

## *Cognitive-behavioral therapy for anxiety disorders: an update on the empirical evidence*

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*A large amount of research has accumulated on the efficacy and effectiveness of cognitive-behavioral therapy (CBT) for anxiety disorders including post-traumatic stress disorder, obsessive-compulsive disorder, panic disorder, generalized anxiety disorder, social anxiety disorder, and specific phobia. The purpose of the current article is to provide an overview of two of the most commonly used CBT methods used to treat anxiety disorders (exposure and cognitive therapy) and to summarize and discuss the current empirical research regarding the usefulness of these techniques for each anxiety disorder. Additionally, we discuss the difficulties that arise when comparing active CBT treatments, and we suggest directions for future research. Overall, CBT appears to be both efficacious and effective in the treatment of anxiety disorders, but dismantling studies are needed to determine which specific treatment components lead to beneficial outcomes and which patients are most likely to benefit from these treatment components.*

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### Introduction

**C**ognitive behavioral therapy (CBT) has been shown to be effective for a wide variety of mental health disorders,<sup>1</sup> including anxiety disorders.<sup>2-6</sup> CBT has also been associated with improvements in quality of life in anxiety patients.<sup>7</sup> CBT is typically conceptualized as a short-term, skills-focused treatment aimed at altering maladaptive emotional responses by changing the patient's thoughts, behaviors, or both. The origins of CBT can be traced back in part to the theories of early researchers such as B. F. Skinner and Joseph Wolpe, who pioneered the behavioral therapy movement in the 1950s. Behavioral therapy supposes that changing behaviors leads to change in emotions and cognitions such as appraisals. Since its introduction, behavioral therapy has evolved to include cognitive psychotherapy, pioneered by the early work of psychologists such as Albert Ellis and Aaron T. Beck. Cognitive therapy focuses on changing cognitions, which is proposed to change emotions and behaviors. Subsequently, the terms cognitive

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therapy, behavioral therapy, and cognitive-behavioral therapy have emerged. For the purposes of parsimony and to facilitate discussion of this diverse set of treatments, in this article we group the cognitive and behavioral therapies under the umbrella term “CBT” while acknowledging that the relative emphasis of cognitive vs behavioral techniques differs across treatment programs.

Over the years a large number of diverse protocols have been created for providing CBT to patients with post-traumatic stress disorder (PTSD), generalized anxiety disorder (GAD), obsessive-compulsive disorder (OCD), panic disorder (PD), specific phobias, and social anxiety disorder, as well as those with nonspecific anxiety symptoms. There is a wealth of information regarding these treatments and their use, and entire books are dedicated to describing CBT-based therapies for each specific anxiety disorder. Therefore, a systematic review of the CBT treatments for each anxiety disorder is beyond the scope of this paper. However, despite the large number of diverse CBT protocols for treating anxiety disorders, important similarities exist between these various treatments which provide a basis for discussion.

The purpose of this article is to provide an overview of two categories of CBT methods that permeate a wide variety of anxiety disorder-specific treatments and to provide a review of the current empirical research related to these techniques. We start by describing two of the most commonly used CBT treatment methods (exposure and cognitive therapy) followed by a review of the empirical literature investigating the efficacy and effectiveness of these methods in treating each anxiety disorder. We end with a discussion of the nuances that arise in comparing CBT treatments for anxiety disorders and we propose directions for future research. In structuring our review of these CBT methods, we acknowledge that these techniques are often interrelated and not necessarily applied in isolation from each other. For clinicians wanting to learn more about the particulars of applying CBT protocols in practice, we encourage them to seek out one of the many anxiety disorder-specific CBT books available (for an overview, see *CBT for Anxiety Disorders: A Practitioner Book*, edited by Gregoris Simos and Stefan G. Hofmann,<sup>8</sup> or *Clinical Handbook of Psychological Disorders*, edited by David H. Barlow<sup>9</sup>). Additionally, this paper is meant to be an introduction to CBT for anxiety; therefore, this discussion of CBT methods is neither meant to be exhaustive

nor static, and is expected to be adapted and revised as future research dictates.

