

1 The Basic Idea

Joe

Joe is a 45-year-old car salesman. He and his wife Mary live in a suburban home just outside Boston. They have two children, ages 9 and 12. The family had been doing well financially until Joe was laid off 3 months ago. Mary had been working part-time as a receptionist for a dentist and was able to upgrade this to a full-time job once her husband was out of work. Her income is enough to make ends meet, at least for now.

Since Joe was laid off, he has been staying home. He helps to get the kids ready for school, but then goes back to bed and stays there until 1 or sometimes 2 in the afternoon. He watches TV until his kids and wife come home. Sometimes, he doesn't even have the energy to do that. He feels worthless and believes he will never find a job again. Mary cares deeply for Joe. Although his lack of motivation has created some conflict around doing household chores and cooking, she does whatever she can to make him feel better. However, the added responsibilities are at times burdensome for Mary.

Joe is depressed. He often struggles with his mood, motivation, and energy. But this time, his depression is more severe than usual. Getting laid off from his job apparently triggered the onset of a major depression. Anyone would be upset and sad after being laid off. But in Joe's case, the level and duration of the sadness are clearly outside the normal range. This is not the first time Joe has felt like this. Shortly after the birth of his second son, he slipped into a period of severe depression that lasted for almost a year. There was no clear trigger, aside from having a second

child. He was so depressed that he even thought about suicide by hanging himself. Fortunately, he did not act on these thoughts. He has tried various medications for his depression, but he did not find them to be helpful and did not like the side effects they caused.

Mary recently read about a form of talk therapy in a magazine. The therapy is called *cognitive behavioral therapy* (CBT). She was very excited and decided that Joe should try it. When she came home that day, she asked Joe to read the article in the magazine. Joe did not think that it could help him. The couple got into an unusually heated argument, and Mary made Joe promise that he would try this treatment. Mary arranged for an appointment with a psychologist in Boston who specializes in CBT.

During the course of sixteen 1-hour CBT sessions, Joe's depression lifted. By the end of treatment, it had virtually disappeared. He developed a positive outlook on his life and a positive attitude toward himself. His relationship with his wife and children improved dramatically, and he started a new job as a car salesman within weeks after starting therapy.

Joe's recovery after treatment is not at all unusual. The treatment that he received, cognitive behavioral therapy (CBT), is a highly effective, short-term form of psychotherapy for a wide range of serious psychological problems, including depression, anxiety disorders, alcohol problems, pain, and sleep problems, among many other conditions. The CBT strategies that target some of these common disorders are described in detail in the following chapters. The current chapter will review the guiding principles on which these disorder-specific strategies are based.

The Founding Fathers

Aaron T. Beck and Albert Ellis independently developed the therapy that later became known as CBT. Beck was trained in Freudian psychoanalysis and became dissatisfied with the lack of empirical support for Freudian ideas. In his work with depressed patients, Beck found that people who were depressed reported streams of negative thoughts that seemed to appear spontaneously. Beck called these cognitions *automatic thoughts*. These thoughts are based on general, overarching core beliefs, called *schemas* (or *schemata*) that the person has about oneself, the world, and the future. These

schemas determine how a person may interpret a specific situation and thereby give rise to specific automatic thoughts. These specific automatic thoughts contribute to the maladaptive cognitive appraisal of the situation or event, leading to an emotional response. Based on this general model, Beck developed a treatment method to help patients identify and evaluate these thoughts and higher-order beliefs in order to encourage patients to think more realistically, to behave more functionally, and to feel better psychologically.

Like Beck, Ellis was trained in Freudian psychoanalysis, but later became influenced by the neo-Freudian Karen Horney. Similarly to Beck's, Ellis's treatment approach emphasizes the importance of cognitive processes and is an active and directive form of psychotherapy. Therapists help patients realize that their own beliefs contribute greatly to, maintain, and even cause their psychological problems. This approach leads patients to realize the irrationality and rigidity of their thinking and encourages them to actively change self-defeating beliefs and behaviors. Ellis initially named the treatment Rational Therapy, then Rational-Emotive Therapy, and finally Rational-Emotive Behavior Therapy to stress the interrelated importance of cognition, behavior, and emotion. Beck prefers the term *maladaptive* or *dysfunctional*, rather than *irrational*, to describe the nature of the distorted cognitions, since thoughts do not have to be irrational in order to be maladaptive. For example, some people with depression might have a more realistic assessment of the potential danger in life. However, this "depressive realism" is maladaptive because it interferes with normal life.

Sadly, Dr. Ellis passed away on July 24, 2007. Dr. Beck, now well into his 90s, is still an active practitioner and scientist with an insatiable thirst for knowledge. Beck and Ellis, who developed their two therapy approaches in the 1960s, have had an enormous influence on contemporary clinical psychology and psychiatry. In the face of the overwhelming dominance of psychoanalytic thinking, these two pioneers began to question some fundamental assumptions of psychiatry. Driven by their intuition that human problems are best solved by human solutions, Beck and Ellis began to use empirical methods to treat psychological problems and to critically study uncomfortable questions in psychiatry. Ellis, a practicing psychologist, set up his clinic in downtown Manhattan. Like many other places at that time, New York was heavily dominated by psychoanalysis. Similarly, Beck, an academic psychiatrist at the University of Pennsylvania, continued to pursue his quest in the face of strong resistance by the general psychiatric community, which was dominated by Freudian ideas. When he applied for research grants to test his ideas and was rejected, he assembled friends and colleagues to conduct his studies without financial support from the government or

other funding agencies. When his papers were rejected by academic journals, he convinced open-minded editors to publish his writing in the form of books.

