

CHAPTER 1

What Is OCD?

We humans are very odd beings. We like the taste of certain poisons and we stubbornly continue to eat them even while they are killing us. Thoughts to which we are attached are poison.

—HENEPOLA GUNARATANA

OCD is a heterogeneous, often chronic, and severe psychiatric disease that affects millions of people worldwide of every gender, age, nationality, ethnicity, race, religion, and socioeconomic status. This disorder is characterized by recurrent, intrusive, and distressing thoughts, images, or impulses (obsessions) and/or repetitive mental or overt acts (compulsions or neutralizing behaviors) performed to reduce or remove distress and/or anxiety caused by these obsessive thoughts and to prevent any perceived harmful consequences (American Psychiatric Association, 2013). It can cause significant distress not only to people who suffer from it, but also often to their families and partners, and may lead to high levels of impairment in quality of life and even to disability.

OCD is associated with high health care (Simon, Ormel, VonKorff, & Barlow, 1995), economic, and social costs (i.e., the person's inability to fully function within society; National Collaborating Centre for Mental Health [NCCMH], 2006). The financial cost of this disorder solely to the U.S. economy is estimated to be about \$8 billion per year. A study by the Epidemiologic Catchment Area (ECA; Karno, Golding, Sorenson, & Burnham, 1988) found that approximately 36% of patients with OCD have occupational difficulties, and on average people who suffer from this disease lose up to 3 years of wages during the course of their lives because of the illness. About 25% of patients with OCD experience problems with marital relationships, and people affected by this disorder are less likely to marry than people without obsessive problems (Goodman, 1999).

HISTORICAL BACKGROUND

DOCTOR: What is it she does now? Look, how she rubs her hands.

GENTLEWOMAN: (*aside to doctor*) It is an accustomed action with her, to seem thus washing her hands. I have known her continue in this a quarter of an hour.

LADY MACBETH: [later in the scene] What, will these hands ne'er
be clean? . . . Here's the smell of blood still: all the perfumes of
Arabia will not sweeten this little hand.

DOCTOR: [later in the scene] This disease is beyond my practice.
—*Macbeth* (Act V, Scene 1)

OCD has been documented since the 15th century, as can be seen, for example, in a reference to the characteristics of OCD in the work “*Malleus Maleficarum*,” published by Kramer and Sprenger in 1486, even if it was not named as a specific psychopathological disorder (Kramer & Sprenger, 1486/1951). Similarly, William Shakespeare, in describing the behavior of Lady Macbeth, recounts what might be viewed as a classic description of a compulsive washer. And many famous people throughout history, such as Martin Luther (1483–1546), Michelangelo (1475–1564), Ludwig van Beethoven (1770–1827), Charles Darwin (1809–1882), and Albert Einstein (1879–1955), were thought to be affected by this disabling disorder.

The first description of the disease is attributed to Étienne Dominique Esquirol who, in 1838, defined the disorder as a form of monomania, a partial state of delirium “*delire partiel*,” in which an involuntary, irresistible, and instinctive activity would lead a patient to engage in actions that the conscience would try to block but that the patient’s willpower would not be able to suppress. The author reached the conclusion that the cause of the disorder was primarily a lack of willpower and only partially an intellectual disorder (Fava, Rafanelli, Grandi, Conti, & Belluardo, 1998). The term *obsessive* was first introduced by Emil Kraepelin (1856–1926) in his *Textbook of Clinical Psychiatry* (1883), where he called OCD *obsessive neurosis*. Consistent with DSM-5, Kraepelin described obsessive neurosis as characterized by obsessive ideas, compulsive acts, or both together (Steinberg, Carius, & Fontenelle, 2017). However it was Pierre Janet (1903) who provided the first extensive diagnostic description of OCD. The terms *obsession* and *compulsion* derive from the Latin words *obsidere*, to besiege (de Silva & Rachman, 2004), and *compellere*, to compel, coerce.

EPIDEMIOLOGY

The appearance of things to the mind is
the standard of every action to man.

—EPICETUS

This disorder has a lifetime prevalence of approximately 2–3% of the population worldwide (Weissman et al., 1994; Karno & Golding, 1991; Robins et al., 1984; Okasha, 2003; Ruscio, Stein, Chiu, & Kessler, 2010), or approximately 1 in 40 adults have OCD, more than 60 million people worldwide. It has been estimated that about 3.3–5 million people in the United States, and approximately 750,000 people in the United Kingdom, are living with OCD at any one time. Furthermore, over one-quarter of adults experience obsessions or compulsions at some time in their lives.

OCD is the fourth most common psychiatric disorder, following major depression, social phobia, and substance use disorders (Germer, Siegel & Fulton, 2005; Robins et al., 1984; Rasmussen & Eisen, 1992, 1994), and the World Health Organization has ranked OCD as the 10th leading cause of disability in the world for individuals between 15 and 44 years of age (World Health Organization, 1996; Murray & Lopez, 1996; Bobes et al., 2001).

Although many individuals are affected by OCD, many are also still hiding their symptoms: Some with OCD are reluctant to talk about their symptoms due to the fear, embarrassment, and

shame of being labeled, while others are unaware that their experiences constitute an established psychiatric condition. Therefore, OCD is most likely underdiagnosed and undertreated. Epidemiological research estimates that more than half of the patients with OCD (54.9%) in the United States receive no treatment at all; worldwide the figure goes up to 59.5% (Kohn, Saxena, Levav, & Saraceno, 2004). According to Jenike (2004) on average, people with OCD see three to four doctors and the average amount of time that passes from patients' first experience of symptoms to when they receive a correct diagnosis and seek professional help ranging from 7.5 to 9 years, and in one study was found to be as long as 17 years (Jenike, 2004; Hollander et al., 1996). This delay may be one of the reasons for the chronic course of the disorder. Torres et al. (2007), in a British Psychiatric Morbidity Survey, showed that most people with OCD are not being treated (Goodwin, Koenen, Hellman, Guardino, & Struening, 2002), with fewer than 10% having been seen by a mental health professional in the year before the interview.

OCD begins earlier in males than females, usually with a gradual onset (American Psychiatric Association, 2013), and the mean age of onset is 21 for men and 24 for women (Burke, Burke, Regier, & Rae, 1990; Lensi et al., 1996; Minichiello, Baer, Jenike, & Holland, 1990), although age of onset covers a wide range of years. In 60–70% of cases, onset occurs before age 25, in 15% before age 10, and in the remaining 15% after age 35 (Rasmussen & Tsuang, 1984, 1986; Thyer, 1985). It can, however, be difficult to compare data regarding age of onset from different studies, since there is disparity in the definitions of these two words, *age* and *onset*. Some authors consider age of onset to be the moment in which the symptoms appear for the first time, whereas others when the symptoms began to cause a person distress; that is, when these symptoms meet the criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM). This is a relevant point, since many people with OCD report the presence of subclinical symptoms for many years before they become severe enough to cause distress and/or lead them to seek treatment.

OCD has an approximately equal male-to-female gender ratio, with slightly more women than men being diagnosed with OCD. Interestingly, childhood OCD is more common in males; the gender ratio does not favor females until adulthood.

PHENOMENOLOGICAL AND CLINICAL ASPECTS

It is better to fret in doubt than to rest in error.

—ALESSANDRO MANZONI

This quote from the 19th-century Italian poet and novelist Alessandro Manzoni expresses the fundamental nature of and motivation behind the obsessive “choice.” *Obsessions* are recurring, persistent, and unwanted thoughts, images, scenes, or impulses that a person experiences as being intrusive and inappropriate. They cause anxiety, distress, or other negative feelings that lead the person to try to get rid of or neutralize them by performing a compulsion or a ritual. For example, a person afflicted by the doubt that he or she has not turned off the lights tries to neutralize the doubt by repeatedly checking them to make sure they are off. Clinical obsessions are often considered to be thoughts that express a doubt, a hypothesis, or an inference (e.g., “Maybe I didn’t lock the door”; “Maybe I forgot to turn the lights off”; “I might be dirty”; “I might have caused an accident”)—that is, thoughts that are subjectively experienced as negative.

In terms of frequency, the most common themes of obsessions are those regarding:

- Fear of being contaminated, or contaminating others, by infections or disgusting substances or objects (e.g., germs, viruses, dirt, chemicals, bodily fluids, feces).
- Fear of intentionally harming oneself or others by becoming aggressive (e.g., fear that one might kill a family member by using knives, poisons, or a car).
- Doubts about indirectly harming oneself or others by accident (e.g., not having locked the door, closed the windows, or turned off the gas, taps, or the lights).
- Excessive attention to moral or religious/blasphemous ideas (e.g., shouting curse words suddenly at a social event, claiming “God is dead”).
- Unpleasant sexual thoughts (e.g., incestuous or perverse images or fear of being a homosexual or a pedophile) or violent thoughts (e.g., of being a rapist or a murderer).
- Excessive need for things to be in order and symmetrical (e.g., feeling very annoyed or uncomfortable when personal objects are not in precise order).
- Fear of shameful misbehavior or acting inappropriately (e.g., images or fear of urinating or defecating in a public place or in front of other people, asking a neighbor to pull down his or her pants).
- Magical thinking and superstitious beliefs, which consists of irrational and unreasonable thoughts that are characterized by connecting events and actions that have any relation at all (e.g., “If I don’t count to 120 when I am walking down the street, then something bad will happen to my parents” or “I’m afraid of the number six and I have to avoid it because 666 is said to be the devil’s number”).

Compulsions are repetitive behaviors or rituals that the individual feels compelled to perform over and over again. The aim of these behaviors is to prevent or reduce the distress caused by one’s obsessions or to prevent, neutralize, or counteract obsessions themselves or make them go away. In other words, the compulsions help reduce an individual’s perception that he or she is, or has been, responsible for hypothetically harming him- or herself or others and make the person feel more “comfortable” or that he or she has done the right thing. For example, people with contamination obsessions can decrease the mental distress they experience by washing their hands over and over again until their skin becomes wrinkly or coarse; people with obsessive fears of intruders may check and recheck door locks repeatedly; and people who experience involuntary blasphemous thoughts might find relief from their distress by counting backward from 100 to 10 each time that they have one of these thoughts. In some cases, individuals carry out strict rituals according to rules they have developed in an idiosyncratic way, without being able to explain why they are doing what they are doing.

Compulsions can either be *overt*, when they are observable by others (e.g., washing, checking), or *covert*, when they are unobservable mental actions (e.g., silently counting or repeatedly saying words, phrases, or prayers in one’s mind). Typical compulsions include:

- Washing (hands, shower) and cleaning (house, clothes, objects).
- Checking (that the doors are locked or that the gas, light, or a tap is off, or driving around to make sure they haven’t run over a pedestrian).
- Ordering and arranging things, seeking symmetry or perfection.
- Counting in certain patterns.
- Silently repeating special words or phrases.
- Excessive praying or engaging in behaviors triggered by religious beliefs or fear.

- Continuously repeating tasks, gestures, or acts.
- Excessively thinking “neutralizing” thoughts to counteract obsessive thoughts.

Most people with OCD have both obsessions and compulsions, but some individuals may have only one or the other. Generally, both obsessions and compulsions cause distress and suffering, which in turn takes attention and time away from other things, thus interfering, to varying degrees, with normal social, work-related, and relationship-related activities. Higher levels of stress tend to worsen symptoms.

There are other behaviors that are often typical of people affected by OCD, which cannot be defined as compulsions, but that are included in the general category of “safety-seeking behaviors” (a term used in the CBT literature to refer to any actions that aim to prevent feared catastrophes and reduce harm; Salkovskis, 1985) and can cause significant distress, are time-consuming, and tend to reinforce and maintain the disorder. Some such behaviors include:

- Continuously asking for reassurance.
- Doing or completing tasks excessively slowly, which often leads to being late.
- Not allowing someone to enter a particular place (e.g., one’s home, because of fear of contamination).
- Avoiding certain objects, places, situations, people, and/or activities to prevent obsessive thoughts and distress from occurring.
- Paying attention selectively to the internal or external stimuli that are directly or indirectly associated with obsessive fears or themes.
- Trying to suppress or distract oneself from unacceptable thoughts.
- Trying to be sure of the accuracy of one’s memory.

All these behaviors are either excessive or not realistically connected to preventing or neutralizing the feared event; they normally offer only temporary relief from distress, and when the obsessions reappear, they are usually stronger. Furthermore, the rituals themselves often end up causing distress: As they become more demanding and time-consuming, they reinforce the obsession, eventually creating a worsening cycle of obsessive symptoms (also see the *cognitive-evolutionary model* at the end of this chapter, in Chapter 2, and in Chapter 6).

LEVEL OF INSIGHT

The belief that one’s own view of reality is the only reality
is the most dangerous of all delusions.

—PAUL WATZLAWICK

Most adults with OCD have recognized at some moment that their obsessions and compulsions are excessive, unreasonable, and unrealistic (*good insight*), but they feel unable to resist them and believe the only way to relieve their anxiety or discomfort is by performing compulsions. This is not necessarily the case with children, since they may lack the cognitive awareness needed to formulate this judgment.

However, level of insight (the ability to recognize that the obsessions and compulsions are senseless) can vary within an individual over the course of the illness (Lochner & Stein, 2003), but

also often within the same day, depending on emotional, environmental, or relational conditions. For example, a person is able to recognize that a contamination compulsion is irrational when they talk about it in a situation they perceive as being “safe” (e.g., a therapy session) but not when they are in a situation that they perceive as threatening (e.g., when they have to deal with money) or in situations associated with their obsessive fears (e.g., when they are at home with family). A small minority of individuals with OCD have such poor, or sometimes no, insight into their own disorder that a clinician might misinterpret their obsessive ideas as psychotic delusions.

When a person is able to understand that the obsessions and compulsions are irrational, he or she may want to try to resist having them. Doing so can actually increase their feeling of anxiety or distress, and giving into the compulsion will then provide them with relief. As the disorder develops, after numerous unsuccessful attempts to resist having obsessions and compulsions, the person might give up and no longer try to resist them but rather integrate the compulsions into his or her daily habits (American Psychiatric Association, 2013).

DIAGNOSTIC ISSUES

Appearances to the mind are of four kinds. Things either are what they appear to be; or they neither are, nor appear to be; or they are, and do not appear to be; or they are not, and yet appear to be. Rightly to aim in all these cases is the wise man's task.