## Exposure therapy

Exposure-based techniques are some of the most commonly used CBT methods used in treating anxiety disorders. One theoretical framework for understanding the rationale for exposure-based treatment comes from emotional processing theory.<sup>10</sup> According to emotional processing theory, fear is represented by associative networks (cognitive fear structures) that maintain information about the feared stimulus, fear responses (eg, escape, avoidance, psychophysiological responses), and the meaning of the stimuli and responses (eg, tiger = danger, increased heart rate = heart attack). When a stimulus in the environment is encountered that resembles the feared stimulus, these associative networks activate the fear structure. The fear structure is pathological when the relationship among stimuli, responses, and their meaning do not match reality, such as when it is activated for safe stimuli or responses that resemble the feared ones. Furthermore, the fear structure is maintained by avoidance behaviors which do not allow for new learning to occur.

Exposure is proposed to modify the pathological fear structure by first activating it and then providing new information that disconfirms the pathological, unrealistic associations in the structures (eg, tachycardia does not lead to heart attack, crowded malls do not lead to violent attack). By confronting the feared stimulus or responses and integrating corrective information in the fear memory, fear is expected to decrease. Exposure can take several forms including imaginal, in vivo (in real life), and interoceptive. Imaginal exposure occurs when the patient vividly imagines the feared situation/consequences and does not avoid their subsequent anxiety. In vivo exposure involves gradual approach to places, objects, people, or situations that were previously avoided although they are safe. Interoceptive exposure, which is mostly used in treating panic disorder, involves deliberately inducing the physical sensations the patient fears are indicative of a panic attack. These exposure techniques are similar in their function because they allow the patient to acquire new learning in order to modify the fear structure. In general, exposure therapy is of limited duration and is typically completed in about 10 sessions.

## Efficacy/effectiveness of exposure for anxiety disorders

Exposure therapies for each anxiety disorder tend to take on similar forms, with differences emerging most often in the emphasis on the content of exposure, which is specific to the patient's presenting concerns. Exposure therapies also differ in their relative emphasis on the different exposure techniques (in vivo, imaginal, and/or interoceptive). The efficacy and effectiveness of exposure therapy has been well documented for anxiety disorders, and exposure therapy is considered the treatment of choice for many forms of pathological anxiety.

### Post-traumatic stress disorder

PTSD is often treated with prolonged exposure therapy (PE) which incorporates both imaginal and in vivo exposures.<sup>11</sup> PE involves having the patient repeatedly revisit the trauma memory by visualizing the trauma events in their imagination while recounting the events aloud in session with the therapist. The revisiting is followed by processing and digesting the content of the imaginal exposure with the goal of acquiring new perspectives about oneself, others, and the world, and shifting negative perceptions into positive or neutral ones. The narrative during imaginal exposure is recorded and patients continue to receive exposure between sessions by listening to the recording, which further provides opportunities for processing the traumatic memory. PTSD patients are also asked to use in vivo exercises as homework, typically involving gradual exposure to safe activities, objects, or places that were previously avoided. Other forms of psychotherapy for PTSD incorporate some elements of exposure. For example, the original cognitive processing therapy protocol (CPT) has patients process their trauma by writing a detailed account of the event and reading it aloud.<sup>12</sup>

A meta-analysis of prolonged exposure therapy studies revealed that PE resulted in significant improvements in PTSD symptoms and secondary outcome measures at both post-treatment and follow-up compared with control conditions.<sup>13</sup> However, this study also found that PE was not significantly different compared with cognitive processing therapy (CPT), eye-movement desensitization and reprocessing (EMDR), cognitive therapy (CT), and stress inoculation training (SIT), which the authors suggest may be due to different but

equally efficacious therapeutic mechanisms or due to the common implementation of exposure techniques in each of the comparison treatments. Conversely, others have found that PE resulted in better outcomes in terms of symptom reduction, rate of improvement, and proportion of participants no longer meeting criteria for PTSD compared with relaxation training and EMDR.<sup>14</sup> Regarding treatment combination, several studies have found that the addition of cognitive therapy to PE did not yield superior outcomes,<sup>15-17</sup> whereas the addition of exposure techniques to cognitive therapy enhanced the outcome of the latter.<sup>16</sup>

