

# **Psychological Approaches to Understanding Obsessive-Compulsive Disorder**

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## **Psychological Approaches to Understanding Obsessive-Compulsive Disorder**

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### **Abstract and Keywords**

In this chapter, cognitive behavioral approaches to understanding the development, persistence, and treatment of OCD are described, with emphasis on the work of Foa, Rachman, and Salkovskis. Developments of these central models by D. A. Clark, Frost, O'Connor, and Purdon are also described. Brief summaries of the empirical evidence supporting those models and of the efficacy of CBT in the treatment of OCD are provided.

Keywords: cognition, cognitive behavioral theories, cognitive behavioral therapy, exposure with response prevention, hoarding, obsessive-compulsive disorder

Psychological approaches to understanding and treating obsessive-compulsive disorder (OCD) have gained prominence in the last two decades, when the benefits of prolonged exposure to obsessional triggers with simultaneous ritual prevention ("exposure with response prevention") were discovered (Foa, Franklin, & Kozak, 1998; Rachman & Hodgson, 1980). Exposure with response prevention (ERP) is based on the conceptualization of obsessions as "noxious" stimuli to which the individual's fear has failed to extinguish. Compulsions are overt and covert (i.e., mental) acts that are performed to reduce the psychophysiological and subjective disturbances caused by the thought. This reduction in distress reinforces performance of the compulsion (Rachman, 1976; Rachman & Hodgson, 1980).

Exposure with response prevention involves active generation of the obsession while the individual refrains from performing the compulsive ritual. This allows the discomfort associated with the obsession to subside naturally in the absence of the compulsive ritual, thereby restoring normal mood state, increasing cognitive control, and making the ritual obsolete (Rachman, 1976; Rachman & Hodgson, 1980). In a comprehensive analysis of

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the processes involved in habituation, Foa and Kozak 1986 described fear/ anxiety as being represented as a “structure” in memory that consists of information about the feared stimulus situation, responses to the situation, and the meaning of the stimulus and response elements of the structure. In order for this structure to be modified, it must first be completely activated, and then the individual must be exposed to information that is incompatible with it. If the structure is fully activated, the incompatible information can be integrated into the structure, thereby changing its nature.

The fear structure is fully activated only when the individual is exposed to the fear-evoking stimulus. If rituals and avoidance strategies are prevented, fear reduction occurs. That is, the discomfort associated with the stimulus declines in the absence of the escape or avoidance strategies, and the existing stimulus-response elements become dissociated. The lowered level of arousal facilitates integration of corrective information about the meaning of the feared stimuli and responses. A new structure then emerges, in which the stimulus is now represented as fairly benign, which in turn makes the ritual and avoidance behavior obsolete, the hypervigilance to cues of the feared stimulus dissipates, and there is an overall reduction in discomfort. Foa and Kozak (1996) observed high treatment success rates of ERP, with an average immediate response rate of 83% and a long-term follow-up rate of success of about 76%. Similarly, in a meta-analysis of existing treatment studies, Abramowitz 1996 reported that ERP has a very large effect size. (p. 239)

However, when treatment refusal and dropout rates are taken into consideration, along with the number of treatment nonresponders and the number of individuals who technically “respond” but continue to exhibit debilitating symptoms, the actual treatment success rate could be as low as 50% (Stanley & Turner, 1995). There has been growing acknowledgment that cognitive appraisal plays an important role in the obsessive-compulsive cycle, and that the original model on which ERP is based may not be comprehensive enough to account for all aspects of the disorder, nor all symptom subtypes (e.g., Foa & McNally, 1996; Rachman & Hodgson, 1980; Salkovskis, 1985, 1989). Furthermore, one key predictor of treatment refusal and dropout is fear of ERP itself (Foa, Steketee, Grayson, & Doppelt, 1983; Maltby & Tolin, 2003; Vogel, Stiles, & Göttestam, 2004). Salkovskis (1988, 1996, 1998) argued that the obsession cannot be experienced as “noxious” unless it is appraised negatively. That is, the emotional response to obsessions must be driven by erroneous, negative beliefs about and interpretations of the meaning of the obsession. Thus, it is no surprise that ERP is an unpalatable intervention for many. Treatment refusal and dropout may be decreased substantially if the obsession is “detoxified” in advance through reappraisal of the thought's meaning. As a result of these observations, cognitive-behavioral models of OCD have gained considerable prominence.

