Available online at www.sciencedirect.com

ScienceDirect

Cognitive and Behavioral Practice 26 (2019) 421-436

Cognitive and Behavioral Practice

www.elsevier.com/locate/cabp

Behavioral Experiments for Intolerance of Uncertainty: Challenging the Unknown in the Treatment of Generalized Anxiety Disorder

Elizabeth A. Hebert, *Concordia University and University of Manitoba*
Michel J. Dugas, *Université du Québec en Outaouais and Hôpital du Sacré-Cœur de Montréal*

Intolerance of uncertainty (IU) is implicated in the development and maintenance of generalized anxiety disorder (GAD). Although an efficacious cognitive-behavioral treatment (CBT) targeting IU and associated factors has been established, approximately 20–30% of participants do not achieve full remission by posttreatment. IU remains elevated in these individuals. In addition, GAD treatments need greater parsimony and efficiency. To that end, we developed a novel, focused CBT protocol exclusively targeting IU via behavioral experiments. Treatment consists of three modules applied over 12 sessions: (a) psychoeducation and uncertainty awareness training, (b) behavioral experiments targeting IU, and (c) relapse prevention. The present article describes each treatment component, as well as additional considerations for therapists. We conducted a preliminary investigation of efficacy with seven (N = 7) participants with a primary diagnosis of GAD. Results indicated substantial decreases in GAD symptoms, general psychopathology, and IU by posttreatment that were generally maintained at 6-month follow-up. Six of seven participants demonstrated moderate to high end-state functioning at posttreatment and 6-month follow-up. Research and clinical implications are discussed.

Generalized anxiety disorder (GAD) is a debilitating illness that appears largely impervious to traditional cognitive restructuring approaches, such as reevaluating the cost and probability of worrisome scenarios (Hebert, Senn, & Dugas, 2017). In response to this clinical observation, several empirically supported treatments for GAD have been developed since the 1990s (e.g., Borkovec, 1994; Dugas, Gagnon, Ladouceur, & Freeston, 1998; Wells, 1995). These efforts have improved treatment efficacy via targeting cognitive-behavioral mechanisms underlying GAD symptoms, such as metacognitive beliefs about worry (Wells, 1995) and emotion dysregulation (Mennin, Heimberg, Turk, & Fresco, 2005). However, a substantial minority of individuals do not achieve full remission of their disorder by posttreatment (e.g., Hayes-Skelton, Roemer, & Orsillo, 2013; van der Heiden, Muris, & van der Molen, 2012). Moreover, therapies for GAD tend to be lengthy and complex, with multicomponent treatment protocols often taking up to 14–20 sessions to administer in a research context (e.g., Dugas & Robichaud, 2007; Fresco, Mennin, Heimberg, & Ritter, 2013; van der Heiden et al., 2012). In accordance with calls for greater parsimony, efficiency, and cost-effectiveness in psychological treatments (Cougle, 2012; Mansell, 2008; McManus, Van Doorn, & Yiend, 2012), we present a novel, streamlined GAD treatment that exclusively uses behavioral experiments to target intolerance of uncertainty (IU).

Keywords: intolerance of uncertainty; generalized anxiety disorder; cognitive-behavioral therapy; CBT; worry

IU: A Key to GAD

IU is a negative dispositional characteristic arising from a set of catastrophic beliefs about uncertainty and its consequences (adapted from Dugas & Robichaud, 2007). Our current understanding of IU has evolved over time by consolidating theories from social, personality, cognitive, and clinical psychology. Earlier concepts of intolerance of ambiguity (e.g., Frenkel-Brunswik, 1949) and threat interpretation (Krohne, 1989) were later integrated with factors such as information processing and cognitive biases (see Hebert et al., 2017; Shihata, McEvoy, Mullan, & Carleton, 2016, for reviews). The inability to tolerate even a small amount of uncertainty is conceptualized as both a causal risk factor for the development of GAD as well as a key factor in the maintenance of anxiety and worry (Dugas & Robichaud, 2007). The relationship between GAD and IU has been firmly established through systematic research in both experimental (e.g., Khawaja & Chapman, 2007; Norton, Sexton, Walker, & Norton, 2005; Rosen & Knäuper, 2009) and treatment-based settings (e.g., Donegan et al., 2010; Dugas & Ladouceur, 2000).

In current clinical practice, IU is one component of a broader cognitive-behavioral theory of GAD that includes

positive beliefs about worry, negative problem orientation, and cognitive avoidance (Dugas & Robichaud, 2007). This theoretical model forms the basis of an IU-centered cognitive-behavioral treatment (CBT) for GAD now commonly referred to as CBT-IU (Dugas & Ladouceur, 2000). Administered across a recommended 14- to 16-session period, CBT-IU targets IU directly via behavioral exposure as well as indirectly via reevaluating the usefulness of worry, problem-solving training, and imaginal exposure (Dugas & Robichaud, 2007). The standard CBT-IU treatment has demonstrated robust efficacy across at least five randomized controlled trials (RCTs; Dugas et al., 2003, 2010; Gosselin, Ladouceur, Morin, Dugas, & Baillargeon, 2006; Ladouceur, Dugas, et al., 2000; van der Heiden et al., 2012). IU is indeed central to this treatment: reductions in IU precede reductions in worry (Dugas & Ladouceur, 2000; Goldman, Dugas, Sexton, & Gervais, 2007) and are an important mediator of GAD symptom reduction during treatment (Donegan et al., 2010). However, there remains room for improvement. Approximately 20–30% of individuals do not achieve GAD remission by posttreatment (Dugas et al., 2010; Gosselin et al., 2006; Ladouceur, Dugas, et al., 2000; van der Heiden et al., 2012), and these individuals continue to endorse elevated IU. Pre–posttreatment effect sizes appear larger for GAD symptoms than for IU itself (Donegan & Dugas, 2013). Moreover, CBT protocols that are not IU-specific may produce comparable reductions in IU despite not addressing this variable directly (van der Heiden et al., 2012).

Together, these findings suggest that there may be more effective methods of targeting IU—possibly by targeting it more directly. We first addressed this by formulating a new model of IU that defines the state of uncertainty, its antecedents, and sequelae in the context of one's beliefs about or interpretation of that uncertainty. Based on this model, we then developed a CBT protocol that targets IU directly and exclusively using a single therapeutic technique: behavioral experiments.

A New Model of IU

A new model of IU was needed to clarify the intimate relationship between the state of uncertainty, one's beliefs or interpretation of uncertainty, and anxiety symptoms (see Figure 1). Our model of IU focuses on catastrophic misinterpretations of uncertainty that lead to problematic emotional, cognitive, and behavioral sequelae, consistent with traditional cognitive models of psychopathology such as obsessive-compulsive disorder (Salkovskis, 1999) and panic disorder (Clark, 1986). The present IU model consists of (a) situational triggers that generate (b) a state

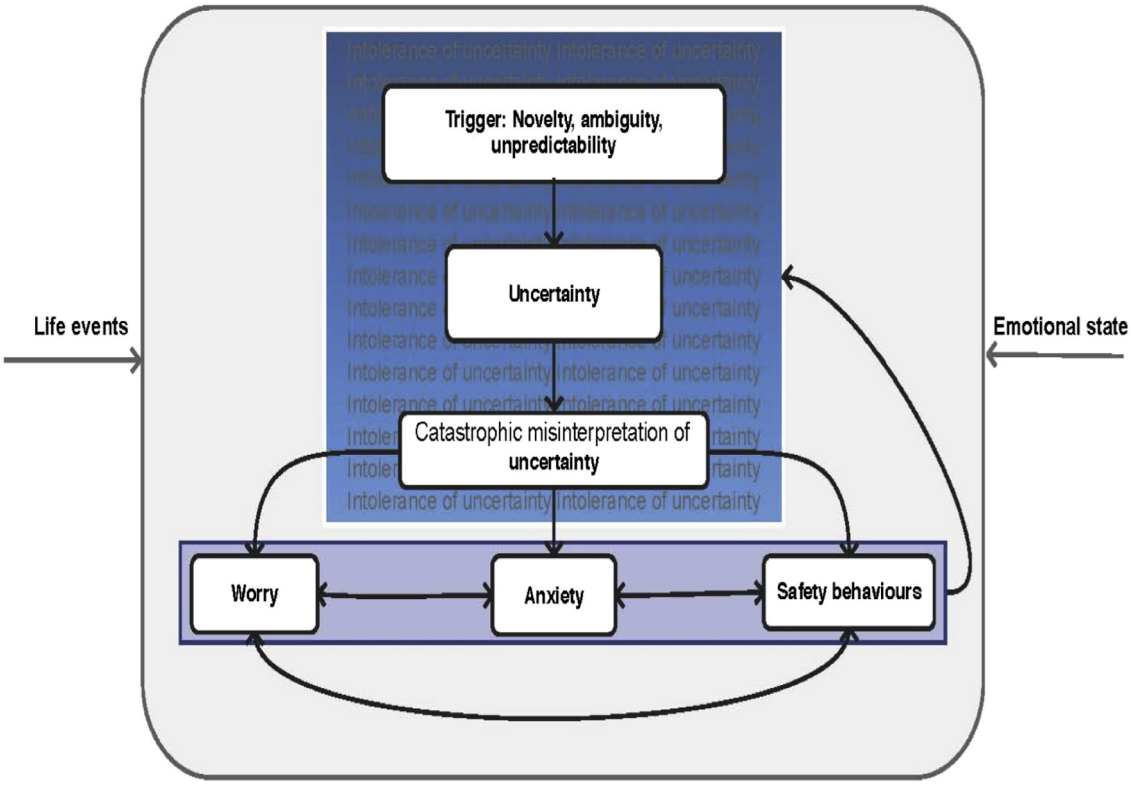

Figure 1. New cognitive-behavioral conceptualization of intolerance of uncertainty and generalized anxiety disorder symptoms.

of uncertainty, which when (c) catastrophically misinterpreted leads to (d) anxiety, worry, and safety behaviors. Noticing triggers, experiencing uncertainty, and making catastrophic misinterpretations of uncertainty are all heightened by (e) the dispositional characteristic of IU. All model components are impacted by (f) life events and negative emotional states.

IU Model Components

Triggers and the State of Uncertainty

We propose that three specific situational properties trigger uncertainty: ambiguity, novelty, and unpredictability (Dugas & Robichaud, 2007; Krohne, 1989, 1993). Each of these situational characteristics has been empirically associated with anxiety (e.g., Lanzetta & Driscoll, 1966; Pervin, 1963). We define uncertainty as an internal state of not knowing or being unsure (Hebert et al., 2017). Despite colloquial references to "uncertain situations," it is critical to distinguish situational characteristics that induce uncertainty from the internal experience of uncertainty itself. For example, not all ambiguous, novel, or unpredictable situations will trigger uncertainty in a given individual.