In recognition of his influence, Beck received the Lasker Award in 2006, a highly prestigious medical prize that is often bestowed on individuals who later win the Nobel Prize. The chairman of the Lasker jury noted that “cognitive therapy is one of the most important advances—if not the most important advance—in the treatment of mental diseases in the last 50 years” (Altman, 2006).

Despite the clear influence of the approach and the effectiveness of the treatment, the majority of people with psychological problems do not have easy access to CBT services. Unlike that involved with psychiatric medications, there is no sizable industry promoting CBT. In an attempt to increase the availability of CBT, politicians in some countries have decided to not let the fate of mental health care be ruled by the financial interest of drug companies and have taken matters into their own hands. In October 2007, the Health Secretary of the United Kingdom announced a plan to spend £300 million (\$600 million) to initiate a six-year program with the goal of training an army of therapists to provide the British people with CBT for psychological problems. This change in health care delivery was based on economic data showing that provision of CBT for common mental disorders is overall less expensive than pharmacotherapy or psychoanalysis. Similarly, in 1996 the Australian government recommended the provision of CBT and introduced a plan to provide better access to these services.

A Simple and Powerful Idea

Although Beck and Ellis are rightly credited for their pioneering work, the basic idea that gave rise to the new approach to psychotherapy is certainly not new. It could even be argued that it is simply common sense turned into practice. Perhaps the earliest expression of the CBT idea dates back to Epictetus, a Greek stoic philosopher who lived from AD 55 to 134. He has been credited with saying, “Men are not moved by things, but by the view they take of them.” Later, Marcus Aurelius (AD 121–180) wrote in his *Meditations*, “If thou are pained by any external thing, it is not this thing that disturbs thee, but thine own judgment about it. And it is in thy power to wipe out this judgment now.” And William Shakespeare wrote in *Hamlet*, “There is nothing either good or bad, but thinking makes it so.” Other philosophers, artists, and poets have expressed similar ideas throughout history.

The central notion of CBT is simple. It is the idea that our behavioral and emotional responses are strongly influenced by our cognitions (i.e., thoughts), which determine how we perceive things. That is, we are only anxious, angry, or sad if we think that we have reason to be anxious, angry, or sad. In other words, it is not the situation per se, but rather our perceptions, expectations, and interpretations (i.e., the cognitive appraisal) of events that are responsible for our emotions. This might be best explained by the following example provided by Beck (1976):

The housewife (Beck, 1976, pp. 234–235)

A housewife hears a door slam. Several hypotheses occur to her: “It may be Sally returning from school.” “It might be a burglar.” “It might be the wind that blew the door shut.” The favored hypothesis should depend on her taking into account all the relevant circumstances. The logical process of hypothesis testing may be disrupted, however, by the housewife’s psychological set. If her thinking is dominated by the concept of danger, she might jump to the conclusion that it is a burglar. She makes an arbitrary inference. Although such an inference is not necessarily incorrect, it is based primarily on internal cognitive processes rather than actual information. If she then runs and hides, she postpones or forfeits the opportunity to disprove (or confirm) the hypothesis.

Thus, the same initial event (hearing the slamming of the door) elicits very different emotions, depending on how she interprets the situational context. The door slam itself does not elicit any emotions one way or the other. But when the housewife believes that the door slam suggests that there is a burglar in the house, she experiences fear. She might jump to this conclusion more readily if she is somehow primed after having read about burglaries in the paper, or if she has the core belief (schema) that the world is a dangerous place and that it is only a matter of time until a burglar will enter her house. Her behavior, of course, would be very different if she felt fear than if she thought that the event had no significant meaning. This is what Epictetus meant when he said that “men are not moved by things, but by the view they take of them.” Using more modern terminology, we can say that it is the cognitive appraisal of the situation or event which determines our response to it, including behaviors, physiological symptoms, and subjective experience.

Beck calls these assumptions about events and situations *automatic thoughts*, because the thoughts arise without much prior reflection or

reasoning (1976). Ellis refers to these assumptions as *self-statements*, because they are ideas that the person tells him- or herself (1962). These self-statements interpret the events in the external world and trigger the emotional and behavioral responses to these events. This relationship is illustrated in Ellis's ABC model, in which A stands for the antecedent event (the door slam), B stands for belief ("it must be a burglar"), and C stands for consequence (fear). B may also stand for *blank* because the thought can occur so quickly and automatically that the person acts almost reflexively to the activating event, without critical reflection. If the cognition is not in the center of the person's awareness, it can be difficult to identify it, which is the reason why Beck refers to this as an *automatic* thought. In this case, the person has to carefully observe the sequence of events and the response to them, and then explore the underlying belief system. Therefore, CBT often requires the patient to act as a detective or a scientist who is trying to find the missing pieces of the puzzle (i.e., to fill in the blanks).

Despite differences in the terminology they used, Beck and Ellis independently developed very similar treatment approaches. The idea underlying their methods is that distorted cognitions are at the center of psychological problems. These cognitions are considered distorted because they are misperceptions and misinterpretations of situations and events, typically do not reflect reality, are maladaptive, and lead to emotional distress, behavior problems, and physiological arousal. The specific patterns of physiological symptoms, emotional distress, and dysfunctional behaviors that result from this process are interpreted as syndromes of mental disorders.

Initiating versus Maintaining Factors

The reason a psychological problem develops in the first place is usually not the same as the reason the problem is maintained. It may be interesting to know why a problem developed in the first place, but this information is relatively unimportant for treatment in the context of CBT. Knowing the initiating factors provides neither necessary nor sufficient information for treatment. A simple medical example may illustrate this point: there are many ways to break an arm. One may fall down the stairs in one's house, get into a skiing accident, or get hit by a car. When we see a doctor, he or she may ask how it happened out of curiosity, but the information is rather unimportant for selecting the appropriate treatment—putting the arm in a cast.