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## **Salkovskis's Cognitive Behavioral Model**

The starting point of Salkovskis's model is the observation that obsessional thoughts lie on a continuum with normal thoughts that everyone experiences (Salkovskis, 1985, 1989). He then noted that the negative automatic thoughts of individuals with obsessional problems tend to reflect themes of personal responsibility for harm or danger befalling self or others. According to Salkovskis, Richards, and Forrester (1995), the term *responsibility* refers to:

The belief that one has the power which is pivotal to bring about or prevent subjectively crucial negative outcomes. These outcomes may be actual, that is, having consequences in the real world, and/or at a moral level. (p. 285)

In accordance with Beck's (1976) schema-based theory, Salkovskis (1985) argued that the negative automatic thoughts evoked by the occurrence of an obsessional thought derive from preexisting dysfunctional schemata, which in the case of OCD constitute beliefs about one's personal responsibility to prevent harm to self or others. Examples of such beliefs include "Having a thought about an action is like performing an action," "Failing to prevent or trying to prevent harm to self or others is the same as having caused the harm in the first place," "Responsibility is not attenuated by other factors (e.g., low probability of occurrence)," "Not neutralizing when an intrusion has occurred is similar or equivalent to seeking or wanting the harm involved in that intrusion to happen," and "One can and should control one's thoughts" (p. 579).

Salkovskis (1998) also suggested that beliefs reflecting the construct of "thought-action fusion" (Shafran, Thordarson, & Rachman, 1996) are important manifestations of responsibility beliefs. Examples of such beliefs are: "Thinking about something makes it happen," and "Having a thought about an immoral action is akin to carrying out that action." Finally, he made the observation that whereas most individuals feel less responsible for acts of omission that result in negative consequences (e.g., failing to straighten out a carpet that someone later trips over) than for acts of commission (e.g., deliberately pulling the carpet out from someone, causing her or him to trip), individuals with OCD lack this bias. Instead, individuals with OCD possess the belief that "*any* influence over a negative outcome equals responsibility for that outcome."

Responsibility beliefs give rise to specific appraisals of the thought that may concern either the thought's content (e.g., "This thought is immoral, therefore, I am immoral for having it") or the thought's occurrence (e.g., "The more I have this thought, the more I'm in danger of losing control and acting on it"). The affective disturbance characteristic of obsessional problems, then, derives not from the obsessional thought itself, but rather

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from the negative appraisal to which it gives rise, which in turn arises from preexisting beliefs about responsibility. If the thought evokes appraisals involving harm, danger, or loss, without the concomitant sense of responsibility, the resulting affective state will be general anxiety or depression, respectively (p. 240) (Salkovskis, 1985, 1989, 1996, 1998, 2002; Salkovskis et al., 1995).

When the obsession activates concerns that the thought might be acted upon or otherwise come true and that the individual would thus be responsible for potential harm ensuing from the thought, mood disturbance results. The individual then attempts to avert the possibility of being responsible for harm by engaging in some sort of ameliorative action (e.g., seeking reassurance that harm has not occurred, sharing responsibility for the potential harm by telling others about the possibility of harm, conducting overt or covert rituals designed to ward off potential harm, etc). These “neutralizing” activities have three primary consequences. First, they result in a reduction in the mood disturbance, so they are more likely to be repeated in response to future occurrences of the obsession. Second, when the feared event represented in the obsession does not happen (e.g., the house does not burn down) after the performance of the neutralizing act, the event's nonoccurrence is attributed to the neutralizing act. Third, the neutralizing act is highly salient and is closely linked to the thought, so it can become a powerful stimulus for the obsession.

Meanwhile, in an insidious feedback cycle, negative mood states will also “prime” obsessional thoughts as well as negative appraisal of obsessional thoughts, which in turn increase negative mood. Finally, the individual will begin avoiding stimuli that trigger the obsessional thought, thereby sustaining negative beliefs about the thought in the same way that avoidance of a phobic stimulus sustains the individual's fears. Such avoidance behaviors can become pervasive in the same manner as agoraphobic avoidance (Salkovskis, 1985, 1989, 1996, 1998, 2002; Salkovskis et al., 1995). Avoidance can also occur in the form of suppression of the obsession. Individuals with obsessional problems will deem it necessary to pay close attention to their mental processes in order to prevent the occurrence of intrusions or to be aware of and limit the implications for responsibility. As a result, they become engaged in effortful strategies to control their obsessions. Salkovskis (1989) argues that suppression will lead to an ironic increase in the frequency of the obsession.

## **Rachman's Cognitive Behavioral Model**

Rachman conducted much of the pioneering research on behavioral approaches to obsessional problems and cognitive behavioral therapy (CBT) models of OCD owe much

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to this work. Rachman's (1971, 1997, 1998) formulation of obsessions begins with the observation that the important themes of all moral systems (e.g., aggression, sex, and blasphemy) are reflected in the main themes of obsessions and intrusive thoughts. As such, this type of thought is particularly vulnerable to being experienced as sinful, disgusting, alarming, or threatening. Thus, the content of the obsessional thought is of central importance in the escalation of the disorder. Obsessional problems develop when such appraisals are elaborated, and the individual believes that an intrusive thought reveals something meaningful and heretofore unknown about themselves, that it is a warning sign that a negative event will come true, that the thought will bring about some feared event (e.g., going to hell, being locked up, being rejected by friends and family), or that it is an indication that the individual is in danger of losing control. This *catastrophic misinterpretation* of obsessional thoughts is said to result in the development and persistence of the disorder by many of the same processes involved in the development of panic disorder, which involves a catastrophic misinterpretation of bodily sensations (Rachman, 1997).

