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Cognitive-Behavioral Therapy (CBT) for Generalized Anxiety Disorder (GAD)

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Introduction

Cognitive-behavioral therapy (CBT) fundamentally aims to ameliorate generalized anxiety disorder (GAD) symptoms, which stem from habitual, inflexible, and spiraling systems of interaction between somatic, cognitive, and emotional responses to appraised threats (Newman & Borkovec, 2002). Clients acquire a set of skills with the goal of developing more versatile ways of thinking and relaxed lifestyles that minimize their anxiety. At present, CBT may be considered the gold-standard of treatment for GAD (Otte, 2011). Meta-analyses of several clinical trials have suggested that CBT is the only empirically-supported treatment (EST) for GAD (Chambless & Ollendick, 2001), with demonstrable declines of acute symptoms and maintenance of post-treatment gains for up to 2 years (Covin, Ouimet, Seeds, & Dozois, 2008; Cuijpers et al., 2014; Hunot, Churchill, Teixeira, & Silva de Lima, 2007). In most cases, CBT packages are more efficacious and effective than wait-list controls and common factors controls (Covin et al., 2008), as well as non-specific psychotherapies such as pill placebo, analytic psychotherapy, non-directive therapy, and placebo therapy (Newman, Llera, Erickson, Przeworski, & Castonguay, 2013). Compared to these therapies, CBT showed the largest effect size (e.g., effect size as indexed by Cohen's *d* could be as large as –1.15; Covin et al., 2008; Hoyer & Gloster, 2009). The efficacy of CBT for GAD arguably transcends cultural differences (Markell et al., 2014).

Furthermore, evidence suggests that the cognitive therapy (CT) component alone is efficacious in decreasing pathological worry post-treatment (*d* = 1.81; range = –0.17 to 3.22 with the inclusion of seven studies) with further maintenance of gains compared to non-therapy conditions (Hanrahan, Field, Jones, & Davey, 2013). Moreover, CBT outcomes that reflect successful reductions in GAD symptoms are usually accompanied by a concomitant reduction in undesirable cognitive intrusions (Reinecke, Hoyer, Rinck, & Becker, 2013), depressive symptoms, and most other comorbid conditions (Borkovec, Abel, & Newman, 1995; Cuijpers et al., 2014; Newman, Przeworski, Fisher, & Borkovec, 2010).

This section describes the core components of CBT often employed in clinical trials of GAD based on established manuals (Bernstein, Borkovec, & Hazlett-Stevens, 2000; Borkovec & Newman, 1998; Craske, Barlow, & O'Leary, 1992; Öst, 1987) as well as recent treatment packages for GAD based on a CBT rationale such as meta-cognitive therapy (MCT) (Wells, 1999, 2009), intolerance of uncertainty therapy (IUT) (e.g., Dugas & Robichaud, 2007), or emotion-regulation therapy (ERT) (e.g., Fresco, Mennin, Heimberg, & Ritter, 2013). Another of the CBT treatment conceptualizations, mindfulness-based CBT for GAD (e.g., Roemer & Orsillo, 2002), will only be briefly mentioned as it is separately discussed in another chapter of this volume. In addition, as none of the above specifically focus on interpersonal problems, a variant of CBT called interpersonal and emotion-focused therapy (I/EP) for GAD (Newman, Castonguay, Borkovec, & Molnar, 2004) will also be described and reviewed in a separate chapter.

Implementation of CBT for GAD

Self-monitoring

The basic foundation of CBT for GAD involves self-monitoring through early detection of incipient anxiety cues, identification of anxiety-provoking situations, and identification of dysfunctional cognitions (Newman, 2000). This entails accurate self-monitoring of cognitive, emotional, behavioral, and physiological symptoms. As GAD patients frequently begin treatment with a lack of realization of specific connections between their daily routine and symptoms, considerable effort must be put into recognizing the multiple worry cues or triggers which evoke those symptoms. In addition to environmental cues, attention is paid to pertinent internal cues that elicit anxiety. These include somatic sensations (e.g., muscle tension in the neck and shoulders), attentional focus toward negative stimuli (Hirsch & Mathews, 2012), imagining potentially threatening future scenarios (Wu, Szpunar, Godovich, Schacter, & Hofmann, 2015), and negative emotions (Newman et al., 2013).

Clients are taught that the interaction between thoughts, sensations, and behaviors increases the worry spiral. For instance, GAD patients' worry may be triggered by noticing the possibility of impending storms and heavy downpours. This trigger evokes thoughts about having to drive home in the rain on a potentially slippery road, which in turn leads to neck and shoulder muscle tension, and greater apprehension (e.g., "What if me or my loved ones get into a car accident and are not able to reach home in this weather?"). The first negative thought increases clients' negative mood, which then increases muscle tension. Such physiological tension amplifies their predisposition

to catastrophize and this interaction will only enhance and feed the downward spiral of worry. Clients are taught that in order to successfully decrease worry, they need to be able to identify the first trigger and cut off the spiral at the sign of the first trigger.

CBT for GAD therefore commences by monitoring the worry triggers that are idiosyncratic to each client. Self-monitoring raises their consciousness of specific environmental (e.g., morning rush hour, weather changes, work deadlines or meetings, arguments in personal or professional settings) and internal cues (e.g., muscle tension in neck and shoulders, negative affect, visualizing threats, anxiety-laden cognitions) linked to the worry spirals. As such, the clinician begins by asking clients to monitor their triggers with the goal of identifying the earliest trigger. To ensure regular self-monitoring, clients are asked to embed numerous reminders in their environment (e.g., post-it notes in prominent places, periodic checking of the waxing and waning of anxiety levels every half-hour and with every shift in activity). Additionally, clients may set silent hourly alarms on their smartphones for self-monitoring purposes and rate their anxiety level on a scale of 0 (*complete relaxation*) to 100 (*extreme discomfort*). Anxiety triggers become more clearly defined and idiosyncratic to the individual as he or she progresses with the self-monitoring exercises (e.g., fidgeting, phone ring, seeing a co-worker during the start of the day). Self-monitoring exercises serve as a means to develop the habit of accurately detecting subtle initial anxiety-provoking internal cues. These cues are then prompts to intercede prior to or in that moment with learned adaptive coping strategies (see below for a test of the Worry-Outcome-Journal, an application of self-monitoring for GAD; LaFreniere & Newman, 2016). CBT aims to modify one's responses to identified worry triggers and reinforce novel and adaptive coping strategies. Crucially, recognition of early anxiety-eliciting cues is necessary to stymie the anxiety spiral.

Self-monitoring does not focus exclusively on anxiety cues as worry and GAD are related to other significant emotions (e.g., depression, anger, frustration) (Borkovec & Newman, 1998, p. 448; Romera et al., 2010; Stein, Baldwin, Baldinetti, & Mandel, 2008). Developing the habit of recognizing all emerging cues for these emotions, dysfunctional behaviors, and cognitions, and differentiating them from anxiety itself, aids in the development of more individualized therapies. Habitual self-monitoring will also result in understanding of the function of these cues as part of the cause or consequence of the anxiety spiral.

Another type of self-monitoring is worry outcome monitoring. The goal of this is for clients to keep a log of all of their worries and feared outcomes, associated distress, projected ability to cope with the worst outcome, and then to track their worry outcomes. Ultimately, worry outcome monitoring hopes to convey to GAD patients that most of their worries of various feared situations do not manifest in their lives. Further, they have the capacity to cope with distress in those rare situations where those feared outcomes materialized (LaFreniere & Newman, 2016).

