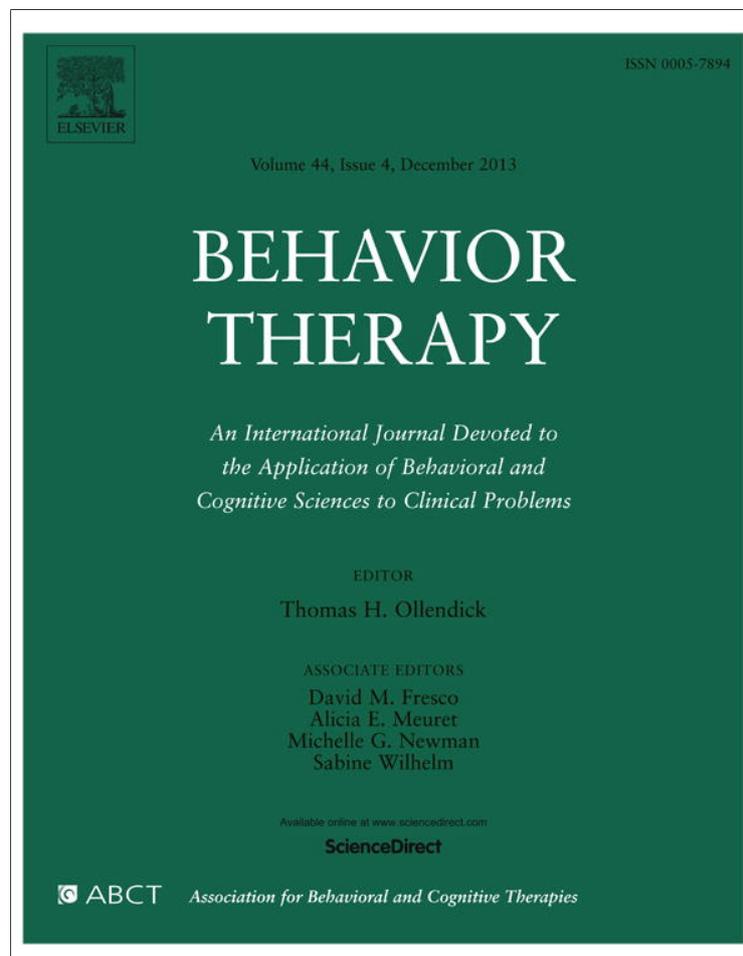


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The Practice of Exposure Therapy: Relevance of Cognitive-Behavioral Theory and Extinction Theory

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Exposure therapy is the most effective psychological intervention for people with anxiety disorders. While many therapists learn how to implement exposure techniques through clinical training programs or instructional workshops, not all of these educational efforts include a focus on the theory underlying this treatment. The availability of treatment manuals providing step-by-step instructions for how to implement exposure makes it easier for clinicians to use these techniques with less training than they might otherwise receive. This raises questions regarding whether it is necessary to understand the theory behind the use of exposure. This article argues that knowledge of the relevant theory is crucial to being able to implement exposure therapy in ways that optimize both short- and long-term outcome. Specific ways in which theory is relevant to using exposure techniques are discussed.

Keywords: exposure therapy; anxiety; extinction cognitive-behavioral theory

ACROSS THE MENTAL HEALTH FIELDS there is a great deal of inconsistency in how psychological treatments are taught to trainees (and to professionals). While most of this training necessarily focuses on *technique*—how to implement the various treatment procedures—considerably less attention is often paid to helping the trainee understand the *theory* that forms the basis for these treatment

procedures. This lack of emphasis on theoretical models might be an unfortunate by-product of the field's current (and important) emphasis on treatment manuals and outcome research. It also might be driven by the (similarly important) need to rapidly disseminate effective psychological treatments. Another reason theory might be less valued than technique is that psychological theories can be difficult to understand, requiring a large time commitment that some might feel is not essential to providing effective treatment. Yet this state of affairs begs the question of how effective one can be when delivering psychological treatments if there is no understanding of the science behind the treatments being delivered.

In the present article I will argue that in the case of exposure therapy for pathological anxiety and fear (i.e., anxiety disorders), knowledge of contemporary cognitive-behavioral models of anxiety disorders and the principles of extinction (i.e., the type of learning that occurs with exposure) is extremely important in helping patients achieve optimal short- and long-term outcome. I will begin with a description of exposure techniques and reviews of contemporary cognitive-behavioral models of anxiety disorders and extinction theory on which the principles of exposure therapy are based. After a brief review of research supporting the efficacy of exposure, I will turn to some anecdotes and observations I have made of novice therapists who did not have sufficient knowledge of the relevant theory. I will then discuss several reasons supporting my contention that at least a working knowledge of the theoretical framework discussed in the first part of this article is vital in obtaining optimal short- and long-term success with exposure.

