

Treating Generalized Anxiety Disorder With Cognitive-Behavioral Therapy

Ariel J. Lang, Ph.D.

Cognitive-behavioral therapy (CBT) can be successfully used to treat generalized anxiety disorder (GAD), with or without the inclusion of anxiolytics. The treatment of GAD using cognitive-behavioral techniques involves cognitive restructuring, relaxation, worry exposure, behavior modification, and problem solving. This article will review the principles used in CBT for the treatment of GAD and will discuss recent modifications of CBTs and how they may be employed. The simultaneous use of CBT and antidepressants will also be reviewed.

(*J Clin Psychiatry* 2004;65(suppl 13):14–19)

The chronicity and negative impact of generalized anxiety disorder (GAD) have been well established (see the article by Stein¹ in this supplement). Among the efficacious treatment approaches for this distressing and disabling condition is cognitive-behavioral therapy (CBT). The purpose of this article is to describe the cognitive-behavioral approach to the treatment of GAD, detail some recent modifications of this approach, review the empirical basis for the use of CBT with GAD, and discuss the combination of psychopharmacologic and psychotherapeutic treatment.

Cognitive-behavioral therapy is a psychotherapeutic approach designed to alter behavior and cognition that produces and maintains emotional distress. In CBT, both the patient and therapist are actively involved in the process to alter such distress. The therapist often uses the Socratic method to elicit relevant information from the patient. The therapist takes a stance of collaborative empiricism; the patient and therapist work together to develop hypotheses and test these ideas. Work done outside of the therapy session (e.g., self-monitoring, behavioral experiments, or exposure) is as important as, if not more important than, the work done in session.

Cognitive-behavioral therapy for GAD may include any or all of the following techniques: psychoeducation,

symptom management techniques, relaxation, cognitive restructuring, worry exposure, behavior modification, skill building, and self-monitoring. Therapists may emphasize the behavioral or cognitive components or present a mix of both.

COMPONENTS OF CBT FOR GAD

Psychoeducation

Psychoeducation involves providing information about GAD and its treatment. This process serves several purposes. Psychoeducation can be very reassuring; a patient may feel better simply by knowing that others struggle with controlling worry as well. It can also destigmatize the diagnosis because worry is viewed as an extension of normal experience. Education enhances motivation for treatment because patients understand why each of the components is used. Development of realistic expectations about treatment, including duration, frequency of meetings, and expectations about homework, may increase compliance. Presenting the patient's role as an active one also helps to build the collaborative relationship that is a pillar of the cognitive-behavioral approach.

Specifically, GAD is presented as a disorder in which worry has become uncontrollable and interferes with day-to-day activities and quality of life. Physical symptoms of GAD are explained as an outgrowth of living with chronic anxiety. The interrelationships between thoughts, behaviors, and emotions (often called the cognitive triangle) are presented to help the patient understand the maintenance of his or her anxiety problem and the rationale for the components of treatment.^{2–5}

Self-Monitoring

Self-monitoring involves recording subjective anxiety and situational information between treatment sessions. This procedure is used to gauge response to treatment, assist in a functional analysis of worry and anxiety (e.g.,

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This article is derived from the teleconference "New Perspectives for Treating GAD," which was held May 5, 2003, and supported by an unrestricted educational grant from Forest Laboratories, Inc. An honorarium for Dr. Lang's involvement in this supplement has been paid to the author's institution, UCSD, to support her research program.

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What triggers anxiety? What is the thought content during times of high anxiety?), and aid the patient in early identification of the anxiety response. The process itself often reduces anxiety. Examples of self-monitoring materials are available through a number of sources.^{2,3}

Symptom Management Techniques

Symptom management techniques are designed to alleviate the immediate uncomfortable effects of anxiety. Such techniques are used to relieve the immediate discomfort associated with anxiety, foster a sense of being able to control one's anxiety, and disrupt the information processing biases (e.g., selective attention to threatening materials or bias toward anxious interpretations of ambiguous materials) that accompany anxiety.

Relaxation strategies are the most common symptom management techniques. Progressive muscle relaxation (i.e., systematically tensing and then relaxing muscle groups) is probably the most commonly used technique for GAD, but there is a wide range of effective approaches, including deep breathing and meditation techniques. Many therapists find it useful to present a number of such strategies and allow the patient to select those that he or she prefers. Distraction is another technique that can be applied in the short term. For example, a patient may be taught to focus carefully on what other people are saying in social settings as a way to distract himself or herself from feeling anxious. It should be made clear, however, that distraction is not a good long-term strategy because it leaves the impression that anxiety, if confronted directly, could not be managed by any other means.

Cognitive Restructuring

Cognitive restructuring is based on the idea that GAD is attributable in part to interpretations that do not reflect a realistic appraisal of a situation. Two types of distortions are common among patients with GAD: (1) believing that unlikely events are likely to occur and (2) assuming that the only possible outcome is the most catastrophic alternative. In part, anxious thinking is habitual in patients with GAD; a treatment goal is to increase awareness of and alter this cognitive habit. In addition, thoughts and emotions form a vicious cycle; anxious mood increases the perception of threat and fear-provoking interpretations of ambiguous stimuli, which leads to further anxious mood. Thus, another goal of therapy is to interrupt this process.

Cognitive restructuring involves 3 steps. First, the therapist will help the client to identify anxious interpretations or predictions by use of exemplars, questioning, review of self-monitoring, or role playing. Next, the patient and therapist will develop an alternative thought that is realistic and evidence-based, and the patient will actively substitute this thought for the initial anxiety-provoking thought. Finally, a behavioral experiment will be developed to test the validity of the competing thoughts. The

patient will be asked to practice this technique as anxious thoughts arise between therapy sessions.

Worry Exposure

Worry exposure involves systematic and repeated exposure to catastrophic images associated with worry. This technique is designed to reduce anxiety associated with each of the images through repeated exposure to the same stimulus, which leads to decreased emotional response to that stimulus⁶ (detailed discussion of this mechanism is described elsewhere in this supplement).

To accomplish worry exposure, the patient and therapist develop a list of worries, ordered by the level of associated anxiety. Generally, exposure will proceed from less to more anxiety-provoking worries. For each scenario, the patient is asked to vividly conjure the image and remain focused on it for 25 to 30 minutes. Following this image technique the patient is asked to generate other possible outcomes for the same situation.

Other Techniques

The purpose of behavioral modification is to alter behaviors that contribute to anxiety. One example is reducing negatively reinforcing behaviors (i.e., behaviors that are reinforcing because they increase anxiety), such as checking or other "compulsive" behaviors, or avoidance. The therapist may also suggest that the patient schedule "worry time." This technique is used to reduce the total amount of worry time by concentrating worry in a single period and then systematically reducing the length of that period. Worry scheduling also may be helpful because it eliminates worry during periods in which it may be more interfering (e.g., at work, in bed). Thought stopping (e.g., interrupting unwanted worry by saying "stop" or snapping a rubber band that is worn around one's wrist) may also be used to eliminate worry at inappropriate times.

The use of skill-building techniques in GAD is based on the idea that some worries are based on realistic, remediable skill deficits. Examples may include problem solving, time management/activity scheduling, organizational skills, and social skills training. This issue will be discussed further in relation to recent modifications of CBT below.

EFFICACY OF CBT FOR GAD

There are 4 major meta-analyses of CBT for GAD,⁷⁻¹⁰ so there is no need for a separate comprehensive review of GAD treatment studies here. Rather, it is useful to examine the conclusions that can be drawn from these studies. A compilation of effect sizes from all 4 studies is presented in Table 1.

The earliest reviews established that CBT significantly reduces anxiety and is superior to no treatment and to conditions used to control for nonspecific effects. There was

Table 1. Summary of Effect Sizes for Reduction in Anxiety and Depression After Cognitive-Behavioral Therapy for Generalized Anxiety Disorder

Study	Treatment	Posttreatment	Follow-up
Chambless and Gillis, 1993 ⁷	CBT	1.69	1.95
Borkovec and Whisman, 1996 ⁸			
Hamilton anxiety	CBT	2.13	2.50
BT	1.71	1.87	
CT	1.30	...	
Nonspecific	1.78	2.35	
None	0.03	...	
Hamilton depression	CBT	1.41	1.66
BT	1.44	1.11	
CT	1.12	...	
Nonspecific	0.88	1.13	
None	0.07	...	
Gould et al, 1997 ¹⁰	CBT	0.91	...
	BT	0.51	...
	CT	0.59	...
Borkovec and Ruscio, 2001 ⁹			
Hamilton anxiety, STAI	CBT	2.48	2.44
BT or CT	1.72	1.71	
Placebo or alt	2.09	2.00	
WL or none	0.01	...	
Hamilton depression, BDI	CBT	1.14	1.22
BT or CT	1.02	0.88	
Placebo or alt	0.78	1.05	
WL or none	0.14	...	

Abbreviations: BDI = Beck Depression Inventory, BT = behavioral therapy, CBT = cognitive-behavioral therapy, CT = cognitive therapy, STAI = State Trait Anxiety Inventory, WL = wait list (control group). Symbol: ... = no data available.

evidence that CBT for GAD reduces depression symptoms as well. Treatment effects were found to endure or increase in the 6 to 12 months after the completion of treatment.^{7,8} Gould et al.¹⁰ completed comparisons of a number of treatment packages—purely behavioral, purely cognitive, and combined approaches. Although they found that the effect sizes of behavioral and cognitive approaches were smaller than those associated with CBT, there were no significant differences between approaches. The one exception was that CBT performed better than relaxation training with biofeedback. These reviewers also found that response to individual and group modalities did not significantly differ and that length of intervention was not significantly associated with outcome.