Obviously, psychological problems are considerably more complex than a broken arm. In Joe's case, for example, more than one single reason led to his depression. He apparently had a tendency to be depressed. When he got laid off from work, he was unable to deal with the stress. However, many people get laid off from work, but only a minority develops depression. Others do not develop depression, but experience substance use problems, anxiety disorders, or sexual problems. In other words, the same stressor can have vastly different effects on different people. Most people cope with it without experiencing any long-lasting consequences. In only a minority of people does the stressor lead to psychological problems, and when it does, the same stressor is rarely associated with a specific psychological problem. A notable exception is post-traumatic stress disorder (PTSD), in which case a horrific event outside of everyday human experiences—such as a psychological trauma caused by a rape, war experience, or an accident—is specifically linked to the development of a characteristic syndrome of psychological problems. However, even in those extreme cases, only a minority of people will experience PTSD. In most cases, stressors have rather unspecific effects on psychological disturbances, if they have any effect at all.

Whether a stressor leads to a particular psychological problem is determined by the vulnerability of the person to developing this problem. This vulnerability, in turn, is primarily determined by one's genetic predisposition for developing a specific problem. This so-called diathesis-stress model of psychopathology is a generally recognized theory of how psychological problems develop in the first place. However, determining which of the more than 20,000 protein-coding genes predispose some individuals to psychological problems is a task for future generations of researchers. Even if we knew the identity and combinations of those genes, it would be very difficult to predict who will and will not develop a psychological problem; in addition to the person's genetic makeup, we would need to know if or when the person will be exposed to certain stressors and whether or not the individual will be able to deal with the stressors. To complicate the matter even further, the evolving field of epigenetics suggests that environmental experiences can lead to the expression or deactivation of certain genes, and these changes not only lead to long-term changes in traits within an individual, but it might also be transmitted to later generations. This highlights the importance of learning and experience, the process that occurs in CBT, for psychopathology within and between generations.

In most cases of psychological problems, initiating and maintaining factors are very different, because the reason a problem developed in the first place is often unrelated, or only tangentially related, to the reason the problem persists. In Joe's case, for example, the depression was to a great extent

maintained by his self-deprecating thoughts, his inactivity, and his excessive sleeping. Note that psychiatrists generally consider self-deprecating thoughts, inactivity, and excessive sleeping to be symptoms of his depression, whereas CBT therapists believe that these factors are partly responsible for his depression, and that Joe has the power to change them.

CBT in Psychiatry

CBT is a highly effective strategy for dealing with many psychological problems. In fact, CBT is at least as effective as medication for the problems that will be discussed in this book. Furthermore, CBT is not associated with any side effects, and can be practiced without any risks for an unlimited period of time. The goal of CBT is to change maladaptive ways of thinking and acting in order to improve psychological well-being. In this context, it is important to explain the term *maladaptive*. This goes to the heart of the definition of mental disorders. Psychiatrists and psychologists alike have been engaged in a long, heated, and still ongoing battle over the way to best define a mental disorder. Jerome Wakefield (1992) offered a popular contemporary definition of mental disorder. He defines it as a *harmful dysfunction*. It is harmful because the problem has negative consequences for the person and also because the dysfunction is negatively viewed by society. It is a dysfunction because having the problem means that the person cannot perform a natural function as designed by evolution (for a critical discussion, see McNally, 2011).

Some of the most extreme positions in this debate question whether mental disorders even exist. One of the earliest and most vocal proponents of this position was Thomas Szasz (1961). Szasz views psychiatric disorders as essentially arbitrary and manmade constructions formed by society with no clear empirical basis. He argues that psychological problems, such as depression, panic disorder, and schizophrenia, are simply labels attached to normal human experiences by society. The same experiences that are labeled as a disease in one culture or at one point in history may be considered normal or even desirable in another culture or at another point in history.

Proponents of CBT acknowledge that culture contributes to the expression of a disorder, but they disagree with the view that human suffering is simply a made-up construction by society. Instead, CBT conceptualizes psychiatric disorders as real human problems that can be treated with real human solutions. At the same time, CBT is critical of the excessive

medicalization of human experiences. In CBT, it is not important whether or not a psychological problem that interferes with normal functioning is labeled as a psychiatric disease. The names of mental disorders come and go, and the criteria used to define a specific mental disorder are arbitrary and manmade. But human suffering, emotional distress, behavioral problems, and cognitive distortions are real. Regardless of what the name for the human suffering is—or whether there is even a name for it—CBT helps the affected person to understand and alleviate the suffering.

On the other extreme is the view that mental disorders are distinct medical entities. Psychoanalytically oriented clinicians believe that these disorders are rooted in deep-seated conflicts. Based on Freudian thinking, these conflicts are typically considered to result from repression (e.g., suppression) of unwanted thoughts, desires, impulses, feelings, or wishes. For example, the conflict in Joe might be considered to be rooted in his relationships with his mother or father, and his depressed mood might be seen as a result of anger toward them that is turned inward toward himself. More modern psychoanalysts, who often identify themselves as insight-oriented or psychodynamic psychotherapists, might place a greater emphasis on existing or unresolved interpersonal conflicts, compared to Freudian therapists, who focus on experiences during early childhood. For example, modern psychodynamic therapists might see Joe's depression as a result of unresolved grief from a lost relationship to a significant person, such as his father or mother. The problem with these ideas is that even after more than 100 years of psychoanalysis, there is almost no scientific support for them.

Instead of delving into the past to uncover any early parent-child relationship conflicts that might have caused the problem, CBT primarily focuses on the here and now, unless the past is clearly causing the present. For example, Joe's recent layoff, his previous attempts to deal with depression, and any events that happened in the past and that might have contributed to the present are important. However, unlike psychodynamic therapy, CBT is not based on a preconceived notion that Joe's current depression must be related to unresolved conflicts with his father, mother, or any other attachment figure, or that Joe's depression is an expression of an elusive energy that is turned against himself. Instead, CBT takes a scientific and exploratory approach in trying to understand human suffering. In doing so, the patient is seen as an expert who has the ability to change the problem, not as a helpless victim.