—EPICETETUS

As is the case with most psychological disorders, OCD originates in normal human attitudes, habits, and behaviors, which turn into a psychiatric disorder when they become too intense and/or frequent, causing distress and compromising or interfering with daily functioning. Clinical observation and practice, as well as some theories, also suggest that some obsessive–compulsive personality traits are often a precursor to OCD, and there might therefore be a direct relationship between such personality traits and the disorder. In fact, in many cases it is possible for patients to identify, in retrospect, that they were experiencing certain attitudes and behaviors connected to OCD before the acute onset. In these cases, the attitudes and behaviors were not disabling and/or did not limit the patient's ability to function, so they were not recognized as problematic or pathological.

In this sense, it is possible to hypothesize a normality–pathology continuum ranging from normal and functioning habits, rules, rituals, attitudes, and intrusions, at the one end, gradually shifting toward increasingly rigid, repetitive, dysfunctional, and disturbing modes, thoughts, and behaviors to increasingly high levels of distress and anxiety, until reaching the other end where there is a severe case history of intense, distressful, and continuous obsessions and compulsions, with low or absent insight (i.e., complete conviction that the obsessive beliefs are true) (see Figure 1.1). Similarly, Brune (2006) states that OCD can be seen as an extreme on a continuum of evolved harm-avoidance strategies.

Normally, OCD is diagnosed when:

- an individual manifests either obsessions or compulsions;
- an individual acknowledges that obsessions are a product of his or her mind and are not imposed on him or her by an outside influence or person;

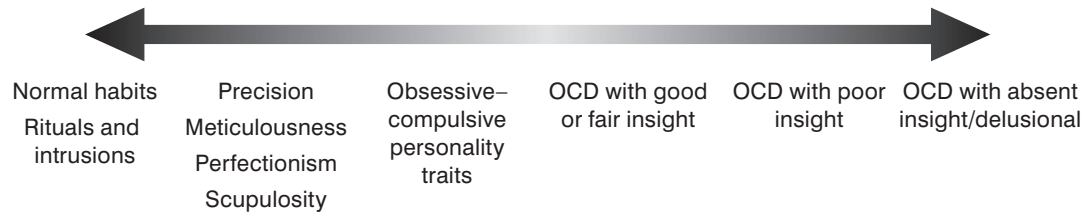


FIGURE 1.1. A hypothetical normality–pathology continuum in “obsessive” attitudes or beliefs and ritual behaviors with respect to the level of distress they cause and how much they impair functioning.

- obsessions and/or compulsions take up excessive amounts of an individual’s time (an hour or more each day), cause extreme anguish and interfere considerably with daily life at work or school, or with social activities, family relationships, and/or normal routines; and
- obsessive symptoms cannot be explained by any other mental disorder and cannot result from another medical problem or substance abuse.

The fifth edition of the DSM (DSM-5; American Psychiatric Association, 2013) removed OCD from the anxiety disorder category and created a new chapter on obsessive–compulsive and related disorders to reflect the increasing evidence that the features that characterize a number of disorders have enough similarities (e.g., repetitive behaviors and obsessive worries) to group them together in the same nosographic category. This is why an OCD spectrum has been defined, where OCD is the main disorder in the diagnostic classification (American Psychiatric Association, 2013). The disorders included in this new classification are OCD, body dysmorphic disorder, hoarding disorder, trichotillomania (hair-pulling disorder), excoriation (skin-picking disorder), tic disorder, substance/medication-induced obsessive–compulsive and related disorder, obsessive–compulsive and related disorder due to another medical condition, other specified obsessive–compulsive and related disorder (e.g., body-focused repetitive behavior disorder [nail biting, lip biting, cheek chewing], and obsessional jealousy), and unspecified obsessive–compulsive and related disorder.

This classification of OCD problems on a clinical spectrum can also be helpful in investigating to what extent established treatment protocols for OCD can be effective for OCD-related disorders and to highlight, in the development of new treatment models or in the evolution of the old ones, the need to target more transversal common features of the OCD spectrum and not only specific and unique clinical symptoms.

This manual presents a therapeutic model that was developed and tested for OCD. However, in the future it will be interesting to study if and how this model could be used for disorders other than OCD that have related features and symptoms. We would thereby gain a more general understanding of the possible transversal effects of mindfulness on psychopathological conditions that are similar and related but have different phenomenology and symptomatology.

COGNITIVE PROCESSES AND BIASES IN OCD

The degree to which a behavior is influenced by its immediate effects depends on an individual’s “convictions” about

the relationship between actions and results, the meaning they
attribute to the results and the expectations they have regarding
how much continuing a certain behavior will lead to what they want
from the world around them.

—ALBERT BANDURA

Using or relating to cognitions in a dysfunctional way is certainly one of the core features of the obsessive syndrome. A large amount of research has shown that people affected by OCD have specific cognitive processes and biases, as well as certain information-processing deficits and/or biases (e.g., Tallis, 1997), which help both trigger and maintain the disorder, and that can vary in type, intensity, and frequency depending on the specific subtype of OCD.

Cognitive biases refer to the tendency to preferentially process, in the case of OCD and its “relatives,” negative or threatening information, either through increased allocation of attention resources (attentional bias) or by quickly assigning negative or threatening appraisals to ambiguous information (interpretive bias) (Williams & Grisham, 2013). Cognitive biases are present in all people and always create a distorted view of reality, but for people who suffer from a psychiatric disorder, and OCD as well, they are even more negative and counterproductive and contribute to activating, maintaining, and making the disease chronic. Understanding some of the main cognitive biases and processes in obsessive individuals can help illuminate how and why a mindfulness-based approach can effectively counter these psychological mechanisms.

Attentional Biases

There is substantive evidence that people with OCD show disorder-specific attentional biases toward threatening information (Muller & Roberts, 2005; Lavy, van Oppen, & van den Hout, 1994; Foa, Ilai, McCarthy, Shoyer, & Murdock, 1993), although not all studies agree with these findings (Kampman, Keijsers, Verbraak, Näring, & Hoogduin, 2002; Kyrios & Iob, 1998), and these biases may not be specific to OCD only, but may apply to other disorders as well. People who suffer from OCD may pay selective attention to threatening information regarding their current concerns and experience more difficulty disengaging once attention to the threatening stimuli is triggered. Such attentional biases would presumably lead people with OCD to overrepresent threat cues in their environment, and it is possible that these biases might also play a role in the development and maintenance of obsessive thoughts (Muller & Roberts 2005). The threshold for appraising a stimulus as threatening might be lower in people with OCD; some researchers (Krackow, Nunley, & Tessier, 2014) hypothesize that attention toward threat cues is the product of current level of anxiety, level of threat appraisal, and ability to modulate attention.

These biases seem to involve a general inability to inhibit the processing of irrelevant information or to be distracted from threat-relevant cues (Amir & Kozak, 2002). People affected by OCD seem to show deficits in both *directing attention* (how and where attention is placed) and in *managing conflict-related attention* (the process of inhibiting a “conflictual” automatic response to focus on a less automatic response or target; Fan, McCandliss, Sommer, Raz, & Posner, 2002). Because of their attentional biases, people with OCD are not able to attend to information that would disprove their fears and reduce anxiety when they are faced with threatening information (Tallis, 1997; Didonna, 2005, 2009c).

Furthermore, it has been observed that individuals with OCD often have an exceedingly difficult time inhibiting negative thoughts. This ability is called *attentional inhibition* and refers to

how an individual narrows down incoming information in order to selectively attend to the stimuli that are most relevant and minimize the processing of irrelevant information (Muller & Roberts, 2005). Difficulties inhibiting unwanted and irrelevant stimuli may result in the person's experience of recurrent disturbing cognitions. Over time, this difficulty controlling thoughts may trigger and maintain disturbing emotions, especially when these cognitions arise in the context of dysfunctional beliefs related to catastrophic misinterpretations of the meaning of intrusive thoughts (Muller & Roberts, 2005; Rachman, 1997, 1998; Salkovskis, 1996). Paradoxically, thought suppression, the intentional attempt to stop thinking about particular thoughts, produces the effect of increasing the frequency of the recurrent thoughts and images (Purdon, 2004; Tolin, Abramowitz, Przeworski, & Foa, 2002).

To conclude, there is significant evidence that attentional biases may exist in people with obsessive problems, but we have to point out that they are not specific to OCD; rather, they are present in anxiety disorders in general. Their role in activating and maintaining the disorder may also vary across subtypes of OCD and with respect to the presence of comorbid psychopathology.

Rumination

To believe with certainty we must begin with doubting.
—STANISLAW LESZCZYNSKI

Rumination is one of the most evident clinical features of OCD, although it is not exclusive to this disorder. Several authors (de Silva, 2000; Salkovskis, Richards, & Forrester, 2000) have observed that the term *obsessional rumination* has been used in the literature indiscriminately to describe both obsessions and mental neutralizing. The U.K.-based NCCMH (2006) describes obsessional rumination as prolonged thinking that is experienced as uncontrollable, revolving around the same subject, including both intrusive thoughts, often in the form of doubts or questions, and repeated attempts to find an answer. This definition covers both the obsession (the doubt or question) and the accompanying compulsive thinking that attempts to answer the question.

De Silva (2003) argued that since “to ruminate” is defined as “to revolve, to turn over and over again in the mind,” it is not a passive experience, and for this reason *obsession* cannot be a rumination. Following the definition of de Silva (2003), “an obsessional rumination is (more likely) a compulsive cognitive activity that is carried out in response to an obsessional thought. The content of the intruding thought determines the question or the theme that the person will ruminate about” (p. 198).

Rumination is a mental behavior that characterizes several mental diseases, among them generalized anxiety disorder (GAD), social anxiety disorder (SAD), depression, and OCD. Although the contents and behavioral and emotional consequences of rumination may be quite different depending on the disorder, the trigger of the process and the clinical mechanisms of it are similar. There is a lot of agreement that rumination is a normal and adaptive process, at least to some degree (in creativity, problem solving, as a response to stress, etc.), but if this cognitive process fails to reach a natural closure, it can become maladaptive (Field, St.-Leger & Davey, 2000). Rumination in both normal and clinical samples is used as a problem-solving strategy in order to decrease the discrepancy between actual state and desired state—the “doing mode” (Segal, Williams, & Teasdale, 2013).

For obsessive individuals, rumination is an attempt to pass from a feeling of discomfort or anxiety to calmness, or from an exaggerated sense of responsibility to feeling free from it. Since

this strategy is related to self-states, in both OCD patients and those with other disorders, it is disastrously counterproductive because it maintains the undesired state. Several factors have been associated with iterative thinking and rumination, among them mood (low mood influences cognitive perseveration; Schwarz & Bless, 1991); perfectionism (Bouchard, Rhéaume, & Ladouceur, 1999), and inflated responsibility (Rhéaume, Ladouceur, Freeston, & Letarte, 1994; Wells & Papageorgiou, 1998).

Different Types of Cognitions in OCD

Looking carefully at the cognitive contents that characterize the thinking of people with OCD, it is possible to observe at least four different categories of cognitions that have distinguishable hierarchical positions, functions, and effects regarding the way obsessive individuals respond to disturbing external and/or internal stimuli.

Intrusive Thoughts and/or Obsessions

Intrusive thoughts and/or obsessions are automatic, unwanted, and involuntary cognitions (doubts, images, scenes, imaged sounds) and very often the starting point or trigger of the obsessive problem (e.g., “Did I leave the gas on?”; “Did I wash my hands enough?”). Several research studies (Clark & Purdon, 1993; Rachman & de Silva, 1978; Salkovskis & Harrison, 1984) have shown that about 80–99% of the nonclinical population experience intrusive thoughts, images, or impulses that are not different in content to what people suffering from OCD experience. Obsessive thoughts normally take the form of either a perceived threat of physical harm to oneself or others or, in some cases, more of a moral or spiritual threat to oneself, others, or a divinity. Some cognitive models suggest that individuals suffering from OCD interpret the occurrence and content of their intrusions as significant and meaningful on the basis of particular dysfunctional beliefs (Obsessive Compulsive Cognitions Working Group [OCCWG], 1997, 2003, 2005; Rachman, 1998; Salkovskis, 1985, 1989).

Dysfunctional Beliefs or Assumptions

Dysfunctional beliefs and assumptions are probably the result of mental habits that people learn from life events, education, modeling, etc., in childhood, and then cultivate and reinforce throughout their lives. These assumptions become a sort of personal matrix of meaning or core rules for living through which a person interprets or gives meaning to reality; this process leads the person to develop a specific awareness of, and/or sensitivity to, specific internal and external stimuli. In OCD these forms of cognition lead the person to misinterpret or overestimate the significance of the “trigger stimuli,” such as unwanted intrusive thoughts, and react in a specific way when they occur. When the person attaches undue significance to such thoughts, these mental events become obsessions and can lead to compulsions (Taylor, McKay, & Abramowitz, 2005). Dysfunctional beliefs normally have the following characteristics: They are overgeneralized, rigid, and extreme; they do not reflect the reality of human experience; they prevent rather than facilitate goal attainment; their violation is associated with extreme and excessive feelings; and they make it difficult to experience life in a normal way (Hawton, Salkovskis, Kirk, & Clark, 1989). Research from an international group of leading OCD investigators, the OCCWG (1997), suggests that

there are six different types of dysfunctional beliefs that contribute to OCD (Taylor, McKay, & Abramowitz, 2005; McKay et al., 2014).

1. *Inflated sense of personal responsibility.* People with OCD believe they are personally responsible for the content of their obsessions as well as for preventing any possible negative outcomes that might arise from their obsessions (e.g., “If I imagine something bad happening, then I am responsible for making sure that it does *not* happen”).

2. *Overestimation of threat.* Many people with OCD have exaggerated beliefs about the probability and severity of aversive events (e.g., “If I do not take extra precautions, I am more likely than others to have or cause a serious disaster”). Research has shown that people with OCD avoid risks (Steketee & Frost, 1994) because they initially overestimate the danger of an event and then underestimate their ability to cope with the perceived threat (McFall & Wollersheim, 1979).

3. *Perfectionism.* Sufferers of OCD often report difficulty tolerating imperfection or mistakes and have the belief that they have to do, and are able to do, everything in a perfect way or in the best possible way, whatever the cost (e.g., “To me, making a mistake is as bad as failing completely”).

4. *Intolerance of uncertainty.* Many people with OCD believe that uncertainty and ambiguity are unacceptable and hold the belief that not only is it essential to do whatever is needed to make sure that negative things won't happen, but that it is also possible to do so (e.g., “I often think I will be overwhelmed by unforeseen events”). In some cases, compulsive rituals may be performed to gain assurances or attain a sensory–affective feeling that things are “just right” (Leckman et al., 1995).