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Exposure Therapy as a Treatment for Anxiety Disorders

Exposure therapy is a set of psychological treatment techniques (usually considered a form of behavioral or cognitive-behavioral therapy [CBT]) for the types of pathological fear that are typically observed in people with anxiety disorders (although exposure can also be used to reduce pathological fear that is not part of an anxiety disorder). The techniques all involve helping the patient engage in repeated and sometimes prolonged confrontation with a stimulus that provokes fear even though it objectively poses no more than acceptable (i.e., “everyday”) risk. Feared stimuli can be alive (e.g., spiders, people with HIV, clowns), inanimate (e.g., toilets, knives, numbers), situational (e.g., driving, darkness, feeling uncertain), cognitive (e.g., “impure” sexual thoughts, memories of traumatic events, premonitions of untimely accidents), or physiological (e.g., racing heart, feeling out of breath, a skin blemish). The aim of exposure is to facilitate *extinction*—reduction in the conditioned anxiety/fear response associated with the feared stimulus. During exposure, confrontation with the fear-eliciting stimulus typically precipitates an observable response, ranging from mild apprehension to intense fear, based on the person’s exaggerated expectation of danger—although this initial fear activation is not necessary for exposure to produce extinction or beneficial effects on symptoms (e.g., Foa et al., 1983). Over time, this anxious or fearful response typically declines naturally—even in the presence of the feared stimulus—a process known as *habituation*. Here again, research indicates that habituation is not a necessary condition for extinction learning to occur during exposure (e.g., Rowe & Craske, 1998; but see Craske et al., 2008, for a review).

COGNITIVE-BEHAVIORAL MODEL OF ANXIETY

The use of exposure as a treatment for anxiety and fear-based problems follows from a theoretical model of clinical anxiety implicating dysfunctional beliefs, classical conditioning, and operant conditioning (e.g., Barlow, 2002). Patients with clinical anxiety problems are characterized by two types of dysfunctional cognitions: (a) exaggerated estimates of the likelihood of harm, and (b) exaggerated estimates of the severity of harm. These undue perceptions of threat underlie anxiety responses to the triggers that characterize the various anxiety disorders (e.g., social stimuli, “contaminated” items, animals, etc.). Over time, fear might become a conditioned response to such stimuli.

In order to reduce or control the conditioned anxiety (and reduce the perception of threat), people with anxiety disorders resort to *safety behaviors*—

forms of active and passive avoidance performed to reduce fears of negative consequences and bring about a sense of security—which are also characteristic of the various disorders (e.g., avoidance in phobias, compulsive rituals in OCD, anxiolytic medication use in panic, etc.). Safety behaviors, which often reduce anxiety in the short term (and more rapidly than would naturally occur), have the long-term effect of preventing the natural extinction of classically conditioned fear. Moreover, they are negatively reinforced (operant conditioning) by the reduction in anxiety they engender, thus becoming habitual. From a cognitive-behavioral perspective, safety behaviors maintain the exaggerated threat perceptions and classically conditioned fear responses by (a) fostering premature escape from anxiety before it naturally extinguishes, and (b) preventing the disconfirmation of the misperceptions of threat. For example, following the nonoccurrence of death from a panic episode, a person with panic disorder will say that the only reason she did not die was that her benzodiazepine medication kicked in and reduced her heart rate before her extreme anxiety led to a fatal heart attack. Safety behaviors thus serve as maintenance processes in anxiety disorders; and the fact that they are negatively reinforced ensures a self-perpetuating vicious cycle.

HOW DOES EXPOSURE THERAPY REDUCE CLINICAL ANXIETY AND FEAR?

Two empirically derived theoretical models have been articulated to explain the effects of exposure therapy. The earlier of the two is emotional processing theory (EPT), which was first proposed by Rachman (1980), elaborated by Foa and Kozak (1986), and further revised by Foa and McNally (1996). EPT asserts that confrontation with a feared stimulus during exposure activates a *fear structure*—a set of propositions about the feared stimulus (e.g., a social interaction), response (e.g., trembling, sweating), and their meaning (e.g., people will notice and I will be embarrassed) that is stored in memory. Activation of the fear structure, along with integration of information that is incompatible with it, is thought to result in the development of a new *nonfear structure* that replaces (Foa & Kozak, 1986) or competes with (Foa & McNally) the original one. The basis for this corrective learning (i.e., incompatible information) is the habituation (i.e., reduction) of fear during an exposure trial and between trials (Foa & Kozak) in the absence of any avoidance or safety behavior. Thus, according to EPT, initial fear activation, within-session habituation, and between-session habituation are all indicators of successful learning (and therefore successful exposure therapy). Put another way, EPT assumes that performance

during exposure is commensurate with learning: fear reduction at the end of an exposure session represents a change in cognitions (e.g., estimates of danger) while continued fear throughout the session does not.