The obsession will persist as long as the thought is interpreted as being catastrophic, and it will diminish when the misinterpretations are weakened (Rachman, 1998). Once an intrusive thought is interpreted as having personal significance and possibly portending threat, it will give rise to active resistance to the obsession (i.e., thought suppression), in addition to avoidance (i.e., avoiding knives or avoiding being alone with one's child) and attempts to ameliorate the potential negative outcome (i.e., neutralizing). Such acts relieve the discomfort associated with the thought, and so they are increasingly likely to be repeated, even though that relief would have occurred spontaneously in the absence of the act. Neutralizing acts also serve to preserve the catastrophic misinterpretation of the obsession and the subsequent elaborations of the thought's meaning. Meanwhile, as the individual's conviction that the thought portends danger strengthens, the number of external cues that are relevant to the thought increases (e.g., obsessions involving stabbing a loved one may result in fear and avoidance of all sharp objects, which suddenly all become potential weapons). Thus, the range of threats in the individual's environment increases, which means that the number of triggers for the obsession increases. Meanwhile, the individual may begin to deduce that threat is present simply from the activation of the anxious response ("I'm feeling anxious, therefore, danger must be present"), as well as concerns that (p. 241) when one is anxious, one is more likely to behave in ways that could be harmful.

Rachman 1998) proposed that there are a number of factors that may cause some individuals to misinterpret the personal significance of particular intrusive thoughts. First, vulnerable individuals may possess preexisting beliefs about the significance and dangerousness of certain types of thoughts. For example, a person who believes that "if

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you think about stabbing a person, it means you have a violent streak” might be more inclined to interpret aggressive intrusive thoughts as highly meaningful and dangerous. People of “tender conscience,” or with strong religious convictions, may thus be more prone to finding intrusive thoughts objectionable. Second, internal and external sources of provocation, such as exposure to stress, the occurrence of bodily sensations with the intrusion, the reduction in discomfort associated with ameliorative actions, and failures in thought control can enhance appraisals of significance and even the very occurrence of the intrusive thought itself.

Cognitive biases such as “thought-action fusion” (TAF) also promote misinterpretations of significance. Thought-action fusion includes beliefs that having an unacceptable thought increases the likelihood of the negative event represented in the thought coming true, and that having a morally repugnant thought is the moral equivalent to committing a morally repugnant deed. Rachman argued that the beliefs about responsibility emphasized by Salkovskis derive from the TAF cognitive bias. Individuals with this general cognitive bias, then, are more vulnerable to developing obsessional problems. Closely linked to the TAF bias is the bias that when one is responsible for an outcome, things are more likely to go wrong. This particular bias contributes to anxious feelings and increases threat-sensitivity. Finally, negative mood states like dysphoria can also lead to an escalation and maintenance of obsessions by increasing the accessibility of negative interpretations of the thought as well as the thought itself.

## **Clark and Purdon: Thought Control and Ego-Dystonicity**

Clark and Purdon have offered further elaborations of these models (Clark & Purdon, 1993; Purdon & Clark, 1999). Clark (1989) proposed that all individuals hold certain beliefs or assumptions about thinking and about how to control unwanted thoughts. Individuals may be vulnerable to developing obsessions if such beliefs are rigid, unrealistic, and dysfunctional. For example, beliefs that perfect control over thoughts is possible and desirable, that failing to control thoughts is a sign of mental weakness and instability, and that failures in thought control potentiate loss of control over any or all other domains of functioning may be particularly relevant to OCD.

If an individual holds such beliefs, her or his stake in thought control will be very high. However, as evidenced by the thought suppression literature, perfect control is rarely, if ever, achieved. Even in studies where suppression was not associated with an actual increase in frequency, perfect suppression is seldom observed (e.g., Purdon, Rowa, & Antony, 2005). Given the individual's beliefs about thoughts, failures in thought control will be experienced as particularly catastrophic, and will result in escalating attempts at

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thought control and a subsequent decline in mood state. As suggested by the thought suppression literature, this in turn will make thoughts even more difficult to control. At this point, other strategies for ameliorating the distress associated with the thoughts, or, neutralizing strategies, may develop.