5. *Overimportance of the significance of one's thoughts.* Individuals with OCD report the belief that the mere presence of unwanted thoughts makes such thoughts significant (e.g., “Thinking it is as bad as doing it”). One form of this belief is a *thought–action fusion*, in which thoughts are believed to influence the external world (e.g., “I can cause an accident simply by thinking about it”).

6. *Overcontrol of thoughts.* People with OCD often believe that having complete control over their thoughts is both necessary and possible (e.g., “If I don't control my unwanted thoughts, something bad will happen”).

Interpretations or Meanings

According to the cognitive model of OCD, most normal people experience intrusive thoughts, but individuals with OCD misinterpret these thoughts as being very important, personally meaningful, revealing something about their character, and/or having catastrophic consequences. The continuous misinterpretation of intrusive thoughts transforms them into obsessions. Because the obsessions are so distressing, the individual engages in compulsive behavior to try to resist, block, or neutralize them. *Interpretations*, in OCD, are negative appraisals of the occurrence or the content of intrusive thoughts or stimuli, which in turn are triggered, shaped, and driven by the individual's specific dysfunctional beliefs (e.g., “If I left the gas on, a tragedy will happen and it will be my fault”; “I thought it, so I must want to do it”).

Covert or Mental Compulsions

Covert or mental compulsions are voluntary/intentional cognitions (e.g., counting in certain patterns or silently repeating words, phrases or prayers) aimed at (1) preventing the feared consequences of the interpretations or (2) decreasing anxiety or other distressful emotions.

As is highlighted in the following chapters, it is particularly important, both for clinicians and for people with OCD, to distinguish between and recognize the different types of cognitions discussed previously in order to better help patients understand the different roles and effects of cognitions in their OCD problem and then the way in which mindfulness can effectively intervene in these psychological processes (also see the *cognitive-evolutionary model* at the end of this chapter, in Chapter 2, and in Chapter 6).

Fusion Beliefs

An often found cognitive bias in OCD is the thought–action fusion, in which a confusion between thought and action arises (Rachman, 1993). A thought–action fusion may manifest itself in one of two ways: as a *probability bias*, in which the individual believes that having an unwanted thought concerning harm increases the risk of actual harm occurring to someone (e.g., “If I have thoughts about harming someone, I will act on them”), and as a *morality bias*, in which the person believes that having the unwanted intrusive thought is the moral equivalent to carrying out the act (e.g., “Having an unacceptable thought is morally equivalent to acting out the content of the thought”) (Rachman & Shafran, 1998). In this mental process, individuals tend to create a sort of identification with an aspect of their own private experience. In some way they say, “This thought is me,” or “I am this thought,” or “This thought is something real,” creating a reification of a cognitive experience (Didonna, 2009c).

Two other types of *fusion beliefs* have been observed in OCD: thought–event fusion, the belief that having a thought can cause an event or means that an event has already happened (e.g., “My thoughts alone have the power to change the course of events”), and thought–object fusion, the belief that thoughts or feelings can be transferred into objects (e.g., “My memories/thoughts can transform or influence what happens to objects”). These beliefs are triggered by normally occurring intrusions and lead intrusions to be appraised as dangerous or overly important (Wells, 1997, 2000; Wells & Matthews, 1994; Mohammadkhani, 2013).

Inferential Confusion

Another phenomenon often observed in individuals with OCD and related to thought–action fusion is inferential confusion (O’Connor, Koszegi, Goulet, & Aardema, 2013). *Inferential confusion* is a metacognitive process that has been defined as confusion between an imagined possibility and an actual probability (O’Connor & Aardema, 2003), or the process of confusing imagined events and those that actually occur (Krackow et al., 2014). In this process individuals with OCD are convinced of the verity of their obsessional belief, despite sensory information to the contrary, and then act as if the imagined possibility is real (Aardema, Emmelkamp, & O’Connor, 2005). A core factor that contributes to inferential confusion is *inverse inference*, whereby an individual starts out with and believes in the truthfulness of a hypothesis, despite evidence to the contrary

(e.g., “Many people must have touched this object; therefore, it must be dirty”). On the contrary, a normal inferential process would start with observing a specific situation and reaching a conclusion as to what is really happening and/or is present. This type of inverse processing tends to overshadow and devalue the role of the senses, and limits the use of sensory information in the decision to disengage from neutralizing behaviors. Inverse processing might also explain how attempts to neutralize eventually increase doubt in the truthfulness of a certain reality (Aardema, O’Connor, Emmelkamp, Marchand, & Todorov, 2005; O’Connor & Robillard, 1995; van den Hout & Kindt, 2003). The concept of inferential confusion, which focuses on the metacognitive processes that allow people to differentiate between mental states and external reality, is distinct from thought–action and thought–event fusions, which are linked more with moral appraisals of responsibility (Aardema et al., 2005; O’Connor & Aardema, 2003).

The Role of Mistrust in OCD

Trust is intimately connected to the correspondence between our perceptions and reality.

—MATTHIEU RICARD

There is widespread support for the importance of trust in contributing to both psychological well-being (De Neve & Cooper, 1998; Rotter, 1980; Zak, Gold, Ryckman, & Lenney, 1998) and psychological distress (Andrews, Guadalupe, & Bolden, 2003; Barefoot et al., 1998; Berry & Rodgers, 2003; Riggs, Jacobvitz, & Hazen, 2003; Rotenberg, MacDonald, & King, 2002; Wissman & Tankel, 2001). Trust can be considered one of the basic metacognitive phenomena/feelings that contributes to mental health in adults and plays a key role in healthy development for children and adolescents. Research has highlighted the importance of trust to people’s sense of predictability and control, to anxiety reduction (Erikson, 1963; Rotter, 1980), and to healthy psychological adjustment (Rogers, 1990; Gilson, Palmer, & Schneider, 2005; Schefflin, 2002).

In the literature the construct of trust generally refers to *interpersonal trust*, trust in others, or the belief that a person who is trusted will do what is expected. For the purpose of this book and therapeutic program, I focus on *self-trust* or *personal trust*, trust in oneself, which is a multidimensional construct. Self-trust can be defined as *the feeling connected with the belief in oneself as reliable and able to cope in risky situations with a sense of openness, security, acceptance, freedom, and positivity toward life and the world. It encompasses a feeling of control over one’s own actions and feelings; confidence in one’s perceptions and memory; and awareness of one’s needs, intentions, and resources.*

By definition, self-trust is a multifaceted construct that includes several important elements, referred to using the abbreviation PASIFACO:

- **Positivity:** the willingness to find the positive aspects inherent in many difficult human experiences and the idea that even the hardest and most challenging life experiences can help us grow.
- **Acceptance:** the ability and willingness to welcome internal and external experiences as they are, accepting that we may make mistakes and that the outcomes of our decisions and actions could be negative. This acceptance is what allows us to take risks and deal with the challenges and changes we face in life.
- **Security:** the feeling that we have the skills needed to effectively deal with different life situations and to make decisions.

- **Internal confidence:** a clear awareness of our real feelings and physical sensations, that what we perceive through our senses is true and real, and that our cognitions (thoughts, appraisals, memories), emotions, and actions are fundamentally valid and/or appropriate.
- **Freedom:** a feeling of not being limited or restricted by the internal barriers and conditioning that life experiences have led us to have over time—barriers that keep us from healthy functioning and reaching our full potential.
- **Awareness:** being aware of our genuine needs and intentions and the personal resources we possess to deal with challenges and risky situations.
- **Control:** feeling a sense of being able to manage our emotions and actions.
- **Openness:** an attitude or mental mode that moves us toward new experiences and allows us to deal with the changes and challenges that life requires and/or that could improve our lives and make us grow.

Self-trust implies and stems from a sense of clarity and security in one's internal experience. It is a feeling that allows us to let go of trying to control our actions or the events we experience and to accept the unavoidable uncertainty of the outcomes and consequences linked to them. This uncertainty means there is a risk of potential failure or harm in anything we do or experience.

The distinct facets and dimensions of self-trust are related to personal cognitive skills and functions, and might be independent of one another. For example, we might trust our intentions but not our memory, even if we have a good memory. Effective and beneficial self-trust is achieved when all of these dimensions are enough developed and well integrated with one another.

As an adult, self-trust is considered to be a basic condition of, or a bridge to, developing trust in others, or *interpersonal trust*, and trust in environmental factors, or *environmental trust* (i.e., trust in the wider cultural, social, or natural context; Currington, 2007). Interpersonal trust and environmental trust include (1) a low level of expectations toward others and the world, (2) the idea that life and the world are basically safe and mostly harmless, and (3) a belief that even the most difficult events can be valuable resources for personal growth and improvement.

A mature or healthy sense of trust is what we can call *real trust*. Real trust is a feeling that, as adults, does not depend as much on external factors or on what others do but more on our own internal resources. In general, most human beings are born trustful: during a normal and non-traumatic childhood we are naturally trustful because in order to learn about life, we mainly use our senses (experiential mode) and not our minds, which have not yet been shaped by the ups and downs and conditionings of life. However, during development most people tend to lose much of this trust, especially because the mind (which produces thoughts, worries, and memories) gets the upper hand on the senses. We lose trust because, as we grow up, we do not learn the essential tools or skills to keep or restore confidence in ourselves, in our intuition, senses, and emotions, and in our ability to distinguish between reality and our fears.

Normally, self-trust develops early in life and maintaining it depends on a parent's or caregiver's ability to nurture and care for a child's basic needs (especially in terms of visual contact and touch), which are mainly the need to feel well cared for, comforted, and safe. A child's understanding of the world and life derives from the caregiver's interaction with him or her. Bowlby's (1979) attachment theory suggests that self-trust develops along with trust that a parent or caregiver will provide constant support, encouragement, and respect for the child's own autonomy—or, in other words, a solid foundation for the child to explore the world around him or her.

A strong sense of self-trust is usually the result of a gradual process of development, from infancy to adulthood, through which we learn to combine trust in others with self-trust by interacting with people we trust and who encourage us. According to Erikson and Erikson (1997) the development of basic trust is the first and most important stage of psychosocial development, which occurs, or fails to occur, between birth and approximately 2 years of age. Success in this stage depends on the caregiver's ability to provide the child with warmth, comfort, regularity, unconditional affection, and a secure environment, as a result of which the child develops feelings of trust, security, and a sense of personal power and control over the world. Lack of this type of care leads to feelings of insecurity, inadequacy, self-doubt, mistrust, and lack of confidence, and the child begins to develop the idea (1) that the world is an unpredictable, unreliable, and possibly dangerous place in which to live (Bee & Boyd, 2009); or (2) that he or she might be a dangerous person. Eventually, this lack of care can result in attachment disorders (Lorenzini & Fonagy, 2013). Obviously, trust can grow or be compromised throughout childhood and adolescence, depending on the level to which a person meets his or her own basic psychological needs during the different stages of the psychosocial development (see Chapter 8).

All of these developmental realities point to the importance of focusing sufficient attention on self-trust as a starting point for therapeutic interventions and explains why a major focus of psychotherapy is often to help patients develop a feeling of real trust. This is considered to be especially relevant in the treatment of people who suffer from OCD.

OCD as a Trust Disorder

There are two ways to move easily through life: to believe everything or to doubt everything. Both ways save us from thinking.

—ALFRED KORZYBSKI

Trust is an important construct and psychological process to take into account in the understanding and treatment of OCD. Self-trust is hypothesized to be poor or lacking in individuals with OCD, especially in some specific areas and cognitive functions, so much so that OCD can be conceptualized as a *trust disorder* (Didonna, 2009c).

Despite the extreme heterogeneous phenomenology and clinical symptoms of patients with OCD, clinical observation and several studies on information processing (e.g., Amir & Kozak, 2002) and obsessive belief domains (e.g., OCCWG, 1997, 2005) suggest that one factor people with obsessive problems may share is a general or more specific problem of mistrust or lack of confidence in their own internal experience, especially in the areas of memory, perceptions, attention, and intentions (Hermans, Martens, De Cort, Pieters, & Eelen, 2003; Hermans et al., 2008; O'Connor et al., 2013; Didonna, 2009c). This mistrust leads them to believe steadfastly in the content of their negative thoughts (doubts, obsessions, meanings), to overinvest in imagined/hypothetical possibilities (O'Connor et al., 2013), and to think that they have to *do* something (safety-seeking behaviors) to prevent the feared consequences connected to their thoughts.

One of the aspects that allows us to understand the relationship between trust and OCD is that self-trust involves, by definition, accepting the uncertainty and unpredictability of life experiences, and one of the core features in OCD is intolerance to uncertainty (OCCWG, 1997, 2005; Mancini, D'Olimpio, Didonna, Prunetti, & Del Genio, 2002). Self-trust is also associated with the perception of control (Rogers, 1990; Sorrentino, Holmes, Hanna, & Sharp, 1995). Patients with OCD very often feel that they don't have control over their thoughts, feelings, and emotions, or

they fear that they can't control their behavior. People with OCD normally do have total control over both their internal states and their actions, but they worry that they might lose it. Most people with OCD do not live with a sense of trust, and if they experience a feeling of trust, it is actually a false or *illusory trust*, in which they convince themselves that if, through compulsive rituals or reassurances, they do everything they can to ensure things are under control and nothing bad will happen to them or others, then they can feel safe. But this is not real trust.

Illusory trust is based on the dysfunctional belief that in life you can and should achieve total control, certainty, or perfection in everything you do or experience, or that you can and should prevent any harm or danger to yourself or others. Of course, when people realize that this ideal cannot be achieved, they fall into mistrust and fear, and resort to whatever useless and counterproductive strategy they have at their disposal to regain that illusory trust. This type of trust very often springs from a wounded part inside of individuals with OCD, which probably originated during the developmental age and which requires careful attention and understanding. When these people encounter situations that can be directly or indirectly connected to past conditionings, traumas, or deprivations, then fear, mistrust, and vulnerability can be triggered again in a powerful way.

In a validation study of the Multidimensional Trust Scale (MTS; Carrington, 2007), a strong negative correlation was found between it and Spielberger's State-Trait Anxiety Inventory ($r = -.65$) (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), suggesting that trust may play an important role as a potential mediator of anxiety. The self-trust subscale displayed the strongest correlation with trait anxiety ($r = -.61$), illustrating the important relationship between individuals' subjective appraisal of their own ability to cope with potential stressors and the level of anxiety experienced. Furthermore, lack of trust is associated with anxiety-related mental health problems (American Psychiatric Association, 1994; World Health Organization, 1992).