The most recent meta-analysis comprised 13 controlled clinical trials.⁹ The reviewers examined a number of methodological issues about each of the studies, including what method was used for diagnosis, whether reliability checks were used, whether assessors were blinded, whether treatment was conducted according to a protocol, and whether treatment was checked for adherence to protocol. They concluded that the body of work was “characterized by a relatively high degree of scientific rigor.”^{9(p39)} Every study showed CBT to be better than no treatment. A majority of studies found CBT to be superior to alternative psychotherapeutic treatments (82% at posttreatment and 78% at follow-up).⁹ A minority found the full CBT treatment

package to be better than behavioral or cognitive techniques alone (20% at posttreatment, 43% at follow-up). Treatment-related gains were always maintained or increased over the follow-up period. An overall dropout rate of 8.3% suggests that CBT is well tolerated.

In summary, these meta-analyses clearly demonstrate that CBT reduces anxiety symptoms and is more effective than no treatment and nonspecific controls. There is some suggestion that the full CBT package is better than behavioral or cognitive components alone, but this has not been consistently demonstrated. Some of the factors that have been associated with poor treatment response include concurrent use of anxiolytic medication (type not specified), comorbid diagnoses, chronic social stressors, and negative expectations about therapy.¹¹ Cognitive-behavioral therapy for GAD is a good example, however, of the discrepancy between statistically and clinically significant change. Durham and Allen¹¹ reviewed clinical significance of change in studies conducted between 1980 and 1993. When they examined the percentage of improvement, they found an overall 50% reduction in somatic symptoms and 25% in tendency to worry. Return to normal functioning occurred for 57% of patients who took part in cognitive therapy and 22% receiving behavioral therapy, leading these authors to express a preference for cognitive approaches. To date, according to Roemer and Orsillo,¹² no studies have evaluated the effect of CBT on broader measures of functioning, such as quality of life and impairment.

RECENT MODIFICATIONS OF CBT FOR GAD

Recognition of the limited clinical significance of change associated with CBT for GAD has led to several recent efforts to refine the intervention. Two such attempts involve refinement of the cognitive aspects of treatment. Ladouceur et al.¹³ have devised a 4-component model of GAD, which includes intolerance of uncertainty, erroneous beliefs about worry, poor problem orientation, and cognitive avoidance. The resulting treatment approach is entirely focused on reducing worry; the authors believe that relaxation strategies are not a necessary component of treatment. In their initial trial of the approach, they successfully reduced symptoms (including worry, somatic symptoms, general anxiety, and depression) as compared with wait list (delayed treatment group). The intervention has yet to be compared with an active control.

A similar cognitive treatment involves addressing metacognitive processes in GAD. In other words, beliefs about worry are viewed as a critical factor in GAD. Both positive (e.g., worry prevents bad things from happening) and negative (e.g., worry will make me go crazy) beliefs about worry are viewed as reinforcing the worry, thus maintaining the disorder. The resulting intervention is entirely cognitive; the key treatment goal is to address beliefs about worry.⁵

Another approach to refining CBT for GAD has been to add components to remedy deficits that may maintain the disorder. One example is the interpersonal approach to GAD. Adherents to this model believe that people with GAD engage in behaviors that make negative interpersonal outcomes more likely. As a result, components are added to the treatment to improve maladaptive patterns of relating to and interacting with others.¹⁴ Another approach is based on the view that individuals with GAD have difficulty with regulating emotion. Specifically, GAD is seen as an outgrowth of difficulty with modulation of emotion and attention to cognitive information as a technique to avoid emotional information. Based on this conceptualization, techniques such as education about emotions and training in regulating emotion have been added to intervention packages to decrease discomfort with emotion and allow more adaptive problem solving, thus reducing the need for worry.¹⁵

Mindfulness and acceptance strategies have been incorporated into treatment for GAD as well.^{12,16} The rationale for this approach is as follows. Worried individuals are continually focused on what is perceived as a threatening future. Worry tends to be self-perpetuating (i.e., the more worried one is, the more anxious he or she feels, the more likely he or she is to perceive ambiguous stimuli as threatening, etc.) and can interfere with effective cognitive strategies such as problem solving. Acceptance-based approaches encourage patients to accept that some events are outside of their control, which may compel them to accept that reality. Moreover, patients are often asked to identify highly valued aspects of their life with which they may have difficulties and to use problem solving to make changes in those areas.¹⁷ Mindfulness, a psychological/behavioral version of meditation, is applied to increase relaxation and counteract the future orientation of individuals with GAD. Preliminary testing suggests that this approach may lead to positive change in symptoms and functioning.¹²

These modifications of the cognitive-behavioral approach to treating GAD are at preliminary stages of development. Future work should test the effectiveness of such modifications, particularly in relation to clinically significant change and broad functional outcomes.

SPECIAL CONSIDERATIONS IN USING CBT FOR GAD

Comorbid Diagnoses

The presence of comorbid diagnosis is normative in patients with GAD. Among the most common lifetime comorbid diagnoses are major depression, panic disorder, and substance abuse.¹⁸ The presence of 1 or more of these conditions may complicate successful treatment of GAD using CBT.

The most important factor to consider in treating GAD in the presence of another disorder is whether it is the

primary clinical concern. Symptoms of other disorders may interfere with selected treatment. For example, a depressed patient may not have the motivation or energy to follow through with homework assignments, or a panic patient may experience relaxation-induced anxiety when using symptom management techniques.² Substance use may provide a competing (albeit less helpful) strategy for reducing anxiety, thus reducing compliance with treatment. If it is the case that another disorder is causing more distress or impairment, referring the patient to services for the primary diagnosis is most appropriate. If another disorder is equally disabling but the patient is motivated to address the GAD, supplementing the cognitive-behavioral approach for GAD with techniques to address the additional problem may be useful.

Older Adults

The elderly are an important population to consider in relation to treatment for GAD because prevalence rates are high in this group.¹⁹ There are 2 reasons to consider modification of the basic CBT approach for use with older adults. First, GAD presents somewhat differently in older adults than it does in younger individuals. Research has shown that there are age-related differences in content of worry, description and/or experience of anxiety, and emphasis placed on somatic symptoms.¹⁹ Second, CBT may be less effective for older adults. Dropout rates are higher than those observed among younger populations, and the effectiveness of CBT has not been shown to surpass alternative approaches such as supportive therapy.^{19,20}

Some strategies that have been suggested for enhancing the effectiveness of CBT for the elderly include use of adapted materials, such as large-type handouts or multimedia presentations; techniques to enhance memory for presented material, such as audiotapes or videotapes to be reviewed between sessions; visual imagery in the place of other relaxation techniques; and planning for contingencies such as energy level, physical functioning, and weather, which may affect the elderly person's ability to attend an appointment.²¹ Others are considering alternative approaches, such as stimulus control, problem solving, and life review, for managing anxiety in this population.²⁰

COMBINING THERAPEUTIC APPROACHES

Most patients who seek psychotherapy for anxiety disorders are taking an anxiolytic medication, and the majority express a preference for a combined treatment approach.²² Although it is intuitively reasonable to believe that 2 modalities would be better than 1, this idea has not received consistent empirical support. To date, only 2 studies^{22,23} have compared the combination of medication and CBT with medication and CBT alone. Power et al.²³ conducted a study involving 5 treatment groups: CBT, di-

azepam, CBT plus diazepam, CBT plus placebo, and placebo. They found no difference in treatment response among the CBT, CBT plus diazepam, and CBT plus placebo groups, all of which led to greater reduction than did diazepam or placebo. The highest rates of clinically significant change and maintenance of treatment gains and lowest rates of subsequent treatment were in the CBT plus diazepam and CBT treatment groups. The authors suggested that the addition of diazepam may have increased the effectiveness of CBT because they observed the earliest treatment gains in the combined group.²³ Aside from the Power et al.²³ study, one must extrapolate from combining treatments for other anxiety disorders. In particular, CBT for panic disorder appears to be less effective when combined with benzodiazepines.²¹ Studies using older antidepressant medications (e.g., tricyclic antidepressants) suggest that the combination may be better during active treatment with both approaches but that gains are eroded with withdrawal of the medication.²¹ There is insufficient evidence about combining newer antidepressants with CBT to draw any significant conclusions, but medication withdrawal may be of less concern with newer agents.²¹ Given patient preferences, this area is clearly important for future research.

SELECTING A TREATMENT APPROACH

On the basis of the current literature on CBT and pharmacotherapy for GAD, there does not appear to be a significant difference in effectiveness between the modalities.^{9,10} Thus, it is recommended that clinicians consider the following when selecting a treatment approach.

What is the patient's preference? A number of studies have shown that patient motivation is related to improvement in psychotherapy.²⁴ Consistent with this, a recent study²⁵ showed that patients who elected to receive counseling rather than medications had a better treatment response than did those who were randomly assigned to the same intervention.²⁵

What is the treatment history? As the old adage goes, "if it ain't broke, don't fix it." If the patient has had a positive experience with one modality in the past, that is good reason to use a similar approach again.

What factors may interfere with successful treatment? Pharmacotherapy may be contraindicated for an individual who has difficulty tolerating side effects or other physiologic changes. Cognitive-behavioral therapy would not be a good choice for an individual who would have difficulty attending meetings regularly (e.g., inflexible work schedule, childcare problems, transportation difficulties) or complying with homework assignments.