Purdon and Clark 1999) observed that one cardinal feature that distinguishes obsessions from other types of negative thoughts is that they are typically experienced as being *ego-dystonic*. Although this term has not been consistently defined, Purdon and Clark suggest that the ego-dystonic quality of an obsession refers to the individual's sense that the thought is inconsistent with specific and important aspects of the self that are especially valued by the person. Purdon and Clark 1999) suggest that ego-dystonicity is a feature of all obsessions and is a key factor in the escalation and persistence of the disorder. For example, an obsession of stabbing or harming a loved one is ego-dystonic in that it is inconsistent with the person's explicit feelings about the loved one, as well as with her or his values and sense of morality. An obsession that one has left an appliance on and caused a fatal accident is ego-dystonic in that it violates the individual's sense of herself or himself as a conscientious, reliable, caring, and cautious person. Finally, an obsession that one has become contaminated is ego-dystonic because it violates that individual's sense of herself or himself as a clean person.

An obsessional thought, then, is inconsistent with one's sense of self and with the kinds of beliefs an individual would expect herself or himself to have. As such, the thought represents a threat to the self-view. The individual is then faced with the task (p. 242) of reconciling the experience of having a thought that is inconsistent with the self-view. Drawing from information-processing theory, Purdon and Clark 1999) suggest that one strategy for resolving the inconsistency would be to accommodate the self-schema to incorporate the experience of the thought (e.g., "I suppose even a person like me can have a thought like this, but of course a person like me would never act on this thought"). This may characterize the response of the majority of individuals to their obsessional thoughts. The alternative strategy would be to assimilate the thought (e.g., "Maybe I am the kind of person who would stab a loved one").

Given that the thought itself is initially the only evidence that the undesirable personality qualities exist, the individual is likely to assume that its absence signifies that the trait in fact is not present. This, in combination with preexisting beliefs about control leads to an enormous stake in controlling the thought. By the same token, failures in thought control will be perceived as catastrophic and the individual is likely to increase attempts to control thoughts. Consistent with Salkovskis (Salkovskis et al., 1995; Salkovskis, 1996, 1998), this urgent need for cognitive control will result in a preoccupation with the stream of consciousness and a heightened vigilance for thought cues, which has the

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ironic effect of lowering the threshold for detecting cues and intensifies the need to control thoughts.

The individual's conviction that such undesirable personality characteristics may exist will strengthen in the face of failures in thought control, and may eventually cause the individual to behave as if they actually do exist. Once the individual begins to believe that personality traits could be consistent with the thought, he or she is likely to begin using neutralizing strategies to protect the self or others against the harm that he or she may cause. These strategies will terminate exposure to the obsession, will disallow for corrective learning about the thought's meaning, and will make the thought more salient and hence more frequent.

## **O'Connor and Robillard: Faulty Inference Processes**

O'Connor is concerned with treatment of OCD that is characterized by overvalued ideation or poor insight (O'Connor, 2002; O'Connor & Robillard, 1995). He argues that the essential factor in the development and maintenance of OCD is faulty inference processes. In fact, he argues that an obsession *is* an inference about a state of affairs meaningful to the individual, rather than a discrete thought (O'Connor, 2002). The specific inference processes that perpetuate the faulty belief system in OCD bear little similarity to those driving depression and other anxiety disorders. Rather, people with obsessional problems are unique in that their affective response to the feared stimulus is driven by concerns about what might *possibly* be there, even though their senses say otherwise. In other words, what the obsessional person imagines *could* be there becomes an *actual probability* in her or his mind, resulting in a fear of what is unseen rather than a fear of what is actually seen. Thus, a completely fictional narrative becomes confused with a remote probability. This results from faulty inference processes whereby the obsessional person revises the evidence in the face of the hypothesis, rather than revising the hypothesis in the face of the evidence. For example, a client's hypothesis may be that a table is "dirty" (i.e., covered in dust). Although the table itself looks clean, the client recalls another table that was dirty, but which otherwise resembles the present table, and infers that the present table, too, must be dirty. O'Connor makes the important point that such faulty inference processes are only observed in reference to the obsessional stimuli, and inference processes are very much intact in all other areas of functioning.

According to O'Connor and Robillard (1995) and O'Connor (2002), performance of the compulsive ritual results in simple rehearsal of the imaginary doubt, and no new information about the situation is absorbed. More important, however, because the feared event is wholly imaginary, there is very little objective evidence in the



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environment that the individual can use to disconfirm the conviction, and existing evidence is discounted on the basis that if the person were to probe more deeply, evidence confirming the conviction would be found (e.g., "If I had a microscope, I'm sure I would find dirt on this table"). This results in repeated attempts to redress the concern (i.e., the neutralizing act), which persists until the individual achieves an adequate sense of certainty that the ritual is no longer necessary (e.g., there is no longer a chance of harm). Of course, there is no objective evidence available to the individual by which to judge whether harm has been averted. What happens instead is that the individual relies on feedback from sources irrelevant to the actual task in hand, such as anxiety reduction, as a cue for termination of rituals.

