-treatment and follow-up (Dardas et al., 2023). CBT helps reduce risk of relapse after antidepressant discontinuation.

Despite the effectiveness of CBT, the majority of patients continue to experience residual symptoms (Brown and Barlow, 1995), hence there is considerable room for improvement in treatment response. The development of 'third wave' CBT treatments such as mindfulness-based CBT (MCBT) or Acceptance and Commitment Therapy (ACT) offer promising alternatives, however meta-analytic comparisons between these newer treatments and standard CBT are yet to show significant differences (Hunot et al., 2013).

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