Biologically oriented psychiatrists believe that psychological disorders are biological entities. Proponents of this perspective believe that mental disorders are causally linked to particular biological factors, such as dysfunctions in certain brain regions and an imbalance of neurotransmitters.

Neurotransmitters are molecules that transmit signals from one nerve cell to another. For example, serotonin is a neurotransmitter that is involved in feelings of anxiety and depression. Many biologically oriented psychiatrists today believe that a deficiency of serotonin is the cause of many emotional disorders. The specific brain area that has received the most research attention is the amygdala, a small, almond-shaped structure located inside the brain. With advancements in genetic technology, some researchers are trying to locate specific genes that contributed to psychological problems. CBT acknowledges the importance of biology in psychological problems and human suffering. However, finding the biological substrate of a feeling does not explain the feeling. We are simply shifting the question of what causes an emotion from a psychological level to a biological level. The actual reason for the emotional distress remains unknown. This fact is often difficult to accept. To illustrate this issue, let us consider another, perhaps more obvious example. We can develop headaches for many different reasons. Examples may include hangovers, sleep deprivation, and caffeine withdrawal, to name only a few. Aspirin is an analgesic drug that can help in all of these cases. One could argue that aspirin works because our body needs it; that the headache pain is caused by some sort of aspirin deficiency syndrome, and that if our body does not get enough aspirin, it will give us a headache (no pun intended). Alternatively, it could be argued that aspirin acts by blocking the production of prostaglandins, leading to a general analgesic effect (which appears to be the mechanism of action). Alternative methods to treat the same headache may include drinking a Bloody Mary (in the hangover case), taking a nap (in the case of sleep deprivation), or getting a double espresso (in the case of caffeine withdrawal).

Similarly, some people feel less depressed when taking drugs that prolong the action of the naturally released serotonin. An example is the popular drug Prozac, which is a part of a drug class called selective serotonin reuptake inhibitors (SSRIs). As in the case of aspirin for headaches, we cannot conclude that depression is *caused* by a deficit of serotonin. But it is fair to say that depression and serotonin levels are related, and that taking an SSRI can help lift the depression. However, other methods for treating depression are also possible because taking an SSRI for depression is not the only way to lift depression, and Prozac does not work for everybody with depression. As in Joe's case in the vignette, some people dislike the side effects of the medication, or they want to stop taking the medication for other reasons. The literature on combining traditional pharmacotherapy and CBT has been rather disappointing in that adding traditional pharmacotherapy only adds very little, if anything, to CBT. Some studies even report that adding a sugar pill to CBT is more effective than a combination treatment of CBT and a

standard antianxiety medication (Barlow *et al.*, 2000). The reason for these curious results is not completely clear. It is possible that state-dependent learning plays a role because the learning that occurs during CBT while under the influence of a psychogenic agent is of a different state when the patient is asked to retrieve this information as compared to that which happens when the patient is no longer under the influence of the medication. Another possible reason is an attribution effect, in which the patient is likely to attribute the gains to an active medication and discontinuing this medication may thereby increase his expectation and subsequently also his risk of relapse. In contrast, placebo pills are often correctly identified as such by patients, leading the patient to attribute the gains to CBT. Another more recent strategy that my colleagues and I have investigated in recent years is to augment CBT with a cognitive enhancer (d-cycloserine), which appears to facilitate the learning that occurs during CBT. Since the first positive trial that was conducted in patients with height phobia (Ressler *et al.*, 2004), a considerable body of evidence has accumulated, telling a remarkably consistent and highly promising story (for a review, see Hofmann, 2007b; Norberg *et al.*, 2008). The purpose of this text, however, is to present contemporary CBT approaches for a variety of disorders. Combination strategies will only be mentioned peripherally.

Focus on Emotions

For the past two decades, the entire field of psychology has clearly been experiencing a shift into research on emotions and affect. The formation of the discipline *affective neuroscience* is certainly a telling example. It is a relatively new subdiscipline of psychology that examines the biological correlates of affective states and emotions. Other signs for the popularity of this topic area include the creation of the journal *Emotion* and the publication of *The Emotional Brain* by Joseph LeDoux (1996). This book was written by a front-line neuroscientist and became a very popular text even among the general public. The theories and studies in affective neuroscience were particularly eye-opening to many CBT theorists, including myself, because it provided a biological framework to explain why CBT strategies are effective for regulating emotions—and how to further improve them.

Emotions have always occupied a central element of CBT. Contrary to a common misconception, CBT is not at all limited to changes in thinking and behaviors. Instead, the central notion of CBT is the idea that our emotional responses are strongly moderated and influenced by our cognitions and the

way in which we perceive the world, ourselves, other people, and the future. Therefore, changing the appraisal of an object, event, or situation can also change the associated emotional response. Since the first patients were treated by Beck and Ellis, CBT has evolved into a scientific enterprise which has had an unprecedented impact on the field of psychotherapy. In contrast to other psychotherapeutic approaches, CBT has embraced the scientific method and opened itself up to empirical scrutiny. Basic assumptions about the treatment model have been taken into the laboratory and empirically tested. Moreover, as laboratory research has accumulated new knowledge about specific disorders, CBT-oriented therapists have developed more tailored techniques to treat specific psychological problems. Very early on in its development, CBT was rigorously tested in clinical trials, which were previously the domain of pharmaceutical research. Initially, specific CBT approaches for clearly identified problems (depression, social anxiety disorder, etc.) were compared to waitlist control groups (i.e., patients who did not receive the treatment and simply waited for the same period of time that the treatment lasted) and to psychological placebo conditions (i.e., general psychotherapy that does not include the specific CBT techniques or a sugar pill that looks like a real medication). Later, CBT was compared to the most effective psychiatric medications in randomized placebo-controlled studies. These studies are the most rigorous way to study the effectiveness of a treatment because participants are randomly assigned to either the active treatment (CBT or pharmacotherapy) or a placebo condition. The placebo effect in psychiatry is remarkably strong. Between 30 and 40% of patients suffering from psychological disorders recover from their problems after taking an inactive sugar pill. Even when using highly rigorous standards, the results are remarkably reliable. Time and again, CBT has been shown to be clearly more effective than placebo therapy and as effective, and sometimes even more effective, than the most effective forms of pharmacotherapy.