O'Connor and Robillard 1995) identify four types of faulty inferences, then, that they perceive (p. 243) as significant in the persistence of the disorder. These include inverse inference about reality (i.e., the feared state of affairs exists until proven otherwise), going beyond present reality to a deeper reality (i.e., although the feared state of affairs does not appear to exist at first, it could readily be found to exist given the proper investigative tools, such as a microscope), relying on feedback from a nonpertinent modality (i.e., in the absence of solid objective evidence to disconfirm the conviction, nonrelevant information is used, such as anxiety reduction or the "correct" number of repetitions), and irrelevant associations (e.g., the linking of incidental to genuine connections).

## **Frost and Colleagues: A Model for Understanding Hoarding**

Frost and colleagues have offered a model for understanding hoarding, which may present as a subtype of OCD known to be especially difficult to treat (e.g., Winsberg, Cassic & Koran, 1999). Frost and Gross 1993) examined differences between individuals who hoard and those who do not to find that hoarders are distinguished by greater indecisiveness, greater concern over making mistakes, and a sentimental attachment to possessions. In a preliminary analysis of the development and persistence of hoarding, Frost and colleagues argue that individuals who hoard possessions have perfectionistic tendencies that cause them to view mistakes as catastrophic (Frost, Hartl, Christian, & Williams, 1995). When faced with the decision of whether an object should be saved or discarded, the hoarder is faced with potentially making the wrong decision, which could cause future "harm" (e.g., the item might be needed in future and will not be available at the same price or the information contained in the item may not be retrievable) for which he or she is responsible. In order to avoid the anxiety to which this concern gives rise, the hoarder adopts the highly conservative, cautious strategy of not discarding anything.

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At the same time, the individual strives to determine a flawless strategy for organizing the possessions. The enormous difficulty in deciding how to organize items (e.g., should it be organized by color, by size, by purpose, by chronology, etc.?) leads to the equally cautious strategy of having separate stacks for individual items or items that are highly similar, or to complete procrastination of organizing, due to feeling wholly overwhelmed by the prospect of doing it “correctly.” In the latter case, most items are stacked together in a pile (or piles) mentally tagged as “to be organized.” In addition, individuals with hoarding problems are characterized by a sentimental attachment to objects such that even trivial items become imbued as being an “extension of the self” or as “safety signals” (i.e., as familiar and friendly objects that provide considerable comfort). The individual then develops a feeling of responsibility for protecting the item from harm (i.e., the individual does not want others to touch, move, or share or use the possession) (Frost et al., 1995). Thus, perfectionistic tendencies interact with a sentimental attachment to possessions and with responsibility beliefs, leading to the individual's appraisal of items as valuable, as extremely difficult to organize, but as potentially dangerous to discard.

Frost and Hartl (1996) further proposed that hoarding develops and persists as a result of the following interrelated factors: (1) information-processing deficits; (2) emotional attachment problems (overly sentimental attachment to objects); (3) behavioral avoidance; and (4) beliefs about the nature of possessions, about responsibility, and about the necessity for perfection. The information-processing deficits identified by Frost and Hartl include difficulties in making decisions, in categorizing and organizing, and in memory.

Reasonable decisions about what is worth keeping and what should be discarded are not made by the hoarder for two reasons. First, the individual has an overly sentimental attachment to objects and an exaggerated sense of responsibility to protect the item from harm. The individual also feels an enormous sense of responsibility to prevent future harm that could come of throwing out something that is later needed, or failing to have on hand something that is needed. Due to perceived memory deficits, the individual believes that he or she may not be able to retrieve information from memory in the future when it is needed, and that the information may be irretrievable from any other source when required. Second, the individual with hoarding problems has significant deficits in organization and classification. This is driven by perfectionistic tendencies that cause the individual to strive for the “perfect” but wholly elusive organizational structure for retaining and classifying items. This is further complicated by the sentimental attachment to objects, which causes the individual to observe and prize the uniqueness of each item. As such, similarities across items are difficult to identify and objects are therefore difficult to group.

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In addition to piling everything together to be organized “later,” individuals with hoarding problems (p. 244) are reluctant to file items away out of sight out of concern that they will not remember that the item exists and it will be technically lost. New items are acquired regularly both out of a ready ability to develop a sentimental attachment to objects and the fear that unless one takes advantage of the opportunity to acquire potentially useful objects, one might be caught without them in future, thereby being responsible for subsequent harm.