### Obsessive-compulsive disorder

Exposure and response prevention (EX/RP) therapy for individuals with OCD also uses both imaginal and in vivo exposure.<sup>18</sup> In vivo exposures are completed both in the therapy session with the encouragement of the therapist and outside the session as homework (eg, touching faucets in a public restroom while engaging in washing behavior without performing the compulsive ritual; washing with the goal of disconfirming the expected harm of getting ill). Refraining from engaging in compulsive behaviors (response prevention) is an important aspect of the treatment since compulsions function as safety behaviors that preserve the association between obsessions and the feared consequences. For situations where it would be difficult or impossible to conduct an in vivo exposure (eg, fear of the consequences of contracting HIV), imaginal exposure is used with the same goal of exposing the patient to the feared imagined situation and letting anxiety decrease on its own without relying on compulsions. The imaginal exposure thereby disconfirms the patient's expectation that thinking about the obsessional thought and not engaging in a compulsion would lead to the anticipated harm.

A meta-analysis showed that EX/RP resulted in superior outcomes compared with placebo and/or waiting list.<sup>19</sup> Exposure therapy was also found to be superior in comparison with progressive muscle relaxation in OCD patients.<sup>20</sup> However, EX/RP has also shown similar effect estimates when compared with cognitive restructuring alone and EX/RP with cognitive restructuring.<sup>19</sup> A more recent meta-analysis also found no differences between cognitive therapy alone and EX/RP in OCD treatment outcomes.<sup>21</sup> However, these results were based on the

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comparison of a substantial number of EX/RP studies, with only three studies examining cognitive therapy alone. An additional complication arises in that many cognitive therapy studies on OCD include exposures, often called behavioral experiments, in their treatment protocol. There is also evidence that the characteristics of the exposure treatment are important. A meta-analysis on variants of EX/RP found that exposure therapy for OCD was most effective when it involved therapist-guided exposure rather than self-guided exposure, when requiring complete response prevention as opposed to partial or no response prevention, and when in vivo and imaginal exposure were combined as compared with using in vivo exposure alone.<sup>22</sup>

## **Panic disorder**

As mentioned previously, a hallmark of exposure therapy for panic disorder involves interoceptive exposure (eg, increasing heart rate by running or hyperventilating) which is aimed at disconfirming the idea that physical sensations will lead to harmful events such as a heart attack or embarrassing oneself in public. A meta-analysis of studies on panic disorder showed that CBT, which primarily consisted of exposure therapy with or without cognitive therapy components, performed better than no treatment or a placebo control.<sup>23</sup> In addition, another study found that CBT with interoceptive exposure treatment yielded the largest effect sizes for panic disorder patients; however, these interventions also included cognitive restructuring in addition to exposure.<sup>24</sup> Although interoceptive exposure is commonly used with panic disorder, there is less support for the usefulness of supplementing interoceptive exposure with in vivo exposure in the treatment of panic disorder at this time.<sup>25</sup>

## **Generalized anxiety disorder**

GAD treatment can include both imaginal exposure (eg, imagining the worst-case scenario associated with their worries) and less frequently, in vivo exposures. For example, a GAD treatment protocol by Craske and Barlow has patients engage in self-guided exposures where patients repeatedly recount their worries using imaginal exposure to reduce the intensity of the worry.<sup>26</sup> There are relatively few studies that examine exposure-based treatment in GAD patients. Research

has shown that CBT including imaginal exposure resulted in greater functioning in GAD patients after a 12-month follow-up compared with applied relaxation and nondirective therapy.<sup>27</sup> A more recent study comparing cognitive therapy, applied relaxation with a form of imaginal exposure (self-control desensitization), and the combination of these treatments found no differences between them in terms of outcomes in treating GAD patients.<sup>28</sup> Additional research is needed on the effectiveness of exposure therapy in treating GAD.

## **Social anxiety disorder**

In vivo exposure is commonly used for social anxiety disorder (eg, participating in social situations without using avoidance or safety behaviors). According to Rapee and Heimberg's CBT model of anxiety, those with social anxiety show distortions and biases in how they process social/evaluative information which leads to increases in anxiety.<sup>29</sup> Avoidance of social situations in turn maintains this anxiety and exposure to social situations can be used to provide disconfirming evidence regarding cognitive distortions related to social expectations. Exposure with or without cognitive therapy has been shown to be effective in reducing social anxiety symptoms.<sup>30-32</sup> More recent research found that exposure therapy with applied relaxation and cognitive therapy both resulted in better outcomes than wait-list control in treating social anxiety disorder patients.<sup>33</sup> However, compared with each other in the same study, cognitive therapy performed better than exposure plus applied relaxation. In addition, meta-analytic results demonstrated that both cognitive and exposure therapy performed better than applied relaxation or waitlist control in treating social anxiety disorder patients.<sup>34,35</sup>