CONCLUSION

In summary, CBT is an effective approach for the treatment of GAD and is the treatment of choice in patients for whom pharmacotherapy is contraindicated or who prefer a psychotherapeutic approach. Psychotherapy researchers continue to refine the basic cognitive-behavioral treatment package in an effort to broaden the impact of the treatment on the lives of those affected by GAD.

Drug name: diazepam (Diastat, Valium, and others).

Disclosure of off-label usage: The author has determined that, to the best of her knowledge, no investigational information about pharmaceutical agents has been presented in this article that is outside U.S. Food and Drug Administration-approved labeling.

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Cognitive-Behavioral Therapy (CBT) Basic Group for Anxiety

Adult Patient Manual



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Acknowledgements

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Ricks Warren, PhD

Based in part on the knowledge and expertise of:

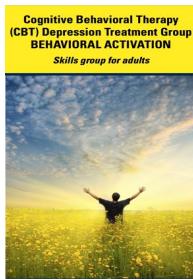
James Abelson, MD, PhD
Joseph Himle, PhD
Laura Lokers, LCSW
Pam Schweitzer, APRN, BC
Ricks Warren, PhD

CBT Groups in the University of Michigan Department of Psychiatry

Depression Program

CBT Basic Group for Depression

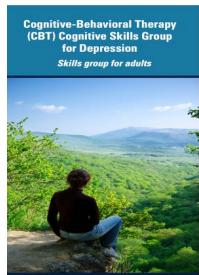
CBT
Behavioral Activation Group for Depression



Basic Cognitive-Behavioral Therapy (CBT) for Depression Skills group for adults



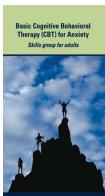
CBT Cognitive Skills Group for Depression



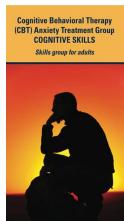
Mindfulness-Based Cognitive Therapy for depression relapse prevention

Anxiety Program

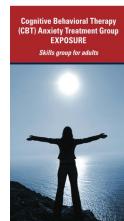
CBT Basic Group for Anxiety (2 sections)



CBT Cognitive Skills Group for Anxiety



CBT Exposure Group for Anxiety



Mindfulness for Anxiety Group



Cognitive-Behavioral Therapy (CBT) Basic Group for Anxiety

Group Guideposts



What is this group all about?

- Our group is an introduction to the basic concepts and skills of CBT.
- There are four sessions, each with a different topic.
- These are offered weekly, the first four Mondays and Tuesdays of every month. Each Monday and Tuesday is the same topic, so you can come to whichever fits your schedule best.
- You can attend these in any order you like.
- Each session we will cover just some of these CBT skills. If you have questions during the group, please ask! It is also possible any confusion you have at the beginning will clear up as you continue to attend the sessions.
- This group is not meant to fix your anxiety completely. We want to give you a chance to try out some of these techniques and understand your anxiety better. When you get done with this group you may want to continue with group or individual CBT treatment here at U of M.

Weekly Group topics:

Anxiety Vulnerability Management (week 1)

Do you ever think you have more anxiety than other people? Find out why and learn how to use CBT skills to fight your anxiety over the long term.

Relaxation (week 2)

Just relax! What to do and when to try relaxation strategies to help make you feel less stress and tension in your daily life.

Exposure and Desensitization (week 3)

“Avoid avoidance:” how our behaviors can make anxiety worse, and the surprising way to get it to leave us alone!

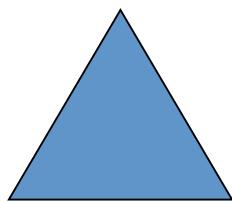
Cognitive Therapy Skills (week 4)

Our thoughts matter! Learn ways our thoughts can change how we feel and influence what we do. Turn thoughts into your ally, instead of your enemy.

What is Cognitive-Behavioral Therapy?

Cognitive-Behavioral Therapy (CBT) is a short-term, **evidence-based** treatment for many problems, including anxiety. It is based on the idea that thoughts (cognitions) and behaviors affect the way we feel.

Feelings (emotions)



Thoughts (cognitions)

Behaviors (actions)

We want to be sure that our treatment is effective!

Evidence-based means that there is scientific evidence to show that something works.

CBT is an evidence-based treatment that has been studied and shown to be effective in hundreds of scientific experiments.

While there is no 100% guarantee that CBT will work for you, it is likely that with practice and hard work you will receive benefit from these techniques.

How to use this manual

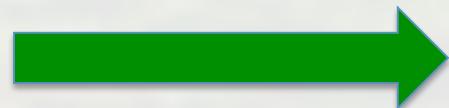
This manual includes a lot of information on anxiety and CBT—more than we have time to cover in the group sessions, and perhaps more than you will have time to review on your own! You will get the most out of this group if you **take notes during the group** and then **review the manual between sessions**. Remember that different people get benefit from different CBT skills, so we expect that you will use the skills that work and let go of the rest. We hope that you will try each skill out to determine if it suits you. Refer to “**Appendix IV: This is so much information! Where do I start?**” to make your reading more efficient by starting with the information most pertinent to your particular problem. Finally, be sure to bring the manual back next week!

The Path Through Psychotherapy...

There is a great deal of scientific research on psychotherapy, and we know a lot about what can be helpful for people. We continue to learn more and more about how to use psychotherapy to help as many people as possible.

However, because everyone is different, and our brains and lives are very complex, right now it is often hard to know exactly what it is that will help a particular person feel better.

On the next page, follow the path from the bottom of the page upward for some tips to make your “path through psychotherapy” more helpful and rewarding.





See this as just one piece of the puzzle in your process of better understanding yourself and moving toward what you want in your life. Get all you can out of it and then make efforts to find out what other types of work could be helpful. For example, maybe you did a great deal of work on managing your depression with cognitive and behavioral skills. Now you believe that you want to improve your relationships to achieve more in that area of your life.

Manage barriers to showing up regularly to treatment and practicing skills: improvement depends primarily on follow-through and the amount of work you put into your therapy.

Address depression from different angles. There is no one “silver bullet” that will change depression all by itself. Usually a combination treatment, or mixed approach is what works best to make depression better. This also means putting in some effort to understand the different ways to manage your depression.

Practice skills over, and over, and over. It usually takes time for changes in our behavior and thinking to lead to feeling better. Like learning an instrument, we are practicing new ways of doing things that will feel “clunky” at first, and become more comfortable over time.

Take small steps toward change each day. Try not to wait for “light bulb moments,” “epiphanies,” or for something to take it all away instantly.



Along the way

Expect **ups and downs** during the process. Think of it as “2 steps forward, 1 step back.” Try not to get too discouraged or give up when things seem to move backward or stagnate.

Make it about you: engage in your treatment because **you** want to improve your life, take responsibility for achieving your aims, and feeling better, not because others are telling you to do so. Remember that even if you are being pushed to engage in therapy by someone else, that relationship must be important enough for you to consider this option!



Maintain an **open mind** about the possibility of change, while being realistic about **how fast** this change can happen.

Especially at first, gauge **success according to how you change your responses** to stress, uncomfortable emotions, and body sensations, not whether or not these things exist or continue to occur. Focus on **valued action**, even more than just “feeling better.”

“Credibility:” Make sure the treatment in which you are engaging makes sense to you and seems to be addressing your problem. There are different paths to the same goal. If this type of therapy is not working for you, you are confused about what you are doing, or you have any other concerns, talk to your clinician right away. Clinicians are trained to have these discussions with their patients!

Make sure **your definition of the “problem”** is the same as the clinicians with whom you are working. Maybe they think it is “depression” and you think it is something else. Try to clarify this with your clinicians.



Cognitive-Behavioral Therapy (CBT) Basic Group for Anxiety

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Notes

Anxiety 101

"We experience moments absolutely free from worry. These brief respites are called panic."

~Cullen Hightower

This part of the group is meant to explore important information about the anxiety itself. The first step to managing anxiety is understanding it as well as we can— to “know thine enemy,” so to speak.

On the pages entitled **“Anxiety is...”** and **“Why does my body do this?”** we’ll talk about:



- What the anxiety “alarm” really is: the “fight or flight” response—and what its common symptoms are
- The difference between normal anxiety and “phobic” anxiety
- What causes anxiety
- Why our bodies do what they do when we are anxious
- Why we can’t just “get rid of” the anxiety

In the section **“Anxiety Triggers,”** we’ll go over the different things that can trigger anxiety and how the brain comes to believe these triggers are dangerous.



In our final section, **“Anxiety Fuel,”** we learn about common ways that anxiety can get worse, and how our own thoughts and behaviors play a role in this process.



Anxiety Is...

Anxiety is a part of our bodies' natural **alarm** system, the “**fight or flight**” response, which exists to protect us from danger. These natural body responses are not harmful—but they are really uncomfortable!