Today, CBT is an umbrella term that includes many different empirically supported therapies that share the basic CBT principles. However, CBT is not a one-size-fits-all treatment. There are clear differences in the specific strategies for targeting specific problems. But despite the differences in the CBT conceptualizations of and approach to treating these different psychological problems, the strategies are firmly rooted within the basic CBT approach—namely, that maladaptive cognitions are causally linked to emotions, behaviors, and physiology, and that correcting maladaptive cognitions results in the elimination of psychological problems and greater general well-being. Strong scientific evidence for this general model has come from the field of affective neuroscience and emotion regulation research.

Neurobiology of Emotions

Recent neuroscience research has been able to link these cognitive processes with specific brain activities. Based on experimental research with animals, LeDoux and others have argued that the amygdala in particular, a small, almond-shaped structure in the center of the brain, is crucially important for processing and expressing emotions. LeDoux's model assumes that emotional cues are processed in two different ways, which differ in the speed and depth of processing. For example, let's assume you are hiking somewhere and you see an object that looks like a large snake. LeDoux's model states that this information is processed in two different ways. First, the visual information of this object goes to the visual thalamus, which is the central relay station of the visual sensory input and then directly to the amygdala, which has close connections to the autonomic nervous system. Because the information resembles a snake, the amygdala becomes activated, leading to an immediate fight-or-flight response with little conscious awareness. LeDoux named this process the *low road* to the amygdala. He referred to this as the low road because the process happens without higher cortical involvement. In addition to this subcortical process, it is assumed that the information is also sent from the thalamus to the visual cortex that then further processes the information. If the object only looks like a live snake, but it is in fact a stick or a dead snake, higher cortical processes then inhibit the activation of the amygdala, suppressing the initial fight-or-flight response. Because this path to the amygdala involves higher cortical centers, LeDoux referred to it as the *high road* to the amygdala. This model is compatible with CBT, because the cognitive processes, which require higher cortical functions, may inhibit subcortical brain areas that are evolutionarily more primitive.

One can imagine that it is not easy to study the biological mechanisms or even correlates of CBT, because many factors influence the treatment process, including but not limited to the patient's motivation, the empathy by the therapist, and the relationship between the therapist and the patient. However, it is possible to isolate and study specific components of CBT, such as cognitive reappraisal. Those studies are beginning to appear and they provide general support for this notion. For example, Ochsner and colleagues (2002) presented neutral pictures (e.g., a lamp) or negatively valenced pictures (e.g., a mutilated body) to some healthy women while they were lying in an fMRI scanner that measured subjects' brain activation. The women were instructed to view the picture and fully experience any

emotional response it might elicit. The picture remained on the screen for an additional period of time with the instructions either to simply look at it or to reappraise the stimulus. As part of the reappraisal instructions, the women were asked to reinterpret the negative picture so that it no longer generated the negative emotional response (e.g., the picture of the mutilated body is part of a horror movie that is not real). As predicted by LeDoux's model, reappraisal of the negative pictures reduced their negative affect and was associated with increased activity in higher cortical structures (including the dorsal and ventral regions of the left lateral prefrontal cortex and the dorsal medial prefrontal cortex) and decreased activity in the amygdala. Furthermore, increased activation in the ventrolateral prefrontal cortex was correlated with decreased activation in the amygdala, suggesting that this part of the prefrontal cortex may play an important role in conscious and voluntary regulation of emotional processes.

Emotion Regulation Strategies

Emotion regulation is the process by which people influence which emotions they have, when they have them, and how they experience and express these emotions. Gross and colleagues (Gross, 2002; Gross and Levenson, 1997) have conducted a number of well-designed experiments which demonstrated that it is possible to willfully change one's emotional response, including the physiological response, depending on the approach one takes to deal with the emotional material. In a typical experiment, healthy subjects are asked to view different pictures. Some of these pictures (e.g., that of an amputated human hand) might elicit very strong negative reactions in all people, such as feelings of disgust. During the experiment, we might measure subjects' psychophysiological response before, during and some time after viewing these pictures. When using such a paradigm, Gross and colleagues observed that simply giving participants different instructions on what to do when viewing these pictures can have a dramatic effect on their subjective and physiological response. A very effective strategy is reappraisal. For example, if we can find alternative, less distressing explanations, the information (picture, event, etc.) results in less negative emotions. In contrast, when subjects are asked to suppress their emotions when viewing the pictures by behaving in a way in which nobody would be able to tell how they are feeling, it increases the subjective distress and raises psychophysiological arousal as compared to people who do not attempt to suppress their emotions.