Research, however, does not uniformly support the main tenets of EPT. That is, neither initial fear activation nor habituation (within or between exposure sessions) is a consistent predictor of therapeutic outcome with exposure. Indeed, performance more generally has not been found to be a reliable indicator of learning (Bjork & Bjork, 2006). Accordingly, a more recent model to account for the effects of exposure focuses on inhibitory mechanisms; and this accounts for discrepancies between performance during extinction training and post-extinction levels of fear. Within the context of exposure therapy, inhibitory learning refers to the notion that fear associations are not removed during extinction, but rather remain intact as new learning about the feared stimulus occurs (e.g., Bouton & King, 1983; Craske et al., 2008). That is, following successful exposure, the feared stimulus is thought to possess two meanings: the original excitatory (i.e., fear-based) meaning as well as an inhibitory (“safety-based”) meaning. Thus, even if fear subsides following successful exposure, the original excitatory meaning is retained and may be recovered under certain circumstances such as a change in context (i.e., renewal), the passage of time (i.e., spontaneous recovery), and reacquisition of the original association (Bouton, 2002). Accordingly, from this perspective, the aim of exposure therapy is to help patients develop (a) new nonthreat associations, and (b) ways of enhancing the accessibility of these new associations (relative to the older threat-associations) in different contexts and over time.

One implication of the inhibitory learning model is that the best indicators of the effects of exposure therapy are posttest or follow-up assessments, when the inhibitory learning acquired during exposure will shape how fear is expressed, independent of whether habituation occurred during exposure (e.g., Craske et al., 2008). A related implication is that during exposure, fear *tolerance* is more important than fear *reduction*. This is consistent with research indicating that acceptance of negative emotional states reduces longer-term distress (Eifert & Heffner, 2003) whereas attempts to control, suppress, avoid, or escape from negative emotions (i.e., experiential avoidance) are associated with more severe symptoms of anxiety disorders (e.g., Abramowitz, Lackey, & Wheaton, 2009; Berman, Wheaton, McGrath, & Abramowitz, 2010; Forsyth, Eifert, & Barrios, 2006; Mahaffey, Wheaton, Fabricant, Berman, & Abramowitz, in press). The aim of fostering fear tolerance

also complements the goal of enhancing inhibitory learning: to the degree fear is tolerated, inhibitory associations (e.g., fear is not dangerous) can be maximally acquired (Arch & Craske, 2011). Accordingly, demonstrating to patients that they can tolerate fear and “act with anxiety” during and after exposure may be more important in the long run than ensuring within- and between-session fear reduction (i.e., habituation; Arch & Craske, 2008).

EFFICACY OF EXPOSURE

A vast body of treatment outcome studies and meta-analyses indicates the efficacy of exposure-based therapy—often on its own, but sometimes in combination with other psychological or pharmacological interventions—for problems involving anxiety and fear (e.g., Abramowitz, Deacon, & Whiteside, 2011; Olatunji, Cisler, & Deacon, 2010). Accordingly, many exposure-based treatment protocols have attained the designation of “well-established treatments” in the American Psychological Association’s review of evidence-based treatments (to qualify for this label a treatment must have two or more controlled trials [by separate research teams] demonstrating its superiority to placebo; Chambless & Ollendick, 2001). Currently, treatment programs that emphasize exposure therapy have attained this level of support for the following psychological disorders: panic disorder with and without agoraphobia, OCD, and specific phobia. In addition, exposure-based treatment for PTSD, social anxiety, and childhood anxiety disorders have achieved the level of “probably efficacious” (i.e., two studies in which the treatment is more effective than control, or a series of single-case experimental studies). Several other institutions (e.g., the American Psychiatric Association, the National Institute for Health and Clinical Excellence) have designated exposure-based cognitive-behavioral treatments as the intervention with the most research support, recommending that they be considered the first-line psychological treatment for OCD, PTSD, and panic disorder.

Some Observations and Anecdotes

Before turning to the reasons that the theory discussed above is highly relevant and applicable in the everyday practice of exposure therapy, I would like to share three observations that I have often made in my work training and supervising novice clinicians, consulting with other mental health professionals, and giving training workshops on the use of exposure therapy for anxiety. These anecdotes illustrate what can occur when theory is not considered in the conceptualization of anxious patients or in the implementation of exposure

therapy. For me, these observations underscore how important it is that exposure therapists have a solid grounding in the theory underlying the use of these procedures.

OBSERVATION 1: "JUST RELAX"

Perhaps motivated by concerns that the act of purposely *provoking* fear during exposure therapy is (a) not healthy for the patient, (b) makes anxiety symptoms worse, or (c) will lead to premature discontinuation of treatment, some therapists insist on teaching relaxation skills to anxious or fearful patients to use while confronting the feared stimuli. On the surface, there is intuitive appeal to the idea that therapy for anxious patients should involve learning to relax (after all, inducing fear via exposure *seems* like the opposite of what a therapy for anxious people should include). However, for several reasons, this is not a good recipe for long-term fear reduction.

Indeed, using relaxation during exposure is inconsistent with the theoretical models and treatment outcome results discussed above. Research consistently demonstrates that despite its temporarily anxiety-provoking nature, exposure helps provide long-term relief from most anxiety and fear-based problems. Relaxation, on the other hand, is often used as a control/placebo intervention in anxiety disorder treatment outcome studies because it is not expected to work (e.g., Fals-Stewart, Marks, & Schafer, 1993). On a theoretical level, according to EPT, repeated and prolonged exposure works *because* it allows the patient an opportunity to experience the activation and natural reduction of fear in the presence of feared stimuli. Relaxation would deny the patient such an experience. From an inhibitory learning perspective, teaching patients to use relaxation during exposure is inconsistent with the emphasis on tolerating anxiety, as opposed to trying to reduce it. For some patients who even fear the experience of anxiety itself (e.g., those with panic disorder; e.g., "When my heart beats rapidly, I worry I will have a heart attack"), exposure helps them confront this harmless albeit uncomfortable emotion. Relaxation, on the other hand, might reduce the physiological responses to anxiety in the short-term, but it does not provide long-term relief in the form of new learning about the feared stimulus to compete with older threat expectancies.