Beliefs About Uncertainty

When an individual high in IU experiences a state of uncertainty, we propose that catastrophically negative beliefs about uncertainty are activated. Both individual differences and situational factors will determine the specific negative belief about uncertainty that is activated. For instance, one person who is unsure of how to begin an ambiguous project at work may think, "If I'm uncertain, I can't start," whereas another person may think, "If I'm unsure, then I'm a failure" when facing the same situation. Similarly, different situations will activate different beliefs about uncertainty from a single individual.

Emotional, Cognitive, and Behavioral Symptoms

We theorize that negative beliefs about uncertainty lead to emotional, cognitive, and behavioral sequelae. In the case of GAD, this manifests as anxiety, worry, and safety behaviors. The specific emotional, cognitive, and behavioral symptoms depend on individual differences, specific situational factors, and the idiosyncratic uncertainty beliefs that have been activated. For example, a person who thinks, "Being uncertain ruins everything" when planning a date with a new potential partner may feel anxious and frustrated; worry about his or her relationship prospects, what others may think of him or her, and the future; spend excessive time researching restaurants; and subsequently cancel his or her plans.

This portion of our model is, in part, supported by previous conceptualizations of IU. For instance, Krohne (1989) theorized that IU causes vigilant coping strategies. IU has also been defined as the negative cognitive, emotional, and behavioral patterns that develop in response to uncertainty-inducing stimuli (Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994). There is also empirical support for aspects of our proposed relationship between beliefs about uncertainty and anxiety symptoms. Ladouceur, Gosselin, and Dugas (2000) found evidence of a causal relationship between IU and worry, such that experimental increases in IU induced increases in worry. Similarly, IU is associated with greater need for certainty cues (Ladouceur, Talbot, & Dugas, 1997) and greater information-seeking behaviors (Rosen & Knäuper, 2009). More indirectly, GAD status has been associated with a variety of safety behaviors such as reassurance seeking and situational avoidance (Beesdo-Baum et al., 2012) and worry is uniquely related to procrastination (Stöber & Joorman, 2001).

Relationship Between IU and Other Model Components

We propose that IU "runs in the background," thus affecting each component of the model. Beginning with triggers, individuals with high IU may be more likely to detect ambiguity, novelty, and unpredictability present in situations. This is consistent with the finding that high-IU participants demonstrate heightened recall for uncertainty-related stimuli (Dugas et al., 2005). When a situational trigger is detected, a state of uncertainty may be more likely to occur in those with high IU. According to the very definition of IU, this dispositional characteristic is based on negative beliefs about uncertainty (Koerner & Dugas, 2006; Krohne, 1989). We further refine this to *catastrophically* negative beliefs about uncertainty, in order to distinguish from the near-universal preference for certainty present in the general population (e.g., Andreoni & Sprenger, 2012; Brim & Hoff, 1957; Schmidt, 1998; Tversky & Kahneman, 1986). In this model, individuals with high IU experience worry and anxiety and engage in a variety of safety behaviors when catastrophically negative beliefs about uncertainty are activated.

Emotional State and Life Circumstances

Consistent with the traditional conceptualization of IU and GAD (Dugas & Robichaud, 2007), an individual's current emotional state and life circumstances influence all aspects of this model. Transient negative moods may arise from transitional life experiences (e.g., beginning a new job), daily stressors (e.g., being stuck in traffic), or fatigue. These reactions to life circumstances are normal, expected, and time-limited. However, they may put an individual at heightened risk for the IU cycle.

Theoretical and Clinical Utility

In contrast to previous conceptualizations of GAD (e.g., Dugas & Robichaud, 2007), the current CBT model centers exclusively upon IU. This serves several theoretical and practical purposes. First, this highlights IU's theoretical importance in GAD symptom maintenance. Second, this provides a practical alignment between our overarching clinical goal of targeting IU directly and exclusively throughout therapy. Furthermore, this may extend the model's application to other mental health conditions—an important future consideration given the increasingly recognized transdiagnostic nature of IU (e.g., Boswell, Thompson-Hollands, Farchione, & Barlow, 2013; Carleton et al., 2012; Guido et al., 2012; Holaway, Heimberg, & Coles, 2006; McEvoy & Mahoney, 2012).

The Intervention: Behavioral Experiments for IU

The present CBT protocol targets IU directly and exclusively via a single therapeutic technique: behavioral experiments. Behavioral experiments involve identifying and testing relevant personal beliefs via predetermined behaviors or situations (Beck, Rush, Shaw, & Emery, 1979; Bennett-Levy et al., 2005). In contrast, traditional situational exposure involves engaging in anxiety-provoking behaviors without necessarily identifying a specific thought to test. This method of exposure is used to target IU in the standard CBT-IU protocol (Dugas & Robichaud, 2007). At a glance, the behavioral or situational aspect of these techniques may appear similar to an external observer. For clients, behavioral experiments require active identification and reflection on their personal beliefs and their relationship to objective experiences. For example, an exposure exercise targeting IU might involve eating a meal at a new restaurant, whereas a behavioral experiment would ask the client to eat a meal at a new restaurant in order to test the belief that "Uncertainty spoils everything." The effectiveness of exposure has been traditionally explained by emotional processing via physiological arousal and habituation (Foa & Kozak, 1986). However, some contemporary theories of exposure instead rely on an inhibitory learning paradigm (e.g., Craske, Treanor, Conway, Zbozinek, & Vervliet, 2014). We propose that the effectiveness of behavioral experiments may be explained by both physiological arousal and inhibitory learning. In behavioral experiments, an individual must identify a thought to be tested and experience some degree of emotional arousal during the experiment itself.

Using behavioral experiments to target IU has several potential advantages. First, our behavioral experiments focus on beliefs about uncertainty rather than worry. This may be particularly useful for clients who excessively focus on worry content during therapy sessions. Second, behavioral experiments that target IU may be more effective than repeated situational exposure to uncertainty, the primary method of clinically targeting IU (Dugas & Robichaud, 2007). Although a comparison of exposure and behavioral experiments in GAD has yet to be conducted, preliminary evidence suggests that behavioral experiments may be more efficacious than exposure in some cases (McMillan & Lee, 2010; Salkovskis, Hackmann, Wells, Gelder, & Clark, 2006). If the mechanism of change in both techniques is cognitive mediation, behavioral experiments might have an advantage in that they may produce greater change in target cognitions than exposure (Raes, Koster, Loeys, & De Raedt, 2011). Third, behavioral experiments are experiential and can be conceptualized as cognitive change with a behavioral motor (Wells, 1995). In the case of IU, individuals use planned behaviors to create a state of uncertainty in order to explore uncertainty-related beliefs. Experiential learning may be particularly important in GAD, given the difficulties associated with traditional cognitive techniques focused on worry. Behavioral experiments may reduce target cognitions more quickly and with greater generalization (McManus et al., 2012) and provide greater sensory information and higher emotional arousal (Bennett-Levy, 2003) as compared to thought records. Finally, behavioral experiments encourage individuals to identify and directly modify safety behaviors used to avoid uncertainty, such as procrastination, situational avoidance, and reassurance seeking.

The current CBT protocol consists of three modules: (a) psychoeducation and uncertainty awareness training, (b) testing beliefs about uncertainty via behavioral experiments, and (c) relapse prevention (see Table 1). We describe each module in turn.

Module 1: Psychoeducation and Uncertainty Awareness Training

Module 1 is delivered during the first two therapy sessions. The main goal is to provide a foundational understanding of CBT, GAD symptoms, and the function of IU in one's daily life. To facilitate this, the therapist provides information on CBT, GAD, and the theoretical model of IU. In accordance with Dugas and Robichaud (2007), the therapist outlines principles of CBT including (a) a focus on the cognitive-behavioral–emotional relationship, (b) providing new perspectives on a problem, (c) acquisition and practice of new skills, (d) therapist–client collaboration, (e) promoting self-efficacy, (f) time-limited nature, (g) structured nature, (h) here-and-now focus, and (i) emphasis on between-session exercises. Here, a discussion of therapy expectations may also be warranted.

Basic Symptom Monitoring

In Session 1, the client is introduced to a basic symptom model in which triggers lead to worry, anxiety, and safety behaviors, which in turn have bidirectional relationships between one another. Worry is defined as a

Table 1
Treatment Module Goals, Components, and Exercises

Modules	Sessions	Goals	Key components	Exercises
1. Psycho education and uncertainty awareness training	2	▪ Create mutual understanding of CBT and GAD symptoms ▪ Frame negative beliefs about uncertainty as treatment focus ▪ Enhance understanding of personal IU beliefs	▪ Provide information on principles of CBT ▪ Present information on GAD symptoms ▪ Provide basic model of GAD symptoms ▪ Begin basic symptom monitoring ▪ Provide theoretical model for IU ▪ Begin IU monitoring	▪ Worry diary ▪ Uncertainty diary ▪Intolerance of Uncertainty Scale
2. Behavioral experiments for intolerance of uncertainty	9	▪ Identify and weaken negative beliefs about uncertainty ▪ Generate and strengthen neutral/positive beliefs	▪ Provide rationale for behavioral experiments ▪ Present steps for behavioral experiments ▪ Test out idiosyncratic beliefs about uncertainty ▪ Generate new beliefs via active reflection	▪ Behavioral experiments testing beliefs about uncertainty
3. Relapse prevention	1	▪ Consolidate understanding of helpful techniques ▪ Identify areas for continued improvement	▪ Discuss key behavioral experiments ▪ Compare old and new beliefs and behaviors ▪ Plan "continuous" behavioral experiments ▪ Plan for unexpected events and setbacks	▪ Relapse prevention worksheet

Note. CBT = cognitive-behavioral treatment, GAD = generalized anxiety disorder, IU = intolerance of uncertainty.

future-oriented, repetitive thought process focused on possible negative outcomes that may or may not occur, whereas anxiety is defined as an emotional state composed of affective discomfort and physiological symptoms such as muscle tension (Dugas & Robichaud, 2007; Macleod, Williams, & Bekerian, 1991). The term "safety behaviors" is used to describe any behavior aimed at reducing the discomfort and anxiety associated with uncertainty. In GAD, this might include reassurance seeking, overpreparation, excessive information seeking, situational avoidance, or refusing to delegate to others (Beesdo-Baum et al., 2012; Dugas & Robichaud, 2007; Stöber & Joorman, 2001). Finally, triggers are introduced as any internal or external event that "sets off" the cycle of worry, anxiety, and safety behaviors. Triggers are more specifically defined in Session 2, when the more complex model of IU is introduced (see Figure 1). The basic symptom model provides the foundation necessary for the first between-session exercise, in which the client monitors the model components on a daily basis (see Table 1). The goal of this exercise is to heighten awareness and differentiation of GAD symptoms and their triggers.

IU Awareness Training

In Session 2, the therapist extends the basic symptom model into the IU model on which the remainder of treatment is based (see Figure 1). The goals of this session are to define IU; discuss its relationship with uncertainty and GAD symptoms; increase everyday awareness of IU; and reframe negative beliefs about uncertainty as "the problem," rather than GAD symptoms or uncertainty itself.