However, clinicians should keep in mind that adherence to self-monitoring tends to diminish across time (Burke et al., 2008), and patients tend to be more adherent to electronically-recorded diaries in comparison to paper diaries (Stone, Shiffman, Schwartz, Broderick, & Hufford, 2003). It is thus imperative that the clinician communicates to the client to log, via paper or electronic diaries, their worry trigger experiences in a timely manner as they unfold in real time (Shiffman, Stone, & Hufford, 2008). Global and retrospective reports are susceptible to recall biases (Tourangeau, 2000). Faked adherence, such as writing backdated reports or poor

compliance, does not serve to assist clients to monitor their progress in therapy (Stone et al., 2003), and greater engagement in self-monitoring is linked to better treatment outcomes (Burke et al., 2008). Smartphone apps such as Worry Watch may be helpful for clinicians to track clients' progress in that regard (Rajendran, 2014).

Relaxation training

Autonomic rigidity features prominently in GAD in terms of hypo-activation of the autonomic nervous system's parasympathetic branch and chronic hyper-arousal of the sympathetic branch that triggers the fight-or-flight response (Borkovec & Hu, 1990; Brosschot, Van Dijk, & Thayer, 2007; Fisher, Granger, & Newman, 2010). Therefore, clients with GAD are trained to practice several relaxation methods to strengthen their parasympathetic tone (Reiner, 2008; Strauss-Blasche et al., 2000; Subbalakshmi, Adhikari, & Shanmugavel Jeganathan, 2014) and to deploy those strategies in diverse anxiety-provoking situations (Hayes-Skelton, Roemer, Orsillo, & Borkovec, 2013). For instance, given that lower heart rate variability (HRV) has generally been linked to GAD (Ottaviani et al., 2016), breathing retraining may produce autonomic balance (Tang et al., 2009) and respiratory stability (Conrad et al., 2007) as well as effectively increase HRV levels (Reiner, 2008). Relaxation methods involve slowed and rhythmic diaphragmatic breathing, meditation, guided imagery, and progressive and applied relaxation (AR) training to generalize these practices to their daily lives (Bernstein et al., 2000; Öst, 1987).

Slowed and rhythmic diaphragmatic breathing generates a quick and adaptive relaxation response that is simple and intuitive for clients to practice daily. Clients emulate therapists to perform shallow, quick, and thoracic breathing (sympathetic branch activator) as well as slowed, and rhythmic breathing (parasympathetic branch activator) from the diaphragm (Borkovec & Newman, 1998). Such contrasting demonstrations teach clients that their breathing patterns impact their feelings and empower them to feel in control of their psychological and physiological health simply by modulating their respiration. Learning to breathe effectively leads to optimal levels of oxygen intake, thus averting an imbalance of carbon dioxide and oxygen in the blood and the plethora of anxiety-inducing physical sensations stemming from the body's attempt to counteract such imbalances. Clients are directed to breathe from their abdomen rather than their chest and to inhale and exhale with the diaphragm expanding and contracting without chest expansion. Moreover, clients are taught to slow down their breathing to a reasonably comfortable pace and counting evenly may aid the process to swiftly foster a state of relaxation. The optimal breathing rate, at rest, is typically about 10–14 breaths per minute. Hyperventilation is conceptualized as a rate and depth of breathing that is excessive for the body's needs. Diaphragmatic breathing may be applied daily in conjunction with self-monitoring (e.g., while stuck in traffic or at work) to thwart anxiety spirals. Standard recommendations are that it should be practiced at least twice a day for at least 10 min each time (Newman & Borkovec, 2002). The following script may be used: "For the next few minutes, I'd like you to take slow shallow breaths. Take a small amount of air for a long period of time, as though you're breathing through a straw. Shift your breathing so that you breathe from your abdomen rather than from your chest. Try to let your abdomen rise and fall without expanding your chest. Remember to slow your breathing down to a rate slower than usual but not so slow that it is unpleasant/uncomfortable. You might do this by counting from 1 to 6 as you breathe in evenly and then again as you exhale evenly."

Progressive muscle relaxation (PMR)

PMR is based on the idea of "letting go" of muscle tension by tightening and releasing a chain of 16 primary muscle groups (i.e., dominant and non-dominant hand and forearm, dominant and non-dominant biceps, upper cheeks and nose, lower cheeks and jaw, neck and throat, chest, shoulders, and upper back, abdominal region, dominant and non-dominant thigh, dominant and non-dominant calf, dominant and non-dominant foot) (Bernstein et al., 2000; Jacobson, 1938). In a therapeutic setting (e.g., a consultation room with proper lighting and low ambient noise, using a well-padded recliner as the client's chair that offers complete support; Bernstein et al., 2000), clinicians instruct clients to concentrate on and tighten each muscle group for a few seconds. Upon releasing each of the tensed muscle groups, clients are instructed to concentrate solely on the relaxing and warm sensations in that specific muscle group. If mind wandering occurs, clients are asked to gently refocus, at times with the help of a meditation word cue (e.g., relax). By creating tension and learning to release this tension, clients become more adept at learning to identify the difference between tension and relaxation. Furthermore, the initial creation of tension facilitates subsequent deeper relaxation.

Clients may think that they can appreciably reduce their muscle tension by abstract self-instructions to simply "let go." However, it is imperative for clinicians to emphasize that clients need to acquire the skill of generating observable reductions in tension. Hence, the optimal way to foster this is to generate a considerable amount of tension in the muscle group and subsequently let go/release the tension immediately. Instantaneous release produces a "thrust effect" to enable the muscles to fall beneath adaptation levels. Metaphorically, our goal is to make a vertically hanging motionless pendulum swing to the right. Rather than pushing it to the intended direction (i.e., right), it would be easier to position it in the opposite direction (i.e., toward the left) and subsequently let go of it to create the momentum. Tensing before relaxing the muscle groups therefore allows clients to accelerate toward a state of deep relaxation via abrupt tension release. Clients also become more conscious about their level of tension in the respective muscle groups. Comparing between the diametrically opposing states of tension and relaxation also facilitates a deep understanding of the distinct sensations linked to either state.

Moreover, with a greater appreciation of the sensations associated with the distinct tension and relaxation states, clients may become more adept at identifying minor cues which precipitate tension and, if left unmonitored, build upon each other and grow cumulatively. Acquiring the skill to lessen tension hence includes cultivating a deep relaxation response to offset anxiety, but also becoming more proficient at recognizing the distinct anxiety-eliciting cues much earlier. Early recognition of the anxiety-eliciting cues throughout the day and learning to respond with relaxation rather than anxiety inevitably produces a calmer and more relaxed lifestyle throughout the day. The idea of "letting go" also entails giving up thoughts that generate anxiety and efforts to be in and enjoy the moment. As clients learn to let go of anxiety responses, relaxation and present-minded focus becomes more habitual and evolves into a lifestyle.

Clients may be curious as to why PMR exercises are thought to be helpful for clients with GAD. Essentially, throughout the day, every person carries some level of tension on a daily basis (i.e., adaptation level). However, it is believed that people with GAD tend to carry more tension than is necessary to function. Such tension makes it easier for them to be triggered to worry. The primary aim of PMR (in conjunction

with AR described below) is to assist clients to substantially reduce muscle tension within their body at levels appreciably below their adaptation levels. The significant reduction in muscle tension is almost invariably accompanied by physiological benefits, such as lower resting heart rate and slowed breathing pace (i.e., states which are antithetical to anxiety). Furthermore, clients' pattern of thinking will tend to be clearer and more rational as their racing minds diminish. The cultivation of pleasurable relaxation sensations will also lower the likelihood that clients will focus on anxiety-provoking cognitions (e.g., "What if calamity befalls my children?" or "What if I have a panic attack?") or threatening imagery (e.g., catastrophes besetting their significant others).