Another problem with using relaxation along with exposure is that relaxation creates a specific context in which extinction might occur and safety might be learned. For example, a patient who conducts exposure to elevators while also using relaxation will learn that she can ride elevators *as long as she is relaxed*. But this is not likely to be a

good long-term solution because sooner or later confrontation with the fear stimulus outside the extinction context will cause a recovery of the fear (Bouton, 2002). Thus, if the patient is unable to achieve relaxation, she might again experience fear associated with elevators, increasing her risk of relapse. Put another way, preventing renewal of the fear depends (at least in part) on learning that the fear stimulus is safe in many different contexts (including different states of arousal).

OBSERVATION 2: WHEN EXPOSURE IS THE HAMMER, EVERYTHING IS A NAIL

In contrast to some treatment providers who might shy away from provoking fear during a therapy session, others get carried away with the idea that "facing your fears" might help with overcoming *any* problem. About 10 years ago, for example, a physician colleague referred to me a patient with severe anger problems and insisted I could treat this patient "the same as if he had OCD—just expose him to situations that make him angry until his anger goes away." As nice as it would be if confronting a stressor reduces any type of negative emotional response, I explained to the psychiatrist that exposure is a treatment for conditioned fear responses (not anger) that works via extinction and that it fosters a change in dysfunctional expectations of threat. Anger, a different type of emotional response, is associated with different types of (although equally as strongly held) dysfunctional cognitions (e.g., personalization, rigidity) that are not subject to change via extinction learning in the way that threat-based associations are. While it is indeed helpful for people who have learned other anger-management strategies to practice confronting anger-provoking situations and using their newly learned strategies, this is not the same as using exposure to promote the habituation or extinction of angry responses (Novaco, 1975). Because anger does not habituate in the way that fear does, empirically supported anger-management programs do not include extinction-based interventions, but rather focus on cognitive therapy and training in assertiveness skills (e.g., Moon & Eisler, 1983).

I have also encountered clinicians attempting to use exposure to treat problems such as impulse control disorders (e.g., compulsive gambling), depression, and bipolar disorder (manic symptoms). Yet none of these problems are characterized by the same types of dysfunctional cognitions or classical and operant conditioning mechanisms that are present in anxiety or that lend themselves to the use of exposure as an intervention. That is, they do not involve overestimates of threat or conditioned

fear that is maintained by avoidance and safety behaviors, and therefore are not good targets for exposure. As with anger, neither depression, mania, nor the urge to engage in hair-pulling habituates (or can be extinguished) in the way that fear does during exposure (e.g., Abramowitz et al., 2011). In none of these instances would it be advantageous to help the patient develop nonthreat associations to compete with threat-related expectancies (since there are no threat associations to begin with). Moreover, there are other treatment approaches (e.g., habit reversal, stimulus control) to which habit and impulse control disorders respond preferentially.¹

OBSERVATION 3: OVERCONCERN WITH HABITUATION AND SUBJECTIVE UNITS OF DISTRESS (SUDS) LEVELS

A question that exposure therapy trainees and supervisees often ask is, “How low should the patient’s anxiety be before I stop the exposure session?” Yet one need not be overconcerned with the habituation of anxiety during exposure. Although it is a central tenet of the EPT view, the emphasis on fear reduction during exposure runs counter to the inhibitory learning perspective that practicing fear *tolerance* is more likely to enhance extinction in the long run. To be sure, the anxiety evoked by exposure is unlikely to persist indefinitely or spiral “out of control” and cause harm to the patient. Thus, exposure to prolonged periods of anxious responding might be as beneficial as exposure to the actual stimulus that evokes this emotion. Accordingly, exposure therapists who are aware of the theory underlying this treatment embrace the importance of their patients accepting feelings of fear and anxiety (these feelings are, after all, a normal part of life). And if that is an important goal of exposure, then there is no particular SUDS-based stopping rule for exposure trials.

WHAT DO THE OBSERVATIONS SUGGEST?

I relate these observations (which I imagine are fairly rampant in the vast mental health-care field) to illustrate the gap between theory and clinical

practice, and to show what can happen when a clinician does not have a solid grounding in the theoretical underpinnings of exposure therapy. These anecdotes all suggest the importance of knowledge of the relevant theory for optimizing treatment outcome. But what is it about the theory that is so important? How does this knowledge prevent one from ending up as an anecdote in this article? In the remainder of this paper I will articulate seven reasons it is important for clinicians using exposure therapy to be knowledgeable about the theory underlying this approach.

Why Is Knowledge of Theory Important?