The therapist defines each aspect of the IU model (see Figure 1). In keeping with Dugas and Robichaud (2007), IU is explained as a "psychological allergy" in which even a small quantity of uncertainty can produce a powerful reaction. A similar analogy of wearing "uncertainty glasses" is used to describe the biased information processing that occurs as a consequence of IU, making an individual more likely to notice triggers and to respond negatively to them (Dugas & Robichaud, 2007). We then reframe worry, anxiety, and safety behaviors as the cognitive, emotional, and behavioral manifestations of IU. The costs and benefits of IU are explored across life domains, including work/school, relationships, daily life, and future plans.

Clients are asked to identify the main target of treatment using the IU model. At first, clients may understandably

select triggers, uncertainty, or GAD symptoms. This is validated by emphasizing the time and energy clients have already put into their attempts to minimize uncertainty and its triggers. However, we posit that their efforts have ultimately failed because triggers and uncertainty are a normal part of daily life. Similarly, we emphasize that focusing on GAD symptoms can be less effective than addressing the root of the problem, akin to playing "whack-a-mole" with worries. Instead, clients are encouraged to consider negative beliefs about uncertainty as the culprit—if these could be changed, GAD symptoms may be more effectively decreased. Catastrophically negative beliefs about uncertainty are presented as the central focus of therapy. Two broad categories of beliefs are introduced—namely, (a) beliefs that uncertainty has negative implications for oneself and one's behavior and (b) beliefs that uncertainty is unfair and spoils everything (Sexton & Dugas, 2009). Common safety behaviors associated with these beliefs are highlighted.

Clients are encouraged to explore personal beliefs about uncertainty both in and between sessions via self-reflection and by completing the Intolerance of Uncertainty Scale (IUS; Freeston, Rhéaume, et al., 1994). As a between-session exercise, the client is asked to complete advanced symptom monitoring of triggers, trigger types (novelty, ambiguity, or unpredictability), worry, anxiety, and safety behaviors (see Table 1). Clients also complete the IUS (Freeston, Rhéaume, et al., 1994) prior to their next session, with the aim of identifying idiosyncratic uncertainty beliefs.

Module 2: Behavioral Experiments Targeting IU

Module 2 is administered over the course of nine sessions, representing the majority of treatment. Behavioral experiments are introduced as an experiential method of testing out uncertainty-related beliefs in one's everyday life. The two main goals of this module are to determine (a) the extent to which the individual's current beliefs are true or personally valuable, and (b) whether there are any reasonable alternative beliefs about uncertainty. Behavioral experiments are particularly well suited to targeting IU, as they are (a) active and experiential, (b) client centered, (c) target existing uncertainty beliefs, (d) encourage the development of new beliefs, (e) promote repeated practice of new skills and behaviors, and (f) encourage curiosity and creativity. The therapist also highlights the following four principles of successful behavioral experiments: (a) specificity; (b) an open, curious, and experimental attitude; (c) collaboration with the therapist; and (d) the expectation of discomfort (Bennett-Levy et al., 2005).

Clients are asked to use a behavioral experiment log to design and record each behavioral experiment. This includes identifying the situational problem and uncertainty belief to be targeted; describing how, when, where, and with whom the behavioral experiment will be conducted; identifying the predicted outcome of the experiment; recording the experiment's outcome; and reflecting on the meaning of the experiment with respect to their original uncertainty belief. The therapist reviews written examples of completed behavioral experiment logs to illustrate their use. Clients are also provided with a list of over 60 possible behavioral experiments targeting IU. This list is meant for use as a "jumping-off point" for both client and therapist, rather than a checklist.

Clients are encouraged to design idiosyncratic behavioral experiments testing personal uncertainty beliefs in a feasible manner. For example, a client who identified the belief that "I am completely paralyzed when I feel uncertain" might design an experiment in which she would record each uncertainty-inducing situation she encountered over a 1-week period as well as her resulting thoughts, emotions, and behaviors. She may further record her actions in a yes/no fashion (e.g., "Did I respond in any way while feeling uncertain? Yes/no") as well as describe what the action was, regardless of whether it was a large or small response. At the end of the week, the client may estimate how often she was able to act when uncertain as well as any changes in her worry, anxiety, and behaviors. In many cases, the client may find that she was able to act more than she had initially predicted. In reflective discussion with the therapist, the client may identify a new belief that more accurately represents her experiences, such as "I can take action even when feeling unsure" (see Table 2 for further examples).

Each treatment session consists of reviewing the outcome of the previous week's behavioral experiment, exploring what can be learned from the experience, and designing behavioral experiments for the upcoming week. Particular emphasis is placed on the behavioral experiment's implications for the uncertainty belief that was tested, including modification of the existing belief or the creation of a new belief.

Module 3: Relapse Prevention

Module 3 is delivered in the final session of treatment. The goal of relapse prevention in CBT typically involves a review of important skills, identifying areas for continued work, and planning for inevitable setbacks. Each of these elements is present in the current treatment, implemented with a behavioral experiment "twist." First, clients are asked to compare and contrast their old beliefs about uncertainty from the beginning of treatment to their current beliefs at the end of treatment. The goal of this exercise is to highlight the progress and change that has occurred over the course of therapy. This is sometimes facilitated by reviewing an initial IUS completed at pretreatment to one completed near posttreatment. Pivotal behavioral experiments may also be

Table 2
Sample Behavioral Experiments Targeting Intolerance of Uncertainty

Sample	Uncertainty belief	Alternative prediction	Behavioral experiment
1	▪ When I feel unsure, I have to act right away.	▪ Responding to uncertainty can be delayed.	▪ Delay responding to ambiguous, novel, or unpredictable situation for a predetermined period of time (e.g., 1 hour, 1 day, 1 week)
2	▪ I can't stand not knowing—I need reassurance.	▪ I can find ways to cope with uncertainty on my own.	▪ Compare 3 days of responding as usual with 3 days of refraining from reassurance seeking
3	▪ Uncertainty ruins everything.	▪ Doing something new may be enjoyable.	▪ Order a new dish at a favorite restaurant

discussed. To promote continued motivation, clients are asked to reflect on how these changes have affected their daily lives and how well they coincide with personal values and life goals.

Next, clients are encouraged to embed behavioral experiments into their everyday life—essentially making behavioral experiments a lifestyle. The goal is to identify methods for maintaining and extending treatment gains. Clients are first asked to develop "continuous" behavioral experiments—those designed to "run in the background" on a daily, weekly, or monthly basis. For instance, a client may go to a new restaurant once per month or take his or her child to a new park weekly to test out the belief that "If I'm uncertain, it means I am embracing new things in my life." Another strategy for making behavioral experiments a lifestyle is planning how to apply the behavioral experiment framework to unexpected life events or situations. Discussion focuses on how the client may apply the principles and steps of a behavioral experiment to unexpected events.

The final aspect of relapse prevention consists of developing an "early alarm system" for increasing IU and a plan of action for coping with setbacks. Clients identify behavioral, emotional, cognitive, and interpersonal cues that would signal a potential increase in IU. Safety behaviors may be the most noticeable warning sign, although it is helpful to identify a variety of possible cues. The therapist and client then collaboratively develop a plan of action to cope with setbacks, including deconstructing the situation; taking a behavioral experiment approach to the situation by testing out relevant beliefs; and using coping statements to remind oneself of key skills and information, such as a powerful outcome of a previous behavioral experiment or a balanced uncertainty belief.

Special Considerations for Therapists

The power of therapeutic alliance is widely acknowledged, including in CBT. In the present treatment, the therapist's attitudes and behavior have the potential to enhance tolerance for uncertainty or inadvertently reinforce IU. For this reason, we suggest specific considerations for therapists when delivering this treatment in addition to transtheoretical characteristics such as empathy, warmth, collaboration, curiosity, and an emphasis on empiricism.

Challenging One's Own Uncertainty Beliefs

Therapists bring their own beliefs, attitudes, and assumptions about uncertainty into the therapeutic relationship. It is imperative that therapists identify, acknowledge, and challenge their own uncertainty-related beliefs. As in other forms of CBT, we encourage therapists to practice this treatment's techniques in their own life. For example, therapists are encouraged to identify their uncertainty beliefs using the IUS, monitor their reactions to uncertainty using the uncertainty awareness diary, and test out their own uncertainty beliefs using behavioral experiments. When therapists are more aware of their personal uncertainty-related beliefs and reactions, they are better equipped to address challenging areas in therapy. Similarly, when therapists are intimately familiar with the techniques outlined here, they are better able to utilize them clinically and avoid potential pitfalls.

Modeling Tolerance for Uncertainty In Session

When combined with empathy, warmth, and curiosity, a powerful therapeutic tool can be to model tolerance for uncertainty in session. Therapists may have negative beliefs about uncertainty within therapy, such as "If I feel uncertain, I'm not a good therapist" or "I should never communicate to the client that I'm unsure." In fact, we advocate the opposite: rather than reassure a client that his or her behavioral experiment will most likely turn out all right, we suggest highlighting the uncertainty inherent in behavioral experiments. Instead of "cheerleading" clients by providing reassurance, downplaying uncertainty, or giving excessive direction, therapists are encouraged to reinforce effort rather than outcomes, promote curiosity and openness, and judiciously disclose their own feelings of uncertainty. For example, therapists may state that they have no way of knowing how a behavioral experiment will turn out, but they are curious to find out. In this way, therapists

indirectly promote change by modeling a curious and accepting attitude toward uncertainty.

Preliminary Empirical Support

An appropriate first step of treatment development often involves a preliminary evaluation of efficacy (American Psychological Association, 2002; Chow et al., 2017). This is an economical method of determining whether further research in a larger-scale RCT is warranted. In keeping with this, we conducted a clinical case replication series ($N = 7$). Treatment efficacy was evaluated based on changes in GAD symptoms, general psychopathology, and IU using an analysis of remission rates, effect sizes (Cohen's *d*), clinically significant change, and end-state functioning. First, we hypothesized that GAD symptoms, general psychopathology, and IU would significantly reduce from pre- to posttreatment, with at least moderate effect sizes. We predicted that at least 70% of participants would achieve GAD remission by posttreatment, consistent with the results of other IU-focused treatment studies (e.g., Dugas et al., 2010). Similarly, we predicted that the majority of participants would achieve clinically significant change on these measures. Second, we hypothesized that GAD symptoms, general psychopathology, and IU would remain stable from posttreatment to 6-month follow-up, with negligible to small effect sizes. We predicted that at least 70% of participants would be remitted across the follow-up period. We also predicted that the majority of participants would continue to have clinically significant change at 3- and 6-month follow-ups. Finally, we hypothesized that the majority of participants would have at least moderate end-state functioning from posttreatment to 6-month follow-up.