The most pure form of the “fight or flight” response is a **panic attack**, which involves a rush of anxiety symptoms, many of which are listed below, usually peaking in about 10 minutes. In these cases, the body is trying to tell us “something dangerous is happening *right now!*” Other forms of anxiety that are less acute but often just as debilitating, such as **chronic worry**, involve symptoms similar to the “fight or flight” symptoms of panic attacks. However, in these cases, it is as if the body is saying “something dangerous is *going to happen* sometime in the future... so watch out!” The differences between the two are the intensity of the response and the context in which it is triggered. In this manual we will refer to all anxiety symptoms as being related to the “fight or flight” response. The most common anxiety symptoms are listed below. **Try circling the ones that apply to you.**

Physical Symptoms

- Rapid heartbeat
- Sweating
- Trouble breathing
- Tightness in the chest, chest pain
- Dizziness
- Feeling: “Things aren’t real”
- Feeling: “I don’t feel like myself.”
- Tingling and numbness in fingers, toes, and other extremities
- Nausea, vomiting
- Muscle tension
- Low energy, exhaustion
- Changes in body temperature
- Shaking, jitters
- Urgency to urinate or defecate
- Changes in vision and other senses

Cognitive (thinking) Symptoms

- Worries
- Negative thoughts about one’s ability to tolerate emotions or future stress
- Negative predictions about future events
- Other common thoughts:
 - “I am going crazy!”
 - “I am going to have a heart attack!”
 - “I am going to faint.”
- Trouble concentrating or keeping attention
- Magical ideas, phrases or images such as “If I do not wash my hands I will die or someone will be harmed.”
- Preoccupation with body sensations or functions

Behavioral Symptoms

- Avoidance** of anything that provokes anxiety, including people, places, situations, objects, animals, thoughts, memories, body feelings, etc.
- Protective, “safety” behaviors
- Aggression, verbal abuse, lashing out
- Alcohol and/or drug use
- Compulsive behaviors, such as excessive checking or other unreasonable or harmful rituals or routines



What causes anxiety?

We know from scientific research that anxiety is caused by a combination of factors related to both “**nature**” (**genetics**) and “**nurture**” (**experience**). Check out page 82 for a more detailed explanation of the factors that can lead to anxiety.

When “fight or flight” goes too far: “Phobic” anxiety

Everyone experiences anxiety from time-to-time. We often get the question: “How do I know if I have an anxiety disorder?” An anxiety disorder is diagnosed when someone experiences anxiety symptoms and these symptoms:

- Interfere with a person’s life aims
- Happen too often or with too much intensity, given the actual danger of a situation
- Are not explained by other factors, such as a medical problem or substance abuse

Some people experience significant anxiety and choose simply to live with it. It is up to you to decide if you can handle the anxiety on your own, or if treatment is necessary.

Take home point:

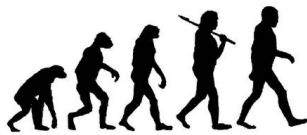
The symptoms of anxiety are the “fight or flight” response, and are normal, functional, and necessary for survival. They become a problem when they are too severe or happen too often, given the real amount of danger present, or if it interferes with the activities of life.

Remember: Anxiety is uncomfortable, not dangerous!

Why can’t I just get rid of my anxiety?

Anxiety is as vital to our survival as hunger and thirst. Without our “fight or flight” response we would not be as aware of possible threats to our safety. We also might not take care of ourselves or prepare adequately for the future. And we probably wouldn’t enjoy a scary movie or a roller coaster!

Anxiety is necessary to protect us and can even be fun at times. It isn’t in our best interests to get rid of it completely!



Why does my body do this?

There is a reason!

We have evolved over millions of years to better protect ourselves. Our brains have learned to *automatically* signal danger when it is present or we perceive that we may be harmed in some way. Each symptom of anxiety has a specific evolutionary purpose, to help us “fight” or “flee.”

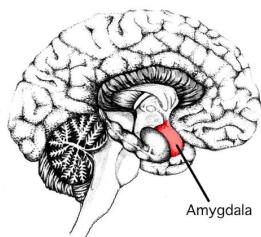
Try to figure out how each symptom of anxiety is used by our bodies to protect us when we are in danger, by matching the evolutionary purpose with the anxiety symptoms. Some in the right-hand column may be used twice, and there may be multiple answers for some symptoms. Once you are done, you can see if you were right—the answers are at the bottom of the page. Also, a more detailed diagram of the biology of the “fight or flight” response is in **Appendix I, “The Biology of Fight or Flight.”**

Anxiety Symptom	Purpose
1. Rapid heartbeat_____	A. Muscles contract and tighten to help us fight or flee
2. Sweating_____	B. Push blood around the body faster to supply cells with oxygen in case we need to use energy to flee or protect ourselves
3. Flushing in face_____	C. Lots of energy is spent for body to protect us
4. Tightness in the chest, chest pain_____	D. Body increases speed and depth of breathing
5. Feeling: “Things aren’t real”_____	E. Thoughts tend to be negative and protective; it is dangerous to have “good” thoughts if we are in danger!
6. Feeling: “I’m not myself”_____	F. Must stay alive, even if it means using force
7. Tingling or numbness in fingers and toes_____	G. Try to think of ways to protect ourselves in case bad things happen in future
8. Nausea, vomiting_____	H. Brain is constantly scanning for danger, from one thing to next
9. Muscle tension, stiffness_____	I. Body stops digestion and attempts to rid itself of excessive harmful substances
10. Low energy, exhaustion_____	J. If something is dangerous, remember it and get away from it!
11. Changes in body temperature_____	K. Cools us off when we are running or fighting and makes it harder for a predator to grab us
12. Shaking, jitteriness_____	L. Blood is redirected away from head, skin, fingers, and toes; if we are cut, we will not bleed to death as easily
13. Urgency to urinate or defecate_____	M. Decrease in salivation
14. Hyperventilation or trouble breathing_____	
15. Dizziness, lightheadedness_____	
16. Worries_____	
17. Negative predictions about future events_____	
18. Trouble concentrating or keeping attention_____	
19. Avoiding_____	
20. Fight or be aggressive_____	
21. Changes in vision, hearing, smell, taste_____	
22. Dry mouth_____	

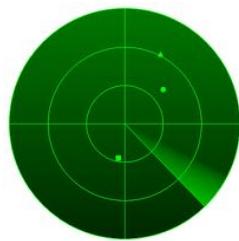


Did you know... when our body’s “fight or flight” alarm is triggered, a domino effect of chemical changes and messages are sent to various parts of the brain and body, producing these symptoms. This process is programmed to last only about 10 minutes, *unless it is triggered again.*

Anxiety “Triggers”

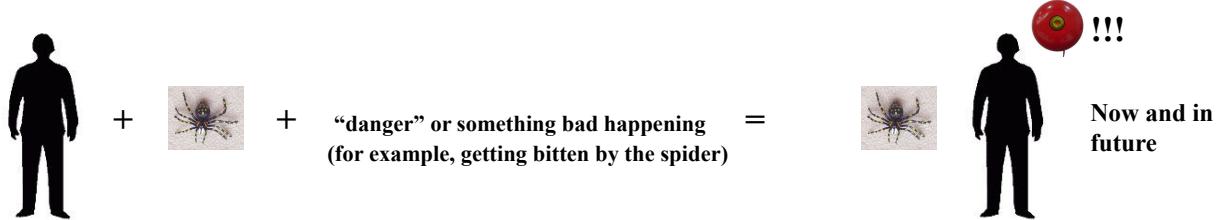


Our brains are designed to keep us safe. The anxiety part of the brain, the **amygdala**, is like a radar that is trained to spot dangerous objects and situations. When this “radar” spots something that could be dangerous, it tells the brain to begin the “fight or flight” response, producing the uncomfortable feelings we get when we are anxious.



“One thing leads to another:” how a trigger becomes connected with our “fight or flight” response

When we perceive danger, whatever it is that could be dangerous (in this case, a spider) is remembered by the **amygdala**. The next time something reminds us of the spider, or we actually come into contact with one, our anxiety “alarm” goes off.



Types of anxiety triggers and the Anxiety Disorder “Diagnosis”

Nearly anything can be trained to trigger the “fight or flight” response. Psychiatrists, psychologists, psychiatric nurses, and clinical psychiatric social workers have tried to find ways to tell the difference between different types of anxiety triggers. Anxiety disorder **diagnoses** come out of this attempt. While a diagnosis is not a perfect way of describing a person’s experiences, it can help us to know what types of treatments may be effective. Different groups of triggers and the diagnoses most frequently associated with them are listed below. Some of these categories overlap, and it is possible for one person to have more than one diagnosis.

Trigger

Diagnosis

Worries, predictions, and negative thoughts about the future → **Generalized Anxiety Disorder (GAD)**

Social situations and people, such as social events and performances, along with fear of criticism from others → **Social Anxiety Disorder (Social Phobia)**

Fear of having a panic attack and fear of body feelings that remind one of panic attacks → **Panic Disorder**

Places a panic attack has happened before or could happen → **Agoraphobia**

Places, situations, animals, objects, blood or injury, etc. → **Specific Phobias**

Disturbing intrusive thoughts, contamination, doubt and urge to check things, etc. → **Obsessive-Compulsive Disorder (OCD)**

Memories and things associated with a traumatic event → **Post-Traumatic Stress Disorder (PTSD)**



Some people wonder if scary *events* caused their anxiety, or if their *anxiety itself* is what causes them to more readily see things as scary.

We know from scientific research on anxiety that *both* are true. Events and stress in our lives can create more anxiety. For example, a passenger on a flight that barely escapes a serious accident may feel anxiety the next time they take a flight, especially if this was one of their first flying experiences. Flying may then become a new anxiety trigger. Conversely, someone that is already vulnerable to having anxiety (see page 82 for more on this) may experience normal turbulence on a flight as scary and then feel afraid to fly in the future.



What if I don't know what triggers my anxiety?

For the sake of treatment, it is important to learn to identify what it is that makes you anxious. For some people it is very clear; for others, anxiety seems to come from “out of nowhere.”