## **Specific phobias**

In vivo exposure is considered the treatment of choice for specific phobia. In vivo exposure may involve flooding (exposure to the most intense feared stimulus) or gradual exposure (systematic exposure of gradually increasing intensity). Meta-analytical studies have shown that in vivo exposure therapy is highly effective for specific phobias compared with no treatment, placebo treatment, and non-exposure-based active therapy conditions.<sup>36</sup> Although relaxation was shown to have some benefit for those with specific phobia, it was not found

to be more effective than exposure.<sup>36</sup> In addition, one study compared patients receiving a single 3-hour session of exposure, five sessions of exposure, or five sessions of cognitive therapy and found that all three treatments performed better than the waitlist control condition; however, no differences were found between the exposure and cognitive therapies.<sup>37</sup>

### Cognitive therapy

Cognitive therapy is another widely used method for treating anxiety disorders. Cognitive therapy is based on Beck's tri-part model of emotion which proposes that thoughts, feelings, and behaviors are interrelated. According to this theory, changing maladaptive thoughts is proposed to alter the patient's maladaptive affect and behavior. Cognitive therapy targets distorted thoughts using a number of techniques such as identifying inaccurate thinking, examining the evidence for and against automatic thoughts, challenging and changing maladaptive thoughts, altering problematic behaviors, and relating to other people in more adaptive ways. Psychoeducation about the tri-part model of emotion, the different forms of distorted thinking (eg, all-or-nothing thinking, jumping to conclusions, disqualifying the positive, etc), and cognitive restructuring is an integral part of cognitive therapy. Homework is typically assigned to give patients opportunities to practice these skills in their daily life, allowing them to gain mastery of the techniques so they will be able to apply what they have learned after treatment has ended. In treating anxiety disorders, cognitive therapy is most often used in conjunction with behavioral techniques, which may include exposure exercises. Cognitive therapy is typically time-limited to about 20 sessions or less, and is problem-focused on the issues the patient identifies as of primary concern.

#### Efficacy/effectiveness of cognitive therapy for anxiety disorders

The use of cognitive techniques in treating anxiety disorders is widely implemented. Yet the research on the efficacy and effectiveness of cognitive techniques alone for anxiety disorders has shown variable results. For example, a study comparing transdiagnostic CBT therapy with relaxation training in anxiety disorder patients found both treatments to be equally benefi-

cial, although relaxation training was associated with a higher dropout rate.<sup>38</sup> The results regarding the efficacy and effectiveness of cognitive therapy for anxiety disorders are also limited by the small number of studies examining cognitive methods in isolation from exposure. Many of the treatment protocols investigated in treatment outcome studies combine both exposure and cognitive therapy techniques, making conclusions about the relative contributions of each method difficult to disentangle.

#### Post-traumatic stress disorder

Several cognitive therapy techniques have been proposed for treating PTSD. For example, cognitive processing therapy (CPT) for PTSD postulates that erroneous beliefs about the causes and consequences of the traumatic event prevent the patient from processing the emotions surrounding the trauma memory.<sup>12</sup> In CPT, the therapist helps the patient to identify their "stuck points," learn new ways to handle distressing thoughts, and gain a better understanding of the changes in beliefs that occur after experiencing a traumatic event. CPT begins with the therapist providing psychoeducation about PTSD symptoms and a rationale for this treatment. Patients are asked to write an "impact statement" or a one-page description of why the patient thinks the traumatic event happened to them and how the event has changed their view of themselves and the world. The impact statement is used to begin identifying the patient's stuck points or cognitive distortions about the event (eg, "I am a weak person"). Patients then learn to identify their thoughts and feelings with the goal of understanding the interconnected relationship between them. Next, two sessions of treatment involve having the patient write down the details of the worst traumatic incident, which are then read aloud to the therapist. The majority of the subsequent sessions are used to challenge the patient's stuck points using Socratic questioning (gently challenging the accuracy of the patient's thoughts to draw out alternative and more balanced ways of thinking). Patients are also taught cognitive-behavioral skills, and treatment may focus on specific problematic areas for the patient such as trust, self-esteem, and power/control. Other forms of cognitive therapy for PTSD may include imaginal and in vivo exposures (cognitive therapy for PTSD)<sup>39</sup> or may not include any exposure exercises.<sup>40</sup>