After attaining mastery of the 16-group PMR (15-min practice twice daily), the muscle groups are aggregated to seven, followed by four pertinent groups (i.e., both legs and feet, left and right hands and arms, trunk and abdomen, neck and face). As clients become skillful at releasing muscle tension, clinicians may use analogous metaphors of letting go of anxious or worrisome imagery or thoughts. Ultimately, clients are trained in relaxation-by-recall, which eliminates muscle tension and attains the relaxation response by way of activating memories of the sensations of muscle release. Mindfulness practices may also be incorporated into traditional muscle relaxation (Hayes-Skelton, Usmani, Lee, Roemer, & Orsillo, 2012), by cultivating nonjudgmental acceptance of the present moment, instead of worrying about the future (Roemer & Orsillo, 2002; Toneatto & Nguyen, 2007). The benefits of practicing PMR include engaging in fewer threat appraisals (Bögels, 2006), better cognitive flexibility, stronger parasympathetic tone, heightened perceptivity of earlier subtle anxiety cues, and breaking of the anxiety spiral at affective and physiological levels.

Ironically, some clients who have learned to associate letting go with anxiety itself (i.e., chronically tensed individuals) may experience relaxation-induced anxiety (RIA) as a consequence of relaxation training (Heide & Borkovec, 1983, 1984). Although RIA predicts poor treatment response to CBT (Newman, Lafreniere, & Jacobson, 2018), numerous tactics may minimize it (Borkovec & Costello, 1993; Heide & Borkovec, 1984). In addition, relaxation practice that elicits RIA may be redefined as a graduated exposure exercise akin to other anxiety-provoking situations or stimuli. Within and across therapy sessions, clients progressively expose themselves to relaxation sensations of growing intensity and endure anxiety reactions until they reach their peak intensity, before subsequently abating. Furthermore, it is helpful to convey the ritualistic aspect of relaxation as a *means* rather than an end. Doing so may assuage the perfectionistic tendencies of clients with GAD to put enormous amounts of effort into relaxation, such that it paradoxically triggers more anxiety. Redefining RIA as graduated exposure may negate the predictive association between early RIA and treatment outcome (Heide & Borkovec, 1983; Newman et al., 2018).

Imagery training

The inner life of an individual with GAD is worry-laden (Borkovec & Inz, 1990), and that worry reflects an abstract verbal–linguistic phenomenon which impedes vivid imagery (Borkovec, 1994). As such, imagery training aims to reduce anxiety-ridden inner monologs. Pleasant imagery (e.g., walking on a beach at sunset or mountain stream with rushing water) serves as a supplemental relaxation strategy. Basic research

has consistently found that imagery fosters an identical pattern of physiological responses that mirror those observed in response to the actual event (Lang, Davis, & Öhman, 2000). The therapist instructs high trait anxiety individuals to imagine a person, situation, or location formerly associated with a sense of security and relaxation (e.g., mother, home, beach) and teeming with sensations (e.g., smell, sight, and sound). For instance, clients who choose a beach scene are instructed to vividly envisage the tactile sensations of the sun, sounds of the surf, smell of salt, and sea breeze. Moreover, visual imagery methods integrate well with PMR wherein clients envision their problems drifting away, perhaps in a similar way to a helium-filled balloon, as they gradually release muscle tension (Newman, 2000).

Meditation

Meditational methods serve to shift the client's attention away from anxiety-eliciting worrisome thinking and catastrophic cognitions to euthymic and pleasurable internal sensations, thoughts, and imagery (Bernstein et al., 2000; Raskin, Bali, & Peeke, 1980). To cultivate a sense of inner tranquility, the clinician may instruct clients to employ diaphragmatic breathing and/or determine a particular mantra or mental imagery that evokes a sense of security and comfort for him or her. Examples include the word "home" or imagining meaningful relationship ties (such as one's family member). The following eight-step instructions could be conveyed as a rule-of-thumb in recommending meditation practices for GAD patients (Friedman, Myers, & Benson, 2001): (a) select a word/ short phrase which stems from your belief system (e.g., "Peace," "Calm," "Om," "Shalom," "The Lord is my shepherd," "Insha'Allah"); (b) sit quietly in a comfortable manner; (c) close your eyes; (d) relax your muscles particularly around your neck and shoulders; (e) slow your breathing down to a natural pace and mentally recite the focus word, phrase, or prayer as you exhale; (f) adopt a passive stance—watch different thoughts float in and out of your mind and gently steer your attention to the silent repetition if other distracting thoughts arise; (g) proceed with the meditation for 10 to 20 min; (h) refrain from standing up immediately. Sit quietly for another minute or so to allow other thoughts to return before rising.

Clients are persuaded to practice meditation twice daily (approximately 15 min per session) by concentrating on pleasant internal sensations and particularly at the end of their PMR exercise. Brief meditation has been shown to slow breathing patterns and strengthen parasympathetic tone, as indexed by changes in high-frequency HRV, among non-anxious persons (Tang et al., 2009) and high trait worriers (Delgado et al., 2010). An 8-week course of mindfulness meditation assisted GAD sufferers by substantially lowering their worry, anxiety, and depressive symptomology to levels similar to non-anxious individuals in the general population (Evans et al., 2008). Patients with GAD trained in mindfulness meditation showed considerable decline in anxiety via improvements in decentering, as well as abatement in worry through enhancements in mindful non-reactivity and awareness (Hoge et al., 2015). Furthermore, evidence suggests that meditative practices may improve GAD across cultures (Wong et al., 2016), as well as conflictual relationships (Millstein, Orsillo, Hayes-Skelton, & Roemer, 2015). It also leads to willingness to tolerate distressing emotions and be more present-minded (Eustis, Hayes-Skelton, Roemer, & Orsillo, 2016).

Applied relaxation

After attaining mastery of specific relaxation strategies, AR training (Öst, 1987) aims to utilize these strategies in real life situations, in response to the detection of shifts in anxiety levels throughout the day (Hayes-Skelton, Roemer, Orsillo, & Borkovec, 2013). As clients become proficient at examining cognitions and physiological states to detect initial and subtle anxiety cues (e.g., "I start to sweat. I feel my stomach clench"), they promptly harness their newly acquired relaxation strategies to lower distress, which generalizes to a variety of situations. After the patient has learned to self-observe and record his/her early anxiety signals and after he/she has learned PMR (as described above), AR incorporates the following phases (see Öst, 1987):

1 Release-only relaxation. In order to reduce the time that it takes the patient to become relaxed, the therapist no longer instructs him/her to tense the diverse muscle groups, but rather to relax them directly.
2 Cue-controlled relaxation. A "conditioning" between the self-instruction "relax" (or any other word cue) and the state of being relaxed is created (see also Smith (1990)). Once the patient has reached a state of deep relaxation, the therapist says "inhale" just before an inhalation and "relax" just before an exhalation. Patients continue on their own for a couple of minutes. This cue-controlled relaxation cycle is repeated within the session once more and then several times during homework assignments.
3 Differential relaxation training. This phase enables the patient to use AR in practically any situation. The patient is instructed to carry out certain movements with various parts of the body (e.g., picking up the phone) while at the same time concentrating on being relaxed in the rest of the body.
4 Rapid relaxation. In this phase, AR skills are being used in natural non-stressful situations with the goal to further reduce the time it takes to get relaxed (down to 20–30 s).
5 Application training. In two or three sessions, patients are relatively briefly exposed (10–15 min) to imagery of anxiety-arousing situations or proceed to using AR in natural anxiety-provoking situations.
6 Maintenance program. Patients are encouraged to keep practicing AR and rapid relaxation at least once a day to be prepared for possible setbacks.