To identify what makes you anxious, ask yourself the following questions:

- “When I feel scared or nervous, what is going on around me or what am I thinking about?”
- “Am I worried about having more anxiety in the future?”
- “Am I afraid of body sensations that remind me of intense anxiety attacks?”
- “Do I ever try to do more than I can handle or create unrealistic expectations for myself or others?”
- “Am I worried that I will not be able to cope if bad things happen in the future?”

Anxiety “Triggers” take home points:

The brain can learn to be afraid of almost anything, and some anxiety “triggers” are more common than others. These triggers help define anxiety disorder diagnoses, which we use to better understand the anxiety and develop treatments.

Anxiety can be caused by scary events, and anxiety can also make one more likely to experience an event as scary.

It is important to understand your anxiety “triggers.” In most cases it is possible to figure them out yourself. Sometimes it is necessary to have the help of a mental health professional to do so.

Exercise My anxiety triggers are:

List here the objects, situations, events, or places that tend to trigger your anxiety. Use the questions above if you are having trouble figuring out what makes you anxious.

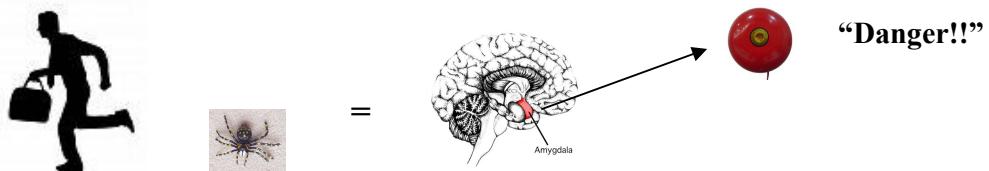
- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

Anxiety “Fuel”



When we feel anxious, we typically want to do something to make ourselves feel better. Most of these behaviors feel natural because our bodies also want to keep us safe. However, some of these behaviors can make things worse; we add “fuel” to the anxiety “fire.” We can add fuel gradually over time or dump lots on all at once. In all cases the anxiety “fire” gets bigger.

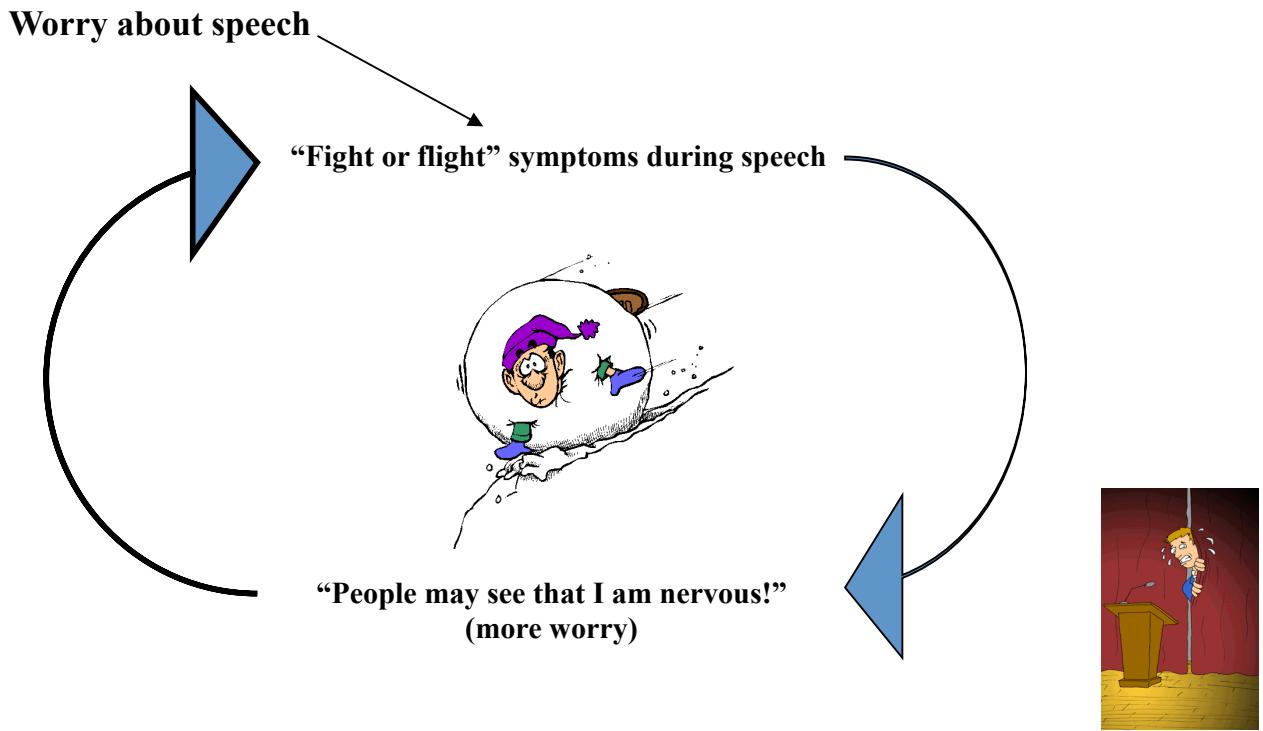
What behaviors are in danger of causing the anxiety to get worse? Anything that teaches the **amygdala** (the anxiety center of the brain) that something is dangerous. Remember our spider example? Let’s say that every time this man sees a spider he tries to avoid it by getting away. What does this teach him? That the spider is dangerous, of course!



Each time he avoids the spider, his **amygdala** gets more feedback that the spider is dangerous. Next time he sees the spider, his anxiety “alarm” will be louder, or it may go off more quickly than before. The process by which the brain learns that something is more dangerous over time is called **sensitization**. It is also called **reinforcement** of the anxiety because the anxiety response gets stronger and stronger. Reinforcement can happen both in the short term (when the danger seems to be present) or in the long term, as we discuss below.

Short-term reinforcement: the anxiety “snowball effect”

Have you ever worried about speaking in front of a group of people? Worries about performing well can lead to jitteriness, cracking voice, difficulty concentrating, and other “fight or flight” symptoms. Often the physical anxiety symptoms will then create *more* worry about the performance; this creates a “snowball effect,” in which anxiety gets worse and worse, even to the point of panic.



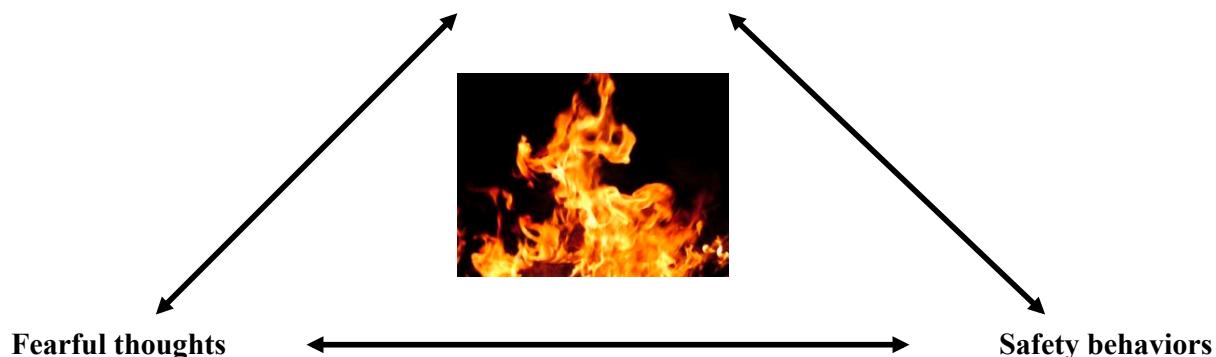
Long-term reinforcement: “Safety Behaviors” and negative thoughts/beliefs

As mentioned earlier, anxiety “fuel” is anything that teaches the anxiety center of the brain, the **amygdala**, that something is dangerous. Over the long term, the most common ways to do this involve negative thoughts and beliefs as well as protective actions called **safety behaviors**. While these behaviors seem to help the anxiety right now, they usually make it worse in the long run. Examples are listed below.

Behaviors	Thoughts
<p><i>Safety behaviors are often justified using “as long as” statements:</i></p> <p>Avoidance: “As long as I avoid that, I will be safe.”</p> <p>Attacking others, acting on anger, etc.: “As long as I use verbal or physical force to protect myself, I will have control.”</p> <p>Protective behaviors: “As long as I have my water bottle with me, I am safe and will not have another panic attack.”</p> <p>Rituals (usually part of OCD, characterized by excessive, repetitive checking, washing, counting, asking for reassurance, etc.): “As long as I knock four times when I have a scary thought, nothing bad will happen to my daughter.”</p> <p>Substance use (trying to “numb” the anxiety): “As long as I can have some alcohol, I will feel better.”</p>	<p>Negative thoughts about:</p> <ul style="list-style-type: none"> -the future -yourself -other people -the world <p><i>Examples:</i></p> <p>“I am going to lose my job and end up homeless.”</p> <p>“I must have control...”</p> <p>“That person thinks I am an idiot.”</p> <p>“If I drive on the highway I will get into an accident.”</p> <p>“If I keep having this thought it must be true.”</p>

Whether in the short run or over time, anxiety feelings, fearful thoughts, and protective, “safety” behaviors work together to keep our anxiety “fire” burning. Each feeds off the others, and any one of these can act as the “match” to get the fire started. **In CBT, our goal is to work on these thoughts and behaviors to help extinguish the fire as much as possible.**

Anxiety symptoms (“fight or flight” response)



Anxiety “Fuel” take home points:

Some of our thoughts and behaviors, while they seem to help us, actually make anxiety worse. Safety behaviors, such as avoidance and protective behaviors, as well as negative thoughts, serve to reinforce anxiety in both the short- and long-term.