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Research has shown that CPT is effective in reducing PTSD symptoms in both veterans and nonveterans.<sup>41-45</sup> For example, Resick and colleagues found that CPT led to greater improvements in PTSD symptoms compared with a minimal attention control group.<sup>46</sup> CPT was also found in the same study to be equally beneficial compared with prolonged exposure therapy. Furthermore, cognitive therapy (CT) for PTSD has also been shown to be more effective than wait-list, self-monitoring, or self-help booklet control groups.<sup>39,47</sup> However, as mentioned previously, CPT and CT for PTSD are not exclusively cognitive therapies since they both incorporate variations of exposure exercises as well. Other studies have found similar outcomes for cognitive therapy alone compared with imaginal exposure.<sup>40</sup>

## **Obsessive-compulsive disorder**

EX/RP, also a primarily exposure-based therapy, integrates cognitive processing following or during exposure to allow OCD patients to gain insights regarding their feared consequences.<sup>18</sup> However, EX/RP does not mandate the use of any specific cognitive techniques. Cognitive therapy protocols for OCD often involve identifying and altering distorted cognitive beliefs about the significance of intrusive thoughts (eg, intrusive thoughts mean the patient is a bad person). For example, a cognitive therapy protocol tested by McLean and colleagues begins with psychoeducation about OCD symptoms and an introduction to the treatment rationale.<sup>48</sup> Patients are then engaged in a discussion about the relationship between triggers that lead to intrusive thoughts and the patient's faulty appraisals of these thoughts which leads to anxiety and urges to perform compulsions. Patients are then taught to recognize the different types of distorted appraisals including overimportance of thoughts, overestimation of danger, inflation of responsibility, overestimation of the consequences of danger, overestimation of the consequences of responsibility, and need for certainty-control-perfectionism.<sup>48</sup> Patients then began challenging these faulty appraisals by conducting behavioral experiments to test the evidence for and against their beliefs.

As mentioned previously, a meta-analytic investigation of treatment outcomes in OCD patients did not find any significant differences between cognitive therapy alone and EX/RP, but only a relatively small number of studies have examined cognitive therapy alone in

OCD.<sup>19,21</sup> Furthermore, as can be seen in the description of the McLean et al treatment procedures described previously, many cognitive therapy protocols for OCD incorporate behavioral experiments. During these behavioral experiments, patients confront their feared stimuli/beliefs, which causes the patient to engage in a form of exposure. Therefore, it is difficult to determine the relative contributions of the cognitive aspects of these treatments from these behavioral experiments. In spite of this, research has shown that group EX/RP for OCD patients is associated with better outcomes than group cognitive therapy with a behavioral experiment component.<sup>48</sup> Due to the relatively few studies that investigate the usefulness of cognitive therapy alone (without a behavioral component), it is difficult to draw conclusions about the relative effectiveness of cognitive therapy compared to exposure in the treatment of OCD.

## **Panic disorder**

Interoceptive exposure for panic disorder is often combined with cognitive skills such as learning that physical sensations are not necessarily always harmful and learning to reappraise the meaning of physical symptoms instead of catastrophizing.<sup>49</sup> A meta-analysis on panic disorder did not find a difference in effectiveness whether cognitive therapy techniques were included or not with exposure-based therapy, but the author did find improved results with the addition of cognitive components in patients with comorbid depressive symptoms.<sup>23</sup> Furthermore, another study found that applied relaxation, exposure, and cognitive therapy were all about equally effective in treating patients with panic disorder with agoraphobia.<sup>50</sup>

## **Generalized anxiety disorder**

GAD treatment also involves a significant cognitive aspect such as using cognitive techniques to reduce excessive worrying. For example, Craske and Barlow's GAD treatment manual teaches patients to learn to change patterns of thinking that lead to anxiety, challenge thoughts that overestimate risk, and identify and change catastrophic thinking.<sup>26</sup> Cognitive therapy has been shown to be effective in the treatment of GAD patients. The results of a meta-analysis suggested that cognitive-behavioral therapy showed better long-term

outcomes than applied relaxation in GAD patients.<sup>51</sup> Additionally, although Dugas and colleagues found that CBT treatment which included both cognitive therapy and exposure was generally comparable to relaxation in treating GAD, the authors noted that when compared with a waitlist control group, cognitive therapy plus exposure was superior to applied relaxation.<sup>52</sup> These results are limited by the combination of both cognitive and exposure techniques in the CBT group. Conversely, other research suggests that relaxation is equally effective as cognitive therapy in terms of symptom improvement in patients with GAD at post-treatment and at follow-up.<sup>53,54</sup>