Method

Participants

Seven Francophone participants (71.43% female) with a primary diagnosis of GAD completed the study. A primary diagnosis of GAD consisted of a score of 4 or greater on the Clinician's Severity Rating (CSR) from the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; Di Nardo, Brown, & Barlow, 1994), with no other disorder having a higher score. At pretreatment, participants had an average GAD severity rating of 5.5 ($SD = 0.82$) and had experienced GAD symptoms for an average of 20.37 years ($SD = 19.00$). Participants had a mean age of 47.29 years ($SD = 12.31$) and all self-identified as White. The majority of the sample (57.10%) endorsed current antidepressant usage. The same percentage of participants (57.10%) denied use of anxiolytics and prior psychotherapy experience.

Procedure

Participants self-referred to our clinic via an advertisement placed in a local newspaper. Prospective participants completed two independent clinical interviews with a clinical psychologist and team psychiatrist, respectively: the ADIS-IV and the Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1994). A team meeting was then held to discuss the clinical interview results and arrive at a final diagnosis. Participants were included in the study if the following criteria were met: (a) primary diagnosis of GAD, (b) 18 years of age or older, (c) French-language fluency, (d) no current suicidal ideation, (e) no current or past history of bipolar depression or psychosis, (f) no current substance dependence or abuse, (g) no change in psychotropic medication dose or type for at least 12 weeks prior to the initial assessment, (h) willingness to maintain stable psychotropic medication for the 12-week treatment duration, and (i) not currently undergoing another psychological treatment. Individuals who did not meet inclusion criteria were provided with alternative resources.

In addition to the pretreatment clinical interviews, participants provided informed consent for treatment and completed a battery of self-report questionnaires (see "Measures") using computer software. These questionnaires assessed GAD symptoms, IU, and general psychopathology. Participants completed these self-report questionnaires and the ADIS-IV again at midtreatment, posttreatment, and at 3- and 6-month follow-ups. All assessments were conducted by one of two licensed clinical psychologists who did not conduct the treatment itself. Eight potential participants were screened and seven individuals completed treatment. One participant attended a single session but discontinued due to scheduling conflicts.

The CBT protocol for GAD was delivered over 12 weekly, 50-minute sessions by a licensed clinical psychologist. To ensure treatment integrity, the study authors (E.A.H. and M.J.D.) and the therapist conducted weekly clinical supervision meetings.

Measures

Clinician-rated GAD symptoms were assessed using the ADIS-IV and the MINI. Self-rated GAD symptoms were assessed using the Worry and Anxiety Questionnaire (WAQ; Dugas et al., 2001), and the Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990; Gosselin, Dugas, Ladouceur, & Freeston, 2001) was used to assess the self-rated tendency to worry excessively and uncontrollably. The IUS (Freeston, Rhéaume, et al., 1994) was used to examine the self-rated tendency to endorse negative beliefs about uncertainty and its consequences. The Generalized Anxiety Disorder–Safety Behaviors Questionnaire (GAD-SBQ; Hebert & Dugas, 2013) is an 18-item questionnaire designed for use in this study. This self-report measure assessed the tendency to use safety behaviors clinically associated with GAD and anxiety. Finally, the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988;

Freeston, Ladouceur, Thibodeau, Gagnon, & Rhéaume, 1994) and Beck Depression Inventory, Second Edition (BDI-II; Beck, Steer, & Brown, 1996) were used to measure self-rated anxiety and depressive symptoms, respectively (see Hebert, 2015, for a full description of measures used). Finally, a French translation of the Treatment Acceptability/Adherence Scale (TAAS; Milosevic, Levy, Alcolado, & Radomsky, 2015) was modified for use in this study.

Results

Treatment Integrity

We assessed treatment protocol adherence by evaluating two participants' (28.57% of the sample) audio-recorded treatment sessions, using a trained independent coder. One participant was randomly selected from the first half of the sample and the second participant was randomly selected from the second half of the sample, to control for the effects of therapist practice and therapist drift. Each treatment session was coded for both structure and content, timed in accordance with the therapist treatment manual. Across participants, treatment integrity reached 98.31% for structure and 99.38% for content.

Treatment Acceptability

At Session 3, participants indicated the degree to which they found the treatment acceptable and their anticipated treatment adherence. Total TAAS scores suggested high treatment acceptability and anticipated adherence ($M = 63.57$, $SD = 5.62$).

Remission Rates

In keeping with the suggestions of the ADIS-IV developers (Di Nardo et al., 1994) and accepted clinical practices (e.g., Dugas et al., 2010; Norton et al., 2012), a participant was considered to have achieved GAD remission if he or she had a score of less than 4 on the ADIS-IV-CSR. At posttreatment, six out of seven participants had remitted from GAD. This was relatively consistent across the follow-up period: at both 3- and 6-month follow-up, five participants maintained GAD remission (see Figure 2).

Effect Sizes

We calculated effect sizes (Cohen's *d*) to assess the relative magnitude of change between assessment points (see Table 3). Paired samples *t* tests were used to evaluate the statistical significance of key comparisons (i.e., pre- to posttreatment, pretreatment to 6-month follow-up, and posttreatment to 6-month follow-up). Across all measures, the pattern of results indicated substantial reductions from pre- to posttreatment as evidenced by large, positive effect sizes. Paired samples *t* tests of these comparisons were statistically significant across all measures; each remained statistically significant following a Holm–Bonferroni procedure correcting for family-wise error. When examining the entire study period, all measures demonstrated large, positive effect sizes from pretreatment to 6-month follow-up. Paired samples *t* tests were statistically significant for each comparison, apart from a trend toward significance for the GAD-SBQ. Statistical significance remained intact for each of these comparisons following a Holm–Bonferroni correction with the exception of the PSWQ ($t = 2.81$, $p = .03$).

Over follow-up, the general pattern of results indicated no statistically significant change across measures from posttreatment to 6-month follow-up. Paired samples *t* tests were nonsignificant for all comparisons. Effect sizes were negligible for the WAQ, PSWQ, and IUS. We found a small, positive effect size for the ADIS-IV, suggesting small,

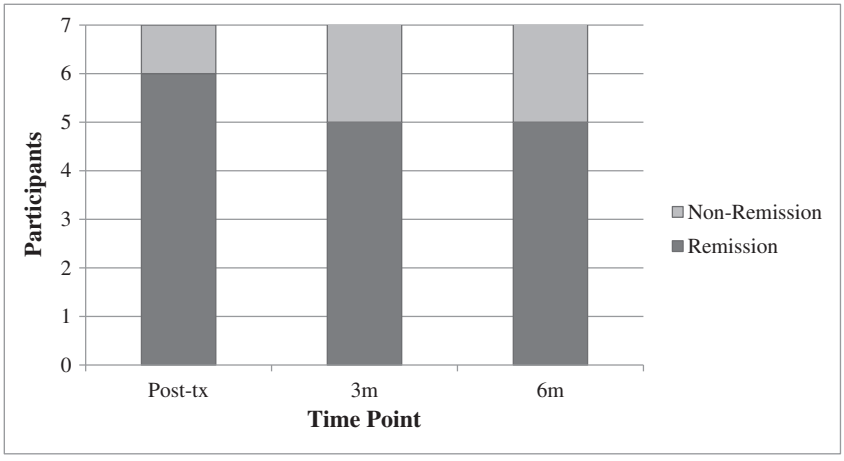

Figure 2. Remission rates at posttreatment and across follow-ups. *Note.* Post-tx = number of participants who obtained scores less than 4.0 on the ADIS-IV CSR (Anxiety Disorders Interview Schedule for DSM-IV, Clinician's Severity Rating) at posttreatment, 3m = number of participants who obtained scores less than 4.0 on the ADIS-IV CSR at 3-month follow-up, 6m = number of participants who obtained scores less than 4.0 on the ADIS-IV CSR at 6-month follow-up.

Table 3
Effect Sizes (Cohen's *d*) for GAD Symptoms and IU

Comparison	Measure						
	ADIS-IV	WAQ	IUS	PSWQ	GAD-SBQ	BAI	BDI-II
Pre–post	2.06	1.32	1.72	1.13	1.41	1.64	2.08
Pre–3 month	1.94	1.07	1.14	0.89	1.34	1.25	0.53
Pre–6 month	1.34	1.29	1.66	1.06	1.65	1.47	2.15
Post–3 month	0.94	0.00	-0.15	-0.27	-0.60	-0.41	-0.50
Post–6 month	0.37	-0.15	0.07	-0.18	-0.70	-0.56	-0.55

Note. GAD = generalized anxiety disorder, IU = intolerance of uncertainty, ADIS = clinical severity rating of the Anxiety Disorders Interview Schedule for DSM-IV, WAQ = Worry and Anxiety Questionnaire, IUS = Intolerance of Uncertainty Scale, PSWQ = Penn State Worry Questionnaire, GAD-SBQ = Generalized Anxiety Disorder–Safety Behavior Questionnaire, BAI = Beck Anxiety Inventory, BDI-II = Beck Depression Inventory, Second Edition, pre–post = Cohen's *d* effect sizes between pretreatment and posttreatment, pre–3 month = Cohen's *d* effect sizes between pretreatment and 3-month follow-up, pre–6 month = Cohen's *d* effect sizes between pretreatment and 6-month follow-up, post–3 month = Cohen's *d* effect sizes between posttreatment and 3-month follow-up, post–6 month = Cohen's *d* effect sizes between posttreatment and 6-month follow-up.

continued improvement in overall GAD symptomatology. The BAI, BDI-II, and GAD-SBQ demonstrated moderate, negative effect sizes over this time period.

Clinically Significant Change

We assessed clinically significant change on all study variables (see Figure 3). For the ADIS-IV, CSR scores below 4 were considered to be clinically significant. On the PSWQ, BAI, and BDI-II, clinically significant change was calculated by determining whether a participant's posttreatment score was closer to the functional group (i.e., nonclinical population) mean than to the dysfunctional group (i.e., GAD population) mean (Jacobson & Truax, 1991). Due to the lack of nonclinical norms available for the GAD-SBQ and French nonclinical norms for the WAQ we used a conservative alternative formula ($\alpha = M_1 - 2SD_1$; Jacobson & Truax, 1991), defining clinically significant change as a decrease of at least 2 standard deviations below the pretreatment sample mean. The majority of participants experienced clinically significant change on the ADIS-IV, WAQ, PSWQ, BAI, and BDI-II at all time points (see Figure 3). A majority of participants also had clinically significant change on the IUS at both follow-up points, though only three out of seven at posttreatment. In contrast, clinically significant change was low on the GAD-SBQ.

End-State Functioning

End-state functioning was calculated based on the number of measures on which a given participant experienced clinically significant change (see Figure 4). The GAD-SBQ was not included, as this measure has not yet been validated in clinical or nonclinical populations. Low end-state functioning was defined as clinically significant change on 0–2 measures. Moderate end-state functioning was defined as clinically significant change on 3–4 measures. High end-state functioning was defined as clinically significant change on 5–6 measures. These criteria are consistent with previous investigations involving CBT for GAD (e.g., Borkovec & Costello, 1993; Dugas & Ladouceur, 2000). Using this formula, the majority of participants displayed moderate to high end-state functioning at posttreatment (6/7 participants), 3-month follow-up (5/7 participants), and 6-month follow-up (6/7 participants).