It is important to understand what, if any, safety behaviors we are using, so that we can work to reverse this through treatment.

Exercise
Anxiety “Fuel”

Below, list some of the ways you may accidentally make your anxiety worse, based on the material discussed above.

<u>Avoidance</u>	<u>Anger and Irritability</u>	<u>Protective “Safety” Behaviors</u>
<p>Do I avoid anything because it seems scary or makes me feel anxious? This may include avoiding thinking about something or avoiding certain types of situations or people.</p> <p><u>Things I avoid:</u></p> <ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6. 7. 	<p>Do I become angry or irritable and attack others verbally or physically?</p> <p><u>Times I become angry:</u></p> <ol style="list-style-type: none"> 1. 2. 3. 4. <p><u>What I do when I am angry:</u></p> <ol style="list-style-type: none"> 1. 2. 3. 4. 	<p>Do I try to protect myself in certain situations in order to feel more safe?</p> <p><u>How I try to protect myself:</u></p> <ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6. 7. 8.

<u>Substance Use</u>	<u>Thoughts</u>
<p>Do I ever use drugs or alcohol in order to “numb” the anxiety?</p> <p><u>Types of drugs or alcohol:</u></p> <p><u>When I tend to drink or use drugs:</u></p>	<p>Do I have thoughts that come up continually and make me feel anxious?</p> <p><u>Thoughts that make me feel anxious:</u></p> <ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6.

Anxiety 101

Summary

Anxiety Is...

We learned that the symptoms of anxiety are the “fight or flight” response, and are normal, functional, and necessary for survival. They become a problem when they are too severe or happen too much given the real amount of danger present, or if it interferes with the activities of life. While having chronic anxiety over long periods of time puts stress on the body, it can be helpful to remember that **anxiety itself is not dangerous**; but it sure can be uncomfortable.

Why does my body do this?

In this section we covered the ways that **each “fight or flight” symptom functions to protect us in case we are in real danger**.

We also learned that when our body’s “fight or flight” alarm is triggered, a domino effect of chemical changes and messages are sent to various parts of the brain and body, producing these symptoms. **This process is programmed to last only about 10 minutes, unless it is triggered again.**

Anxiety Triggers

Here we learned that the brain can learn to be afraid of almost anything, and some anxiety “triggers” are more common than others. Anxiety disorder diagnoses are organized based on what triggers the anxiety.

We know that anxiety can be caused by scary events, and anxiety can also make one more likely to experience an event as scary.

It is important to identify your anxiety “triggers.” In most cases it is possible to figure them out yourself. Sometimes it is necessary to have the help of a mental health professional to do this. A few tips are on page 10.

Anxiety Fuel

Some of our thoughts and behaviors, while they seem to help us, actually make anxiety worse. **Safety behaviors**, such as avoidance and protective behaviors, as well as negative thoughts, serve to reinforce anxiety in both the short- and long-term.

It is important to understand how we make our anxiety worse, so that we can work to reverse this through treatment.



A common question: What if it really is dangerous?

Of course, we are not trying to ignore anxiety or feel calm if something really is dangerous. One of our **goals in CBT is to learn what is dangerous and what is not, what we can control and what we can't, and how to balance taking risks with keeping ourselves safe**.

If you are here, it is likely that the cost of trying to keep yourself safe is outweighing the advantages. We'll be exploring this more in some of our other modules.



Notes

Notes

Exposure and Desensitization

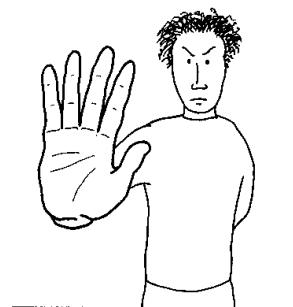
“Do one thing every day that scares you.”
~Eleanor Roosevelt



In this part of the group manual we will learn about **exposure**, one of the most powerful weapons to battle anxiety and a big part of CBT treatment.

We spoke about **sensitization** in the section “**Anxiety Fuel**.” Now we’ll talk about **desensitization**, which means we work to make our anxiety alarm less sensitive, so it doesn’t go off as often or as loudly.

In this section we will learn what exposure is, when and how to use it, and some important rules to follow to be sure we get the most out of treatment. We’ll also try to give you lots of examples so it makes sense to you; we want you to know what to do, but also how and why it works. In other words, we want you to be sold on exposure!



What is exposure?

Have you ever been afraid of something and found that your fear became less intense over time, the more you experienced something?

For example, some people can be afraid of flying and find that the more they fly, the easier it gets.



This is how **exposure** works. Very simply, the more that we do something we are afraid of doing, or are exposed to something that we are afraid of, the less afraid we tend to be.

Exposure is one set of skills used in CBT. With exposure, we gradually begin doing some of the things we tend to avoid, especially if these are things we need to do to reach our goals. The good news is that not only are we more likely to reach our goals if we don't avoid, but by doing the exposure exercises the anxiety can actually become less, so we feel better. When we feel better, it is because the anxiety center of the brain, the **amygdala**, is getting less sensitive to a certain trigger. This is called **desensitization**. We'll talk more about how this works later.

Here are some examples of situations in which exposure principles can work:

A taxi driver has a fear of traveling over bridges. He avoids bridges at all costs and will even pull over to the side of the road with a passenger in the car, pretending to have engine trouble. This fear of bridges severely limits his ability to do his job. With the help of a therapist, he learns gradually to beat his fear of bridges, starting by going over low bridges with a friend in the passenger seat. Eventually he works up to driving over larger bridges on his own.



Bill, a college student, has a fear of public speaking. He tries to avoid taking classes that involve oral presentations and when he does have one of these classes, he tries to avoid giving presentations by missing class. He often fails to complete his work, and generally performs more poorly in these classes than he does in classes that do not involve presentations. Bill seeks out treatment to address this and gradually learns to speak in front of a few people, then small groups, and then ultimately larger audiences. With practice, he becomes more comfortable speaking in front of others.



When can I use exposure?

Exposure doesn't work for all types of anxiety, and there are things we want to know before starting to use it. We hope that by the end of this part of the group you'll have an idea of when exposure can be helpful and how to use it.

To get a sense of when exposure may be helpful, ask yourself the following questions:

- Do I know exactly **what is triggering** my anxiety?
- Is there something important to me that I am **avoiding** because of the anxiety?
- Are there times when I try to **stay safe** or **protect myself**, which may affect my ability to live life the way I want to?

Be sure to review "**Anxiety Triggers**" if you have trouble determining what your triggers are. Sometimes it is helpful to get the help of an experienced mental health professional to learn more about your triggers.

In the section of the group entitled "**Anxiety Fuel**" we learned about the ways that avoidance and **safety behaviors** can make the anxiety worse. It may be helpful to review this section before beginning exposure exercises. As a rule of thumb, these behaviors interfere with the improvement we might experience using exposure techniques. Later in this section we'll be talking more about how safety behaviors can get in the way of our progress with exposure.

Take home point:

Exposure and desensitization is just one set of skills used in CBT. It works best when we know what triggers our anxiety, and are aware of avoidance and safety behaviors that we use when anxiety presents itself. The goal of exposure is to gradually expose ourselves to whatever it is that we are avoiding, which helps us reduce the anxiety and make progress toward our life aims.

Should I do exposure?

It is common to question whether or not to do exposure to reduce anxiety and stop avoiding important things in our lives. Why? Because facing our fears can be scary and takes hard work. Before and during exposure we may need to remind ourselves of why we are seeking treatment in the first place.

It can be helpful to consider how avoiding inconveniences us—how it may keep us from achieving our goals. For example, Bill, our friend with public speaking anxiety, could list the ways avoidance impacts his life.

Writing down the ways avoidance impacts our lives can help us understand how important it is to stop avoiding. We use **exposure** to work on the avoiding itself.

Homework exercise: How can I use exposure?

Go back to the section “**Anxiety Triggers**” and list the triggers you wrote under “My anxiety triggers are” here:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

Now use the following questions to determine for what triggers exposure might work:

- Am I **avoiding** any of these triggers because of anxiety?
- Are there times when I am exposed to these triggers and I try to **stay safe or protect myself**, which may affect my ability to live my life the way I want to?

Now list some of the triggers for which the answers to these questions are “yes.”

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

How avoiding public speaking impacts my life:

1. I worry about the next speech.
2. I have to try to take classes that don't involve oral presentations.
3. When I do speak in public, I feel more anxious.
4. I sometimes fail classes that involve public speaking.
5. I may limit the types of careers that are possible for me.
6. I may not be able to move up in my profession if I avoid public speaking.

Homework exercise: Should I use exposure?

Use Bill’s example above to write down the ways that avoidance of some of these triggers either inconveniences you or keeps you from achieving your goals.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Desensitization

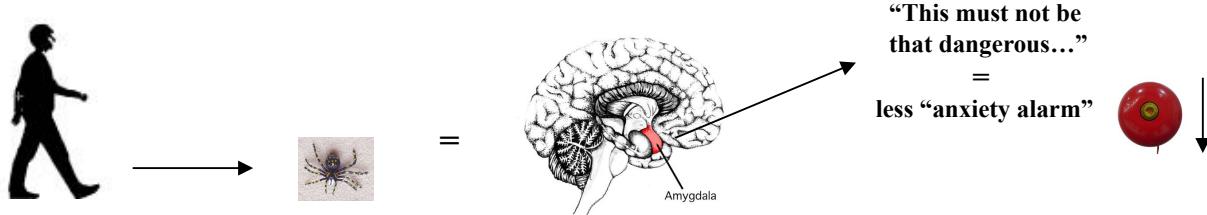
You may remember from the “Anxiety Fuel” section of the manual that we can *think* and *do* things that make the anxiety worse, like thinking over and over what might happen when we have to make that speech, or avoiding speeches altogether.