Trust in others has also been compromised at some level in individuals with OCD because normally they do not feel real trust in others, but only illusory trust (also see Chapter 8); that is, the continuous reassurances they receive from people around them (family members, friends, relatives, therapists) do not actually work and are eventually counterproductive. If these reassurances provide relief, it is only for a few minutes, or sometimes less; worse, the reassurances actually reinforce insecurity and self-mistrust. In other words, because they do not trust others, people with OCD are not able to use information from other people to change their view of reality or to cultivate and maintain a secure and objective one.

Over the last few decades several studies have pointed out the relevance of some metacognitive beliefs about trust in patients with OCD, especially regarding the following specific cognitive functions: distrust in memory, distrust in perception, and distrust in attention.

Distrust in Memory

Several studies have found that patients with OCD, especially checkers, lack or have a significantly lower *confidence* in their memory compared to control groups (Sher, Frost, & Otto, 1983; McNally & Kohlbeck, 1993; van den Hout & Kindt, 2003; MacDonald, Antony, Macleod, & Richter, 1997), especially with regard to memory for actions (Hermans, Martens, De Cort, Pieters, & Eelen, 2003; Hermans et al., 2008). They are also less convinced of the vividness of their memories (Constans, Foa, Franklin, & Matthews, 1995). This lack of trust in their own memory function inevitably leads to pathological doubt (Tolin et al., 2001).

Empirical observation and some studies have suggested that this low confidence in memory is primarily connected to OCD-related stimuli (Foa, Amir, Gershuny, Molnar, & Kozak, 1997) and threatening situations, because confidence seems to be higher or often normal in subjectively safe conditions of threat-irrelevant stimuli (e.g., during a psychotherapy session) (Didonna, 2009c). This form of mistrust is assumed to play a role in the continuation of checking behaviors. Low confidence concerning the recollection of a previous check might be an impulse for subsequent checking rituals. Paradoxically, this cognitive distrust seems to derive, at least in part, from the checking behaviors themselves (van den Hout & Kindt, 2003), perhaps leading to a vicious cycle wherein checking leads to reduced memory trust, which in turn leads to increased checking (Hermans et al., 2008). In a study with a nonclinical sample, van den Hout and Kindt (2003) demonstrated that repeated checking increases familiarity with the issues checked and promotes conceptual processing, which inhibits perceptual processing; inhibited perceptual processing makes recollections less vivid and detailed, and this reduction in vividness and detail in turn promotes distrust in memory.

Memory distrust in checkers may persist as a consequence of repetitive checking. OCD-related checking may be motivated by the need to reduce uncertainty, but checking seems to be a counterproductive safety strategy. Rather than reducing doubt, checking fosters doubt and ironically increases memory distrust (van den Hout & Kindt, 2003). In two other similar studies by Radomsky, Gilchrist, and Dussault (2006) and Radomsky, Dugas, Alcolado, and Lavoie (2014), results indicated that following repeated relevant checking, participants reported significantly reduced memory confidence, vividness, and detail whereas repeated irrelevant checking did not produce these decreases. Although most studies have investigated the effect of repeated checking using nonclinical samples, the phenomenon of memory distrust was observed using a sample of patients with OCD in a study by Boschen and Vuksanovic (2007).

A specific form of distrust in memory is the phenomenon of *reality monitoring*. People with OCD often have doubts about whether they have performed an action or just imagined having performed it. These kinds of doubts suggest that individuals with OCD may have deficits in *reality monitoring*, which is the ability to distinguish memories of real actions and events from imagined ones (McNally & Kohlbeck, 1993; Johnson & Raye, 1981). It has been suggested that deficits in reality monitoring in people with OCD might be due to intrusive imagery present in the obsessive experience (Brown, Kosslyn, Breiter, Baer, & Jenike, 1994). In other words, the occurrence of repeated involuntary images leads patients with OCD to perceive the images as real and confuse them with reality (Krackow et al., 2014). Indeed, there is a large body of literature now showing that imagination leads people to believe in events that never occurred (Krackow & Rabenhorst, 2010). However, several authors argue that apparent deficits in reality monitoring in people with OCD might actually be due to poorer overall confidence in their memory of actions and in their reality monitoring ability, than to a deficit in these functions (Cogle, Salkovskis, & Thorpe, 2008; Hermans et al., 2003; MacDonald et al., 1997; McNally & Kohlbeck, 1993; Didonna, 2009c).

Distrust in Perception

Nature never deceives us; we deceive ourselves. It is not the sensation that is wrong, but the judgment formed with regard to it.
—JEAN-JACQUES ROUSSEAU

Several research studies have shown that the cognitive distrust people with OCD have in their memory might also extend to other cognitive functions such as perception and attention (van

den Hout, Engelhard, de Boer, du Bois, & Dek, 2008; van den Hout, Engelhard, Smeets, Dek, Turksma & Saric, 2009; Nedeljkovic & Kyrios, 2007; Hermans et al., 2003, 2008; Didonna, 2009c). Van den Hout et al. (2009) noted that people with OCD are not only uncertain about their memory, but may also have low confidence in their perception, and that this perceptual distrust may be related to prolonged staring at an anxiety-provoking object (e.g., staring at a sink or the floor to determine if it is really clean, staring at the door to decide whether it is really locked). In a previous study (van den Hout et al., 2008), the same authors showed that in a nonclinical sample, perseverative visual fixation on an object of uncertainty induces OCD-like uncertainty about perception and feelings of dissociation. The authors hypothesized that perseverative staring at objects is a counterproductive strategy since it reduces confidence in perception rather than provide reassurance, similarly to the memory distrust caused by repeated checking (van den Hout & Kindt, 2003). For these reasons obsessive staring might be a maintaining factor of the disorder.

In a study examining the relationship between OCD and confidence in attention and perception, in addition to confidence in memory, Hermans and colleagues (2008) showed that people with OCD reported less confidence in perception and attention than did other psychiatric and healthy-control participants, especially with regard to OCD-relevant actions. Furthermore, the authors also noted that reported levels of confidence in memory in patients with OCD were not significantly different from their reported levels of confidence in perception and attention, suggesting a similar level of distrust in all three metacognitive domains.

Wahl, Salkovskis, and Cotter (2008) noted that people with OCD with primary washing/cleaning compulsions favor subjective information (i.e., a feeling of knowing) over objective, sensorial information (e.g., seeing dirt or feeling stickiness on one's hands) when deciding when it is safe to terminate a compulsive wash. This suggests that distrust in perception may also be associated with compulsive cleaning/washing.

In their inference-based model of OCD, O'Connor, Aardema, and Péliissier (2005; see also O'Connor & Robillard, 1995) emphasize the role of perceptual distrust in a type of reasoning error that is typical of OCD: *inverse inference*. In this type of metacognitive process, as mentioned previously, a person infers a remote possibility without any indication of it being present, or even in contradiction to what is seen or sensed (e.g., the individual thinks, "A person has used this sink so it must be dirty," even though the sink looks clean). A central component of this idea is that the person diminishes the role of the senses and objective reality in order to look for a "deeper reality" (e.g., "I see the sink is clean, but my thoughts tell me it might not be clean"). The tendency to engage in this type of reasoning may, in part, reflect low confidence in one's perceptual abilities (Bucarelli, 2009).

Obsessive Doubt and Self-Invalidation of the Sensorial Experience

Another hypothesized metacognitive bias connected to distrust in memory and perception, which is probably related to some of the above described dysfunctional processes (especially inferential confusion and reality monitoring), and which is often observed in obsessive-compulsive checkers, is *self-invalidation of the sensorial experience* (Didonna, 2005, 2009c). As has already been noted regarding the phenomenon of inferential confusion (Aardema, Emmelkamp, & O'Connor, 2005), when devaluation of information taken in by the senses (e.g., the tendency to believe something despite perceptual evidence that would indicate the contrary) and inferential reasoning errors are combined, conditions are ripe for confusing real and imagined events (Krackow et al., 2014;

O'Connor & Aardema, 2003). Although initially people affected by OCD may perceive reality accurately, they are more susceptible to being influenced by self-generated narratives, which leads them to doubt reality and infer a hypothetical state of affairs (Pélissier & O'Connor, 2002). As has been well observed by O'Connor and Robillard (1995), "The person with OCD does not react to what is there, and not even to the exaggerated consequences of what is there, but to what might possibly be there even though the person's senses say otherwise" (p. 889).

I have suggested elsewhere (Didonna, 2005, 2009c) that this tendency in individuals with OCD—and checkers, in particular—to generate doubts may depend on a cognitive bias in processing and/or using relevant sensory information regarding situations in which obsessions are generated. This bias can be conceptualized as *self-invalidation of perceptive experience* (Didonna, 2009c), whereby people with OCD do not give the right value and importance to the sensory information that they have about anxiety-evoking events. I have hypothesized (Didonna, 2009c) that this psychological process may play an important role in activating pathological doubts and in the relationship between the patient's conscious perceptive experience and the obsessive symptoms.

Clinical observation (Didonna, 2005) suggests that in settings patients with OCD perceive to be safe (e.g., very often, during psychotherapy sessions), they are usually able to clearly recall the memory of the perceptive experience they felt during obsession-evoking situations (e.g., what they really saw, felt, heard). On the other hand, during anxiety-evoking events these same people experience considerable difficulty in voluntarily recalling and trusting the sensorial information relating to the same events, and consequently they become unsure of their own real experience. If this information were used, instead of being ignored or excluded, it might easily neutralize obsessive doubt. This initial validation deficit may consequently lead to an overevaluation of the doubt, which starts a vicious cycle and tends to *invalidate* and/or increasingly obscure the objectivity of their own perceptive experience. In the end, what the doubt says becomes more relevant than what the real experience communicates.

Validating perceptive experience means that a person considers the information he or she receives from the senses as real, objective, and more important than information coming from other sources (e.g., inferences, hypotheses, attributed meanings). This is a precursor to trusting one's perceptions: One cannot trust one's own senses if one hasn't first validated them. Once the senses have been validated, a person can use the information they communicate as the main basis on which to organize and process his or her decisions, judgments, and actions. People who do not suffer from OCD engage in this process automatically, whereas those with the disorder have difficulty doing so in situations related to their problem.

It is important to note that awareness of the perceptive experience normally takes place before a person's emotions and behavior are activated. For example, when confronted with a potentially anxiety-producing situation such as seeing a snake, seeing the animal (perception) precedes the anxiety it induces (emotion) and consequential escape (behavior). People with OCD, however, can activate an emotion and consequential behavior even when there is no perceived danger; for example, they might worry and feel anxious about the fact that their hands are dirty even when they can clearly see that their hands are clean and/or they have seen themselves clean them already. Indeed, when obsessive individuals are in critical situations and experience obsessions and emotional distress, their information processing skills can be compromised. They often experience significant difficulties in believing their memory of the sensorial experiences they have had. Normally, obsessive individuals who don't have an extremely severe and disabling case of

OCD and who have good insight also have good awareness of their decision-making processes and successfully make decisions numerous times each day in situations unrelated to the disorder. To accomplish this, they must be fully aware of the sensory information that informs those decisions. The problem arises in situations that evoke distress and negative feelings (anxiety, disgust, etc.) and that are connected to each individual's obsessive themes. In such situations, individuals with OCD normally are not able to validate (or are not used to validating) their sensory memory, in particular iconic memory (visual) and echoic memory (sound), and cannot, therefore, fight and overcome the doubt, which eventually takes over.

For example, a 31-year-old woman performed "checking rituals" consisting of driving the same route home from work up to 8–10 times to check whether she had accidentally run over someone. During the therapy sessions, the patient was able to clearly recall the sensorial experiences from when she was in the car; that is, she was able to share various memories of visual, auditory, or tactile stimuli, none of which could in any way be connected to having run over somebody. Both the visual and auditory memories were shared precisely and with considerable detail, and the patient was able to recognize that she had very good sight and hearing. The problem was that during the obsessive crisis, the patient did not use or trust these memories at all and doubt took over.

To better understand the possible causes of the development of obsessive doubts, it may be helpful to ponder a seemingly obvious question: Why do most people *not* have obsessive symptoms? One hypothesis (Didonna, 2009c), which is also useful in terms of the process of *normalizing* the obsessive phenomenon with patients, is that individuals who are not affected by OCD problems do not trigger obsessive doubts concerning actions or events because they automatically use, and simultaneously *self-validate* and trust, implicitly or explicitly, their own sensorial experience, rendering such experience salient and affording it due priority. Even individuals with OCD (in particular, those with good insight) would have, in their *episodic memory store*, a substantially clear memory of the sensorial experiences they felt. Awareness or use of this memory could neutralize the doubt activation, but these people are not used to validating this information.

Distrust in Attention

As has already been suggested, another form of mistrust found in individuals with OCD is reduced confidence in their ability to focus on something without being distracted by something else. In order to explain this lack of confidence, Hermans and colleagues (2003, 2008) suggested that people with OCD mistrust the accuracy or completeness of their neutralizing or safety behaviors (e.g., checking, washing) because important elements of this behavior might have been missed due to distraction or moments of decreased attention. These authors also hypothesized that reduced confidence in attention might be a source of reduced trust in memory. In a clinical study (Hermans et al., 2008), the same authors found that individuals suffering from OCD showed less confidence in attention and memory than a clinical and a nonclinical control group; this reduced confidence in attention was uniquely related to checking behaviors, and repeated checking caused increased levels of mistrust in attention.

Some researchers (Mirsky, Anthony, Duncan, Ahearn, & Kellam, 1991) suggested a model with three core components of attention, which represent relevant aspects of regulating information processing: *focus*, *sustain*, and *shift*. Regarding checking behaviors, for example, Bucarelli (2009) suggested that *focus* can be described as a person's perceived capacity to attend to information relevant to the check, *sustain* as the person's perceived ability to maintain focus on relevant

aspects of the check, and *shift* as the person's perceived capacity to direct (and redirect) attentional concentration toward important aspects of the check. *Perception* refers to the conscious experience of gathering information through the senses (i.e., through sight, sound, touch, taste, and smell). If elements in a situation are not seen, heard, or otherwise perceived, they are unlikely to become encoded and stored in memory. Similarly, the number and type of stimuli attended to in a given situation influence what becomes encoded in memory. For example, with respect to OCD and checking rituals, if a person feels that he or she has been unable to sufficiently attend to information during the checking ritual ("What if I became distracted and didn't notice the burner light?"), he or she will be likely to feel less confident in his or her memory of that ritual ("Maybe the burner was still on!"). Similarly, if the person feels that he or she has been unable to sufficiently see, hear, touch, or perceive other information during the checking ritual ("What if I didn't see the spark?"), he or she is likely to feel less confident in his or her memory of that ritual (Bucarelli, 2009).