## **Areas of Convergence and Divergence**

Each of the approaches described here assumes that obsessions have their roots in normal thoughts that are experienced by the majority of the population. However, there is considerable variance in the explanation of how such normal thoughts escalate into a clinical problem for a small minority of individuals, and the assertions are quite tentative and nonspecific. Salkovskis's model postulates that any thought will become an obsession if it activates deeply held, preexisting beliefs about responsibility and thereby results in neutralizing acts. Thus, responsibility beliefs and neutralizing are necessary, if not sufficient, factors for the development of obsessional problems. In contrast, Rachman (1997, 1998) argues that thoughts reflecting moral themes are more likely to become obsessions than other types of thoughts, and that personality factors, such as having a “tender conscience,” are a vulnerability factor in their development. Beliefs about the thought's dangerousness and beliefs reflecting the TAF bias (from which responsibility beliefs are said to derive) will ensure that the thought becomes the focus of attention and will evoke feelings of anxiety and depression, which, in turn, reduce thought controllability and intensify the perception that the thought is dangerous.

In a somewhat similar vein, Purdon and Clark (1999) argue that thoughts that violate the individual's most valued self-schema are more likely to become obsessional. The interplay between the subsequent stake in controlling such thoughts and interpretations of failures in thought control result in the escalation in frequency and intensity of the normal thoughts into clinical obsessions. Individuals with few self-schema are more likely to experience thoughts as ego-dystonic.

O'Connor's model excepted, the models share a common emphasis in the assertion that it is not the obsession itself that is problematic, but rather the erroneous appraisal that the obsession has relevance for important areas of the individual's functioning. The general goal of therapy recommended by each model would be to have the individual experience the obsession without the negative cognitive, affective, and behavioral response to it. There is also general agreement that efforts directed at “correcting” the potential harm

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ensuing from the thought play a crucial factor in the persistence of the disorder because they do not permit the individual to learn any new information about the amount of threat represented by the thought. Furthermore, the models discussed here recognize that emotional reasoning plays a role in the persistence of the disorder as well. If the individual has the chance to experience the thought in the absence of an anxious response (i.e., after a period of exposure to the thought while the ritual is prohibited), the thought will likely come to have much less meaning. Thus, in general, the models emphasize ERP as an important component of therapy, in addition to proscribing avoidance of thought triggers and use of other ameliorative strategies that prevent full exposure to the thought and that may enhance the meaning ascribed to the thought (e.g., reassurance seeking, distraction, thought suppression).

It is important to note that none of the models would advocate cognitive restructuring around the probability or likelihood of the feared event alone. It is generally agreed that the individual with OCD knows that the chances of the feared event happening or having happened are remote, yet feels compelled to protect against them nonetheless (different models offer different explanations as to why this is the case). Discussion about the realistic probability of an event is likely to simply serve as a form of reassurance, which, like neutralizing, might result in temporary relief from the distress associated with the thought but which will disallow corrective learning about the dangerousness of experiencing the thought itself. The various models presented here would instead argue that the beliefs that maintain the idea that the thought requires immediate attention are instead what need to be addressed. However, the models diverge in terms of which specific beliefs are deemed to be most important to the development and persistence of the obsessive-compulsive cycle.

In 1995, an international group of researchers studying cognitive appraisal in OCD was formed. The Obsessive-Compulsive Cognitions Working Group (OCCWG) has held a number of formal meetings to identify and assess general types of beliefs and specific types of cognitive appraisal that are relevant to OCD. The OCCWG has identified six categories of beliefs relevant to OCD, which include (p. 245) beliefs reflective of inflated responsibility, tendency to overestimate threat, perfectionism, intolerance of uncertainty, overimportance of thoughts (thought-action fusion), and need to control thoughts (OCCWG, 1997, 2001). Three categories of appraisal were also identified. These include responsibility, overimportance of thoughts (thought-action fusion), and need to control thoughts. The Obsessive Beliefs Questionnaire (OBQ) and the Interpretation of Intrusions Inventory (III) were developed to assess beliefs and appraisal respectively (OCCWG, 1997, 2001).

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## **Empirical Validation of CBT Models**

At this time, there has been little empirical investigation of the development of OCD. There is some evidence that obsessions may lie on a continuum with normal intrusive thoughts experienced by most people (e.g., Purdon & Clark, 1994; Rachman & de Silva, 1978). There is also some evidence that obsessions may reflect self-schema. Rowa, Purdon, Summerfeldt, and Antony (2005) asked individuals with OCD to report on the circumstances under which their most and least upsetting obsession developed. Both types of obsession were reported as arising within the context of current life concerns, and the content tended to reflect those concerns (e.g., a harming obsession arising when the individual was applying to train in a helping profession). However, most upsetting obsessions were rated as being more meaningful at the time of their onset and as contradicting valued aspects of self to a greater degree than least upsetting obsessions. The same was found in a nonclinical sample (Rowa & Purdon, 2003). This supports Purdon and Clark's assertions that self-schema play an important role in the development of OCD, although the findings are far from conclusive, given the reliance on retrospective self-report.