Anxiety can also get worse when bad things really happen, or we perceive that some event is dangerous.

As we mentioned earlier, these events, safety behaviors and negative thoughts can make our anxiety alarm more sensitive to certain triggers. This is called **sensitization**.



Desensitization is the opposite; our **amygdala** learns that something is not dangerous, through experience. Take our spider example: if this guy continues to approach the spider, it teaches the amygdala that the spider is not as dangerous as he once thought. If he is approaching that spider, it must not be that dangerous...



Give it time!

One trick about desensitization is that it usually takes **time** to retrain the amygdala to think something is *not* dangerous, especially if it's been trained over the years to think it is. As we will discuss more later, one important thing about desensitization is **staying in the anxiety provoking situation long enough to learn it is not dangerous**. Since our amygdala wants to protect us, it needs a lot of convincing to be willing to turn down that anxiety alarm.



This is also called **habituation**, which means that we get used to something so that it no longer seems as scary to us. We will even get bored, if we stay with it long enough. This is OK, because it is better to be bored, than anxious!

The next time we are around the trigger, we may still feel some anxiety, but it is likely to be less. If we do this over and over, the alarm gets weaker and weaker. Our anxiety “radar” may detect the trigger, but our amygdala will not react to it like it did before.

Take home point:

*Through experience and over time we can make our brain less sensitive to certain anxiety triggers. This is called **desensitization**.*

"Oh, say can you see..."

Imagine that you were asked to sing the *Star-Spangled Banner* on opening day at Comerica Park. Would you be nervous?

Now imagine you were asked to do this for every Tigers game— that's about 80 home games in a season. Would you be just as nervous after one month? At mid-season? At the end of the season?

**Beware of Dog!**

Elaine grew up around dogs all her life. Her family had many dogs, so she learned through experience that dogs tend not to be dangerous. When she'd see something on the news about a dog attacking a person, she'd think, "Wow, that seems odd," because in her experience dogs were not dangerous. This attack seemed like an isolated event and it did not change her opinion of how dangerous dogs are.



Jessica did not have dogs in her home growing up. When she was six she saw a news clip in which someone was attacked by a dog. She got the impression that dogs were dangerous—each time she was around a dog, she remembered that news clip and began to worry that the dog might attack her. She also felt scared and anxious when she saw a dog in real life.

Jessica's friend Rachel got a dog the next year. Jessica gradually learned through experience that dogs weren't always dangerous, and she began to feel less afraid.

Wait just one second!

You may be thinking "I've exposed myself to this trigger over and over for a long time, and it hasn't gotten any better; in fact, it is worse! Why would exposure make this any better?"

There are some important rules about doing exposure that are necessary in order for it to work. We'll talk about these rules in the section entitled "The Exposure Formula."

**Exercise:**

Try to think of some things to which you've become desensitized in your life. Examples are driving, scary movies, roller coasters, air travel, etc. Think of things you've gotten good at with practice, and also maybe some fears you've overcome by being exposed to them over and over and over. Then write them down here.

- 1.
- 2.
- 3.
- 4.
- 5.

Exposure: Getting Started

Now that we know how desensitization works, we can get started. If you are still questioning whether or not exposure will work for you, review the page “Should I do exposure?” Remember that if there are currently avoidance or safety behaviors related to a trigger, it is likely that exposure could be used to help bring the anxiety down.



How do I know *where* to start?

If different anxiety triggers interfere with your life and you are not sure where to start with exposure, ask yourself the following questions:

1. Which trigger interferes with my life the most?
2. With which one would I predict that my life would improve the most if the anxiety were less?
3. Does one stand out as being more “doable” than others? Would one be easier to start on, so I can start to get my life back on track?

Based on the questions above, try to pick the most pertinent exposure target. Once you’ve chosen a trigger to start on, list ways that you might be able to get your anxiety alarm going. For example, Bill might write down different types of situations that would trigger his public speaking anxiety. We call this a **Fear Hierarchy** or a **Stimuli Map**.

Exposure exercise (different ways to trigger the anxiety)	Anxiety Rating
-Speaking in front of a large group of professionals who are experts on the topic on which I am speaking, using a prepared speech	9
-Speaking in front of a large group of professionals who are experts on the topic on which I am speaking, using a more impromptu style and few note cards	10
-Speaking about myself in front of a few friends	6
-Speaking for a few people who I don't know and who don't know my topic well	7
-Speaking for about 10 people who are also students and don't know my topic well	8
-Practicing a planned presentation on my own	3
-Performing the speech for my girlfriend	5

When trying to come up with ways to vary the exposure, think about things that can change how challenging the exposure is. Bill might list:

- Length of speech
- How well I know the audience
- How well they know the topic
- How well practiced I am
- Speech is more planned out versus more impromptu

It is good to come up with a nice long list at first, so try to think of as many variations as possible!

After listing the different variations on the left, Bill rates his anxiety on a scale of 0-10 using the **“Subjective Units of Distress Scale” (SUDS)** for each one. We discuss the SUDS scale on the next page.

The SUDS Scale

Exposure therapists often use a scale of 0-10 or 0-100 to rate the amount of anxiety someone has during exposure exercises. It is like a thermometer, measuring how “hot” our anxiety gets.

This is called the **Subjective Units of Distress Scale** or “**SUDS**.”

- 0**= no anxiety at all; completely calm
- 3**= some anxiety, but manageable
- 5**= getting tough; wouldn’t want to have it all the time
- 7-8**= severe anxiety that interferes with daily life
- 10** = worst anxiety you’ve ever felt



Why do I have to rate my anxiety?

There are a few good reasons we ask folks to rate their anxiety before and during exposure treatment:

1. It helps us decide where to start and how to move from one exposure exercise to the next.
2. It keeps track of progress and helps us know if you are improving, staying the same, or getting worse.
3. It helps us start to step back from our anxiety when it happens and see that anxiety is not always the same severity.

We will be talking about the **SUDS** scale often in this manual and you will be using it a lot during exposure therapy.

Exercise: “My Fear Hierarchy”

Pick a trigger and try designing some exposure exercises by listing possible ways to bring on the anxiety.

Exposure exercise (different ways to trigger the anxiety)	Anxiety Rating (0-10)
1. _____	
2. _____	
3. _____	
4. _____	
5. _____	
6. _____	
7. _____	
8. _____	
9. _____	
10. _____	
11. _____	
12. _____	

The Exposure Formula

Exposure practice is like a formula; there are certain ingredients that are necessary to get the results we want. We need to understand these before starting the exposure practice, because if we don't follow these rules, we aren't likely to make much progress. In fact, we could make the anxiety worse! We'll be talking more about this in the next section.



There are four main ingredients in the “exposure formula.”

1. It is **prolonged**
2. It is **repetitive**
3. We **focus on the anxiety**
4. We add **no safety behaviors**

Ingredient #1: Prolonged

As we discussed earlier, it is important to stay in the anxiety producing situation until the anxiety comes down. Sometimes people ask if it is possible to do a shorter exposure practice in order to make it easier to complete. Usually we advise people to adjust the difficulty of the exposure, *not the duration*, because staying the situation long enough is necessary for the anxiety to come down. In fact, one important element of feeling better is staying in the situation long enough and doing it often enough that we **eventually get bored** with the trigger. This is important, because being bored it is a surefire way to know that we are not anxious!



Have you ever played a musical instrument or a sport? Your music teacher or coach probably told you to “practice, practice, practice!” Repetition is important for our brain to learn anything, and anxiety is no exception. Some people notice that their anxiety goes down quickly after starting exposure, but most people find that it takes **consistent, daily practice** to adequately retrain the brain and feel better.

Ingredient #3: Focus on the anxiety

This is the part that can be difficult; we are going to ask that you try to **focus on the feelings** (the anxiety “alarm”) that come up when you are in the anxiety provoking situation. Why? Because we are trying to convince the **amygdala** that this trigger *is not really dangerous*. If we avoid these unpleasant feelings, we send the message that the trigger *is* dangerous, and our time spent practicing exposure is wasted.



Ingredient #4: No “Safety Behaviors”

The same could be true if we spend our exposure practice trying to stay safe or protect ourselves from the trigger, or the anxiety itself. You may remember that safety behaviors are a great way to “fuel” our anxiety and make it stronger; they also really sabotage our exposure practice! We discussed some examples of safety behaviors in the section “Anxiety Fuel.” You may want to review this before starting exposure; it is another very important part of doing exposure correctly.

Important!

The #1 factor in seeing improvement with exposure is whether or not you **do the exposure and use all of the ingredients** listed above!



Take home points:

The first step in exposure practice is setting up a “Fear Hierarchy” and rating the amount of anxiety you would feel for each exercise.

Exposure practice requires repetitive, prolonged exposures to the anxiety itself, with no “safety behaviors.”

Exposure Tips



Exposure seems simple; just expose yourself to something you are afraid of, and the anxiety comes down over time. While this is true, going through an exposure program sometimes seems anything but simple. We should be ready to troubleshoot when things get tough— and sometimes it can be confusing! Below are some tips to help you through the exposure and improve your results.