AR has a very clear and parsimonious rationale. Its main goal is to help clients generalize the effects of formal PMR practice, to develop the habit of constantly checking in with themselves to identify and release any bodily tension, in order to lower their overall adaptation level such that they maintain lowered tension throughout the day. There is evidence that AR for GAD patients may also enhance acceptance of difficult emotions, greater present-mindedness, and observing thoughts, emotions, and memories simply as the natural ebb and flow of cognitive phenomena (Hayes-Skelton et al., 2012). It has been successfully tested as a stand-alone treatment for GAD by its originator (Öst & Breitholtz, 2000) and was not significantly different from CT (Arntz, 2003), worry exposure (Hoyer et al., 2009), or mindfulness-based CBT (Hayes-Skelton, Roemer, & Orsillo, 2013). It was also used as a comparator condition in numerous other trials for GAD. In more recent trials, AR alone was less effective than MCT (Wells et al., 2010) and multi-component CBT (Dugas et al., 2010).

Self-control desensitization (SCD)

The majority of anxiety disorders are defined by fear of distinct stimuli (e.g., social events for patients with social anxiety disorder). In GAD, however, the absence of a central fear in diffused worrisome thinking and the preponderance of ill-defined fear stimuli linked to anxious apprehension of the future constrains clinicians' capacity to develop efficacious behaviorally-based exposure therapies for GAD. SCD is one effective treatment approach for GAD that serves as a variant of imaginal exposure that includes positive coping imagery in the context of worry trigger imagery during therapy sessions (Borkovec, Newman, Pincus, & Lytle, 2002). SCD was developed to offer a type of desensitization appropriate for diffuse anxiety conditions without obvious central phobic stimuli (Goldfried, 1971), and generated reductions in self-reported worry post-treatment (Robinson, 1989). Instead of striving to reduce anxiety triggered by a particular scenario, SCD primarily aims to aid the client in detecting the *physiological* cues that signal anxiety and then using these cues to respond adaptively with relaxation to reduce the tension. Systematic desensitization usually includes recognition of worry triggers and setting up an elaborate fear hierarchy reflecting higher grades of specific worry-provoking external situations (Foa, Steketee, Turner, & Fischer, 1980; Wolpe, 1958). However, SCD emphasizes greater flexibility in the recognition of *diverse* situations. Such anxiety cue hierarchies are constructed during formal sessions on the basis of information obtained prior to therapy, daily self-monitoring, and in-session dialogue (Borkovec & Newman, 1998; Goldfried & Davison, 1994; Öst, 1987).

Clients identify diverse situations that usually evoke worry (e.g., speaking to an authority figure), as well as the cognitive, imaginary, behavioral, and somatic cues that signal anxiety spirals. Hierarchies include 10–20 items on average. Once patients have classified diverse situations as typically mild, moderate, or severe, they start at the bottom of the hierarchy with SCD methods. First, they practice PMR for about 25 min to attain a deeply relaxed state (Levin & Gross, 1985). Subjective units of discomfort (SUD) ratings (0–100) are recorded at the beginning and end of each relaxation session to assess the level of relaxation. Following this, they lucidly visualize themselves to be immersed in an anxiety-provoking situation (e.g., being stuck in traffic and noting that they are late for work), experiencing anxiety cues to the point they recognize arousal and actual internal anxiety cues. At this point the client offsets anxiety with acquired relaxation practices (e.g., diaphragmatic breathing, pleasant imagery). Through the negation of anxious feelings, clients imagine continuing on to practice relaxation and adaptive coping strategies for 20 s, and following this they switch off all imagery and attend to only the state of relaxation for another 20 s. Mental rehearsal of relaxation is repeatedly practiced until clients can no longer engender anxiety or can rapidly negate anxiety (i.e., within 5–7 s). Homework assignments frequently stress habitually practicing relaxation and developing present-minded awareness rather than apprehensively anticipating the non-existent future or ruminating about the past. Moreover, visualizing adaptive coping to feared circumstances strengthens positive memories instead of worry-related ones. Studies have shown that SCD is as efficacious as combined CBT and CT alone for GAD (Borkovec et al., 2002), and it enhances patients' levels of responding to dynamic changes in their environment in versatile ways (Newman & Fisher, 2013). Despite such data, at present only approximately 40% of clinicians report including SCD in their clinical practice of CBT (Szkodny, Newman, & Goldfried, 2014).

Stimulus control

The nature of the worry process in GAD is that it is typically under weak discriminative control as it manifests in a variety of circumstances (Borkovec & Newman, 1998; Borkovec, Wilkinson, Folensbee, & Lerman, 1983). These circumstances may be conferred anxiety-provoking meanings and become worry triggers. However, once clients have acquired the skills of identifying incipient physiological cues related to worry, a simple stimulus control strategy may be employed to lessen the time used worrying. This involves designating a 30-min session every day at the same time and place specifically for the objective of worrying. Upon identifying the subtle incipient cues of worrying, clients would immediately resolve to defer the worry process by using self-talk to remind themselves that there is sufficient time to worry during the designated session. Moreover, it is unnecessary to make themselves unhappy by worrying when their focus could be channeled to more productive activities. Curbing their worry will also diminish the negatively reinforcing process of worry. Their focus should instead be on the here-and-now and the assignment at hand. The 30-min period allotted for worry may also be an opportunity to practice acquired coping strategies. Proverbs such as "You cannot prevent the birds of care and worry from flying over your head, but you can prevent them from building a nest in your head" may be helpful for clients to reflect on. Moreover, stimulus control strategies may treat sleep difficulties in GAD (McGowan & Behar, 2013). A number of studies testing this worry postponement procedure document that it can reduce daily worrying (Borkovec et al., 1983; McGowan & Behar, 2013) and decrease somatic health complaints (e.g., Verkuil, Brosschot, Korrelboom, Reul-Verlaan, & Thayer, 2011). The most recent study, however, conducted in a large sample via the internet, could not replicate these effects (Versluis, Verkuil, & Brosschot, 2016).

Worry exposure

Can it also be helpful if the individual imagines a feared event and is *not* allowed to counteract the upcoming anxiety with relaxation (like in SCD or anxiety management training; e.g., Butler, Cullington, Hibbert, Klimes, & Gelder, 1987; Jannoun, Oppenheimer & Gelder, 1982)? Worry exposure, as a variant of imaginal exposure specifically designed for diffuse anxieties, was introduced by Craske et al. (1992) and has been precisely described and reviewed by van der Heiden and ten Broeke (2009) and further developed by Hoyer and Beesdo-Baum (2012). Forms of worry exposure are also applied (e.g., within MCT or intolerance-of-uncertainty therapy; see below). Conceptually, this procedure is especially promising regarding the generally strong effects generated by fear exposure in other disorders (Richard, Lauterbach, & Gloster, 2007).

Worry exposure (according to Craske et al., 1992; van der Heiden & ten Broeke 2009) is usually applied in five steps: in Step 1, based on worry protocols, a typical hypothetical worry situation is selected which is often worried about but not considered amenable to problem-solving. In Step 2, the most feared expectation elicited by this scenario is identified. Using a sequence of "what-if?"—questions (also called "the downward arrow technique") can support the patient in finding the ultimate (most disastrous) outcome of the feared situation, an outcome which the individual most probably has avoided thinking about before. In Step 3, patients are instructed to vividly imagine a worst case scenario outcome, mirroring their most feared expectation in this situation, for at least 25 min. If their thoughts begin to stray, patients can look at the noted most feared expectation in order to get the image back in their mind. Patients

are told that they are not allowed to avoid the image, seek distraction or neutralize the frightening scenario. The idea of the exercise is to experience the aversive feelings (fear, tension, etc.) that the image evokes until the patient becomes accustomed to them and the unpleasant feelings decrease. Following exposure to the imagined worst-case scenario, the client and clinician collaboratively consider plausible alternative outcomes (Step 4). In the process, clients learn that even if the feared worse-case scenario manifests, they have the ability and skills to strategically adapt to those situations (Dugas & Ladouceur, 2000). Finally, in Step 5 the exercise is evaluated.