There is a large body of work on the relationship between obsessions and compulsions, and the "two-factor" model whereby obsessions give rise to an aversive emotional response that is alleviated by the compulsion is well documented (see Rachman & Hodgson, 1980). There appears to be a strong link between beliefs and appraisal and symptoms of OCD, with studies showing moderate correlations between measures of beliefs and appraisal and measures of symptom severity, even when general distress is partialled out (OCCWG, 2003; Tolin, Woods, & Abramowitz, 2003; Wilson & Chambless, 1999). However, the three scales of the III and the six scales of the OBQ are highly intercorrelated, which suggests that perhaps these constructs are less distinguishable than would be argued by the cognitive models (OCCWG, 2003).

Rh eume and Ladouceur (2000) examined change in appraisal of the obsession in relation to changes in the frequency of checking rituals in participants receiving ERP versus ERP plus a formal cognitive restructuring component in a small ( $n = 15$ ) time series analysis. They found that for all those in the ERP group and for one-third those in the CBT group, change on at least one type of appraisal preceded a decrease in checking rituals, although for each participant, decreased checking rituals also preceded change in appraisal at least once. These findings support the link between appraisal and compulsions asserted by cognitive models, and also suggest that changes in appraisal may actually cause change in use of compulsive strategies.

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In experimental research in which responsibility is manipulated, decreased perception of responsibility for a negative outcome has been associated with a decrease in urges to check in a sample of compulsive checkers (Lopatka & Rachman, 1995), and high responsibility has been associated with greater checking in a nonclinical sample (Bouchard, Rhéaume, & Ladouceur, 1999). Foa, Amir, Bogert, Molnar, and Prezworski (2001) found that compared to anxious and nonanxious controls, OCD patients with compulsive checking reported greater distress and greater urge to rectify hypothetical scenarios in which there was low to moderate responsibility for harm. This supported the assertion that appraisals of responsibility play a key role in the persistence of OCD.

However, in a follow-up study using the same paradigm, Foa, Sacks, Tolin, Prezworski, and Amir (2002) also included a group of OCDs without checking compulsions. They found that the OCD noncheckers were similar to the anxious and nonanxious controls in their reported distress over and urge to rectify the situation presented in the various scenarios. This suggests that responsibility appraisal may not be a key factor in all types of OCD, but rather is especially important to OCD characterized by checking. This finding is consistent with other work in which responsibility appears to be important only in particular contexts (e.g., Rachman, Thordarson, Shafran, & Woody, 1995). There is a growing consensus that “mini-models” of OCD that account for specific subtypes may be required. Frost's model of hoarding is an excellent example of this.

The cognitive models also assert that suppression of the obsession is a key factor in the persistence O'Connor's model asserts that the central problem in OCD is faulty inductive reasoning and probability estimation. Pélissier and O'Connor (2002) examined deductive and inductive reasoning, as well as probability estimations, in a sample of individuals with OCD, anxious controls (individuals with generalized anxiety disorder), and nonanxious controls. All three groups completed a series of written and oral reasoning tasks. No differences in deductive reasoning were observed across groups, as expected. However, the OCD group showed deficits in inductive reasoning and probabilistic reasoning compared to the other two groups. Pélissier and O'Connor interpret their findings to mean that individuals with OCD may produce too many inductive inferences, which causes them to doubt their initial inferences, and obsess about unreal possibilities. (p. 246) of the disorder. To date, there is no solid evidence that suppression leads to an ironic increase in the frequency of obsessions, at least in the short term (see Purdon, 2004, for a review). However, failures in controlling obsessions may intensify negative appraisal of the obsession, and thought recurrences while suppression is underway appear to be associated with more negative mood state (Purdon et al., 2005). Furthermore, in one study, individuals with OCD were more likely to attribute difficulties with thought control to internal (“weak mind”) rather than external (“no one can control all of their thoughts”) reasons (Tolin, Abramowitz, Hamlin, Foa, & Synodi, 2002). Finally,

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Purdon, Rowa, and Antony 2007) found that individuals with OCD spent a significant amount of time per day attempting to suppress obsessions, and that suppression typically interfered with ability to function in a number of areas. Thus, even if suppression does not have an ironic effect on frequency, it may affect other important domains, such as thought appraisal, mood state, and daily functioning.