1. KNOWLEDGE OF THEORY IS NECESSARY FOR UNDERSTANDING ANXIETY DISORDERS IN A WAY THAT LEADS TO THE USE OF EXPOSURE THERAPY

Before implementing exposure therapy, it is necessary to develop an understanding of the patient’s problem, which can be used to plan an effective intervention. Although one might use the DSM to come up with a psychiatric diagnosis, such a classification is largely descriptive and atheoretical. DSM diagnoses are based mainly on lists of signs and symptoms, as opposed to psychological mechanisms. Yet exposure therapy is not a treatment for obsessive-compulsive disorder (OCD), panic disorder, or posttraumatic stress disorder (PTSD) (or any other *disorder*) per se; it is an intervention to extinguish fear (e.g., Abramowitz et al., 2011; Barlow et al., 2010). Exposure targets psychological processes such as exaggerated beliefs about threat (e.g., “dogs are dangerous”); and provides opportunities for patients to challenge these beliefs (e.g., “dogs aren’t as dangerous as I’d thought”) and learn that anxiety itself is not something that needs to be resisted or avoided. Accordingly, proper implementation of exposure requires a theoretical template for identifying and conceptualizing the signs and symptoms of anxiety disorders, and for understanding how these problems are maintained.

As an example, consider Sam, who presented to our clinic complaining of three problems. First, he described excessive anxiety and worry that he might mistakenly hit someone with his car while driving. As a result, he was avoiding driving on streets crowded with pedestrians. Second, he complained of two “compulsions,” the first being hair pulling that occurred whenever he was alone and had some down time (e.g., when in the bathroom); and the second being excessive and unnecessary checking, including turning his car around to check the roadside to be sure he had not injured anyone. Third, Sam complained of panic attacks that occurred from “out of the blue,” such as while trying to fall asleep or watch a movie. As a result, he had

¹This is one of the reasons that I disagree with the formation of a new diagnostic category of Obsessive-Compulsive and Related Disorders as proposed in DSM-5, which includes OCD as well as compulsive hair pulling and skin picking. For one thing, the latter two conditions involve distinct psychological processes from OCD; thus, their inclusion in the same category will likely lead to confusion regarding psychological treatment (especially for clinicians not well-versed in theory). Second, removing OCD from the anxiety disorders could imply the need for different treatment approaches, although it is very clear that OCD involves the same psychological mechanisms and responds to exposure in the same way as do other anxiety disorders.

begun to experience anticipatory anxiety each evening and was avoiding movie theatres.

Sam's therapist relied on knowledge of the cognitive-behavioral model of anxiety disorders to conceptualize Sam's difficulties. His recurrent thoughts about hitting pedestrians were conceptualized as obsessions—harmless intrusive thoughts that had become preoccupations because of the way Sam was interpreting them as indicating that they were predictive of actual events. His checking behavior was viewed as a safety behavior in response to the obsessions. Although checking provided reassurance and reduced Sam's obsessional fear in the short term, it did not provide long-term relief, and actually prevented the natural extinction of his fear.

Sam's panic was conceptualized as a fear of (harmless) anxiety-related body sensations, and assessment indicated he was afraid that breathlessness and rapid heart rate heralded catastrophic medical consequences. Sam's therapist knew that she would need to assess further to identify avoidance or safety behaviors aimed at trying to control panic-related body sensations. Finally, Sam's hair-pulling was conceptualized as a response to general stress and anxiety, rather than as an OCD-related compulsive ritual. Theoretical models of trichotillomania propose that this problem is maintained primarily by positive reinforcement (Stanley, Swann, Bowers, & Davis, 1992; although negative reinforcement can also be a factor), whereby the pulling behavior results in gratification. Understanding the theoretical model of anxiety (and hair pulling) ensured that Sam's therapist would collect all of the required information to derive a treatment plan involving exposure to the necessary fear cues and reduction of the proper safety behaviors.

2. KNOWLEDGE OF THEORY PROVIDES A GUIDE FOR ASSESSMENT

Cognitive-behavioral theory also drives the *functional assessment* from which the exposure treatment plan is derived. Functional assessment in this context refers to the gathering of detailed patient-specific information about the factors that increase the likelihood that a particular target problem (such as excessive fear/anxiety) will be exhibited. The parameters of this assessment are derived directly from cognitive-behavioral theory. Accordingly, an exhaustive list of the situations and stimuli (internal and external) that trigger anxiety must be obtained; and knowledge of theory allows the therapist to gather the most complete information. Consider a patient with panic disorder and agoraphobia, for example. A therapist unaware of the cognitive-behavioral model of panic (e.g., Clark, 1986) might gather information

about the more obvious external (i.e., agoraphobic) fear cues, but fail to assess for the less apparent internal (interoceptive; i.e., arousal-related body sensations) cues that trigger panic attacks. Thus, knowledge of theory is necessary to ensure accurate and thorough information gathering.