This may appear to be counterintuitive, but it is consistent with a large number of studies demonstrating the paradoxical effects of suppression: the harder we try not to be bothered by something, the more this something is bothering us, whether they are feelings, thoughts, images, or events in our surrounding environment (such as a dripping water faucet or the ticking of a clock). This phenomenon has been studied by Daniel Wegner who has developed the White Bear experiment to illustrate this point (Wegner, 1994). The experiment is very simple and reliably effective: Picture a fluffy, white bear. Now think for 1 minute about anything you like, except the fluffy white bear. Every time the white bear pops into your mind, count it. How many white bears popped up? A white bear typically does not create an intrusive image, unless there was a personal experience with a white bear in the person's life, especially if this experience was emotional. Obviously, this experiment works even better if we choose personally meaningful or emotionally valenced thoughts or images. In this small experiment, the reason why a neutral image of a white bear became an intrusive image was simply because of the attempt to suppress it. The reason for this paradoxical effect is obviously related to the cognitive activity that is required in order to suppress it. In order to not think about something, we have to monitor our cognitive processes. As part of this monitoring process, we focus on this very thing that we are trying not to focus on, which leads to the paradox and, when done regularly, could potentially lead to emotional disorders. Wegner further demonstrated that attempts to suppress thoughts about a white bear paradoxically increased the frequency of such thoughts during a post-suppression period in which participants were free to think about any topic (Wegner, 1994). Subsequent research has shown links between this rebound effect as a laboratory phenomenon and clinical disorders. For example, thought suppression leads to increased electrodermal responses to emotional thoughts (Wegner, 1994), suggesting that it elevates sympathetic arousal. Similarly, ruminating about unpleasant events prolongs both angry and depressed moods (Nolen-Hoeksema and Morrow, 1993; Rusting and Nolen-Hoeksema, 1998), and attempts to suppress pain are similarly unproductive (Cioffi and Holloway, 1993).

Generally speaking, many psychiatric problems are related to ineffective attempts to regulate unwanted experiences, such as feelings, thoughts, and images. Effective psychological treatments focus on promoting beneficial regulation strategies and discouraging the use of ineffective strategies. Depending on the treatment target, CBT strategies include a variety of different techniques. Some strategies target *experiential avoidance* and the attempts to manage unpleasant emotions through suppression and other dysfunctional emotion regulation strategies, whereas other strategies focus

on the emotion-eliciting stimulus itself—the situation or event that generates the emotional experience.

Gross's process model of emotions emphasizes the evaluation of external or internal emotional cues (Gross, 2002; Gross and John, 2003; Gross and Levenson, 1997). Once these cues have been processed, a set of experiential, physiological, and behavioral responses are activated and influenced by emotion regulation tendencies. The point in time at which individuals engage in emotion regulation influences the efficacy of their regulatory efforts. Accordingly, based on their timing during the emotion-generative process, emotion regulation strategies can be divided into antecedent-focused and response-focused strategies. Antecedent-focused emotion regulation strategies occur before the emotional response has been fully activated. Examples include cognitive reappraisal, situation modification, and attention deployment. In contrast, response-focused emotion regulation strategies are attempts to alter the expression or experience of an emotion after the response tendency has been initiated. Examples include strategies to suppress or tolerate the activated emotional response. Results of empirical investigations have so far converged to suggest that antecedent-focused strategies are relatively effective methods of regulating emotion in the short term, whereas response-focused strategies tend to be counterproductive (Gross, 1998; Gross and Levenson, 1997).

Another effective strategy to regulate emotions is to encourage the person to separate him- or herself from his or her thoughts. This may be achieved through mindfulness and meditation practices that encourage a present-focused, nonjudgmental stance in regard to thoughts and feelings. In the more recent literature, this is often referred to as *decentering*. This concept is closely related to *distancing* in traditional CBT (Beck, 1970). Although similar in the practical implications, there are subtle differences between these two constructs, especially in their respective theoretical foundations. Distancing refers to the process of gaining objectivity toward thoughts by learning to distinguish between thoughts and reality. Therefore, distancing assumes that true knowledge can be achieved by evaluating one's thoughts, which are often expressed in the form of predictive statements (i.e., hypotheses). In contrast, distancing, as it is used by some authors (e.g., Hayes, 2004), assume a theoretical model that does not make a distinction between thoughts and behaviors on a conceptual level (i.e., thoughts are seen as verbal behaviors).

The inability to engage in decentering and distancing can result in *thought-action fusion* (TAF). This refers to the difficulty of separating cognitions from behaviors. It has been proposed that TAF is comprised of two discrete components (Shafran *et al.*, 1996). The first component refers to the

belief that experiencing a particular thought increases the chance that the event will actually occur (likelihood), whereas the second component (morality) refers to the belief that thinking about an action is practically identical to actually performing the action. For example, the thought of killing another person may be considered morally equivalent to performing the act. This moral component is assumed to be the result of the erroneous conclusion that experiencing “bad” thoughts is indicative of one’s “true” nature and intentions.

General Approach of CBT

Although CBT is a popular treatment method, there are a number of false beliefs (cognitive errors, if you will) concerning what (modern) CBT is all about. Contrary to popular belief, CBT does not mean that therapy is limited to cognitive modification. It simply means that identifying and modifying cognitive distortions are important goals of treatment, because CBT rests on the principle that cognitions are causally linked to emotional distress and behavioral problems. CBT also targets emotional experiences, physiological symptoms, and behaviors. Depending on the nature of the treatment strategy, Beck distinguishes between intellectual, experiential, and behavioral approaches, all of which are important aspects of CBT. As part of the intellectual approach, patients learn to identify their misconceptions, test the validity of their thoughts, and substitute them with more adaptive ideas. The experiential approach helps patients to expose themselves to experiences in order to change these misconceptions. In Joe’s case, the CBT therapist explored the reasons for his feelings of worthlessness and for his previous suicide attempts. An important treatment goal was to raise Joe’s level of energy and motivation. This was initially accomplished by assigning Joe some simple and then more complex tasks to do during the day, ranging from mild physical exercise, household chores, and shopping, to sending out job applications, going to job interviews, and pursuing a hobby. The central element of the behavioral approach is to encourage the development of specific forms of behaviors to improve the patient’s well-being. This assignment is often referred to as *behavioral activation*. It can break the cycle of negative thinking and low energy and motivation. Behavioral activation lifted Joe’s energy, changed his self-perception, and improved his mood. Because of the strong emphasis on the behavioral aspects of many psychological problems, the term CBT appears to be more appropriate than only *cognitive therapy* or *rational therapy*, as it was initially referred to by the two founding fathers.