Hoyer and colleagues (Hoyer et al., 2009; Hoyer & Beesdo-Baum, 2012) refined the worry exposure protocol and applied it as a prolonged exposure *in sensu*, emphasizing the experience of habituating to feelings of fear elicited by the worry scenario and the ability to tolerate these feelings without getting crazy or without falling into any other previously vaguely sensed but nevertheless intensely feared state. Patients are motivated to confront their worst worry imagery (that they consider possible to confront) and to try to experience and observe the accompanying anxiety. Once a typical and persistent but relatively abstract worry topic is found (see above), a concrete, imaginable, emotion-provoking worry scenario (or script) has to be developed. The feared situation is to be explored and elaborated in a much deeper and more tangible way than during everyday worry episodes. To facilitate imagination, the script should include (and evoke) all the stimulus qualities (including visual, auditory, tactile, gustatory, and olfactory information) characterizing the scene and also contain information about the (imagined) *anxious response* of the patient: how he feels, thinks, and behaves during the worst moment. To facilitate imagination, the scenario should be short and in the present tense and it should not include any drastic location or time changes (see Box 10.1).

Box 10.1 Example of a Worry Scenario

My husband has an accident

I am at home in my living room. It is comfortably warm and I could be well, but I am not. The TV is on. My husband is at our weekend house to clear out the trees in the yard. He wanted to be back by 5 p.m. I look at the clock—it is shortly after 6 p.m. I get nervous. I can't concentrate on the TV program. I walk around the room feeling pressure on my chest. My heart beats faster. I walk to the window and look out for him, becoming more and more worried. It is wet and cold outside. I sit down back at the couch. I think "Hopefully nothing happened to him." My heart beats faster. I feel my tension rising. My hands tremble. I begin to expect that something bad happened and I cannot do anything against this bad feeling creeping up inside me. Suddenly, the bell is ringing. I react with a start. "He would not ring, he has a key!" I walk to the door and feel that I am shaky. I open the door. It is Sophia—our weekend-home neighbor. I feel dizzy. I now know something bad has happened. Sophia looks terribly pale and has tears in her eyes. She hesitates and then says, "something terrible happened—your husband fell off a tree." I say to myself, "this is more than I can bear," and have difficulties to keep staying upright. Sophia continues, "he died before the emergency ambulance arrived." I freeze. I feel dizzy. My heart rushes. This is the most terrible moment in my life.

Source: adapted from Hoyer and Beesdo-Baum (2012).

Scripts like this are read to the patient by the therapist in session before the patient continues to work with the script as a homework assignment. The aim is to help the patient realize that his or her mind is made for and capable of tolerating even the most aversive experiences, as these never can be completely ruled out in life. Other than in the worry exposure rationale described by Craske et al. (1992) and van der Heiden and ten Broeke (2009), considerations of plausible alternative outcomes for the worst-case scenario are not prompted by the therapist.

It is, of course, important to reserve enough time to deduce carefully why undergoing worry exposure can be expected to be helpful in treatment. For example, the therapist could review with the patient how counterproductive previous efforts to deal with worrying have proven to be or he/she could use metaphors such as "compare it to seeing a scary movie several times, the first time you are scared much more than the tenth time you see it, because you have become habituated to it" (van der Heiden & ten Broeke 2009, p. 388).

It was demonstrated that this treatment, which directly targets the avoidance described in the avoidance theories of worry (e.g., Newman & Llera, 2011), could be successfully deployed as a stand-alone treatment of GAD (i.e., without the additional use of cognitive or relaxation interventions). Patients treated with massed worry exposure achieved stable improvement equal to AR (Hoyer et al., 2009). Furthermore, without being targeted directly, negative meta-cognitions about worry (i.e., fearful cognitions that worrying could be debilitating [Wells, 1999]) were successfully reduced. While worry exposure was used as a singular treatment component in order to demonstrate its efficacy in isolation, overall treatment efficacy could possibly be increased by adding further empirically validated therapeutic interventions, such as worry postponement (McGowan & Behar, 2013).

It is of theoretical importance that this treatment focuses solely on the imaginations that had hitherto been avoided via (verbal–linguistic forms of) worry, does not use explicit cognitive interventions, and yet proved efficacious. Worry exposure seems to be an important option to apply principles from the recent theory of inhibitory learning (Craske et al., 2008; Pittig, van den Berg, & Vervliet, 2016) as it presumably provokes corrective learning and helps to strengthen experiences of fear tolerance. Moreover, confronting the feared worst-case scenario head-on through visualizing (i.e., worry exposure) is arguably more effective than verbal–linguistic narratives in generating emotional arousal (Holmes & Mathews, 2005).

Indeed, worry exposure conducted as directly imagining the feared scenario (as proposed by Hoyer & Beesdo-Baum, 2012) was more effective than imaginal exposure via audio-recording/playback exposure as recommended by Dugas and Ladouceur (2000) (McIntosh & Crino, 2013). Nonetheless, the preliminary study by McIntosh & Crino (2013) did not test the idea statistically and conducted visual observations of the data, providing avenues for future research.

Imaginal exposure also works in a written format. Fracalanza, Koerner, and Anthony (2014) compared consistent exposure (CE), a variant in which participants were asked to write a story about the same worst case scenario (determined at baseline) coming true with varied exposure (VE), where participants were asked to write about three different scenarios within one life domain (e.g., health), and a control condition (neutral topic). Participants were asked to write with reference to their emotional experience, in the first person, and in the present tense to reduce emotional and temporal distance from the worst case scenario. Participants in the CE condition displayed

significant decreases in worry, acute cognitive avoidance, and intolerance of uncertainty (IU) from baseline to 1-week follow-up; participants in the VE and neutral control (NC) conditions did not. Initial activation of self-reported anxiety (observed in the CE and VE conditions) and between-session reduction in anxiety (observed in the CE condition only) were associated with improvement in worry. Including more references to negative emotion and writing in the present tense were also associated with greater improvement in worry in the CE condition.

Cognitive restructuring

On top of behavioral strategies, cognitive restructuring targets GAD clients' persistent misevaluation of future risks, dysfunctional cognitions, maladaptive interpretations, and attentional bias to threats. First, early cue identification and self-monitoring raises awareness of clients' worry contents and/or meta-beliefs about these worries. Clients record their worries, somatic symptoms, and outcomes for anxiety-provoking events in order to gather information with which to challenge dysfunctional cognitions in their daily lives.

Second, employing a Socratic (i.e., collaborative empirical) approach to the dynamic collaboration between clinician and client facilitates re-evaluation of the logical probabilities of worries. This entails weighing the benefits and costs of assumptions of worry. Such cognitive restructuring is consistent with traditional protocols of CT for depression (Beck, 1976), which center on challenging illogical cognitions and acquiring novel, less anxiety-inducing ways of interpreting one's self, the world, and the future. Cognitive restructuring attempts to modify clients' absolutistic, rigid expectations of themselves, others, and the world to adaptive, workable, and flexible interpretations and preferences. By means of logical analysis, clients confront head-on the irrationality of core assumptions and fears about the self (e.g., "What if I cannot make it?"), world (e.g., "What if a terrorist attack or major health pandemic strikes the city which I live in?"), and others (e.g., "What if others reject my opinion?"). CT stipulates multiple recurrent inaccurate thinking patterns that trigger or aggravate emotional distress (e.g., extrapolating from one instance of failure or over-generalizing, thinking in black-and-white or all-or-nothing categories). Thus, they engage in less literal interpretations, redefining them as falsifiable hypotheses through corrective experiences (Newman, 2000).