Discussion and Implications

This study had several strengths. First, the clinical case replication series design allowed us to conduct a small-scale evaluation of a novel protocol. This is an economical use of research and clinical resources to determine if there exists sufficient justification for further investigation in an RCT (American Psychological Association, 2002). Second, we evaluated treatment outcome using a variety of methods, including remission rates, effect sizes, clinically significant change calculations, and mean comparisons. Third, we evaluated treatment outcome using a variety of clinician-administered and self-report measures for GAD symptomatology, general psychopathology, and IU. Fourth, we included a significant follow-up period in order to assess both short- and long-term treatment outcome. Fifth, we permitted comorbidity to enhance the representativeness of our sample. Sixth, treatment integrity was high. This may be related to the use of a single therapeutic intervention and the modular structure of the therapy protocol. It will therefore be important to further evaluate this in an RCT. Seventh, participants found the treatment to be highly acceptable. This may enhance client willingness to fully engage in and complete treatment (Rachman, Radomsky, & Shafran, 2008). Finally, our treatment protocol's focus on behavioral experiments reduces the need for future dismantling studies that would compare the relative contributions of multiple

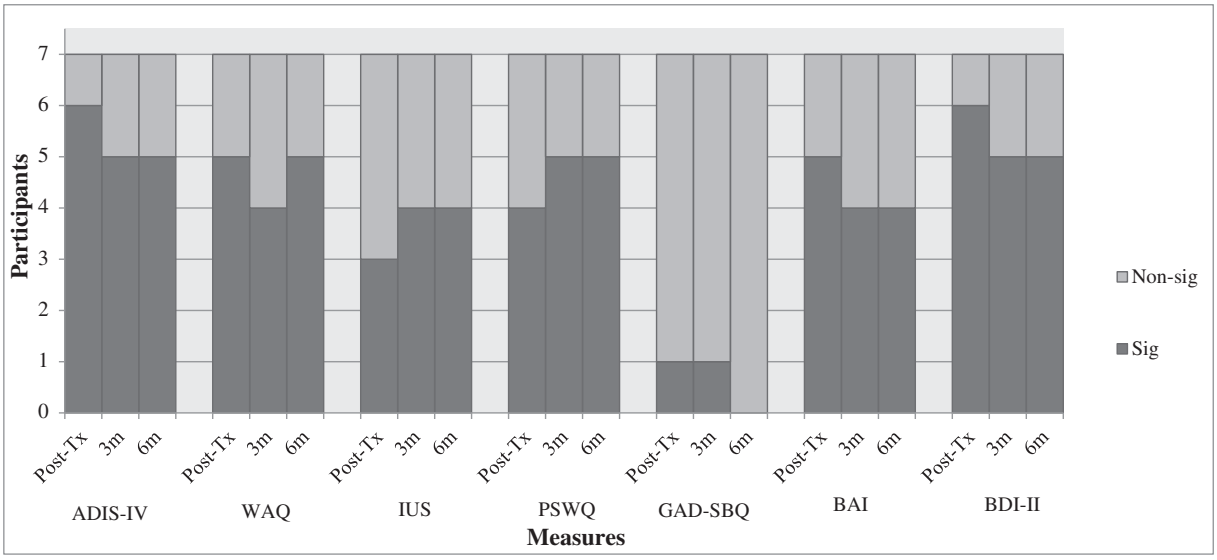

Figure 3. Clinically significant change at posttreatment and across follow-ups. *Note.* Post-tx = number of participants with clinically significant change at posttreatment, 3m = number of participants with clinically significant change at 3-month follow-up, 6m = number of participants with clinically significant change at 6-month follow-up, ADIS-IV = Clinical Severity Rating of the Anxiety Disorders Interview Schedule for DSM-IV, WAQ = Worry and Anxiety Questionnaire, IUS = Intolerance of Uncertainty Scale, PSWQ = Penn State Worry Questionnaire, GAD-SBQ = Generalized Anxiety Disorder–Safety Behavior Questionnaire, BAI = Beck Anxiety Inventory, BDI-II = Beck Depression Inventory, Second Edition.

cognitive-behavioral techniques. This also resulted in a parsimonious and efficient treatment protocol, and may improve knowledge translation to clinicians (Cougle, 2012; Dimeff et al., 2009; Mansell, 2008; Shafran et al., 2009). This may be particularly important given the low rates of evidence-based psychological treatments in routine clinical

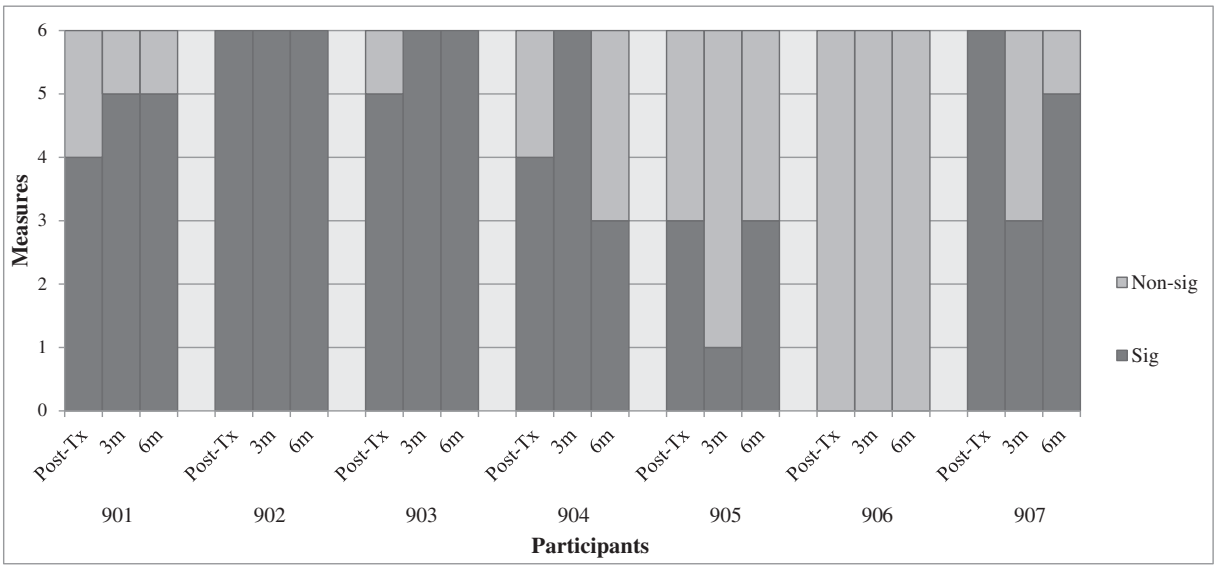

Figure 4. End-state functioning at posttreatment and across follow-ups by participant. *Note.* Post-tx = number of measures with clinically significant change at posttreatment, 3m = number of measures with clinically significant change at 3-month follow-up, 6m = number of measures with clinically significant change at 6-month follow-up. End-state functioning = total number of the following measures on which a participant achieved clinically significant change at a given time point: Anxiety Disorders Interview Schedule for DSM-IV; Worry and Anxiety Questionnaire; Penn State Worry Questionnaire; Intolerance of Uncertainty Scale; Beck Anxiety Inventory; and Beck Depression Inventory, Second Edition.

settings (e.g., Goisman, Warsaw, & Keller, 1999; Stein et al., 2004).

There are also important limitations. First, our small sample size limited the number and type of statistical analyses that could be performed due to reduced power. Second, it is unclear how our results would generalize outside of our sample's geographic and demographic boundaries. Small but statistically significant differences between Francophone and Anglophone populations have been found in several anxiety-related domains, including measures of social anxiety (Radomsky, Ashbaugh, et al., 2006), obsessions (Radomsky, Ouimet, Ashbaugh, Lavoie, et al., 2006), and claustrophobia (Radomsky, Ouimet, Ashbaugh, Paradis, et al., 2006). However, White Francophone samples similar to the one used in the current study have been used in previous research on CBT for GAD (e.g., Primiano et al., 2014; Thébergé-Lapointe, Marchand, Langlois, Gosselin, & Watts, 2015), with results seemingly comparable to investigations using Anglophones. Future research should therefore evaluate this treatment protocol within non-White and non-Francophone populations. Third, we did not employ a wait-list control condition. Thus, we cannot be certain that our results are not attributable to the effect of time. However, this is less of a concern for a preliminary investigation in a GAD sample, given that spontaneous remission in GAD is uncommon (Yonkers, Warshaw, Massion, & Keller, 1996). Fourth, the safety behaviors measure developed for this study has not yet been validated. Although it assesses a wide variety of safety behaviors that may occur in GAD (Beesdo-Baum et al., 2012; Dugas & Robichaud, 2007), the validity and reliability of this measure's results should be interpreted with caution. Fifth, we cannot evaluate the relative efficacy of the current treatment to established CBT protocols for GAD or IU (e.g., Dugas & Ladouceur, 2000) as we did not employ an active treatment control group.

In the context of our study's limitations, we can draw several preliminary conclusions from this initial empirical evaluation. Overall, our pattern of results suggests that this IU-focused CBT protocol is capable of producing significant decreases in GAD symptoms, general psychopathology, and IU. Six out of seven participants achieved GAD remission by posttreatment, as assessed by a structured clinical interview. In addition, results indicated large and statistically significant pre- to posttreatment decreases in self-reported GAD symptomatology, general psychopathology, and IU. Treatment gains were generally maintained across the 6-month follow-up period, with moderate deterioration in safety behaviors as well as general anxiety and depressive symptoms. However, these deteriorations were not statistically significant when evaluated in paired samples t tests. The relative magnitude of change for the overall study period (i.e., from pretreatment to 6-month follow-up) was large and positive across all outcome measures. The majority of participants achieved clinically significant change on all measures by posttreatment, with the exception of the GAD- SBQ. Our findings regarding safety behaviors should be interpreted with some caution, given the unvalidated nature of the measure and the conservative cutoff used for clinically significant change (Jacobson & Truax, 1991). Our hypothesis that the majority of participants would experience moderate to high end-state functioning from posttreatment to 6-month follow-up was also confirmed. Overall, the results suggest that the present IU-focused CBT protocol may produce meaningful change in key symptom dimensions and in beliefs about uncertainty by posttreatment that remain relatively durable over a 6-month period.