Knowledge of theory is also critical for assessing safety behaviors and then for determining which behaviors are true safety behaviors (Sam's checking, which was performed to reduce obsessional anxiety) and which are not (Sam's hair pulling, which was associated with some gratification and not performed to minimize specific fears). Finally, theory also informs assessment of the cognitive links between the fear cues and safety behaviors. In other words, *why* do patients perform safety behaviors? What is the feared consequence of confrontation with a fear cue in the absence of a safety behavior? This information is important for engineering exposure exercises that match with the patient's fears and can produce new learning to inhibit existing threat associations. Thus, knowledge of the cognitive-behavioral model of anxiety provides a framework to guide individual functional assessment and the development of an exposure treatment plan.²

Theoretical models of exposure also inform the therapist of potential prognostic variables (i.e., that might predict outcome) which should be assessed; such as severe depression, overvalued ideation (e.g., poor insight), and extremes of physiological arousal (Foa & Kozak, 1986). Abramowitz et al. (2000), for example, found that severely depressed OCD patients, relative to those with less depression, fared less well with exposure treatment, perhaps due to the very strong emotional reactivity that depressed patients experience when conducting exposures. From an EPT view, this strong reactivity impedes within-session habituation. From an inhibitory learning view, strong reactivity might lead to experiential avoidance in which patients try too rigidly to reduce (as opposed to tolerate) their anxiety during exposure. Similarly, poor insight, from an EPT perspective, is thought to hinder between-session habituation, leading to attenuated response with exposure (e.g., Foa,

² Many novice therapists equate functional assessment with *diagnostic assessment*; yet while the former is theoretically driven and idiographic in its approach to understanding the individual's anxiety symptoms, diagnostic assessment is a nomothetic approach based more or less on atheoretical diagnostic criteria (usually the DSM). Although diagnostic assessment and classification might have some uses, the functional relations between the specific situations, stimuli, and responses—over and above a diagnosis—provide a richer account of the problem and are most critical when planning and implementing effective exposure therapy.

Abramowitz, Franklin, & Kozak, 1999). Here again, poor insight into the senselessness of one's fear would be expected to lead to experiential avoidance rather than fear toleration, thereby hampering inhibitory learning.

3. KNOWLEDGE OF THEORY PROVIDES A ROAD MAP FOR THE THERAPIST

Understanding the theoretical basis for exposure therapy is critical for clarifying a treatment plan. More specifically, it allows the clinician to pinpoint precise dysfunctional cognitions, identify stimuli to use in exposure, and recognize safety behaviors that must be curtailed in order for progress to be made. Exposure therapy begins with the development of an idiosyncratic version of the cognitive-behavioral model as it applies to the patient's particular anxiety and fear (Abramowitz et al., 2011). The therapist uses theory to understand how the particular fear cues trigger catastrophic thinking relating to feared outcomes, and how these exaggerated beliefs are maintained by safety behaviors and other maintenance processes. Figure 1 shows an example for a patient with OCD. His obsessions were triggered by any stimulus that reminded him of religion, such as seeing a church or hearing certain words (e.g., "God," "sin"). Because they had become threat cues, he had become hypervigilant to them and was therefore experiencing frequent unwanted blasphemous thoughts and images (e.g., images of Jesus on the cross with an erection). Furthermore, he would mistakenly misinterpret these unwanted and recurring thoughts as indicating that he was a "bad Christian" and that he was in for severe punishment from God (e.g., eternal damnation).

This interpretation made him fearful and further preoccupied with the unwanted thoughts, and the more this occurred, the more he engaged in safety behaviors such as prayer, attempted thought suppression, and seeking reassurance from others, to try to reduce his distress and doubt. These safety behaviors, however, further fueled erroneous and maladaptive core beliefs about the importance of and need to control thoughts. Readers familiar with the effects of thought suppression will note that attempting to stop one's thoughts usually leads to the thought's return, perpetuating the vicious cycle (e.g., Abramowitz, Tolin, & Street, 2001).

A strong knowledge of theory is therefore necessary for using exposure to test the patient's exaggerated beliefs about the likelihood and severity of perceived threats. Knowledge of the cognitive-behavioral theory of OCD, for example, is necessary for a therapist to recognize that the patient with religious obsessions described previously likely has difficulties with tolerating what others experience as acceptable levels of uncertainty associated with his obsessional doubts. Thus, exposure is best used to help the patient confront this doubt (e.g., via situational exposure to religious stimuli that provoke blasphemous images and imaginal exposure to the possibility of having committed a sin or having to face the feared consequences of such behavior). Absent knowledge of the role of intolerance of uncertainty in OCD, and exposure theory, a therapist might conceptualize this problem improperly (e.g., a religious crisis or the need for reassurance from a clergy member), leading to a less effective intervention.

Even in more straightforward presentations of anxiety disorders, dysfunctional beliefs can rarely



FIGURE 1 Idiosyncratic model of a patient's OCD symptoms.

be fully tested unless patients discontinue their use of safety behaviors while performing exposure (i.e., response prevention), lest they think “nothing bad happened during exposure, but that’s because I did my safety behaviors.” Knowledge of the theoretical model is crucial for understanding the importance of response prevention, and for implementing this technique in a manner that is maximally therapeutic (e.g., which safety behaviors to stop, and when). To illustrate, consider a socially anxious patient who had difficulty making small talk with her co-workers. Functional assessment helped her specify her belief that “They won’t accept me because the things that I’m interested in are silly.” Ordinarily, this patient would spend inordinate amounts of time reading on the Internet about things that her co-workers were interested in just so that she could discuss more “important” things with them. Exposure therefore entailed the patient starting conversations about her own “silly” interests (e.g., reality TV shows), without studying up on her colleagues’ more “important” interests (e.g., current events). This helped her discover that, contrary to her beliefs, her co-workers did not treat her any differently, and that she was acceptable even without excessive preparation.