Importantly, clinicians facilitate this by generating several different forecasts and viewpoints in place of irrational ones (e.g., "I will persevere and finally get a job" versus "No one will hire me"); clients must, however, generate predictions that are at least as convincing as their worrisome thoughts. Initial struggle with this exercise may lead clinicians to begin by suggesting less anxiety-provoking topics; for example, they may discuss multiple pros and cons of winning the lottery, owning a new tech gadget, or planning for a vacation. The upshot is that once clients generate an adequate number of rational alternatives to their concerns, they use these statements in their self-talk as a coping strategy when they experience stress or detect worrisome thoughts in their daily life. Clinicians also help clients to analyze their logic through cognitive and behavioral approaches, wherein they undergo corrective experiences that disconfirm their dysfunctional cognitions.

Clinical observations consistently found that chronic worriers had the propensity to massively overestimate threat and underestimate coping skills (e.g., "What if others

reject my opinion and I can't handle the consequences?") (Borkovec, Hazlett-Stevens, & Diaz, 1999). Clients are therefore trained to generate concrete and testable predictions and objectively juxtapose them with a diary record of the frequency with which each negative event happened, as well as the degree to which they coped effectively. Clients' self-collected data offers invaluable information for clinicians to aid them to more realistically estimate the likelihood of potential negative events. Further, such empirical reports offer insight into each client's capacity to cope successfully during the infrequent times their feared outcome happens. Clients hence realize worry does not stave off these events even if they do happen, and in fact, generates unnecessary distress (e.g., hypervigilance, hyperarousal) if such events do not happen.

Systematic Treatment Conceptualizations for GAD

Several proposals to improve the understanding and treatment of GAD have been made in the past 15 years (e.g., Gerlach & Stevens, 2014; Newman et al., 2004; Newman & Llera, 2011). Most of those conceptualizations are grounded in a general CBT perspective into which further potentially neglected facets are integrated.

Metacognitive therapy

The metacognitive model asserts that *beliefs* about worrying are central in the development and maintenance of worrying (Wells, 1999, 2009). Worry is regarded as the predominant means to anticipate future problems and as an attempt to generate ways of coping for potentially threatening events, based on positive beliefs (metacognitions) about the usefulness of worry (e.g., "I have to worry to stay in control"). As such, the process of worry in itself is not considered to be unique to GAD nor sufficient to cause this anxiety disorder. Instead, negative beliefs (metacognitions) about the uncontrollability and dangerousness of worry (e.g., "If I cannot stop my worrying, I will go crazy") are regarded as crucial for the development of GAD. Such negative metacognitions begin to develop when worrying becomes inflexible and persistent. Once activated, these beliefs about worrying result in meta-worry (or "Type 2 worry"), in which patients with GAD worry about the fact that they worry. As a result, patients with GAD experience an elevation in anxiety and worrisome thoughts, which ultimately leads to the use of counterproductive efforts to control or downregulate worrying (e.g., thought suppression) and avoidance strategies (e.g., reassurance seeking and keeping away from worrisome situations; see, e.g., Beesdo-Baum et al., 2012).

As a consequence, Wells (2009) suggested that interventions should be aimed at modifying metacognitive beliefs about worrying, instead of modifying worrying or teaching ways to control it. Treatment begins with the development of an individualized case conceptualization based on a distinct typical episode of pathological worry. This involves identifying the triggers of worrying (including worrying itself) as well as positive and negative beliefs about it. The detrimental consequences of negative metacognition are integrated. Particular emphasis is given to the metacognitive beliefs about uncontrollability and dangerousness of worrying. The therapist shares the developing diagrammatic case conceptualization with the patient in order to explain the assumed mechanisms and to socialize him or her with the model. Further steps of implementing MCT for GAD include (Wells, 2009, p. 97):

- Challenging metacognitive beliefs about uncontrollability.
- Challenging metacognitive beliefs about the danger of worry.
- Challenging positive beliefs about worrying.
- Reinforcing new plans for processing worry.
- Relapse prevention.

Metacognitions are challenged by means of both verbal cognitive restructuring strategies (e.g., questioning the evidence supporting these beliefs, employment of a mismatch strategy in which patients are asked to compare their worrisome predictions with the actual outcome of situations) and worry experiments. An example is a worry postponement experiment (see above). Worry modulation experiments are employed to test positive beliefs about worry by asking patients to decrease worry on one occasion and increase worry on another occasion in order to determine whether greater worry indeed leads to more positive outcomes. The final step of MCT treatment is to develop and strengthen alternative metacognitive plans on the basis of the new experiences that have been encountered throughout the therapy (see Table 10.1 for examples of old and new of processing worry-provoking thoughts).

Results of controlled and uncontrolled studies with MCT suggest that it is generally effective in treating disorders of anxiety and depression (Normann, van Emmerik, & Morina, 2014). Considering MCT for GAD, van der Heiden, Muris, and van der Molen (2012) conducted a randomized controlled trial ($n = 126$) in which individual MCT reached highly favorable results and was superior to IUT and a delayed treatment (DT) control. In a subsequent open trial for group MCT of primary GAD (van der Heiden, Melchior, & de Stigter, 2013; $n = 33$), MCT was found to be less accepted by patients (dropout 27 vs. 11%) and showed poorer outcomes than in the previous trial of individual MCT. A recent, naturalistic study by McEvoy et al. (2015) demonstrated that MCT for GAD can be successfully applied both in brief group setting and also in patients suffering from non-primary (comorbid) GAD.

Intolerance-of-uncertainty therapy

IU is defined as a "dispositional characteristic that results from a set of negative beliefs about uncertainty and its implications" (Dugas & Robichaud, 2007, p. 24). According to the IU-model, patients with GAD are prone to display chronic worry in response to ambiguous situations resulting in uncertainty, based on beliefs that worry will

Table 10.1 Old, Problematic, and New Plans for Dealing with Intrusive Thoughts.

Old plan	*New plan*
If I have a negative thought, then I worry about what could happen and how to avoid it	If I have a thought, then I leave it alone (…) and see what happens.
If I need to do something new, then I try to stop thoughts of danger	If I need to do something new, then I allow thoughts to ebb and flow like tides
If I do anything novel, then I try to anticipate problems before doing it	Do more novel things; break my routine without giving much thought first

Source: From Wells (2009, p. 122), shortened.

either help them to cope more effectively with such events, or to prevent feared events from happening. Following from the IU-model, treatment of GAD should focus on decreasing anxiety and the tendency to worry by helping patients develop the ability to tolerate, cope with, and even accept uncertainty in their everyday lives.

The IU-approach uses typical elements of CBT treatments, such as: (a) psychoeducation and worry awareness training; (b) uncertainty recognition, behavioral experiment, and tolerance of uncertainty; (c) re-evaluation of the usefulness of worrying; (d) problem-solving training; (e) imaginal exposure; and (f) relapse prevention (see Dugas & Robichaud, 2007, chapter 4). One of the innovations of this treatment is that it helps people to distinguish between worries about hypothetical or unsolvable problems and worries about current problems; worries which might be part of an adaptive problem orientation. Furthermore, patients are taught to accept uncertainty as a necessary part of day-to-day life, to confront uncertainty via behavioral experiments in uncertainty-inducing situations and via imaginal exposure. Regarding the latter, the authors recommend exposing the patients with *uncertainty* rather than with the worst case outcome of a situation, which is in strict accordance with their model. Examples include clients undergoing a series of behavioral experiments (e.g., eating an atypical dish at a restaurant, shopping for groceries without a shopping list, hanging out with a different group of people) to dispute their uncertainty (Hewitt, Egan, & Rees, 2009). In the process, clients learn to tolerate uncertainty as an inherent part of life and engage less in safety behaviors that reinforce their anxiety.