### **Social anxiety disorder**

Cognitive techniques are routinely used in treating social anxiety disorder to help the patient identify and change cognitive factors that maintain social anxiety. For example, in Hofmann's model of social anxiety, patients learn that social anxiety is maintained in part by holding negative perceptions about oneself, overestimating the cost of a social mishap, perceiving that one has little control over one's emotional responses, and believing that one's social skills are inadequate.<sup>55</sup> In terms of effectiveness, a meta-analysis found individual CBT to be effective in treating social anxiety compared with a waitlist control.<sup>35</sup> Additionally, another meta-analysis of treatments for social anxiety disorder including exposure, cognitive restructuring, and exposure plus cognitive restructuring found no differences in outcomes between these treatments suggesting equal effectiveness for cognitive therapy only interventions.<sup>34</sup>

### **Specific phobia**

Although exposure therapy is considered the most effective therapy for specific phobias, exposure can be supplemented with cognitive restructuring strategies as well. For instance, treatment protocols for specific phobia may involve helping the patient identify unrealistic expectations and replace them with more accurate predictions and interpretations.<sup>56</sup> Research on the effectiveness of cognitive therapy for specific phobia shows mixed results. For example, one study found that one session of cognitive therapy was equally effective as one session of exposure therapy for small animal phobia; in addition, cognitive therapy was viewed by participants

as less intrusive in this study.<sup>57</sup> However, meta-analytic results regarding the augmentation of exposure therapy with cognitive techniques for patients with specific phobias did not show a benefit for combined treatment compared to exposure alone,<sup>36</sup> supporting the general recommendation of exposure therapy as the first line of treatment for specific phobias.

## **Discussion**

The results of this review demonstrate the efficacy and effectiveness of using CBT methods to treat anxiety disorders as well as revealing areas in need of additional research. Exposure and cognitive methods represent the most frequently implemented and widely studied CBT techniques. Exposure methods in particular are often thought of as the first line of treatment for many anxiety disorders. The effectiveness of exposure remains relatively unchallenged for some anxiety disorders such as specific phobias and OCD. However, despite research showing the superior benefits of exposure techniques compared with no treatment, the collective research has not consistently shown that exposure techniques are significantly better than cognitive therapy. For example, we previously discussed the finding by Powers and colleagues that PE was not found to be significantly different than eye-movement desensitization and reprocessing (EMDR), cognitive therapy (CT), or stress inoculation training (SIT).<sup>13</sup> Additionally, although EX/RP for OCD showed large effect sizes compared with control conditions and showed better results than cognitive therapy in several individual studies, two separate meta-analytic studies found EX/RP to be similar to cognitive therapy.<sup>19,21</sup> However, the meta-analyses on OCD treatment were based on only three studies analyzing cognitive therapy alone. Additionally, many cognitive treatments for OCD incorporate behavioral experiments, a form of exposure. There are a disproportionately larger number of studies investigating exposure therapy than cognitive treatments in OCD patients, suggesting that further research is needed in this area before conclusions can be drawn about the effectiveness of cognitive therapy for OCD.

Complexities arise in attempting to disentangle these results due to the frequent overlap in techniques used in many of these therapies. For example, PE for PTSD patients is primarily based on exposure but also includes processing of the imaginal exposure where the

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patient discusses their perceptions and feelings associated with the traumatic memory, introducing a cognitive element to the treatment (although no formal cognitive techniques are used). Likewise, although CPT for PTSD focuses on the cognitive beliefs about the causes and consequences related to the trauma, a component of CPT involves writing a detailed account of the traumatic event and reading it to the therapist, thereby engaging the patient in exposure in addition to cognitive therapy. The overlap in techniques between CBT therapies may explain why different active therapies do not necessarily result in superior outcomes. If exposure and cognitive therapies tap into separate but equally efficacious therapeutic mechanisms, then the combination of therapies might be expected to show superior results. Yet, for example, dismantling studies typically find no difference between PE therapy alone and combined PE plus cognitive restructuring, suggesting that PE is not enhanced by the addition of cognitive therapy.<sup>15,16</sup> An additional consideration is that there are a larger number of exposure therapy studies and relatively fewer studies of cognitive therapy alone without an exposure component. Additional studies examining cognitive therapy alone are needed to adequately compare exposure and cognitive techniques.