4. KNOWLEDGE OF THEORY IS IMPORTANT WHEN PROVIDING A TREATMENT RATIONALE

I assert that not only the *therapist*, but also the *patient* needs to understand the theory behind the use of exposure techniques—although perhaps at a somewhat less technical level—in order to optimally implement this treatment. A working knowledge of theory allows the therapist and patient to work collaboratively to ensure that the assessment and treatment planning are comprehensive. It also ensures that the patient understands the rationale for engaging in exposure. Understanding this rationale is positively associated with treatment outcome because it provides patients with a clear understanding of how exposure therapy weakens anxiety symptoms (e.g., Abramowitz et al., 2002). Patients who understand the theoretical underpinnings of their problem and its treatment are better able to properly implement exposure techniques and, for example, understand the differences between the everyday casual “exposure” to fear cues that many patients encounter (e.g., being in a social situation that can’t be avoided) and therapeutic exposure designed specifically for fear reduction. In the case of the former, the “exposure” usually takes place without being planned, is relatively brief (i.e., terminated by deliberate escape from distress), and the fear that is evoked is usually minimized or resisted with the use of safety cues and behaviors. Therapeu-

tic exposure, on the other hand, is systematic, prolonged, and repeated in different contexts, and it does not involve subjective resistance to the fear that is provoked.

Patients who understand the theoretical underpinnings of their anxiety problem and its treatment are also better able to recognize subtle elements of their fear (e.g., covert avoidance, reassurance-seeking behavior) and attend to these aspects when confronting feared stimuli and resisting covert safety behaviors such as mental rituals. Finally, understanding the theoretical model helps the patient to anticipate the cognitive changes that occur via exposure (i.e., challenges to exaggerated threat estimates) and therefore get the most out of this technique. In order for the therapist to competently socialize the patient to this theoretical model, he or she must have a working knowledge of the theory him- or herself.

Socializing a patient to the cognitive behavioral model involves synthesizing the information collected during the assessment and, in a transparent and collaborative way, placing the patient’s difficulties within the theoretical framework. Doing so helps the patient understand how exposure therapy can be beneficial (even if confronting feared stimuli seems counterintuitive). In fact, when therapists report that their patients are having problems maintaining adherence to exposure therapy, it is often the case that they have spent too little time helping the patient understand (a) this theoretical and conceptual framework, (b) the long-term benefits of exposure, even if it might seem fear-provoking in the short-term, and (c) the importance of learning to live with acceptable risk as opposed to trying to have a guarantee of safety. Methods for explaining this material to patients are described elsewhere (e.g., Abramowitz et al., 2011).

5. KNOWLEDGE OF THEORY IS IMPORTANT FOR OPTIMIZING LEARNING DURING EXPOSURE PRACTICE

There are important implications of extinction theory for how therapists can optimize exposure therapy. For example, one way that nonthreat associations are developed is when expectations are mismatched with reality—that is, when an anticipated negative outcome does not materialize (Rescorla & Wagner, 1972). This highlights the importance of determining the ideal frequency and duration of exposure sessions needed to surpass the rate at which negative outcomes would be anticipated. For example, with certain phobias (e.g., fear of bees), a single prolonged exposure session (e.g., 5 hours) might be more effective than a series of shorter exposures equaling the same total length (e.g., 5 one-hour sessions) because the longer exposure session provides

more time to learn that anticipated negative outcomes are unlikely (e.g., bee stings). In other instances (e.g., social anxiety), multiple briefer exposures will be optimal because the anticipated outcomes would occur more quickly.

Extinction theory also predicts that learning will be enhanced when separate feared stimuli that have been individually addressed are later combined during exposure trials (i.e., “deepened extinction”; Rescorla, 2006). This concept is exemplified in the methods used to treat OCD when situational exposure (e.g., changing a baby’s diaper) and imaginal exposure (e.g., to obsessional doubts of being a child molester) are subsequently combined (e.g., thinking about molesting the baby while changing her diaper; Abramowitz et al., 2011). Exposure therapy for panic disorder and agoraphobia provides another example; in this instance interoceptive exposure to feared arousal-related sensations (e.g., lightheadedness) and situational exposure (e.g., walking alone outside the home) may be combined (e.g., hyperventilating for 90 seconds and then going out for a walk unaccompanied; e.g., Barlow & Craske, 1988).