Several studies support the efficacy and maintenance of this treatment. Two studies revealed that IUT in an individual and in a group therapy format was superior to a wait-list control condition on all outcome measures, and that treatment gains were maintained over the follow-up periods (up to 24 months) (Dugas et al., 2003; Ladouceur et al., 2000). Results of an RCT comparing IUT, AR, and wait-list control confirmed the efficacy of both IUT and AR. The findings suggested that although both treatments produced comparable outcomes, only IUT appeared to lead to continued improvement in the follow-up period (Dugas et al., 2010). As mentioned above, IUT was also compared to both MCT and a DT control group in a large RCT (van der Heiden et al., 2012). At post-treatment and follow-up assessments, both MCT and IUT, but not DT, produced significant reductions in both GAD-specific and comorbid symptoms, with large effect sizes on all outcome measures. In both treatment conditions the vast majority of the patients (i.e., 91% in the MCT group, and 80% in the IUT group) were no longer fulfilling the diagnostic criteria for GAD, but MCT achieved higher recovery rates than IUT on measures of worry (post-treatment: MCT 72%, IUT 48%; 6-month follow-up: 74 and 63%) and trait anxiety (post-treatment: MCT 68%, IUT 59%; 6-month follow-up: 72 and 62%). Figure 10.1 provides the graphical schematic representation of the metacognitive model that is useful for psychoeducation purposes with GAD patients.

Emotion-regulation therapy

ERT integrates facets of traditional and contemporary CBT, mindfulness, and emotion-focused interventions within a framework that reflects basic and translational findings in affect science. Specifically, ERT is a mechanism-targeted intervention focusing on patterns of motivational dysfunction while cultivating emotion regulation skills (Fresco et al., 2013). The Emotion-Dysregulation Model (EDM) consists of
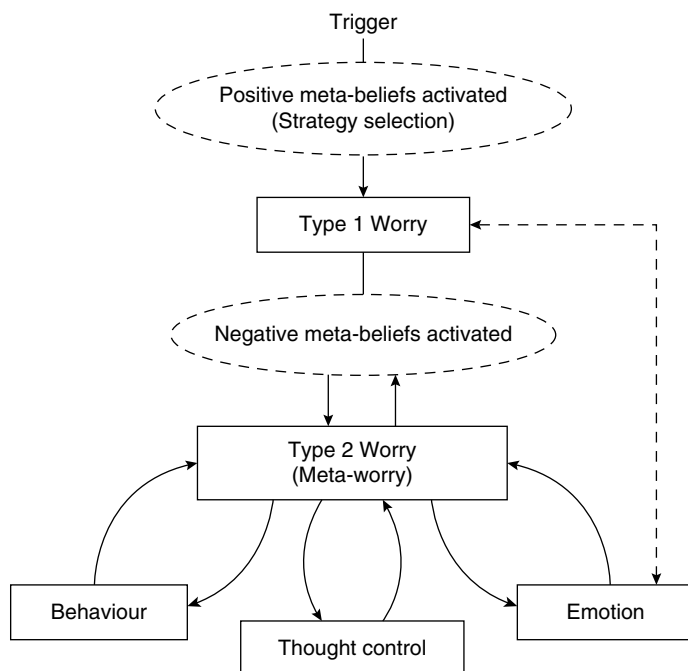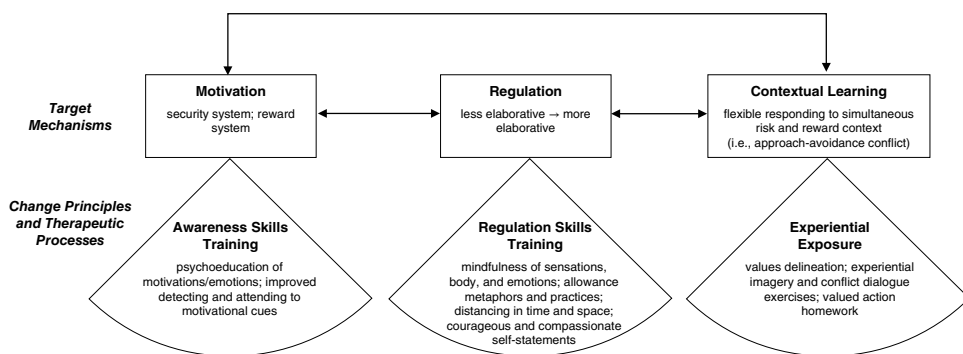
Figure 10.1 Schematic representation of the targets of metacognitive therapy in generalized anxiety disorder (GAD). Source: From Wells (1997).
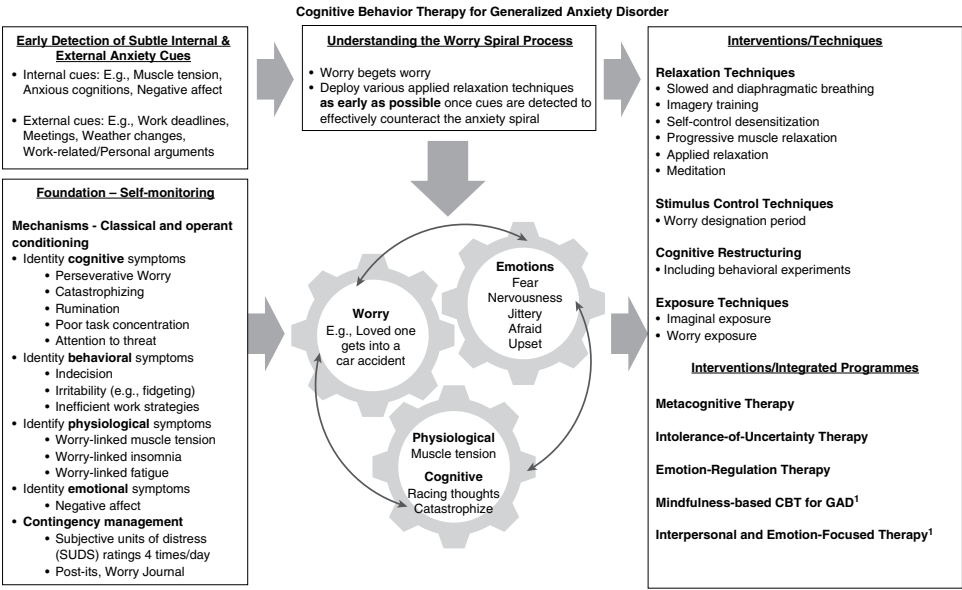
four central components (Mennin, Turk, Heimberg, & Carmin, 2004) with the following specific assumptions about individuals with GAD: first, these individuals experience emotional hyperarousal, or (mostly negative) emotions that are more intense than those of most other people, with strong motivational impulses for security, protection, and control. Second, individuals with GAD have a poorer understanding of their emotions than do most others. Third, they have more negative attitudes about emotions (e.g., the perception that emotions are threatening); and finally, they evidence maladaptive, perseverative emotion regulation and management strategies (e.g., worry, rumination, self-criticism) that potentially leave them in problematic emotional states (Mennin et al., 2004) and compensate for an inability to manage distressing emotions and motivations. The general aim of ERT, hence, is "increasing motivational awareness, developing less and more elaborate regulatory capacities, and engaging novel contexts to generate new learning repertoires" (Mennin, Fresco, Ritter, & Heimberg, 2015, p. 615).