Our pattern of results is largely consistent with previous investigations of a more complex IU-focused treatment for GAD (Dugas & Ladouceur, 2000; Dugas et al., 2003, 2010; Ladouceur, Dugas, et al., 2000; van der Heiden et al., 2012). This is particularly encouraging, given that the novel CBT protocol was delivered in fewer sessions, with fewer components, and only one major cognitive-behavioral intervention. This suggests that it is possible to reduce GAD symptoms by exclusively targeting IU via behavioral experiments. Our effect size analyses demonstrated large reductions in IU over both the active and total study periods (e.g., pre–posttreatment: d = 1.72). This is at least comparable to the large pre–posttreatment effect sizes found in studies evaluating the standard CBT-IU protocol (d = 0.93, Donegan & Dugas, 2013; d = 1.01, Dugas et al., 2010). It is notable that the pre–posttreatment time periods are not identical across studies: the current CBT protocol is two sessions shorter than the standard CBT-IU protocol (12 vs. 14 sessions). Although this study did not include a direct comparison between the treatment protocols, the pattern of results suggests that such an evaluation is warranted, as it is possible that the present treatment may generate large IU reduction in fewer treatment sessions.

IU has been conceptualized as a key factor in the development and maintenance of GAD symptoms. Our findings suggest that behavioral experiments targeting beliefs about uncertainty can produce meaningful changes in both IU and GAD symptoms. This is consistent with cognitive mediation theories of anxiety, which suggest that changing underlying beliefs will lead to changes in anxiety symptoms (e.g., Beck, 1976; Beck et al., 1979). In the current treatment, behavioral experiments were specifically designed to target the catastrophically negative uncertainty beliefs that we propose lead to GAD symptoms. The finding that IU-focused behavioral experiments decreased GAD symptoms thus indirectly supports the theoretical model.

Our preliminary evidence suggests that GAD symptoms can be reduced by directly and exclusively targeting IU via behavioral experiments. Behavioral experiments may reduce intolerance of uncertainty, and thus reduce GAD symptoms, in several ways. First, behavioral experiments may weaken catastrophically negative beliefs about uncertainty. A behavioral experiment may reveal disconfirmatory information about a previously held belief about uncertainty, thereby reducing IU. Second, behavioral experiments may foster the creation of neutral or positive beliefs about uncertainty. Behavioral experiments are theorized to violate negative outcome expectancies (McMillan & Lee, 2010), thus facilitating fear response extinction via new inhibitory learning (Bouton, 2004), modifying existing belief structures (Salkovskis et al., 2006), or generating new beliefs or mental representations (Bouton, 2004; Gavetti & Levinthal, 2000; Pearce & Hall, 1980). These new neutral or positive beliefs about uncertainty may then reduce IU. Behavioral experiments may be particularly valuable in selectively weakening or strengthening specific beliefs about uncertainty, as they may work on both implicational and propositional levels of cognition (Teasdale, 1997; Teasdale & Barnard, 1993) via experiential learning and reflection (Bennett-Levy et al., 2005; Kolb, 1984; Lewin, 1946). Future research should compare the relative performance of behavioral experiments, behavioral exposure, and other methods of targeting IU.

The current treatment protocol may provide advantages in treatment integrity, clinical utility, and knowledge translation. The structure and flexibility behavioral experiments may bolster clinicians' ability to adhere to the treatment protocol, as supported by our study's treatment integrity ratings. The flexibility of this treatment protocol encouraged individualization based on case formulation, thus promoting ecological validity (Persons, 2006). In other words, clients are taught the necessary skills for designing and implementing successful behavioral experiments rather than being led through predetermined exercises by a therapist. This may also promote enhanced treatment acceptability for clinicians, who may struggle to implement empirically supported treatments when they perceive restriction of their clinical creativity (Gunter & Whittal, 2010). The qualitative impression of the current study's therapist suggested that the treatment was initially challenging as behavioral experiments are tailored individually to each client, although this improved rapidly over the course of the study. We consider therapist training to be key given that the protocol necessitates the clinician to "think on his or her feet." The required mastery of a single major therapeutic strategy may reduce barriers to knowledge translation (Cougle, 2012; Dimeff et al., 2009; Mansell, 2008), particularly for clinicians with less specialized clinical training in psychological treatments (Bright, Baker, & Neimeyer, 1999).

Conclusions

Despite 30 years of progress in empirically supported treatments for GAD, this condition remains the least successfully treated of all anxiety disorders (Gould, Safren, O'Neill Washington, & Otto, 2004). GAD has a chronic course (Lydiard, 2000) with few spontaneous remissions (Yonkers et al., 1996), and relapse rates of 50% are not uncommon (Holaway, Rodebaugh, & Heimberg, 2006). Improving GAD treatment therefore remains critical. Greater parsimony, efficiency, and cost-effectiveness is of increasing concern (Cougle, 2012; Mansell, 2008; McManus et al., 2012) in order to improve knowledge translation (Cougle, 2012; Dimeff et al., 2009; Mansell, 2008), enhance client memory (Cougle, 2012), reduce required training hours (Dimeff et al., 2009; Nadort et al., 2009; Rollinson et al., 2007), and reduce costs. Our preliminary evaluation suggests that a novel CBT protocol targeting IU via behavioral experiments can produce significant reductions in GAD symptomatology in 12 sessions using one main therapeutic technique. Future investigations should focus on replication in a larger-scale RCT with wait-list and active control conditions (American Psychological Association, 2002), evaluation of the temporal sequence of change within this treatment, and direct comparison of behavioral experiments and behavioral exposure techniques in targeting IU.

Disclosure Statement

The authors have no conflicts of interest or competing interests to declare.

References

American Psychological Association. (2002). Criteria for evaluating treatment guidelines. *American Psychologist, 57*(12), 1052–1059. https://doi.org/10.1037//0003-066X.57.12.1052

Andreoni, J., & Sprenger, C. (2012). Risk preferences are not time preferences. *American Economic Review, 102*(7), 3357–3376. https://doi.org/10.1257/aer.102.7.3357

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders.* New York, NY: International Universities Press.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*, 893–897. https://doi.org/10.1037/0022-006X.56.6.893

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy for depression.* New York, NY: Guilford Press.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory–II.* San Antonio, TX: Psychological Corporation.

Beesdo-Baum, K., Jenjahn, E., Hofler, M., Lueken, U., Becker, E. S., & Hoyer, J. (2012). Avoidance, safety behavior, and reassurance seeking in generalized anxiety disorder. *Depression and Anxiety, 29*(11), 948–957. https://doi.org/10.1002/da.21955

Bennett-Levy, J. (2003). Mechanisms of change in cognitive therapy: The case of automatic thought records and behavioural experiments.

Behavioural and Cognitive Psychotherapy, *31*, 261–277. https://doi.org/10.1017/S1352465803002029

Bennett-Levy, J., Westbrook, D., Fennell, M., Cooper, M., Rouf, K., & Hackmann, A. (2005). Behavioural experiments: Historical and conceptual underpinnings. In J. Bennett-Levy, G. Butler, M. Fennell, A. Hackmann, & M. Muell (Eds.), *The Oxford guide to behavioural experiments in cognitive therapy* (pp. 1–20). New York, NY: Oxford University Press.

Borkovec, T. D. (1994). The nature, functions, and origins of worry. In G. Davey, & F. Tallis (Eds.), *Worrying: Perspectives on theory assessment and treatment* (pp. 5–33). Sussex, UK: Wiley.

Borkovec, T. D., & Costello, E. (1993). Efficacy of applied relaxation and cognitive-behavioral therapy in the treatment of generalized anxiety disorder. *Journal of Consulting and Clinical Psychology*, *61*(4), 611–619. https://doi.org/10.1037/0022-006X.61.4.611

Boswell, J. F., Thompson-Hollands, J., Farchione, T. J., & Barlow, D. H. (2013). Intolerance of uncertainty: A common factor in the treatment of emotional disorders. *Journal of Clinical Psychology*, *69*(6), 630–645. https://doi.org/10.1002/jclp.21965

Bouton, M. (2004). Context and behavioral processes in extinction. Learning & Memory, *11*(5), 485. https://doi.org/10.1101/lm.78804

Bright, J. I., Baker, K. D., & Neimeyer, R. A. (1999). Professional and paraprofessional group treatments for depression: A comparison of cognitive-behavioral and mutual support interventions. *Journal of Consulting and Clinical Psychology*, *67*, 491–501. https://doi.org/10.1037/0022-006X.67.4.491

Brim, O. G., Jr., & Hoff, D. B. (1957). Individual and situational differences in desire for certainty. *Journal of Abnormal and Social Psychology*, *54*, 225–229. https://doi.org/10.1037/h0044692

Carleton, R. N., Mulvogue, M. K., Thibodeau, M. A., McCabe, R. E., Antony, M. M., & Asmundson, G. J. G. (2012). Increasingly certain about uncertainty: Intolerance of uncertainty across anxiety and depression. *Journal of Anxiety Disorders*, *26*, 468–479. https://doi.org/10.1016/j.janxdis.2012.01.011

Chow, J. T. Y., Lam, K., Naeem, A., Akanda, Z. Z., Si, F. F., & Hodge, W. (2017). The pathways to RCTs: How many roads are there? Examining the homogeneity of RCT justification. *Trials*, *18*(1), 51–58. https://doi.org/10.1186/s13063-017-1804-z

Clark, D. M. (1986). A cognitive approach to panic. *Behaviour Research and Therapy*, *24*, 461–470. https://doi.org/10.1016/0005-7967(86)90011-2

Cougle, J. R. (2012). What makes a quality therapy? A consideration of parsimony, ease, and efficiency. *Behavior Therapy*, *43*, 468–481. https://doi.org/10.1016/j.beth.2010.12.007

Craske, M. G., Treanor, M., Conway, C., Zbozinek, T., & Vervliet, B. (2014). Maximizing exposure therapy: An inhibitory learning approach. *Behaviour Research and Therapy*, *58*, 10–23. https://doi.org/10.1016/j.brat.2014.04.006

Di Nardo, P. A., Brown, T. A., & Barlow, D. H. (1994). *Anxiety Disorders Interview Schedule for DSM–IV (ADIS-IV)*. San Antonio, TX: Psychological Corporation.

Dimeff, L. A., Koerner, K., Woodcock, E. A., Beadnell, B., Brown, M. Z., Skutch, J. M., . . . Harned, M. S. (2009). Which training method works best? A randomized controlled trial comparing three methods of training clinicians in dialectical behavior therapy skills. *Behaviour Research and Therapy*, *47*(11), 921–930. https://doi.org/10.1016/j.brat.2009.07.011

Donegan, E., & Dugas, M. J. (2013, November). Symptom change during CBT for generalized anxiety disorder: The role of interpretation bias and intolerance of uncertainty. In M. J. Dugas (Chair), *Beyond the horserace: What are the factors that predict and explain treatment response to CBT for GAD?* Symposium conducted at the annual meeting of the Association for Behavioral and Cognitive Therapies, Nashville, TN.

Donegan, E., Dugas, M. J., Seidah, A., Geninet, I., Harvey, P., & Doucet, C. (2010, November). *Changes in symptoms and intolerance of uncertainty during cognitive-behavioral therapy for generalized anxiety disorder*. Poster presented at the annual meeting of the Association for Behavioral and Cognitive Therapies, San Francisco, CA.