During their checking or washing rituals, many people with OCD have difficulty staying focused on the real outcomes of the first ritual (this would entail both the ability to focus and the ability to sustain and shift attention). This problem with attention and focusing can lead to a lack of trust in the effects of each ritual, which in turn makes the person feel that the ritual needs to be repeated. For example, a 42-year-old patient had to go back to her office anywhere from 12 to 14 times each time she left to make sure that the main door was locked, because she was afraid if she left it unlocked, thieves would be able to get in and rob the office. During the therapy sessions, the patient realized that she never paid attention to the outcome of each check (nor to what happened the first time she locked the door) and that she was only interested in carrying out the check regardless of the real effect of each one. During the MBCT for OCD sessions, the patient learned to pay mindful attention to what she was doing the first time she locked the door, focusing her attention on the sensorial information that she perceived during the action of locking the door, which would confirm that the door was actually locked.

Nedeljkovic and colleagues (2009) suggested that the decreased metacognitive confidence reported by those with OCD may be conceptualized as a faulty belief, and that therapeutic interventions designed to target distrust can have significant clinical effects. As we will see in the following chapters, what is illustrated in this section regarding mistrust has important clinical relevance with respect to the use of a mindfulness-based approach for OCD and to the rationale of many of the techniques and practices proposed in this manual. As is highlighted in this book, in order to help people with OCD (especially checkers) overcome the problem of mistrust in memory and perception, it is important to help them validate their own sensorial experience (see Chapter 9) by practicing mindful perception, and to increase confidence in their ability to focus by practicing mindful attention.

ETIOPATHOGENESIS OF OCD

As with most psychiatric disorders, research has not yet been able to identify definitive and clear causes of OCD that are common to all individuals with this disease. The extreme heterogeneity of the disorder in its phenomenology and symptoms makes etiological studies particularly challenging. A range of factors and conditions have been identified as contributing to the development and maintenance of OCD, and it is likely that several factors may be involved for each individual affected by the disorder and/or that different models might apply to different subtypes of the dis-

order (Taylor et al., 2006). Nevertheless, the complex and heterogeneous phenomenology of OCD seems to have some basic common features that are characterized by particular needs, mental states, and psychological processes. Progress in understanding the nature of affective and behavioral processes can be made by integrating different theories and approaches, in a balanced manner that gives equal relevance to all domains, including cognitive, evolutionary, attachment, and neurobiological perspectives. These etiological theories are described in the following material, as they are useful in understanding the potential clinical relevance of mindfulness-based approaches to OCD treatment and are consistent with and support the rationale of the treatment program described in this book.

The Cognitive-Behavioral Hypothesis

The cognitive-behavioral model is currently considered to be the psychological approach to OCD with the strongest empirical support (Abramowitz, Taylor, & McKay, 2009). This model is based on the belief that OCD is caused by grave misinterpretations of the meaning of an individual's thoughts (intrusions, impulses, images) (Rachman, 1997) such that the intrusive thought is believed to be personally significant, revealing, threatening, or even catastrophic (Taylor, Abramowitz, & McKay, 2007). Such a misinterpretation depends on and derives from various types of dysfunctional beliefs and appraisals or basic assumptions, which have been clearly illustrated in the previous sections (e.g., excessive responsibility, overestimation of threat, perfectionism).

People with OCD normally misinterpret intrusive thoughts as personally significant and indicative of the self as bad or dangerous. When individuals misinterpret intrusive thoughts through the lens of their own particular dysfunctional beliefs, which are subjectively connected in a direct or indirect way to a sense of threat, they become distressed and try too hard to remove the intrusive thoughts and prevent or neutralize the feared potential risks through safety behaviors (e.g., compulsions, avoidance). These attempts have the effect of increasing the frequency and intensity of the thoughts, which become persistent and distressing and evolve into obsessions. Safety behaviors maintain intrusive thoughts and prevent individuals from evaluating the realism and appropriateness of their appraisals.

Although some cognitive theories suggest that dysfunctional beliefs, such as those identified by the OCCWG (1997), can be a cause of OCD (Taylor et al., 2007), there is little evidence to demonstrate that these cognitions play a causal role in the etiology of OCD. In other words, the beliefs and appraisals model of OCD can explain the proximal causes of the disorder (the current causative factors, or the events closest to, or immediately responsible for, causing the disorder, which include the conscious mind and its influence), but basically fail to explain the distal or ultimate causes (the original distant causative factors, e.g., biological, genetic, and/or environmental factors). In fact, the model provides little evidence to explain why, how, and when these dysfunctional beliefs develop in the individual. However, there is growing evidence suggesting that these kinds of beliefs, as well as misinterpretation of intrusive thoughts and covert (and overt) compulsions, may play an important role in activating and maintaining the disorder (Berle & Starcevic, 2005; Clark, 2004; Frost & Steketee, 2002; NCCMH, 2006; Salkovskis, Richards, & Forrester, 1995; Taylor et al., 2006; Wells, 2007) and delineating OCD symptom subtypes (Julien, O'Connor, Aardema, & Todorov, 2006; McKay et al., 2004).

The dysfunctional beliefs and appraisal model may be extremely relevant to understanding and treating obsessive patients, but it has some difficulties explaining why certain individuals present a

higher predisposition for catastrophic interpretations of normal intrusive thoughts, whereas others do not. We also know that dysfunctional beliefs, and sometimes obsessions, are not always identified in patients with OCD (McLean et al., 2001). In fact, the cognitive model does not explain the reasons why many individuals with OCD (especially those with chronic symptoms) may have no awareness of any cognitions during compulsive actions because over time their rituals have become automatic behaviors with no need for conscious thought (Didonna, 2009c). This is especially common in patients with ordering and symmetry rituals and in people with hoarding symptoms.

Since CBT theory has so far been able to provide limited evidence about what the possible distal causal factors of OCD may be, it is useful to look to other models that might offer some insight into the possible origins of the disorder. One such model is evolutionary psychology, which offers some explanations about the origins of OCD that are connected to the rational and theoretical framework of MBCT for OCD model proposed in this book.

The Cognitive-Evolutionary Hypothesis

Just as the study of medicine from an evolutionary point of view can help us better understand how and why humans have evolved in certain ways, so can the study of evolutionary psychology help us better understand the evolution of certain psychological problems. Evolutionary psychology can take similar approaches to those taken when looking at medicine from an evolutionary point of view. One interesting, intriguing, and important area regards the way that the body has just one (or similar) reaction(s) to many different harmful situations. For example, the way our bodies react to fight off the common cold will also occur in response to different etiologies such as the influenza virus, bacteria, allergies, or stress. We may presume that having a common outcome gave humans a huge advantage because the body needed one means of reaction to counteract many different diseases. Psychological problems are no exception to this rule: Many different situations (a failure, a loss, hypothyroidism, etc.) may lead to a syndrome that we diagnose as major depression. Other etiologies lead to schizophrenia, bipolar disorder, attention-deficit/hyperactivity disorder (ADHD), etc. As specific syndromes are common to a variety of etiologies, we may assume that this common outcome must have had some huge evolutionary advantage, even though the outcome is a psychological problem. Although these syndromes limit the well-being and sometimes even the procreation of those who suffer from them, we can hypothesize that these deviant traits might be important to have in some extreme situations, or maybe these people have a genetic variety of some important human traits that are extinct in the “normal” population.

An evolutionary approach to OCD attempts to explain the origin and etiology of the disorder at both the distal and proximate levels and is based on the Darwinian view that biological systems, including psychological functions, have evolved through natural selection because of their contribution to inclusive fitness (Hamilton, 1964). Several evolutionary psychology authors have proposed that some idiopathic psychopathological symptoms and disorders are the expression of misplaced adaptive strategies or inflated versions of original strategies (Abed, 1998; Feygin, Swain, Leckman, 2006; Buss, 1999; Maguire & Troisi, 1998; Marks & Nesse, 1994; Nesse & Williams, 1995). Research data support the hypothesis that obsessive phenomena reflect a dysregulation of normal and adaptive behaviors and mental states that have been critical to human survival throughout the course of human evolution. From this perspective, OCD can be seen as the result of a dysfunction or dysregulation of the neural circuits that are involved in threat detection and harm avoidance (Abed & de Pauw, 1998; Feygin et al., 2006; Wilson, 1998).

As anticipated earlier in this chapter (see Figure 1.1), OCD can be seen as the ending point on a normality–pathology continuum: It originates in normal human cognitions, attitudes, habits, and behaviors, which turn into psychopathology when they become too intense, frequent, persistent, longer lasting than normal, and more difficult to dismiss, causing distress and compromising or interfering with daily functioning. This statement is consistent with studies that show that most normal adults (around 90%) experience unwanted, intrusive thoughts with content similar to that of pathological obsessions at some time during their lives (Rachman & de Silva, 1978; Salkovskis & Harrison, 1984; Freeston, Ladouceur, Thibodeau, & Gagnon, 1991; Osborn, 1998), and that both intrusive thoughts and compulsive rituals are universal phenomena across cultures (Steketee, 2011; Rapoport & Fiske, 1998). When these normal thoughts and behaviors become predominant in the individual’s mental life, the individual may develop an obsessive–compulsive pathology.

For example, superstitious and magical thinking is a phenomenon that is often hyperactive in a maladaptive way in OCD, but for millennia it has been a way for humans to try to explain the unexplainable and control the seemingly uncontrollable. Magical thinking is, and has been, a constant attribute of humans, with prayer and playing the lottery being two examples. We attribute the power of creation even to our own words, and we believe words can have a direct or indirect effect on physical reality. Sometimes we attribute an extreme power to an external force like the evil eye or a god, and believe that if our words or thoughts displease this force, we can be responsible for something bad happening. Most people think they have no superstitions, but facts would seem to indicate the contrary. For example, if we ask a group of people without OCD to think about the most loved person in their life and then we ask them to write the sentence “I hope that he/she will be violently killed today” on a piece of paper, most of them would refuse to do so, or would erase the sentence after just a few minutes (Salkovskis, 1996). Another example is that few people are able to say aloud that they wish their children to be crippled or die. This type of magical thinking developed as an important way for humans to organize a chaotic world in which the natural laws were unknown.

Interestingly enough, this tendency to take responsibility for the ungovernable by believing that thinking or saying something might make it happen persists even in the 21st century. However, in the case of people with OCD, this tendency becomes so intense and frequent that it becomes maladaptive. Obsessions lead to compulsive rituals, which are attempts to modify the probability that something bad will happen or the perceived personal responsibility for something bad happening, even if there is no link between the ritual and the feared event. Engaging in compulsions gives credibility to the imagined event (Krackow et al., 2014) and at the same time reinforces the compulsions (Nir Essar, personal communication).

Research data show that normal developmental rituals, superstitiousness, and compulsive-like behavior emerge early in development (Evans et al., 1997). In particular, children manifest rigid and elaborate routines and repetitive acts during the period from 2½ to 4 years old, and many childhood fears are similar to the obsessions that characterize OCD (e.g., fears of separation, death, contamination). Older children can show OCD-like magical thinking when they believe that behaving a certain way will keep them or someone else from dying or being injured (e.g., the well-known rhyme “Step on a crack, break your mother’s back”). Children also very often show OCD-like behaviors such as repetitive cleaning, hoarding, requiring symmetry of certain objects, and rigid preferences for certain objects, stories, or foods. All of these behaviors may resemble OCD when taken to an extreme, but within their appropriate ontogenetic context, they are very helpful in teaching children to manage and cope with their anxiety about the outside world (Feygin et al., 2006).

Most normal people cope with stress, anxiety, vulnerability, and change through rituals and reliance on interpersonal relationships, even if to differing degrees, so it is hypothesized that the anxiety-relieving function of these behaviors may be an outgrowth of an adaptive and evolutionarily useful mechanism. In vulnerable (or genetically predisposed) individuals, these factors can lead to a pathological, persistent dysregulation of their threat-detecting and harm-avoiding neural systems (Feygin et al., 2006). Data showing an increase in OCD onset at specific biologically critical times in the course of development—particularly during periods of vulnerability and change, and in life challenges such as puberty, childbirth, and early parenthood—support this hypothesis. Indeed, pregnancy, childbirth, and postpartum, more than any other time period, is characterized by “normal” OCD-like thoughts and behaviors and associated with significantly increased risk of OCD for women (Buttolph, Peets, & Holland, 1998; Ross & McLean, 2006; Russell, Fawcett, & Mazmanian, 2013). Furthermore, the high lifetime prevalence of OCD (2–3%; Karno & Golding, 1991; Ruscio et al., 2010) and the fact that studies from different cultures reveal similar prevalence rates and show a surprising transcultural consistency in the content and forms of obsessions and compulsions (Fontenelle, Mendlowicz, Marques, & Versiani, 2004; Stein & Rapoport, 1996; Horwath & Weissman, 2000) suggest that OCD might be a dysfunction of an adaptive trait or a dysregulation of an evolutionarily conserved mechanism, rather than the result of genetic mutation (Wilson, 1998).

According to Abed and de Pauw (1998), obsessive symptoms could be the consequence of the hyperactivity of a mental mode that most individuals possess, which is aimed at generating risk scenarios without an intentional intervention. These authors suggested that the obsessive syndrome functions as an *offline* risk avoidance process, designed to lead to risk avoidance or safety-seeking behavior at a future time. This is one of the ways in which OCD can be distinguished from anxiety disorders and related diseases, which are *online* emotional states, designed to avoid immediate and direct risks. The same authors suggested that obsessional mechanisms and processes could be considered as the cognitive equivalent of the generation of antibodies by the immune system. Whereas antibodies protect the body from internal dangers, obsessional thoughts protect it primarily from external dangers. Both “systems” function according to a process of selection whereby the better-fit antibody or thought survives. Following this analogy, OCD would be the psychological and mental equivalent of autoimmune diseases wherein responses meant to be protective actually become injurious. For example, the ability humans have developed to imagine future scenarios and the consequences of one’s own thoughts and actions is exaggerated in the case of people suffering from OCD. Brune (2006) suggests that this example may be just one of many psychological mechanisms that have evolved over time and contribute to the psychopathology of OCD.

Explained in these terms, it is clear how an evolutionary approach to OCD can be useful in helping patients understand the meaning and functions of obsessive symptoms (see the discussion of the process of normalization in Chapter 3), and this can have important therapeutic effects, as we will see in the following chapters (in particular, see Chapters 3 and 6).

Affect Regulation Systems and OCD

The evolutionary perspective just discussed sees obsessive–compulsive pathology as an originally adaptive, albeit dysfunctional, intensive, and persistent response to imagined threat, which is a subjectively perceived physical or social danger. In order to better understand how this hypersensitivity to specific threats works, it can be useful to discuss the affect regulation systems in the brain.