Figure 10.2 gives an overview of the possible therapeutic interventions and target mechanisms within ERT for GAD. Figure 10.3 also includes all CBT elements for GAD reviewed herein. For a more detailed description we recommend Fresco et al. (2013).

ERT for GAD specifically aims at improving treatment gains for complex, comorbid, or refractory cases. In a promising open trial, GAD patients were shown to improve in symptom severity, impairment, quality of life, and in model-related outcomes including emotional/motivational intensity, mindful attending/acceptance, de-centering, and cognitive reappraisal, with strong maintenance of gains following treatment (Mennin et al., 2015).

Figure 10.2 Target mechanisms, change principles, and therapeutic process in ERT for GAD.

Cognitive Behavior Therapy for Generalized Anxiety Disorder

Early Detection of Subtle Internal & External Anxiety Cues
- Internal cues: E.g., Muscle tension, Anxious cognitions, Negative affect

- External cues: E.g., Work deadlines, Meetings, Weather changes, Work-related/Personal arguments

Understanding the Worry Spiral Process
- Worry begets worry
- Deploy various applied relaxation techniques **as early as possible** once cues are detected to effectively counteract the anxiety spiral

Interventions/Techniques

Relaxation Techniques
- Slowed and diaphragmatic breathing
- Imagery training
- Self-control desensitization
- Progressive muscle relaxation
- Applied relaxation
- Meditation

Stimulus Control Techniques
- Worry designation period

Cognitive Restructuring
- Including behavioral experiments

Exposure Techniques
- Imaginal exposure
- Worry exposure

Foundation – Self-monitoring

Mechanisms - Classical and operant conditioning
- Identity **cognitive** symptoms
    - Perseverative Worry
    - Catastrophizing
    - Rumination
    - Poor task concentration
    - Attention to threat
- Identity **behavioral** symptoms
    - Indecision
    - Irritability (e.g., fidgeting)
    - Inefficient work strategies
- Identify **physiological** symptoms
    - Worry-linked muscle tension
    - Worry-linked insomnia
    - Worry-linked fatigue
- Identity **emotional** symptoms
    - Negative affect
- **Contingency management**
    - Subjective units of distress (SUDS) ratings 4 times/day
    - Post-its, Worry Journal

Worry
E.g., Loved one gets into a car accident

Emotions
Fear
Nervousness
Jittery
Afraid
Upset

Physiological
Muscle tension

Cognitive
Racing thoughts
Catastrophize

Interventions/Integrated Programmes

Metacognitive Therapy

Intolerance-of-Uncertainty Therapy

Emotion-Regulation Therapy

Mindfulness-based CBT for GAD[1]

Interpersonal and Emotion-Focused Therapy[1]

Figure 10.3 Integration of core principles, mechanisms, and techniques of CBT for GAD.

Predictors of treatment outcome of CBT for GAD

Several studies have examined predictors of treatment outcome for GAD. Anxiety severity at baseline predicted higher severity post-treatment (Butler & Anastasiades, 1988) as well as poorer follow-up outcomes 10 to 14 years post-treatment (Chambers, Power, & Durham, 2004). Conversely, despite having no discernable differences in post-treatment outcome, greater observer-based anxiety severity ratings predicted sharper reductions in GAD severity, worry, and anxiety in response to CBT for GAD in adulthood (Newman & Fisher, 2010) and late-life (Wetherell et al., 2005). Participants with comorbid disorders did worse in response to CT in some studies (Chambers et al., 2004; Durham, Allan, & Hackett, 1997). However, other studies showed higher post-treatment change in response to combined CBT, or its components (Newman et al., 2010). Taken together, evidence is mixed with respect to whether symptom severity or diagnostic comorbidity forecast better or poorer outcomes from CBT. Other variables predict a worse outcome of CBT for GAD, including a prior history of medication, medical comorbidities, and financial difficulties (Durham et al., 1997), as well as externally-oriented locus of control and greater chronicity of GAD (more than 4 years on average; Biswas & Chattopadhyay, 2001).

In terms of psychotherapeutic processes, poor outcomes have been correlated with the following: lack of homework compliance (Wetherell et al., 2005); reduced baseline expectancy or credibility with respect to the benefits of psychotherapy (Newman & Fisher, 2010); and higher peak RIA during in-session relaxation practice (Newman et al., 2018). Improvements in outcome following CBT have been associated with higher variability of anxiety symptom severity over the course of treatment along with greater shifts from higher rigidity to higher adaptability of anxiety symptoms (Fisher & Newman, 2016; Fisher, Newman, & Molenaar, 2011; Newman & Fisher, 2013).

The role of research is, among other functions, to enable practitioners to ground their choices onto empirical evidence. Interestingly, many of the treatment components which are usually integrated in the above described programs have never or rarely been tested in terms of their potential to work independently or in addition to all or some of the other interventions. Interventions may be grounded on a convincing theoretical reasoning, may be easy to implement, and so forth, but whether they are really necessary, perhaps indispensable, or, conversely, principally negligible remains unclear and to be tested empirically. Notable exceptions are worry exposure, which was successfully tested as a stand-alone procedure by Hoyer et al. (2009), worry postponement (McGowan & Behar, 2013; Verkuil et al., 2011), and the worry-outcome-journal (as an example of self-monitoring) which was recently tested by LaFreniere and Newman (2016).

Psychotherapy for GAD: Variations and Communalities

Therapists can choose. They can build on a number of interventions that have proven efficacious within randomized controlled trials for GAD and try to formulate an individualized case conceptualization. They can also choose between a number of CB-based manualized treatment packages for GAD, which all differ in their theoretical rationale and in terms of the variables which they consider most relevant for redirecting the pathogenic processes driving GAD. However, there is currently no evidence

that individualizing treatment in GAD augments treatment efficacy beyond standard-ized interventions (e.g., Persons, Roberts, Zalecki, & Brechwald, 2006). In addition, the lack of differences between directly compared treatments highlight the impor-tance of conducting more research on personalized interventions using pre-treatment factors as predictors of differential response (see also the concluding chapter of this volume). Some studies have begun to show findings in this regard. Whereas shorter duration of GAD symptomology benefited more from combined cognitive and behavioral techniques than from administering each CBT component as a stand-alone treatment, longer duration of GAD symptomology led to greater improvements from administering either of each CBT component individually (Newman & Fisher, 2013). This may be because those with a longer duration of GAD present with more ingrained GAD symptomology that necessitates a more intense dosage and focused approach of administering a modest amount of treatment components. In contrast, persons with a shorter duration of GAD improved more appreciably from a plethora of brief treat-ment options. In another study, individuals with intrusive and dominant interpersonal problems responded better to purely behavioral therapy than therapies that included cognitive restructuring (Newman, Jacobson, Erickson, & Fisher, 2017). This is con-sistent with studies showing that people with personality features associated with a need for autonomy respond best to treatments that are more experiential, concrete, and self-directed compared to therapies involving abstract analysis of one's problems (e.g., containing CT). Taken together, it is plausible that more complex cases (e.g., longer duration, personality issues) may reap more benefits from therapies with a focus and intensity customized for the specific GAD client.

As demonstrated in this chapter, these approaches range from traditional CBT for GAD, metacognitive treatment, IUT, and emotion regulation therapy. Currently, there too are few studies to make meaningful comparisons among standard CBT and the various psychotherapy approaches for GAD (Cuijpers et al., 2014). However, evidence suggests that CBT remains effective in the long run (Cuijpers et al., 2014) and there remains room for improvement for older adults (Kishita & Laidlaw, 2017). Although all of the mentioned approaches overlap more or less and share a number of core components, they still differ with regard to how specific interventions are exactly implemented (e.g., imaginal exposure is applied in many different variations as described above).

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