Dugas, M. J., Freeston, M. H., Provencher, M. D., Lachance, S., Ladouceur, R., & Gosselin, P. (2001). Le questionnaire sur l'inquiétude et l'anxiété: Validation dans des échantillons non cliniques et cliniques. *Journal de Thérapie Comportementale et Cognitive*, *11*, 31–36. Retrieved from http://cat.inist.fr/?aModele=afficheN&cpsidt=932219

Dugas, M. J., Gagnon, F., Ladouceur, R., & Freeston, M. H. (1998). Generalized anxiety disorder: A preliminary test of a conceptual model. *Behaviour Research and Therapy*, *36*, 215–226. https://doi.org/10.1016/S0005-7967(97)00070-3

Dugas, M. J., Hedayati, M., Karavidas, A., Buhr, K., Francis, K., & Phillips, N. A. (2005). Intolerance of uncertainty and information processing: Evidence of biased recall and interpretations. *Cognitive Therapy and Research*, *29*, 57–70. https://doi.org/10.1007/s10608-005-1648-9

Dugas, M. J., & Ladouceur, R. (2000). Treatment of GAD: Targeting intolerance of uncertainty in two types of worry. *Behavior Modification*, *24*, 635–657. https://doi.org/10.1177/0145445500245002

Dugas, M. J., Ladouceur, R., Léger, E., Freeston, M. H., Langlois, F., Provencher, M. D., & Boisvert, J. -M. (2003). Group cognitive-behavioral therapy for generalized anxiety disorder: Treatment outcome and long-term follow-up. *Journal of Consulting and Clinical Psychology*, *71*, 821–825. https://doi.org/10.1037/0022-006X.71.4.821

Dugas, M. J., & Robichaud, M. (2007). *Cognitive-behavioral treatment for generalized anxiety disorder: From science to practice*. New York, NY: Routledge.

Dugas, M. J., Savard, P., Turcotte, J., Gaudet, A., Brillon, P., Ladouceur, R., . . . Gervais, N. J. (2010). A randomized clinical trial of cognitive-behavioral therapy and applied relaxation for adults with generalized anxiety disorder. *Behavior Therapy*, *41*, 46–58. https://doi.org/10.1016/j.beth.2008.12.004

Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin*, *99*(1), 20–35. https://doi.org/10.1037/0033-2909.99.1.20

Freeston, M. H., Ladouceur, R., Thibodeau, N., Gagnon, F., & Rhéaume, J. (1994). L'inventaire d'anxiété de Beck: Propriétés psychométriques d'une traduction française (The Beck Anxiety Inventory: Psychometric properties of a French translation). *L'Encéphale: Revue de Psychiatrie Clinique Biologique et Thérapeutique*, *20*(1), 47–55.

Freeston, M. H., Rhéaume, J., Letarte, H., Dugas, M. J., & Ladouceur, R. (1994). Why do people worry? *Personality and Individual Differences*, *17*, 791–802. https://doi.org/10.1016/0191-8869(94)90048-5

Frenkel-Brunswik, E. (1949). Intolerance of ambiguity as an emotional and perceptual personality variable. *Journal of Personality*, *18*(1), 108–143.

Fresco, D. M., Mennin, D. S., Heimberg, R. G., & Ritter, M. (2013). Emotion regulation therapy for generalized anxiety disorder. *Cognitive and Behavioral Practice*, *20*(3), 282–300. https://doi.org/10.1016/j.cbpra.2013.02.001

Gavetti, G., & Levinthal, D. (2000). Looking forward and looking backward: Cognitive and experiential search. *Administrative Science Quarterly*, *45*(1), 113–191. https://doi.org/10.2307/2666981

Goisman, R. M., Warsaw, M. G., & Keller, M. B. (1999). Psychosocial treatment prescriptions for generalized anxiety disorder, panic disorder and social phobia, 1991–1996. *American Journal of Psychiatry*, *156*, 1819–1821.

Goldman, N., Dugas, M. J., Sexton, K. A., & Gervais, N. J. (2007). The impact of written exposure on worry: A preliminary investigation. *Behavior Modification*, *331*, 512–538. https://doi.org/10.1177/0145445506298651

Gosselin, P., Dugas, M. J., Ladouceur, R., & Freeston, M. H. (2001). Évaluation des inquiétudes: Validation d'une traduction française du Penn State Worry Questionnaire. *L'Encéphale*, *27*, 475–484 Retrieved from http://cat.inist.fr/?aModele=afficheN&cpsidt=14068032.

Gosselin, P., Ladouceur, R., Morin, C. M., Dugas, M. J., & Baillargeon, L. (2006). Benzodiazepine discontinuation among adults with GAD: A randomized trial of cognitive-behavioral therapy. *Journal of Consulting and Clinical Psychology*, *74*, 908–919. https://doi.org/10.1037/0022-006X.74.5.908

Gould, R. A., Safren, S. A., O'Neill Washington, D., & Otto, M. W. (2004). Cognitive-behavioral treatments: A meta-analytic review. In R. G. Heimberg, C. L. Turk, & D. S. Mennin (Eds.), *Generalized anxiety disorder: Advances in research and practice* (pp. 248–264). New York, NY: Guilford Press.

Guido, K. W., Frank, M. D., Roblek, T., Shott, M. E., Jappe, L. M., Rollin, M. D. H., . . . Pryor, T. (2012). Heightened fear of uncertainty in anorexia and bulimia nervosa. *International Journal of Eating Disorders*, *45*(2), 227–232. https://doi.org/10.1002/eat.20929

Gunter, R. W., & Whittal, M. L. (2010). Dissemination of cognitive-behavioral treatments for anxiety disorders: Overcoming barriers and improving patient access. *Clinical Psychology Review*, *30*, 194–202. https://doi.org/10.1016/j.cpr.2009.11.001

Hayes-Skelton, S., Roemer, L., & Orsillo, S. M. (2013). A randomized clinical trial comparing an acceptance-based behavior therapy to applied relaxation for generalized anxiety disorder. *Journal of Consulting and Clinical Psychology*, *81*(5), 761–773. https://doi.org/10.1037/a0032871

Hebert, E. A. (2015). *Facing the unknown: Behavioural experiments for intolerance of uncertainty* (Doctoral dissertation). Retrieved from Concordia University Spectrum Research Suppository (ID no. 981389).

Hebert, E. A., & Dugas, M. J. (2013, March). *Intolerance of uncertainty and behavioural experiments*. Presented at the meeting of the Concordia University Centre for Clinical Research and Health, Montreal, Canada.

Hebert, E. A., Senn, J. M., & Dugas, M. J. (2017). Intolerance of uncertainty. In A. E. Wenzel (Ed.), *The Sage encyclopedia of abnormal and clinical psychology* (pp. 1895–1897). Thousand Oaks, CA: Sage. https://doi.org/10.4135/9781483365817.n761

Holaway, R. M., Heimberg, R. G., & Coles, M. E. (2006). A comparison of intolerance of uncertainty in analogue obsessive-compulsive disorder and generalized anxiety disorder. *Anxiety Disorders*, *20*, 158–174. https://doi.org/10.1016/j.janxdis.2005.01.002

Holaway, R. M., Rodebaugh, T. L., & Heimberg, R. G. (2006). The epidemiology of worry and generalized anxiety disorder. In G. Davey & A. Wells (Eds.), *Worry and its psychological disorders: Theory, assessment, and treatment* (pp. 3–19). Chichester, UK: Wiley.

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, *59*, 12–19. https://doi.org/10.1037/0022-006X.59.1.12

Khawaja, N. G., & Chapman, D. (2007). Cognitive predictors of worry in a non-clinical population. *Clinical Psychologist*, *11*(1), 24–32. https://doi.org/10.1080/13284200601151778

Koerner, N., & Dugas, M. J. (2006). A cognitive-affective model of generalized anxiety disorder: The role of intolerance of uncertainty. In G. C. L. Davey & A. Wells (Eds.), *Worry and psychological disorders: Theory, assessment and treatment* (pp. 201–216). Chichester, UK: Wiley.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.

Krohne, H. W. (1989). The concept of coping modes: Relating cognitive person variables to actual coping behavior. *Advances in Behaviour Research and Therapy*, *11*, 235–248. https://doi.org/10.1016/0146-6402(89)90027-1

Krohne, H. W. (1993). Vigilance and cognitive avoidance as concepts in coping research. In H. W. Krohne (Ed.), *Attention and avoidance* (pp. 19–50). Toronto, Canada: Hogrefe & Huber.

Ladouceur, R., Dugas, M. J., Freeston, M. H., Léger, E., Gagnon, F., & Thibodeau, N. (2000). Efficacy of a cognitive-behavioral treatment for generalized anxiety disorder: Evaluation in a controlled clinical trial. *Journal of Consulting and Clinical Psychology*, *68*(6), 957–964. https://doi.org/10.1037/0022-006X.68.6.957

Ladouceur, R., Gosselin, P., & Dugas, M. J. (2000). Experimental manipulation of intolerance of uncertainty: A study of a theoretical model of worry. *Behaviour Research and Therapy*, *38*, 933–941. https://doi.org/10.1016/S0005-7967(99)00133-3

Ladouceur, R., Talbot, F., & Dugas, M. J. (1997). Behavioral expressions of intolerance of uncertainty in worry: Experimental findings. *Behavior Modification*, *21*, 355–371. https://doi.org/10.1177/01454455970213006

Lanzetta, J. T., & Driscoll, J. M. (1966). Preference for information about an uncertain but unavoidable outcome. *Journal of Personality and Social Psychology*, *3*, 96–102. https://doi.org/10.1037/h0022674

Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues*, *2*, 34–46. https://doi.org/10.1111/j.1540-4560.1946.tb02295.x

Lydiard, B. R. (2000). An overview of generalized anxiety disorder: Disease state-appropriate therapy. *Clinical Therapeutics*, *2*(Suppl. A), A3–A24. https://doi.org/10.1016/S0149-2918(00)89070-0

MacLeod, A. K., Williams, J. M. G., & Bekerian, D. A. (1991). Worry is reasonable: The role of explanations in pessimism about future personal events. *Journal of Abnormal Psychology*, *100*, 478–486.