In summary, the research on CBT in anxiety disorders supports the efficacy and effectiveness of these methods, with most of the current research demonstrating the usefulness of providing exposure therapy in the treatment of anxiety disorders. However, these results may change as additional research is conducted on cognitive therapy alone and cognitive therapy combined

with exposure. In terms of future directions, it is apparent from this review that additional studies are needed that can dismantle effective treatments for anxiety disorders to determine which specific components are responsible for beneficial outcomes. At the same time, the repeated finding of equal or near-equal effectiveness across CBT therapies suggests that the commonalities underlying these treatments may be more important than any specific differences between the techniques. Studies aimed at identifying these commonalities have been sparse, and represent an important but relatively underdeveloped area of clinical treatment research. In addition to determining what treatments work, it is equally important to understand which patients are most likely to benefit from a given treatment or from given components. Studies aimed at identifying predictors of beneficial treatment outcome are invaluable in determining what factors and patient characteristics are most likely to lead to improvements. Lastly, there is an increasing interest in transdiagnostic CBT techniques that transcend specific diagnoses in acknowledgment of the fact that anxiety disorders are frequently comorbid with each other and with other disorders like depression and in recognition of the significant overlap in symptoms between anxiety disorders. Research supports the notion that anxiety disorder patients share common psychological and biological vulnerabilities, suggesting that effective treatments for anxiety are tapping into these shared mechanisms. Future directions in treatment research would benefit from a better understanding of the common mechanisms underlying effective CBT treatments. □

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### Terapia cognitivo conductual para los trastornos de ansiedad: una puesta al día de la evidencia empírica

Se ha acumulado una gran cantidad de investigación acerca de la eficacia y efectividad de la terapia cognitivo conductual (TCC) para los trastornos de ansiedad, los que incluyen el trastorno por estrés postraumático, el trastorno obsesivo compulsivo, el trastorno de pánico, el trastorno de ansiedad generalizada, el trastorno de ansiedad social y las fobias específicas. El propósito de este artículo es entregar una panorámica sobre los dos métodos de TCC más comúnmente empleados para tratar los trastornos de ansiedad (exposición y terapia cognitiva), y resumir y discutir la investigación empírica actual con respecto a la utilidad de estas técnicas para cada uno de estos trastornos. Además se discuten las dificultades que surgen al comparar tratamientos activos de TCC y se sugieren directrices para la investigación futura. En forma global la TCC parece ser eficaz y efectiva en el tratamiento de los trastornos de ansiedad, pero se requieren estudios desagregados para determinar qué componentes específicos del tratamiento conducen a resultados beneficiosos y qué pacientes tienen más probabilidades de beneficiarse de estos componentes del tratamiento.

### Thérapie cognitivo-comportementale dans les troubles anxieux : une mise à jour des données empiriques

L'efficacité et l'efficience des thérapies cognitivo-comportementales (TCC) dans le trouble anxieux, dont le trouble stress post-traumatique, les troubles obsessionnels compulsifs, le trouble panique, l'anxiété généralisée, l'anxiété sociale et les phobies spécifiques, ont fait l'objet de beaucoup de recherches. L'objectif de cet article est de donner un aperçu des deux TCC les plus couramment utilisées dans le traitement des troubles anxieux (thérapie cognitive et technique d'exposition) et de résumer et d'analyser la recherche empirique actuelle basée sur l'utilité de ces techniques pour chaque trouble anxieux. De plus, nous analysons les difficultés inhérentes à la comparaison entre des TCC actives et proposons des axes de recherche future. Globalement, les TCC semblent à la fois efficaces et efficaces dans le traitement des troubles anxieux mais des études détaillées sont nécessaires afin de déterminer quels éléments spécifiques du traitement donnent de bons résultats et quels patients sont le plus susceptibles d'en bénéficier.

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