The brain has evolved different types of affective–behavioral regulation systems (Gilbert & Tirsch, 2009; Panksepp, 1998; LeDoux, 1998). These systems consist of a set of neural structures and circuits that activates and coordinates attention, thoughts, emotions, and actions and that regulates motivation. Research into the neurophysiology of emotion suggests that there are at least three types of basic emotion regulation systems (Gilbert, 2009b; Depue & Morrone-Strupinsky, 2005): (1) the *threat/self-protection system*; (2) the *drive, seeking, and reward system*; and (3) the *contentment/soothing and safety system*. These systems are in constant states of co-regulation and interaction, as depicted in Figure 1.2.

The *threat/self-protection system* (Gilbert, 2010), analogous to Panksepp's (1998, 2005) fear system, is designed to activate defense mechanisms or safety strategies in the presence of real or imagined danger and involves specific defensive emotions (e.g., anxiety, anger, disgust, shame), a number of behavioral responses (e.g., fight, flight, freeze, safety behaviors, submission; Siegel, 2010; Marks, 1987), and several protective attentional and processing biases (Gilbert, 1998). There are also physiological systems that activate and coordinate the self-protection system (LeDoux, 1998; Panksepp, 1998; Ross et al., 2013; see Chapter 2 here), which in turn produces physiological patterns in the body that influence emotions, thinking, and behavior.

The *threat/self-protection system* is managed and regulated by specific brain structures and systems such as the amygdala and the hypothalamic–pituitary–adrenal (HPA) axis (LeDoux, 1998). When in threat mode, all aspects of the mind, from cognitive functions to behaviors to emotions

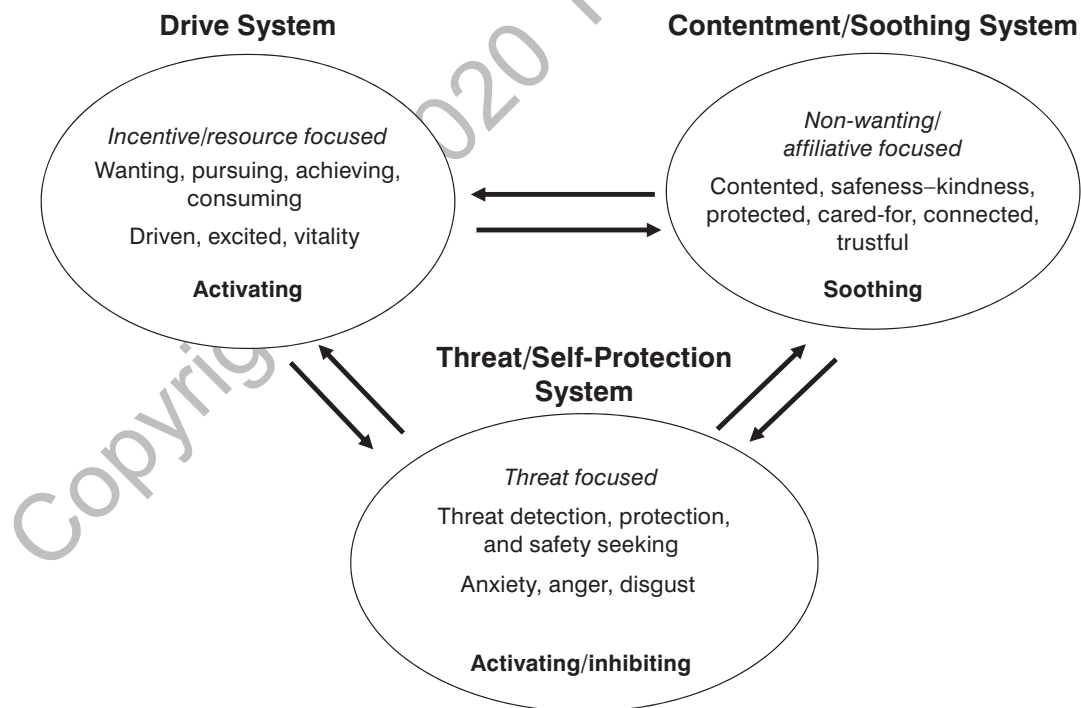


FIGURE 1.2. Three types of affect regulation systems. From Gilbert (2009a). Copyright © 2009 Paul Gilbert. Adapted by permission of Little, Brown Book Group.

and motives, are threat focused—that is, focused on protection and safety. Over time people develop safety strategies for specific threats so that when there are threat cues, there is little arousal in the mind. However, when these coping mechanisms are blocked for some reason, the “threat mind” is reactivated. In OCD as well as other psychiatric conditions, the threat system is overactive and safety behaviors and strategies driven by that system can reduce arousal in the short term, but may have longer-term, unintentional, and counterproductive consequences (Gilbert, 1993; Salkovskis, 1996; Thwaites & Freeston, 2005; Ross, 2010). An analogous neural system is the *security motivation system* (Woody & Szechtman, 2011, 2013), which is aimed at detecting subtle indicators of potential threat, probing the environment for further information about these possible dangers, and motivating engagement in precautionary behaviors.

The second affect regulation system is the *drive, seeking, and reward system*, which overlaps in many ways with Panksepp’s (1998, 2005) *seeking/expectancy/wanting emotional system*, whose function is to stimulate positive feelings that guide, motivate, and signal individuals to search for resources that are rewarding and needed to survive and prosper (e.g., food, sex, money, status). It usually drives us to satisfy our needs, in which case it is associated with the activation of positive feelings that are linked to excitement, but at times it can be directly or indirectly defensive. When there is a threat that a person’s desires and goals are going to be blocked or thwarted, the threat/self-protection system activates anxiety, frustration, or anger and will continue to do so until the person (1) manages to overcome whatever is blocking his or her desires and goals or (2) decides to change them (Gilbert, 2009a; Klinger, 1977). Both drive and threat systems are active when obsessive individuals engage in compulsive rituals to reach a subjectively indispensable goal (e.g., perfection, order, safety). If their rituals are impeded or thwarted, the threat system can activate further intense anxiety or anger until they are able to finish carrying out their rituals or make other people carry out the rituals for them. Whereas for most of human history the drive, seeking, and reward system was fundamental to the evolution of mammals, including humans, from an evolutionary perspective it is becoming increasingly problematic in certain contexts where it is dysregulated, such as in OCD, addictions, eating disorders, etc. (Ross, 2010).

The third affect regulation system, the *contentment/soothing and safety system*, enables humans and other animals to be calm when they no longer need to acquire resources and are in a subjectively safe condition, under no perceived threat. This system is associated with a sense of peaceful well-being, fulfillment, trust, and safety. Over the course of human evolution, the contentment system has evolved into a soothing system, which overlaps with Panksepp’s (1998) *care/nurturance emotional system*. It can be triggered by social stimuli of affection, protection, care, and love (Gilbert & Tirsch, 2009; Carter, 1998) and is mediated in particular by endorphins and the hormone oxytocin, via the oxytocin opiate system. It generates a state of soothing that creates feelings of calm and peacefulness that help us maintain balance. When humans or other animals do not have to defend themselves from some threat or deal with stressful or problematic situations—that is, when they don’t have to find resources—they are content or happy with things just as they are, which is associated with a feeling of safety (Depue & Morrone-Strupinsky, 2005). The contentment/soothing and safety system is very rarely active in people affected by OCD.

As the next chapters make clear, an important goal in psychotherapy and the MBCT for OCD Program is to help patients find tools that train the mind to balance all three systems, and in particular, to favor the self-activation and maintenance of the contentment/soothing and safety system and the deactivation of the threat/self-protection system, in the absence of real danger.

WHAT STIMULATES FEELINGS OF SAFETY AND WHAT ACTIVATES THREAT-RELATED PROCESSES AND STATES IN OCD?

Specific gene–learning interactions determine the development, coordination, and co-regulation of these three basic systems. As suggested by LeDoux (2002), biological organisms are designed to be changed and molded by life experiences. Different life experiences and environments encourage and strengthen some neuronal connections and weaken others. For example, we now know that abusive experiences during childhood have a direct impact on the areas of the maturing brain that regulate emotions, such as connections between the prefrontal cortex (PFC) and the amygdala (Cozolino, 2014; Schore, 1994; Siegel, 2001). Everything we experience in life is coded in our brains as an *emotional memory*. Emotional memories are related to synaptic sensitization at one level up to the complex brain systems responsible for different types of memory (Gilbert & Tirch, 2009; LeDoux, 2002). Since emotional disorders are linked to early affective sensitization and emotional memories, it is important to understand the impact of life experiences on the different sensitivities in the defensive and positive affective systems. Indeed, the activation of emotional memories is the primary focus of psychopathology for some therapists (Brewin, 2006). For example, psychodynamic (Greenberg & Mitchell, 1983) and behavioral theorists (Ferster, 1973) believe that even when they are not necessarily conscious, emotional memories can have a significant impact on how people deal with life experiences. This proposed impact might help explain why some patients with OCD react to obsessive stimuli with no awareness of particular beliefs or cognitions that justify those reactions. More broadly, it may also offer a possible path to explaining the development of dysfunctional beliefs in individuals with OCD.

Most individuals with psychiatric disorders have to deal with a more or less pervasive sense of threat in specific areas of their lives or external experience (e.g., physical safety, affective relationships, job, self-image) or private experience (e.g., feeling attacked by disturbing emotions, intrusive/obsessive thoughts, or physical sensations). Therefore, OCD (especially with regard to checking and washing behaviors), as well as other psychological problems such as phobias, GAD, paranoia, eating disorders, and post-traumatic stress disorder (PTSD), are all related to threat-focused processing and efforts to regulate threat and feel safe. Indeed, most psychotherapeutic approaches aim to help individuals recognize the perceived early and current sources of heightened threat sensitivity and processing and to decrease them in an adaptive way (Gilbert & Tirch, 2009; Brewin, 2006).

OCD phenomenology is so heterogeneous because individuals can develop myriad and specific sensitivities to particular stimuli, thereby shaping custom-made threat/self-protection systems in response to their personal life experiences (Salkovskis, Shafran, Rachman, & Freeston, 1999). This process is especially marked during childhood, during which it incorporates specific biological predispositions and attachment insecurities (Yarbro, Mahaffey, Abramowitz, & Kashdan, 2013; Doron et al., 2012; Myhr, Sookman, & Pinard, 2004) that create their unique vulnerability to different potential threat stimuli.

The highly evolved metacognitive skills and processing in human beings are crucial factors that increase threat sensitivity and focus threat processing (Wells, 2007). Although they have allowed humans to develop sophisticated culture, civilization, and science, metacognitive skills and processing also come with some disadvantages. As far as we know, chimpanzees do not worry about the future consequences of their actions, whereas humans do. For example, when people eat too much, they might worry about getting fat, and in some contexts about being rejected by

other members of their group. Most animals live in a world linked to direct sensory experiences, but in addition to this, humans also live in a world of imagination and metacognitions, which allows us to think about the past and future, what we worry about, what we wish for, etc. (Gilbert, 2007a; Singer et al., 2006). The latter, though intangible, can impact real, physical experience. For example, we can make plans in our minds and then act on them in real life (Wells, 2007) or have fantasies (e.g., sexual) that stimulate physiological systems and produce arousal. The problem is that we can become absorbed by our planning, thoughts, and imagination and forget to live in the present moment. The systems in our brains that are responsible for our cognitions and our emotional memories drain our attentional resources and draw the field of consciousness away from the present moment.

Different emotional memories and conditioning lead us to react quickly to things—our bodies might start reacting to a situation before we are consciously aware of it, and then our emotions take over and influence our thoughts and behaviors. This process helps explain why patients' OCD symptoms and obsessive states of mind are often triggered by specific contexts. In fact, as has already been stated, in perceived "safe" conditions (e.g., therapy sessions, group therapy classes, hospital ward/inpatient treatment, medical examinations, presence of perceived secure bases), there is less triggering of obsessions and compulsions (sometimes patients even have none), and patients have a clearer memory of their perceptive experiences and actions compared to the situations in which these people are in a perceived threatening environment (e.g., home, workplace, school, public places) where their obsessive symptoms are hyperactivated. Clinical observation and research data allow us to hypothesize that interventions or procedures used in therapy that aim to stimulate and strengthen a feeling of safety and trust (related to the contentment/soothing and safety system—e.g., mindfulness and self-compassion training) can be of high clinical relevance and enhance the overall effectiveness of treatment.

It is still not clear why for some individuals the hyperactivation of the threat system at a certain moment in life leads them down a path toward OCD rather than toward other types of disorders (e.g., GAD, social phobia, paranoid disorder). We can only hypothesize that it is a specific interaction among genetic and biological predispositions, environmental factors (life experiences, parental modeling, education), and attachment history that drives an individual toward obsessive pathological evolution (Doron et al., 2012).

OCD Dysfunctional Beliefs and the Threat/Self-Protection System

All the dysfunctional beliefs or assumptions postulated by the OCCWG (1997) are directly or indirectly connected with the activation of the threat system in the brain. When a person experiences a specific stimulus (even an imagined one) linked to his or her dysfunctional obsessive areas of meaning (e.g., if the door is locked, if the lights are on, fear of killing a baby, fear of doing things in an imperfect way, fear of losing control) the threat/self-protection system is activated. This happens because the stimulus is processed in relation to a specific basic dysfunctional assumption or belief, creating a sense of impending danger or threat, and stimulating the person to activate obsessive defenses and safety-seeking behaviors.

Although people affected by OCD may initially perceive reality accurately, they are more susceptible to being influenced by self-generated narratives, which then lead them to doubt reality and infer a hypothetical and threatening state of affairs (Pélissier & O'Connor, 2002). Humans are hardwired to prevent any danger. This tendency to get out of harm's way may overshadow our

reasoning. People might pray, say, or do bizarre and irrational things in order to prevent a “catastrophe,” even if their reasoning tells them there is no real danger, or that their actions are not helpful or may even be counterproductive.

When normal people are faced with a dangerous situation, their anxiety sounds an alarm that inhibits any non-life-saving action in order to allow them to focus on the danger at hand. However, “the person with OCD does not react to what is there, and not even to the exaggerated consequences of what is there, but to what might possibly be there even though the person’s senses say otherwise” (O’Connor & Robillard, 1995, p. 889). It is like a startle response gone awry. Normally, when a hectic situation is repeated over and over again, it will elicit an ever-weakening startle response. This is not the case with obsessive thoughts. It could be similar to the startle response observed in Parkinsonian patients, where repeated tapping on the forehead of a patient does not lead to a decrease in the blinking response. In OCD there is no fading out of the anxiety provoked by the obsession.