Mansell, W. (2008). The seven C's of CBT: A consideration of the future challenges for cognitive behaviour therapy. *Behavioural and Cognitive Psychotherapy*, *36*, 641–649. https://doi.org/10.1017/S1352465808004700

McEvoy, P. M., & Mahoney, A. E. J. (2012). To be sure, to be sure: Intolerance of uncertainty mediates symptoms of various anxiety disorders and depression. *Behavior Therapy*, *43*, 533–545. https://doi.org/10.1016/j.beth.2011.02.007

McManus, F., Van Doorn, K., & Yiend, J. (2012). Examining the effects of thought records and behavioral experiments in instigating belief change. *Journal of Behavior Therapy and Experimental Psychiatry*, *43*, 540–547. https://doi.org/10.1016/j.jbtep.2011.07.003

McMillan, D., & Lee, R. (2010). A systematic review of behavioral experiments vs. exposure alone in the treatment of anxiety disorders: A case of exposure while wearing the emperor's new clothes? *Clinical Psychology Review*, *30*, 467–478. https://doi.org/10.1016/j.cpr.2010.01.003

Mennin, D. S., Heimberg, R. G., Turk, C. L., & Fresco, D. M. (2005). Preliminary evidence for an emotion dysregulation model of generalized anxiety disorder. *Behaviour Research and Therapy*, *43*(10), 1281–1310. https://doi.org/10.1016/j.brat.2004.08.008

Meyer, T., Miller, M., Metzger, R., & Borkovec, T. D. (1990). Development and validity of the Penn State Worry Scale. *Behaviour Research and Therapy*, *28*, 487–495. https://doi.org/10.1016/0005-7967(90)90135-6

Milosevic, I., Levy, H. C., Alcolado, G. M., & Radomsky, A. S. (2015). The Treatment Acceptability/Adherence Scale: Moving beyond the assessment of treatment effectiveness. *Cognitive Behaviour Therapy*, *44*(6), 456–469. https://doi.org/10.1080/16506073.2015.1053407

Nadort, M., van Dyck, R., Smit, J., Giesen-Bloo, J., Eikelenboom, M., Wensing, M., . . . Arntz, A. (2009). Three preparatory studies for promoting implementation of outpatient schema therapy for borderline personality disorder in general mental health care. *Behaviour Research and Therapy*, *47*(11), 938–945. https://doi.org/10.1016/j.brat.2009.07.004

Norton, P. J., Barrera, T. L., Mathew, A. R., Chamberlain, L. D., Szafranski, D. D., Reddy, R., & Smith, A. H. (2012). Effects of transdiagnostic CBT for anxiety disorders on comorbid diagnoses. *Depression and Anxiety*, *30*(2), 168–173. https://doi.org/10.1002/da.22018

Norton, P. J., Sexton, K. A., Walker, J. R., & Norton, G. R. (2005). Hierarchical model of vulnerabilities for anxiety: Replication and extension with a clinical sample. *Cognitive Behaviour Therapy*, *34*, 50–63. https://doi.org/10.1080/16506070410005401

Pearce, J. M., & Hall, G. A. (1980). A model for Pavlovian learning: Variations in the effectiveness of conditioned but not unconditioned stimuli. *Psychology Review*, *87*, 532–552. https://doi.org/10.1037/0033-295X.87.6.532

Persons, J. B. (2006). Empiricism, mechanism, and the practice of cognitive-behavior therapy. *Behavior Therapy*, *36*, 107–118. https://doi.org/10.1016/S0005-7894(05)80059-0

Pervin, L. A. (1963). The need to predict and control under conditions of threat. *Journal of Personality*, *31*, 570–587. https://doi.org/10.1111/j.1467-6494.1963.tb01320.x

Primiano, S., Marchand, A., Gosselin, P., Langlois, F., Bouchard, S., Bélanger, C., . . . Dupuis, G. (2014). The effect of a combined versus a conventional cognitive-behavioral therapy on quality of life for comorbid panic disorder with agoraphobia and generalized anxiety disorder: Preliminary results. *Behavior Modificiation*, *38*(1), 3–24. https://doi.org/10.1177/0145445513504430

Rachman, S., Radomsky, A. S., & Shafran, R. (2008). Safety behaviour: A reconsideration. *Behaviour Research and Therapy*, *46*, 163–173. https://doi.org/10.1016/j.brat.2007.11.008

Radomsky, A. S., Ashbaugh, A. R., Saxe, M. L., Ouimet, A. J., Golden, E. R., Lavoie, S. L., & O'Connor, K. P. (2006). Psychometric properties of the French and English versions of the Social Phobia Inventory. *Canadian Journal of Behavioural Science*, *38*(4), 354–360. https://doi.org/10.1037/cjbs2006021

Radomsky, A. S., Ouimet, A. J., Ashbaugh, A. R., Lavoie, S. L., Parrish, C. L., & O'Connor, K. P. (2006). Psychometric properties of the French and English versions of the Vancouver Obsessional-Compulsive Inventory and the Symmetry Ordering and Arranging Questionnaire. *Cognitive Behaviour Therapy*, *35*(3), 164–173. https://doi.org/10.1080/16506070600827198

Radomsky, A. S., Ouimet, A. J., Ashbaugh, A. R., Paradis, M. R., Lavoie, S. L., & O'Connor, K. P. (2006). Psychometric properties of the French and English versions of the Claustrophobia Questionnaire (CLQ). *Journal of Anxiety Disorders*, *20*, 818–828. https://doi.org/10.1016/j.janxdis.2006.01.002

Raes, A. K., Koster, E. H. W., Loeys, T., & De Raedt, R. (2011). Pathways to change in one-session exposure with and without cognitive intervention: An exploratory study in spider phobia. *Journal of Anxiety Disorders*, *25*, 964–971. https://doi.org/10.1016/j.janxdis.2011.06.003

Rollinson, R., Haig, C., Warner, R., Garety, P., Kuipers, E., Freeman, D., . . . Fowler, D. (2007). The application of cognitive behavioural therapy for psychosis in clinical and research settings. *Psychiatry Services*, *58*, 1297–1302. https://doi.org/10.1176/appi.ps.58.10.1297

Rosen, N. O., & Knäuper, B. (2009). A little uncertainty goes a long way: State and trait differences in uncertainty interact to increase information seeking but also increase worry. *Health Communication*, *24*(3), 228–238. https://doi.org/10.1080/10410230902804125

Salkovskis, P. M. (1999). Understanding and treating obsessive-compulsive disorder. *Behaviour Research and Therapy*, *37*(Suppl. 1), S29–S52. https://doi.org/10.1016/S0005-7967(99)00049-2

Salkovskis, P. M., Hackmann, A., Wells, A., Gelder, M. G., & Clark, D. M. (2006). Belief disconfirmation versus habituation approaches to situational exposure in panic disorder with agoraphobia: A pilot study. *Behaviour Research and Therapy*, *45*, 877–885. https://doi.org/10.1016/j.brat.2006.02.008

Schmidt, U. (1998). A measurement of the certainty effect. *Journal of Mathematical Psychology*, *42*(1), 32–47. https://doi.org/10.1006/jmps.1997.1197

Sexton, K. A., & Dugas, M. J. (2009). Defining distinct negative beliefs about uncertainty: Validating the factor structure of the Intolerance of Uncertainty Scale. *Psychological Assessment*, *21*(2), 176–186. https://doi.org/10.1037/a0015827

Shafran, R., Clark, D. M., Fairburn, C. G., Arntz, A., Barlow, D. H., Ehlers, A., . . . Wilson, G. T. (2009). Mind the gap: Improving the dissemination of CBT. *Behaviour Research and Therapy*, *47*, 902–909. https://doi.org/10.1016/j.brat.2009.07.003

Sheehan, D. V., Lecrubier, Y., Janvas, J., Knapp, E., Weiller, E., Sheehan, M., et al. (1994). *Mini International Neuropsychiatric Interview Version 4.4 (MINI)*. Tampa/Paris: University of South Florida/Inserm U302-Hôpital de la Salpêtrière.

Shihata, S., McEvoy, P. M., Mullan, B. A., & Carleton, R. N. (2016). Intolerance of uncertainty in emotional disorders: What uncertainties remain? *Journal of Anxiety Disorders*, *41*, 115–124. https://doi.org/10.1016/j.janxdis.2016.05.001

Stein, M. B., Sherbourne, C. D., Craske, M. G., Means-Christensen, A., Bystritsky, A., Katon, W., . . . Roy-Byrne, P. P. (2004). Quality of care for primary care patients with anxiety disorders. *American Journal of Psychiatry*, *161*, 2230–2237. https://doi.org/10.1176/appi.ajp.161.12.2230

Stöber, J., & Joorman, J. (2001). Worry, procrastination, and perfectionism: Differentiating amount of worry, pathological worry, anxiety, and depression. *Cognitive Therapy and Research*, *25*(1), 49–60. https://doi.org/10.1023/A:1026474715384

Teasdale, J. D. (1997). Clinically relevant theory: Integrating clinical insight with cognitive science. In P. M. Salkovskis (Ed.), *Frontiers of cognitive therapy: The state of the art and beyond* (pp. 26–47). New York, NY: Guilford Press.

Teasdale, J. D., & Barnard, P. (1993). *Affect, cognition, and change: Re-modelling depressive thought*. Hove, UK: Psychology Press.

Théberge-Lapointe, N., Marchand, A., Langlois, F., Gosselin, P., & Watts, S. (2015). Efficacy of a cognitive-behavioural therapy administered by videoconference for generalized anxiety disorder. *Revue Européenne de Psychologie Appliquée*, *65*(1), 9–17. https://doi.org/10.1016/j.erap.2014.10.001

Tversky, A., & Kahneman, D. (1986). Rational choice and framing of decisions.*Journal of Business*, *59*, S251–S278 Retrieved from http://www.jstor.org/stable/2352759

van der Heiden, C., Muris, P., & van der Molen, H. T. (2012). Randomized controlled trial on the effectiveness of metacognitive therapy and intolerance of uncertainty therapy for generalized anxiety disorder. *Behaviour Research and Therapy*, *50*, 100–109. https://doi.org/10.1016/j.brat.2011.12.005

Wells, A. (1995). Meta-cognition and worry: A cognitive model of generalized anxiety disorder. *Behavioural and Cognitive Psychotherapy*, *23*, 301–320. https://doi.org/10.1017/S1352465800015897

Yonkers, K. A., Warshaw, M. G., Massion, A. O., & Keller, M. B. (1996). Phenomenology and course of generalised anxiety disorder. *British Journal of Psychiatry*, *168*, 308–313. https://doi.org/10.1192/bjp.168.3.308

This work was supported by the Canadian Institutes of Health Research (grant no. MOP-69066 and fellowship no. GSD-113469). The funding source had no involvement in conducting or preparing this research for publication. We thank Céline Doucet for her assistance in coordinating the study and for conducting eligibility screenings for participants. We are also grateful to Catherine Laurin, Thu Van Dao, Pascale Harvey, and Julie Turcotte for conducting the diagnostic assessments used in this study and Delphine DiTecco for conducting treatment integrity ratings. Thank you also to our participants for their hard work and willingness to face the unknown.

Address correspondence to Elizabeth A. Hebert, Ph.D., Assistant Professor, Department of Clinical Health Psychology, University of Manitoba, 771 Bannatyne Avenue, Winnipeg, Manitoba, Canada, R3E 3N4; e-mail: ehebert2@manitoba-physicians.ca.

Received: October 17, 2017
Accepted: July 6, 2018
Available online 1 September 2018