## **Research on Treatment Efficacy**

Several studies have now examined the efficacy of treatment protocols derived from the current cognitive model. For simplicity, protocols that include a formal and substantial ERP component in addition to cognitive restructuring will be referred to as *cognitive behavioral therapy* (CBT) and those that include a formal and substantial cognitive component with no ERP will be referred to as *cognitive therapy* (CT). Ladouceur, Freeston, Gagnon, Thibodeau, and Dumont (1995) examined the efficacy of CBT in a multiple baseline case study of three people with OCD. They found that CBT resulted in a significant reduction in discomfort and an increase in professional or interpersonal functioning for all three and that treatment gains were maintained at 8-11-month follow-up. Freeston et al. 1997) found that CBT resulted in a significant reduction in OCD symptoms posttreatment and at 6-month follow-up, compared to no intervention (waitlist control). Van Oppen et al. 1995) offered the first comparison of ERP to CT, and found CT to be modestly superior, with equal dropout rates. In a small sample of OCD patients, Vogel et al. 2004) found that CBT was equivalent to ERP (with a relaxation control for the cognitive component) in reducing symptoms. The treatment dropout rate was lower in the CBT condition.

In a larger-scale study comparing group treatment with *pure* CT, ERP, or waitlist control, McLean et al. 2001) found that ERP was marginally more effective than CT both posttreatment and at 3-month follow-up, and that both were superior to no intervention. However, there were more dropouts in the ERP condition. They suggested that CT in group format may not be the most ideal means of offering treatment, and that there may be advantages to offering CT individually. Warren and Thomas 2001) had an 84% treatment response using CBT in a routine clinical practice setting, suggesting that the treatment is fairly generalizable to settings at which most people receive their care. Hartl and Frost 1999) found that treatment based on their model of hoarding resulted in improvement in a small sample of individuals in a case study design.

O'Connor, Todorov, Robillard, Borgeat, and Brault (1999) compared CBT alone, selective serotonin reuptake inhibitors (SSRIs) alone, and the combination of SSRIs with CBT to a

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waitlist control condition. The combined treatment was superior to the individual active treatments, which in turn were more efficacious than no treatment. Van Balkom et al. 1998) examined the efficacy of adding CT or ERP to medication (fluvoxamine) at week 9, compared to the efficacy of each psychotherapy alone and to a waitlist control. All treatment groups were found to be equally effective as compared to the waitlist control. In a large-scale ( $n = 122$ ) double-blind, multisite treatment efficacy study comparing CBT (ERP with no formal cognitive component but an emphasis on discussion of appraisal during exposure), Foa et al. 2005) found that the efficacy of CBT alone was equal to CBT plus an SSRI, and that both were superior to SSRI alone (all interventions were superior to placebo). In a meta-analysis of studies comparing psychotherapy and ERP, CBT, or CT, Eddy, Dutra, Bradley, and Weston 2004) (p. 247) concluded that CBT and ERP were marginally more effective than CT, although all had strong effects. Furthermore, there was a stronger effect size when these treatments were administered individually, rather than in group format.

Finally, O'Connor et al. 2005) compared the efficacy of ERP, CBT, and an inference-based approach (IBA) in a small sample ( $n = 54$ ) of individuals with OCD. The IBA protocol follows directly from O'Connor's model of OCD, in which faulty inferences processes, as opposed to appraisal content, are implicated as the key factor in the persistence of the disorder. In IBA, the primary inference is identified as an obsessional doubt, and treatment focuses on the reasoning patterns that led to the doubt. No exposure or cognitive restructuring is done. All three treatments produced a significant, but equivalent, reduction in OCD symptoms. There appeared to be an advantage in using IBA for patients with higher levels of obsessional conviction, or, overvalued ideation.

In sum, at this point few studies have compared *pure* CT (no formal exposure component) or CBT to ERP. It appears that CBT, CT, and ERP are effective treatments of OCD to about the same degree. However, there is some indication that there may be a therapeutic advantage to retaining an ERP component to treatment, and for administering CT in an individual, rather than group, format. There is very limited evidence that treatment dropout rates may be lower for CT interventions compared to ERP. Given the limited empirical evidence, all conclusions must be made with caution.

## **Future Directions**

Obsessive-compulsive disorder is a heterogenous disorder with at least four clearly identifiable subtypes that include (1) sexual, religious, somatic, and aggressive obsessions, associated with checking rituals; (2) symmetry obsessions, associated with ordering, repeating, and counting compulsions; (3) contamination obsessions associated



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with cleaning rituals; and (4) hoarding (Leckman, Grice, Boardman, & Zhang, 1997). It may be the case that these different subtypes are best understood in terms of slightly different models. Frost and colleagues have already developed a separate model for understanding hoarding that is far more useful in understanding how to treat the problem than existing models have been. All of the main models reviewed here emphasize the role of thought suppression in the disorder. However, different kinds of thoughts may give rise to different levels of active resistance. For example, people with symmetry and exactness obsessions may not engage in suppression to anywhere near the extent of someone with harm and aggression obsessions. Appraisal may differ substantially across subtypes, as suggested in the research on responsibility appraisal. Research directed at understanding the distinct epidemiology and phenomenology of OCD subtypes may yield continued advancements in our ability to understand, and therefore treat, OCD.

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