In line with these hypotheses, mental training that is able to help people with OCD rebalance the activation of their threat/self-protective system in a functional and realistic way, strengthen and favor the activation of the contentment/soothing and safety system when there is no real danger, and weaken adherence to the dysfunctional beliefs—thereby helping people to open their minds to alternative, more realistic meanings—should show a significant clinical relevance. As is illustrated in Chapter 2, several neurobiological studies have showed how mindfulness and self-compassion training help the brain have a more balanced response to internal and external stimuli and a more realistic and functional evaluation of them.

The Neurobiological Hypothesis of OCD

The thing on which a person frequently reflects, the thing he often thinks about, becomes the inclination of his mind.

—GAUTAMA BUDDHA

As explained in the previous section, a cognitive-evolutionary perspective conceptualizes OCD as the result of a hyperactivation of the threat/self-protection system in reaction to innocuous stimuli that are misinterpreted on the basis of dysfunctional beliefs, resulting in safety-seeking behavior. This explanation is linked to the neurobiological dimensions of the disorder. The cerebral areas involved in the activation of the above processes have been well studied, especially over the last two decades, and help us to understand how a therapeutic intervention can adaptively modify both the cognitive and neurobiological functioning in individuals with OCD.

Biological explanations of OCD normally include genetic, evolutionary, neuroanatomical, and biochemical factors. The genetic explanation is not exhaustive for this disorder. Various studies have shown a major concordance rate in monozygotic twins compared to dizygotic twins, and the lifetime incidence of OCD has been shown to be higher in the relatives of individuals with OCD (11.7%) than in the relatives of healthy controls (2.7%). But these concordance rates are not 100%, which suggests that genetic factors may *predispose* someone to, but not *cause*, OCD, and that environmental factors must be involved (Carey & Gottesman, 1981; Nestadt et al., 2000; van Grootheest, Cath, Beekman, & Boomsma, 2005).

Functional neuroimaging studies suggest that OCD symptoms may have distinct neural substrates. Similarly to Gilbert (2009a) and LeDoux (1998), Siegel (2010) explains that the threat system, which he called the “checker,” includes the fight–flight–freeze response of the brain, the

fear-producing amygdala of the limbic area, and the worrying and planning PFC, and that they work together to activate survival reflexes to push our cortical regions to constantly scan for danger. Admon et al. (2012) showed that there is important research data that associate obsessive symptoms with enhanced amygdala activation in response to aversive stimuli (Mataix-Cols et al., 2003; Simon et al., 2010; van den Heuvel et al., 2004). Taking into account the core role that the amygdala plays in threat detection and harm avoidance (LeDoux, 2002), as well as in the development of fear and arousal (Davis, 1992), the hyperactivation of the amygdala in response to threat may contribute to the inflated emotional reaction to perceived negative stimuli exhibited by individuals with OCD (Mataix-Cols et al., 2003), which in turn might mediate their tendency to overestimate threat possibilities (Sookman & Pinard, 2002).

One of the main brain areas involved in OCD is the orbital–frontal cortex (Baxter et al., 1992; Saxena & Rouch, 2000). This area acts as an interface between the limbic and the frontal lobe's systems, and plays a crucial role in the formation of emotional memories (Siegel, 2001; Gilbert & Tirch, 2009). It has been observed that its development is directly influenced by the emotional interactions that are formed during the formation (or lack of formation) of attachment bonds (Schore, 1994, 1997). The dysfunction of the orbital–frontal cortex may reflect the attachment insecurities (both anxious and avoidant) so frequently associated with the obsessive–compulsive syndrome (Doron et al., 2012) that generates both obsessive mistrust and dysfunctional beliefs. Research shows that lesions involving the orbital–frontal cortex in humans lead to deficits in behavioral planning and decision making based on estimates of the positive or negative consequences of particular actions (Damasio, Tranel, & Damasio, 1990). Moreover, as already stated, repeated activation of the amygdala, especially in childhood, can be linked to enhanced activation in response to aversive stimuli in adulthood (Mataix-Cols et al., 2003). Connections between the amygdala and the orbital–frontal cortex, via the ventral corticolimbic pathway, promote adaptive mechanisms of self-maintenance such as safety-seeking behaviors (Tucker, Luu, & Pribram, 1995). The basal ganglia, which are considered to be important in managing habitual actions and whose dysfunction causes the repetitive behavior of individuals with OCD, are other circuits that are involved in the disorder. The motor pattern generators in the brainstem and spinal cord and the “cognitive pattern generators” in the cerebral cortex may also be influenced by the basal ganglia. Graybiel (1997) has suggested that the resulting loops created between the neocortex, basal ganglia, and thalamus may influence the development of not only motor habits, but also of cognitive ones as well. A dysfunction in this loop could therefore lead to compulsions (reflecting the motor function) and obsessions (reflecting the cognitive function). The fact that the loop may not be complete might be one of the causes of the doubts and anxiety suffered by people with OCD, as they get stuck in one conceptual framework and one behavioral output program. Research has provided evidence regarding the involvement of these structures in OCD and in their response to treatment (Saxena, Brody, Schwartz, & Baxter, 1998; Saxena & Rauch, 2000; Whiteside, Port, & Abramowitz, 2004).

With respect to the *security motivation system* mentioned earlier, which has many similarities with the threat/self-protection system, Woody and Szechtman (2011) proposed an involvement of a cortical–striatal–pallidum–thalamic–cortical circuitry in OCD with brainstem-mediated negative feedback. Among other functions, this physiological network regulates the parasympathetic nervous system and activates the HPA axis. We can hypothesize that in normal people there is a mechanism by which precautionary behavior interrupts this activation, but in the case of patients with OCD, the mechanism fails to work. The failure of this mechanism could be related to the

person's lack of sensitivity to goals or outcomes of actions, which is characteristic of the compulsive mechanism and involves the same circuit—especially connections between the premotor and putamen areas, also part of the basal ganglia (Fineberg et al., 2014). Another possible interpretation of the dysregulation of this circuit is that OCD symptoms are the result of increased activity in the direct pathway between the thalamus and the orbital cortex (Pittenger, Kelmendi, Bloch, Krystal, & Coric, 2005). Therefore, in people affected by OCD not only is there a dysfunctional response to threat stimuli, but also a decreased response to reward. People with OCD are reluctant to take risks. In addition to hyperactivation of the amygdala in response to threat, they also have lower activation of the nucleus accumbens, which serves a reward function at normal levels. Furthermore, the functional connectivity of the amygdala and nucleus accumbens to two frontal regions, respectively the orbital–frontal cortex and dorsal anterior cingulate cortex, is also reduced (Roe et al., 2012, Fitzgerald et al., 2005). In patients with OCD, the frontal cortical areas are unable to adequately regulate the unbalanced limbic reactivity, which leads to the problem of frontal–limbic connectivity.

With regard to these hypotheses, functional neuroimaging studies have confirmed that in individuals with OCD, there is abnormal metabolic activity in the following brain areas and circuits: the orbital–frontal cortex; the anterior cingulate/caudal medial prefrontal cortex; the basal ganglia, particularly the caudate nucleus (the anterior part of the striatum) (Graybiel & Rauch, 2000; Feygin et al., 2006); the thalamus; the lateral frontal and temporal cortices; the amygdala, and the insula (Saxena et al., 2001; Stein, 2000). These brain regions are components of the cortical–striatal–thalamic–cortical (CSTC) circuitry (Pittenger et al., 2005). It has been observed that activity within the cortico–basal ganglia network (often called the “OCD circuit”) in patients with OCD is increased at rest compared to control subjects, accentuated during provocation of symptoms, and attenuated following successful treatment (Rauch et al., 2001). Several studies have demonstrated that individuals who respond to standard treatments show a reduction in hyperactivity in the CSTC circuitry, with decreased orbital–frontal, caudate, cingulate, and thalamic blood flow and energy use (Saxena et al., 2003; Baxter et al., 1992; Nordahl et al., 1989).

Lesion, recording, and imaging studies have indicated that motivation and affective behavior as well as major depression and OCD are affected by the anterior cingulate cortex and adjoining medial prefrontal cortex, which are strongly interconnected with the orbital–frontal cortex and structures of the limbic system (Saxena et al., 2003; March, Frances, Kahn, & Carpenter, 1997). The orbital–frontal cortex and anterior cingulate cortex may affect how the emotional value of stimuli is perceived and the behavioral actions selected in response to these experience-based expectancies and perceived outcomes—both areas whose imbalance characterizes OCD symptoms.

Similarly, Boyer and Liénard (2008) argue that OCD stems from abnormal metabolic activity in the cortical–striatal–pallidum–thalamic circuit, specifically a dysfunction in the basal ganglia (Rapoport, 1990; Rauch et al., 2007). Decreased inhibition of strongly motivated routines (washing, cleaning, making sure the door is locked, checking the lights) seems to initiate in the striatum. This might be the case because striatal networks respond too actively to cortical inputs and/or they have a diminished effect on thalamic networks (Fitzgerald et al., 2005; Rauch et al., 2007; Saxena et al., 1998). We could say, in simple terms, that the networks in the brain that send out warnings are too active, the spontaneous reactions to them too strong, and the systems that are supposed to inhibit them too weak.

Earlier in this chapter, I suggested that there may be disadvantages to humans' adaptive abil-

ity to anticipate future needs or threats, and that one such disadvantage may be that individuals risk developing OCD because of the heterogeneous interconnections of the underlying striatal–frontal brain circuits (Brune, 2006). Furthermore, as already stated, OCD is a clinically heterogeneous disorder characterized by symptoms that tend to be stable over time and which are mediated by partially distinct neural systems.

An interesting study by van den Heuvel et al. (2009) differentiated symptom dimensions into symmetry/ordering, contamination/washing, and harm/checking and found both global effects and specific brain structural alterations in the volume of gray and white matter in specific areas for each dimension. These findings would seem to indicate that relatively distinct components of the frontal–striatal–thalamic circuits implicated in the cognitive and emotional processing involved in threat detection and harm avoidance mediate different obsessive–compulsive symptom dimensions (Feygin et al., 2006).

Despite the huge amount of research on neurobiological abnormalities in OCD, key issues continue to be the lack of cause-and-effect indicators and the unknown direction of effect in such research. Indeed, it is not clear at this moment if the biochemical and neural dysfunctions in specific brain areas should be considered *causes* or *effects* of OCD symptoms and states. Similarly, we continue to be limited in our understanding of the mechanisms, genetics, and epidemiology of these dysfunctions.

As of the publication of this book, we have little evidence that the brain dysfunctions highlighted in adult patients with OCD are also present in children with OCD. Indeed, little is known about these areas of functioning with respect to child onset OCD because most studies to date have focused on adults, and there are no longitudinal studies that investigated the possible evolution of these brain dysfunctions from childhood to adulthood. If these brain dysfunctions were already present in early childhood, just after the onset, then they would most likely not be directly related to the OCD; that is, we wouldn't be able to say that they are the effect of obsessive symptoms that have been repeated over time because they would have been present for too little time. However, it is conceivable that the activation of certain actions and states of mind for several years can lead to the development of specific neural circuits associated with these actions and states. As Kornfield (2008) explains:

When we look at habit and conditioning, we can sense how our brain and consciousness create repeated patterns. If we practice tennis enough, we will anticipate our next hit as soon as the ball leaves the other player's racquet. If we practice being angry, the slightest insult will trigger our rage. These patterns are like a rewritable CD. When they are burned in repeatedly, the pattern becomes the regular response. Modern neuroscience has demonstrated this quite convincingly. Our repeated patterns of thought and action actually change our nervous system. Each time we focus our attention and follow our intentions, our neurons fire, synapses connect, and those neural patterns are strengthened. The neurons literally grow along that direction. (pp. 258–259)

Understanding the neurobiological functioning of OCD provides guidance for a more focused treatment and makes the interconnections between the effects of psychological treatments and brain activity and changes clearer. What emerges from this analysis is that most brain areas and circuits involved in OCD are directly or indirectly related to the activation of the threat/self-protection system or to the circuits implicated in cognitive and emotional processing involving threat detection and harm avoidance, including, in particular, the orbital–frontal cortex, the

anterior cingulate cortex, the insula, the caudate nucleus, the nucleus accumbens, and the thalamus. The involvement of these areas in executive functions—self-monitoring, error detection, and selection among competing responses—suggests that OCD functions along the same neural pathways as does behavior in everyday challenges (Feygin et al., 2006). As is explained in the next chapter, several of the brain areas involved in OCD have been shown to be the target of specific mindfulness and compassion-based interventions (Klimecki, Leiberg, Ricard, & Singer, 2013; Ross et al., 2013), demonstrating the clinical relevance of these kinds of treatment in correcting the neural dysfunctions associated with OCD symptoms in an adaptive way (Marchand, 2014; Gard et al., 2015).

A COGNITIVE-EVOLUTIONARY MODEL OF OCD

In order to bring together the hypotheses and findings discussed in the previous sections and their possible interconnections, the following material presents a model of how OCD works from a cognitive-evolutionary point of view.

In OCD, the problem stems from the misperception of some normal and harmless experiences. As described in the first part of this chapter, if we carefully observe OCD phenomenology, we can see that there is a series of specific mechanisms and biases that activate and perpetuate the problem over time.