CBT is primarily focused on the here and now. The patient is an active collaborator who is considered to be an expert on his or her psychological problems. The relationship between the therapist and patient is warm and genuine and the communication is direct but mutually respectful. The patient is not seen as deficient and the therapist is not seen as an omnipotent healer. Instead, the therapist and patient form a collaborative relationship in order to solve a problem. The initial role of a CBT therapist is typically very active as he or she educates the patient about the underlying principles of this treatment approach. However, as treatment progresses, patients are expected to become increasingly active in their own treatment, more proactive, and more independent.

Usually, patients seek help for a variety of different problems. A careful analysis often shows that the different problems are directly related to one another or that different sub-problems can be subsumed under one larger problem. For example, Joe's lack of motivation, low energy, and tendency to oversleep are clearly related to his overarching problem of depression and feelings of low self-worth. If CBT were to primarily target Joe's sleep problems, it would obviously miss the main point of Joe's psychological problems. It appears that Joe's feelings of low self-worth are the main problem that should be targeted in treatment. Some of Joe's core beliefs (schemas) were: "I am worthless unless I can support my family," and "I am incompetent." These core beliefs are typically more overt at a later stage in the treatment process, when it becomes apparent that the various automatic thoughts share certain commonalities. This process requires careful self-exploration by the patient and guided questioning (or guided discovery) by the therapist (which has been referred to as a Socratic questioning style in Beckian CBT). As therapy progresses, the goals of CBT become more focused and oriented toward the patient's core beliefs. However, these goals are not determined by one person alone. Throughout the treatment process, the therapist and patient frequently revisit the goals of therapy, including identifying the types of interventions that will be most effective for reaching these goals and delineating concrete observable outcomes that will indicate that each goal has been achieved. Patients are fully involved in these decision-making processes.

There is a common misconception that CBT replaces negative thinking with positive thinking, which will then miraculously solve all psychological problems. This is incorrect on several levels. CBT cannot and should not attempt to make a bad situation good. CBT does not encourage patients to think positively about realistically distressing events or to ignore a tragedy that has happened to them. Rather, the CBT therapist helps the patient to critically examine whether his or her response to a situation is justified. If

there is good reason to have a negative emotional response, then CBT encourages the patient to mobilize his or her own resources in order to deal with the negative event and to live a meaningful life.

A grieving mother in Missouri who has lost both of her sons in the Iraq war has good reason to be grief-stricken. There is absolutely nothing positive about losing your sons, and the mother has very good reason to go through a period of immense grief. Bad things happen, and they happen to good people. Yet, most of us are able to cope with life's adversities and somehow find ways to move on with our lives. Losing children in war is an extreme example, and most people are fortunate enough to be spared of those tragedies. In Joe's case, the trigger for his depression was being laid off. Although getting laid off is not a pleasant event, it is not a catastrophe, and most people can cope with this challenge. However, triggers for depression are not necessarily present. In fact, many people do not even recall a triggering event for their depression. The same is true for other psychological problems. Patients often report that their psychological problem simply happened. CBT therapists encourage patients to identify the reasons for which the problem persists, and help to motivate patients to change these reasons.

By treating thoughts as hypotheses, patients are put into the role of observers or scientists rather than the victims of their psychological problems. In order to challenge these thoughts, therapist and patient discuss the evidence for and against a particular assumption. This can be achieved by using information from patients' past experiences (e.g., what is the probability based on your past experience?), by delivering more accurate information (e.g., what do we know about the event?), by re-evaluating the outcome of a situation (e.g., what is the worst thing that could happen?), and by giving patients the opportunity to test their hypotheses by exposing them to feared and avoided activities and situations.

Many automatic thoughts reported by patients with emotional problems are associated with thinking patterns that lead to *probability overestimation*. This term refers to the cognitive error that occurs when a person believes that an unlikely event is likely to happen. For example, people with panic disorder or health anxiety might interpret harmless heart palpitations as a sign of an impending heart attack, and a woman with generalized anxiety disorder might conclude that her husband must have gotten into a car accident because he did not get home at the usual time. Although these events (heart attack, car accident) are not impossible, the likelihood of occurrence is very low. However, the likelihood that such an event has occurred might be higher, meaning that the woman would have some reason to worry about her husband, if he is a poor driver who often gets into car accidents, if he is always on time, or if he promised he would be home on time.

Another typical thinking pattern is called *catastrophic thinking*. Catastrophic thinking means “blowing things out of proportion,” or “making a big deal out of something,” even if it is not a big deal. In other words, a person who makes this cognitive error perceives an outcome as catastrophic, even if it is not. An example is a man with social anxiety disorder who, after being rejected by a woman whom he had asked out on a date, believes that he will never find a partner in life because no woman will ever be interested in him.

Once maladaptive thoughts are identified and challenged, patients must put their old beliefs to the test. For example, in the case of anxiety disorders, patients will be confronted with events and situations (which may also include images and activities) that they have typically interpreted in a dysfunctional way. Patients are further given the opportunity to conduct field experiments to examine the validity of their assumptions. For example, the person with social anxiety disorder may be asked to strike up a conversation with ten random women in a book store. In later practices, he might be asked to deliberately set himself up for rejection by women in order to deal with his concerns about the consequences of getting rejected. In addition to these general forms of cognitive errors, the following chapters will discuss other, disorder-specific cognitive dysfunctions and interventions for these cognitive dysfunctions. In all of these chapters, the cognitive dysfunctions are explored and modified in the context of behavioral experiments in which patients are confronted with situations that allow them to test the validity of their beliefs. The majority of these experiments typically occur outside the therapist’s office, in a less safe environment.