Learning theory (e.g., Lovibond, Davis, & O’Flaherty, 2000) also provides the basis for the use of response prevention (i.e., excluding the use of safety behaviors and cues) during exposure. Indeed, when the absence of an anticipated negative outcome (e.g., fainting) during exposure to a fear stimulus (e.g., grocery stores) is attributed to a safety behavior (e.g., escape or breathing into a paper bag), there is no reason to change the threat-related association. That is, safety behavior interferes with the development of new nonthreat associations (Craske et al., 2008). Thus, exposure therapists must be ever mindful of patients’ use of more or less subtle safety behaviors and avoidance strategies to ensure that there is no other explanation for the nonoccurrence of feared catastrophes other than that there is a low risk of danger.

6. KNOWLEDGE OF THEORY IS IMPORTANT FOR PREVENTING RELAPSE FOLLOWING EXPOSURE THERAPY

If, as proposed by the inhibitory learning view of exposure, newly learned nonthreat associations do not replace previously learned threat associations, but instead compete with them, then relapse—i.e., the return of fear—is always possible. Understanding that extinction depends on context-dependent learning rather than “unlearning” can help therapists implement exposure in ways that reduce the opportunities for relapse (Bouton, 2002). For example, long-term maintenance is likely to be facilitated by conducting exposure in multiple

contexts, and especially in environments where the patient’s fear is usually (and most problematically) encountered. This helps to build the number of retrieval cues present to assist with recall of the newly learned nonthreat associations, especially in situations where the fear might have been learned (Bjork & Bjork, 1992, 2006; Estes, 1955). Implementing exposures in varied contexts (e.g., situations, mood states, times of day, drug states; e.g., Bouton) is also important to enhance generalization of extinction to new contexts.

7. KNOWLEDGE OF THEORY IS IMPORTANT FOR TROUBLESHOOTING

Finally, knowledge of the theory behind exposure therapy is critical when troubleshooting a number of barriers to success. Although this article does not afford the space to cover the full list of such obstacles, a few common ones deserve comment. Numerous other obstacles often encountered in exposure are discussed in Abramowitz et al. (2011).

Nonadherence

The most common obstacle to successful exposure is the patient’s refusal to confront his or her feared stimuli or resist safety behaviors whether in the session or during homework. One way to circumvent nonadherence is to ensure that patients grasp the conceptual model of anxiety and understand how their own symptoms are maintained according to the theory outlined earlier in this article. Second, the rationale for exposure must be very clear so that patients understand how engaging in challenging and sometimes frightening exposure tasks will reduce their fear and anxiety in the long term. These two points underscore the importance of both the therapist and patient understanding the theory behind exposure. Therapists sometimes are tempted to suspend or postpone exposures when the patient becomes highly anxious. In most cases, this is discouraged since it can reinforce avoidance patterns and send a message that the task is too dangerous or difficult.

Arguments Over the Risks of Exposure

It is easy to fall into the trap of engaging in debates with patients who argue that the risks involved with doing exposure exercises (e.g., touching a toilet) or stopping safety behaviors (e.g., not taking one’s blood pressure every hour) are too high to take, even in treatment. It seems intuitive to try to use logic to convince the patient to engage in exposure and response prevention. Nevertheless, such debates usually fail, and worse, they are functionally equivalent to the maladaptive reassurance-seeking and overanalyzing behaviors that many anxious patients engage in on a regular basis, and which contribute to the maintenance of the anxiety disorder by increasing

attention to threat cues (e.g., Clark, 1999). Knowledge of the relevant theory would lead a therapist to avoid such debates and instead use means such as motivational interviewing skills (e.g., Miller & Rollnick, 2013) to help patients see exposure therapy as the best long-term option even though it might involve short-term fear and uncertainty.

Therapist Discomfort With Using Exposure

There is likely a strong correlation between comfort working within an exposure framework and knowledge of the relevant theory. As I alluded to earlier, it is not surprising that therapists who view exposure as unnecessarily painful for the patient would also be unfamiliar with the cognitive-behavioral model of anxiety disorders and rationale for exposure. Thus, it is important for therapists to understand that any anxiety experienced during exposure is not dangerous, but rather relatively short lived and therapeutic. By experiencing and tolerating anxiety, and its inevitable reduction at some point, patients gain new knowledge about situations they believed were dangerous, and about their own ability to manage distress. Finally, contrary to some popular myths, it is important for therapists to understand that reducing fears by exposure does not cause “symptom substitution,” or the emergence of new anxiety symptom to take the place of the old ones.

Conclusions

Treatment manuals, considered by many experts to be essential to outcome research studies (Foa & Meadows, 1997), are used to promote the standardization of therapy procedures across therapists and patients. Optimally, manuals should delineate the essential principles of treatment and provide clinicians with session-by-session procedural guidelines. Sometimes, however, the use of step-by-step manuals leads to taking for granted the theory behind the intervention. Exposure therapy is a set of therapeutic techniques that requires knowledge of the cognitive-behavioral model of anxiety disorders, and of how fear extinction works, in order to be implemented optimally. This article has addressed some of the important reasons this is so, and also highlighted what can happen when this theory is overlooked. It is hoped that in addition to providing training in the practical side of implementing exposure, workshop leaders and clinical training programs incorporate an overview (at the very least) of the theoretical underpinnings of this highly efficacious treatment procedure.

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