As can be seen in Figure 1.3, the trigger stimulus activating the whole obsessive problem is usually an *intrusive cognition* in the form of a *doubt* (e.g., “Did I wash my hands properly?”; “Did I leave the gas on?”), an *image* (e.g., the memory of something somebody did or did not do or of something he or she fears), *physical sensations* (e.g., “My back itches”), or *perceptions* that may be visual, auditory, tactile, etc. (e.g., seeing a stain on the floor or hearing a noise). Most people who do not suffer from OCD experience such stimuli on a regular basis to varying degrees, but consider them to be fundamentally harmless. The problem in patients with OCD arises because once these triggers are activated, they are interpreted through the lens of dysfunctional beliefs and obsessive cognitive biases and processes, such as cognitive distrust, perceptive self-invalidation, thought–action fusion, and nonacceptance bias (see the sections about fusion beliefs, distrust, and other cognitive biases earlier in this chapter). Because of these cognitive processes, the individual assigns a negative meaning to the trigger stimuli (e.g., “If I left the gas on, a tragedy will happen and it will be my fault”). In other words, these normal experiences are interpreted as subjectively or objectively threatening (metaevaluation of warning of danger/threat). The interpretation, for example, may attribute a personal inflated responsibility for harm or the need to do something in the “right” or perfect way. As has already been explained, this interpretation of the triggers as threatening leads to a hyperactivation of the *threat/self-protection system*, which is responsible for activating or supporting a defensive reaction (e.g., fight, flight, or freeze) in the presence of a real or imagined physical or social threat. The activation of this system can be life-saving if we are really in a dangerous situation, but when it is activated in the presence of harmless stimuli due to false beliefs and meanings, and the brain is convinced there is or will be a danger, the threat/self-protection system is continuously activated, and the individual experiences many stressful and counterproductive false alarms. The activation of the threat system generates *stressful emotions* (anxiety, disgust, guilt, shame, etc.) and leads the individual to carry out *protective or safety-seeking behaviors*, doing all he or she can to defend against the feared danger (e.g., through compulsive

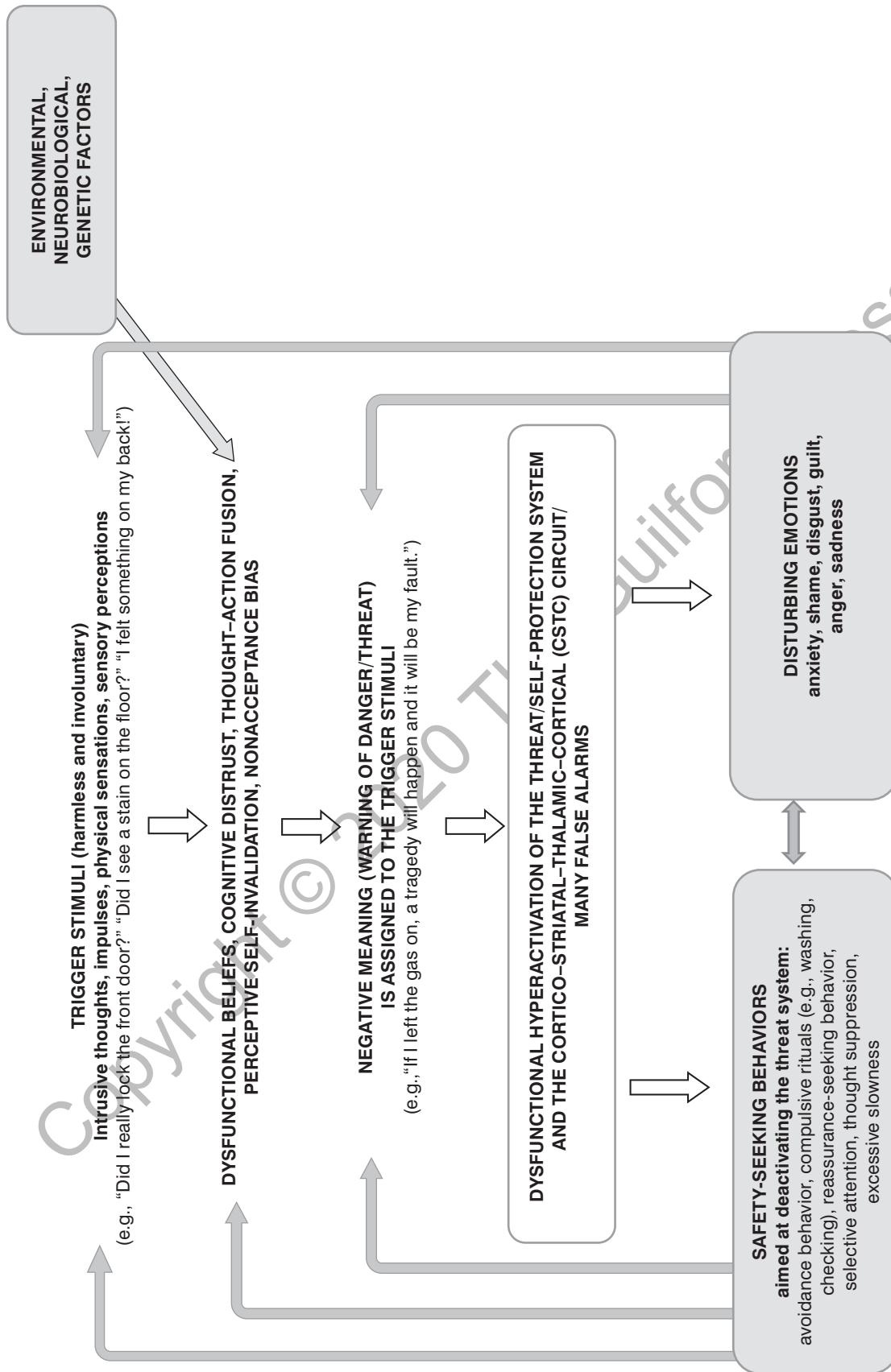


FIGURE 1.3. A cognitive-evolutionary model of OCD.

rituals, seeking reassurance, avoidance, selective attention, thought suppression, excessive slowness). These safety behaviors in turn tend to reinforce the dysfunctional beliefs and cognitive biases and processes (e.g., confirming and increasing self-distrust, perceptive self-invalidation, thought–action fusion, nonacceptance bias, and the “truth” of dysfunctional beliefs). Moreover, once activated, both stressful emotions and protective behaviors (which influence one another) tend to further fuel the negative meaning given to the trigger stimulus, because they directly or indirectly confirm that the individual is in a threatening condition. This perceived confirmation further activates the threat system and increases the frequency and intensity of the trigger stimulus so that the intrusive thought soon becomes an *obsession*, creating a vicious cycle of activating and perpetuating the obsessive problem over time.

EFFECTIVE THERAPIES, THEIR LIMITATIONS, AND OBSTACLES TO TREATMENT

CBT has long been recognized as an effective treatment for OCD, both in children and adults. In particular, exposure and response prevention (ERP), which is normally included in CBT protocols, is the most widely supported psychological treatment for OCD (Didonna, 2009c). Research data show that 50–75% of patients who complete this treatment recover or improve significantly (Foa et al., 2005; Menzies & de Silva, 2003), although it has been noted that only 25% of patients treated with ERP are asymptomatic at the end of treatment (Fisher & Wells, 2005).

Despite these promising results, research also clarifies some of the limitations of ERP. Foa and Franklin (1998) observed a significant dropout rate (25%) or poor treatment adherence because of the highly anxiety-provoking nature of the treatment. A study by Fisher and Wells (2005) reported that a significant percentage of those treated (nearly 20%) did not respond or recover to a substantial degree, and Riggs and Foa (1993) reported that 20% relapsed following the intervention. There is also relatively little data available on the longer-term maintenance of gains. Furthermore, we know that ERP is not very effective with individuals who present with primarily pure obsessions, without overt compulsions (pure obsessive) or obsessive ruminations (doubt, scrupulosity); in patients with overvalued ideas or low or absent insight (Kyrios, 2003); and with patients affected by a comorbid major depression (Foa, 1979; Rachman & Hodgson, 1980). Finally, certain types of rituals or obsessive symptoms have been found to be particularly difficult to treat with ERP, including covert compulsions (Salkovskis & Westbrook, 1989) and hoarding (Clark, 2004).

Cognitive therapy, which focuses on identifying and changing the obsessive dysfunctional beliefs and maladaptive cognitions, often using behavioral experiments (Olatunji, Davis, Powers, & Smits, 2013), may be effective, less stressful, and more accepted than ERP and appears to be a helpful treatment in many cases (Wilhelm, Berman, Keshaviah, Schwartz, & Steketee, 2015). This is particularly the case with patients who refuse to participate in, or are dropouts of, ERP; those who do not improve with ERP; pure obsessive patients; and individuals with comorbid depressive symptoms (Cottraux et al., 2001; van Oppen & Arntz, 1994). Nevertheless, cognitive therapy may not provide the critical impact needed to reduce dropout numbers (Olatunji et al., 2013) and to significantly improve treatment response for most nonresponder patients with OCD.

Pharmacotherapy has also been demonstrated to be effective in treating this disorder, espe-

cially serotonergic antidepressants (selective serotonin reuptake inhibitors), with a 40–60% response rate. Nevertheless, pharmacotherapy can take up to 3 months to elicit a response at an optimal dose and can create several significant side effects (weight gain, sedation, sexual dysfunction, etc.). Furthermore, 80–90% of people treated with medications alone will relapse once medications are discontinued (Pato, Zohar-Kadouch, & Zohar, 1998).

To sum up, in spite of the encouraging effectiveness of these therapeutic interventions, which have greatly improved the prognosis of this challenging disorder, a significant number of individuals who suffer from OCD do not respond well to the standard protocols of CBT and serotonergic medication, and several studies show that, on average, less than 50% make significant improvements that are maintained at follow-up (Fisher & Wells, 2005; Salkovskis & Kirk, 1997; Foa et al., 1983). Furthermore, as I mentioned at the beginning of this chapter, most likely only a small percentage of people who suffer from OCD decide to undergo psychotherapeutic treatment, and of these people an even smaller percentage seek a cognitive-behavioral intervention. Even in this case the intervention most often takes place quite a long time after onset of the disorder. Therefore, it is important to understand why 50% of individuals affected by this disorder do not improve, do not undergo treatment, or drop out, so that we can develop rational and effective interventions, strategies, or techniques that could help decrease this rate.

Although data are not always consistent and are characterized as mixed, the literature suggests several factors that are considered obstacles to psychological therapy and might be associated with poorer treatment outcomes for OCD (Kyrios, Hordern, & Fassnacht, 2015; Keeley, Storch, Merlo, & Geffken, 2008). One of the main factors is comorbidity: Individuals with OCD very often share comorbidity (Kyrios, Hordern, & Fassnacht, 2015) with a range of DSM disorders (especially major depression, anxiety disorders, and personality disorders; Ruscio, Stein, Chiu, & Kessler, 2010; Lochner & Stein, 2003). In Koran, Pallanti, Paiva, and Quercioli's 1998 Kaiser Health Plan study, 26% of patients had no comorbid psychiatric condition diagnosed during the 1-year study period, 37% had one and 38% had two or more comorbid conditions. This comorbidity further complicates the clinical picture and reduces the effectiveness of the therapies (Kyrios, 2003; Didonna, 2009c).

Another factor is age of onset. A prospective study (Skoog & Skoog, 1999) suggested that a worse outcome was predicted by early age of onset, particularly in males, with these patients experiencing obsessions and compulsions or magical thinking, poor social adjustment, and early chronic course (Stewart et al., 2004). The authors also reported that the earlier the onset and the longer the duration of the illness, the less improvement was observed at follow-up. These data suggest that early diagnosis and intervention lead to better outcomes, so professionals in both public and private health care need to be aware of the symptoms of childhood onset of OCD (NCCMH, 2006). Other important factors thought to be predictors of poorer outcomes are greater symptom severity; a poorer motivation for treatment and dissatisfaction with the therapeutic relationship (Keijsers, Hoogduin, & Schaap, 1994); less adaptive cognitive factors, such as rigid sexual/religious beliefs (Mataix-Cols, Marks, Greist, Kobak, & Baer, 2002); and family dysfunction and collusion with the disorder (e.g., family homeostasis) (Keeley et al., 2008). Clearly identifying and understanding the obstacles to treatment and the predictors of poorer outcomes may make it possible to better target or add specific treatment strategies or interventions for individuals at risk of dropping out of treatment or for those who are likely to show a less significant treatment response (Kyrios et al., 2015).

HETEROGENEITY AND TREATMENT

Yet another important factor to take into account in treating OCD is the heterogeneity of obsessive phenomenology and symptoms. OCD has such a heterogeneous and idiosyncratic clinical presentation that it is not possible to consider the disorder a single homogeneous diagnostic entity and provide clinical treatment as if it were. In fact, different subtypes of the disorder may differ in the psychological processes, etiological bases, and fear structures that maintain the obsessive symptoms (American Psychiatric Association, 2013; Clark, 2004). Observing the heterogeneous phenomenological and clinical features of OCD and the possible different etiologies leads to some important questions:

- How is it possible to treat all of these forms of obsessive problems with the same rationale and therapeutic principles, interventions, and techniques?
- What are the common mechanisms that activate and maintain the disorder, regardless of the specific clinical symptoms and dimensions?
- What are the mechanisms of change that can help all these individuals with OCD to significantly and stably improve?

In order to answer these questions, we first need to understand what the different forms or subtypes of the disorder have in common; that is, what the common background is, and what cognitive and phenomenological features they share. Some of the main features, mechanisms, and biases that the different forms of OCD seem to have in common are:

- Extreme difficulty *accepting* the specific harmless trigger stimuli (thoughts, feelings, physical sensations or sensorial perception, etc.) and emotional states activated by them (anxiety, disgust, shame, guilt, etc.).
- Extreme difficulty *preventing or delaying a reaction* (cognitive, emotional, or behavioral) when specific trigger stimuli are activated or perceived.
- Dysfunctional *hyperactivation of the “threat/self-protective system”* of the brain in the absence of a real danger.
- A generic or specific *feeling of mistrust* toward one’s private, internal experiences (e.g., memory, sensorial experience, attention, intentions).

TOWARD A MINDFULNESS-BASED APPROACH TO OBSESSIVE PROBLEMS

The obstacles to treatment described previously and the limitations of the most effective therapies (CBT and pharmacotherapy) have led clinicians to wonder how we can improve, strengthen, and integrate established treatments with interventions that can help to overcome said limitations and obstacles. We need improvement in treatment adherence (in particular, rendering interventions that induce anxiety somehow more acceptable), and we need to expand the effectiveness of therapeutic intervention to the 50% of individuals with OCD who currently do not improve significantly from the available treatment protocols. Established therapy models and existing treatment outcome studies, in general, have not included several of the cognitive processes and biases

discussed in the previous sections. Therefore, a more comprehensive treatment that targets these mechanisms may intervene transversely across the different facets of OCD and yield more promising outcomes and effects.

It is suggested here that a “global” or comprehensive approach to the obsessive problem can probably affect more transversal features common to all individuals with OCD as well as comorbidity problems to a certain degree. Such an approach would deal with more than just the primary symptoms of the disorder and treat the “whole” person and his or her global cognitive functioning. This approach might be of greater benefit because OCD affects so many areas and functions of a patient’s life and experience, and because obsessive symptoms are quite possibly only the most evident manifestation of a more general dysfunction (Didonna, 2009c). All the issues and theories illustrated and discussed in this chapter directly or indirectly help explain the rationale of a mindfulness-based approach to obsessive problems and justify its use and possible benefits in treating OCD. As we will see in the next chapter, there is important evidence that shows how and why mindfulness and self-compassion can be effectively utilized as an intervention to balance, self-regulate, and modify several cognitive biases and dysfunctions and neurobiological deficits that have been found in OCD, thereby helping patients to develop healthier and more adaptive mental, emotional, and behavioral habits.