One of the most difficult steps in cognitive-behavior therapy is substituting maladaptive thoughts for adaptive ones. In order to come up with alternative thoughts, patients must ask themselves “What are alternative ways of interpreting this particular event?” or “How would other people interpret this event?” With repeated practice, patients learn to change their perspective, moving from passive victim of their psychological problems to active observer. Self-monitoring forms are often used to guide this process.

Like any bad habit, the way we interpret things tends to be very resistant to change. The first step toward change is to realize that there are many different ways an event can be interpreted. In order to interpret an event, we need to formulate hypotheses, which ultimately determine our emotional response to the event. As discussed, the goal of treatment is to test patients’ hypotheses and, if these hypotheses are invalid, to modify them in order to develop a more realistic perspective of the real world. The assumption of the cognitive approach is that predictions and self-statements have a powerful influence over behavior and experience. Thus, in order to ensure that a practice session will provide the maximal ability to challenge patients’

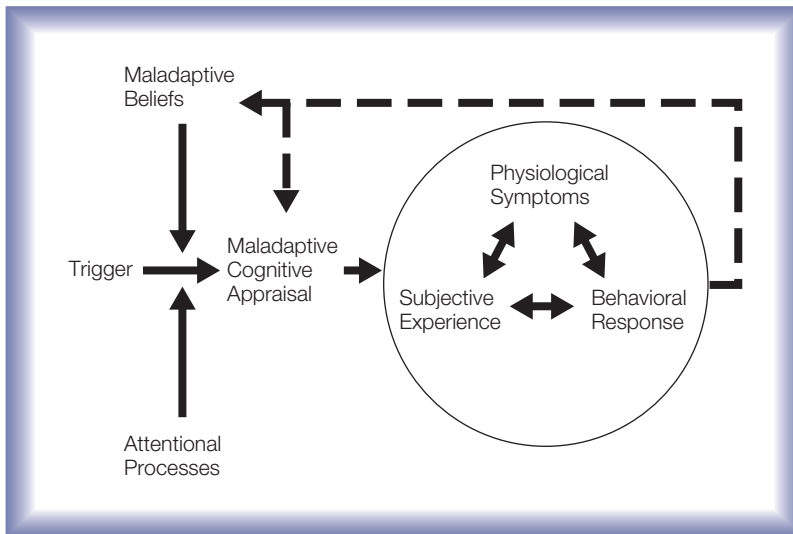


Figure 1.1 CBT model.

dysfunctional thoughts, preparation for the practice is essential. In addition, processing of experiences following an exposure is equally important.

The general model of CBT, as it will be used in this book, is depicted in Figure 1.1. This model shows that maladaptive beliefs (schemas) can lead to maladaptive specific (and often automatic) cognitions when attention is allocated to aspects of certain triggers, such as situations, events, sensations, or even other thoughts. These attention processes often show a high degree of automaticity and can happen on a subconscious level. Once the process reaches the level of consciousness, the triggers are evaluated and interpreted. This appraisal then leads to a subjective experience, physiological symptoms, and behavioral response. For example, a person who holds the view “I am socially incompetent” is more likely to interpret an event (e.g., an audience member yawning) in way that is consistent with this belief or schema. This interpretation of the situation leads to physiological symptoms (heart racing), behavioral responses (stuttering), and a subjective experience (fear and embarrassment). Physiology, behaviors, and the subjective experience of the emotion distract from the actual task performance, feeding onto each other and further supporting the maladaptive cognitive appraisal of the situation and the schema of the person as being incompetent, establishing a positive feedback loop and vicious cycle. This positive feedback loop can further be established by a process that has been referred to as emotional reasoning, which is a maladaptive cognitive process that uses one’s emotional experience as evidence for the validity of a thought.

An example of emotional reasoning is a child who is afraid of dogs who then uses this fear as evidence for the belief that dogs must, therefore, be dangerous. Emotional reasoning is a crucial process because it establishes a positive feedback loop by turning a consequence of a thought (e.g., fear of dogs) into an antecedent of the same thought (e.g., dogs are dangerous). We encounter this positive feedback loop in all emotional disorders.

The distinction between physiology, subjective experience, and behaviors is based on a general tripartite model of emotions. Separating the emotional response into these three components may seem artificial and some schools of psychology believe that it is unnecessary to make such a division. For example, a proponent of a theoretical approach that is referred to as behavior analysis may argue that every response to an event or a situation is a behavioral response and that it is not useful to even assume that cognitive appraisal precedes the response and that subjective and physiological responses are uniquely different from overt behavior response. However, the empirical literature provides sufficient evidence to support such a model, and it is useful to derive treatment targets and when formulating specific intervention strategies. The three components, behaviors, physiology, and subjective experience, form a system together, but can be targeted separately. The behavioral component may be expressed in the form of overt signs of the emotional experience. In the case of anxiety, these behaviors may be avoidance strategies with the goal of improving or eliminating the unpleasant state the person experiences. Other avoidance strategies can be experiential by, for example, avoiding the subjective experience or physiological sensations of an emotional response. These strategies, however, maintain the maladaptive approach toward external experiences because the positive feedback loop does not allow the system to change by considering any disconfirming evidence. A positive feedback may further be established as a result of emotional reasoning and self-perception, physiological symptoms, behaviors, and subjective experiences are both determined by and determine the cognitive appraisal of the situation, an observation with a long research tradition (Bem, 1967; Festinger and Carlsmith, 1959; Schachter and Singer, 1962).