Tip #1: Choose wisely!

Throughout exposure, try to pick exercises you are **confident you will complete**. Often people become frustrated with exposure because it is “too hard,” and they may even leave the exposure practice early.

When first starting exposure, it is best to take something from your Fear Hierarchy in the “5” or “6” range on the SUDS and then **very gradually** increase the difficulty of the exposures. If you are having trouble with an exercise, try making it a bit easier and commit to becoming comfortable with that particular trigger.

When designing exposure exercises, it is helpful to try to make them **convenient**; in other words, make it hard to forget to practice, and schedule it into the day so it does not take a lot of extra work to get going. Give yourself every chance you can to follow through with the exposure.

Tip #3: Unify your cognitive and behavioral “forces”

Imagine an army going into battle tentatively, with only half the number of soldiers, worried that there may be some casualties. How do you think they would fair against the enemy? Probably not so well.

Sending the message to the amygdala that the trigger is not dangerous works best when our **thoughts and behaviors are aligned**, a “unified front” against our enemy, the anxiety.



If we have doubts about whether or not the anxiety provoking trigger is *really* dangerous and then try to do exposure, it’s like going into battle without all of our forces. The anxiety is likely to win the battle, because our negative thoughts continue to send the message that the trigger is dangerous.

For example, when Bill goes to do exposure for his public speaking anxiety, he reminds himself of the evidence he has that making a mistake would not be the end of the world. We discuss the methods to do this in the **Cognitive Therapy Skills** module of this group manual.



Tip #2: Follow the rules of exposure

As we emphasized on the last page, it is very important that all of the “ingredients” of the exposure formula be included in order to get good results. It is especially important that the person doing the exposure **stay in anxiety provoking situation long enough for the anxiety to decrease**. Review these concepts on the previous page.

As we mentioned before, the #1 factor determining whether or not someone does well with exposure is whether or not they practiced exposure consistently and followed the rules.

Tip #4: Be prepared for some discomfort and stay aggressive!

Exposure can be difficult at times; after all, if we are going into battle, we should expect the enemy resist us with everything it has!

The main defense the anxiety has is **discomfort**, and we can expect to feel some during the exposure. Usually the discomfort is most severe early in the exposure, and some people even find that the anxiety gets worse before it gets better. This is our body trying to get us to give in and play defense; but we know our best bet is to stay aggressive and not listen to what the anxiety is telling us.

We are going to try to “ride” the **anxiety wave**, always remembering that anxiety is uncomfortable, not dangerous!



Exposure: Tracking Your Progress



Once we begin practicing exposure, it is important and helpful to track our progress. Remember our **Subjective Units of Distress Scale (SUDS)**? We'll use this to rate how much anxiety comes up when we do an exercise. We rate our anxiety at the beginning, middle, and end of each exercise. Let's take our friend Bill's public speaking exposure as an example.

Exposure task: Performing my presentation for friends

Day/Date	Length of time		SUDS (0-10)			Comments
	Start	Stop	Beginning	Middle	End	
4/15	10:15 am	11:15 am	2	8	4	
4/16	2:00 pm	3:00 pm	2	8	3	
4/17	5:30 pm	6:30 pm	1	9	4	<i>Lost train of thought</i>
4/18	5:30 pm	6:30 pm	1	5	2	
4/19	10:00 am	11:00 am	0	4	1	
4/20	6:00 pm	7:00 pm	0	3	1	
4/21	10:15 am	11:15 am	0	2	.5	

This is the type of progress we would expect to see for someone that consistently practices this one exposure exercise. You may notice that the “middle” levels are often highest, because it takes some time for the anxiety to come down.

We can also do multiple “mini” exposures to things that are harder to do for a full hour straight. For example, Jane, who has Obsessive Compulsive Disorder and fear of contamination, is practicing exposing herself to a rag that has been in contact with a door handle one time every hour, all day long.

Exposure task: Touching rag that had contact with door handle

Day/Date:	SUDS (0-10)						
	4/15	4/16	4/17	4/18	4/19	4/20	4/21
8:00 am	8	8	7	5	3	4	3
9:00 am	8	6	5	4	2	3	2
10:00 am	8	5	4	4	3	3	.5
11:00 am	7	5	4	4	1	2	0
12:00 PM	7	5	3	3	.5	2	0
1:00 PM	6	4	4	3	1	1	0
2:00 PM	4	5	3	4	1	1	0
3:00 PM	4	3	2	2	.5	2	0
4:00 PM	4	3	1	1	0	.5	0
5:00 PM	5	4	1	1	0	0	1
6:00 PM	3	7	1	1	2	0	0
7:00 PM	3	6	2	.5	0	0	0
8:00 PM	3	5	1	1	0	0	0
9:00 PM	4	5	1	1	0	0	0
10:00 PM	4	5	1	2	1	1	0

You may notice in both of these examples that there are times when the anxiety will come down, and then go up again. At other times the anxiety starts high and comes consistently down. When we record our SUDS scores this way, we can see that over time the numbers tend to come down, with some fluctuations in the middle.

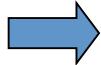


Exposure Examples: “External Cue Exposure”

External cue exposure is a fancy way to describe exposure to situations, places, objects, animals, or people *in our environment* that make us feel anxious. This is also called **in vivo exposure**, which means exposure “in real life.” Let’s take a look at Bill’s in vivo exposure for public speaking anxiety, one step at a time.

Step One: Pick a trigger

Bill has decided he really wants to beat this fear of public speaking. He decides to focus on this target and commits to designing an exposure plan to reach his goal.



Step Two: Create a fear hierarchy

Bill lists ways that he could purposely trigger the anxiety. He thinks about different ways to make public speaking situations more or less difficult.

Exposure exercise (different ways to trigger the anxiety)

-Speaking in front of a large group of professionals who are experts on the topic on which I am speaking, using a prepared speech

-Speaking in front of a large group of professionals who are experts on the topic on which I am speaking, using a more impromptu style and few notecards

-Speaking about myself in front of a few friends

-Speaking for a few people who I don’t know and who don’t know my topic well

-Speaking for about 10 people who are also students and don’t know my topic well

-Practicing a planned presentation on my own

-Performing the speech for my girlfriend

Step Six: Ending exposure

Bill continues to practice the exposure for about 12 weeks, changing the exposure exercise about each week as he moves up the hierarchy. After this, he decides to continue to practice public speaking, but less formally, to maintain his gains and refine his skills.

Step Five: Middle sessions of exposure

Once Bill’s anxiety comes down to about a “3” or less on the SUDS consistently for 3-4 days, he moves on to the next highest item on his hierarchy. He goes to a **Toastmasters** group where he practices in front of people with whom he feels less comfortable. When he again habituates to this exercise, he moves on to the next.

Bill moves through his hierarchy until he feels comfortable speaking in front of superiors who are knowledgeable about his topic. Since it was hard to find superiors to help him practice exposure, he had to revise his hierarchy to create this fear as realistically as possible. For instance, he practiced speaking about current events at Toastmasters, because most people could be considered “experts” on these topics.

For more information about **Toastmasters**, visit www.toastmasters.org.



Step Three: Rate the hierarchy

Bill rates each item on his list using the SUDS scale (see “Exposure: Getting Started” for more information on the SUDS).

Exposure exercise

Anxiety Rating

-Speaking in front of a large group of professionals who are experts on the topic on which I am speaking, using a prepared speech 9

-Speaking in front of a large group of professionals who are experts on the topic on which I am speaking, using a more impromptu style and few notecards 10

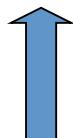
-Speaking about myself in front of a few friends 6

-Speaking for a few people who I don’t know and who don’t know my topic well 7

-Speaking for about 10 people who are also students and don’t know my topic well 8

-Practicing a planned presentation on my own 3

-Performing the speech for my girlfriend 5



Step Four: Starting exposure

Bill picks an item from the list in the “5-6” range on the SUDS. He begins by speaking in front of his friends one hour each day for one week. He tracks his progress using the SUDS (see Exposure: Tracking Your Progress). He also follows the rules of exposure outlined in the section “The Exposure Formula.”

Exposure Examples: “Internal Cue Exposure” for Panic Disorder



Internal cue exposure means that the trigger for our anxiety is internal, or inside our bodies. This type of exposure is used most often for people that struggle with Panic Disorder. Anyone who has had a panic attack knows how uncomfortable it is; this is the “fight or flight” response at its worst! Often the “trigger” for panic attacks is body symptoms and feelings. Remember what we discussed in the “Anxiety Fuel” section? Uncomfortable body feelings can lead to worries about further anxiety symptoms, which then triggers more symptoms, which leads to more worries, and before we know it we are in the middle of a full-fledged panic attack.

Because the trigger for panic attacks within the context of Panic Disorder is *the body*, the exposure exercises center on the anxiety symptoms themselves. If we can become comfortable with the idea of having the anxiety symptoms, we train the brain that the anxiety is not really dangerous, and the anxiety “alarm” doesn’t need to be sounded as loudly or as often. These are also called **interoceptive exposure** exercises, which is a fancy way to say exposure to feelings of anxiety and panic in the body.

Take a look at these interoceptive exposure exercises that can be used to toughen up against the possibility of having a panic attack. The person would pick a symptom that they experience when they have panic and practice one exercise daily. Each person may not respond to each exercise, so it is important try a number of them and find one that will trigger some anxiety.

Symptom: Rapid heartbeat

- Run on the spot or up and down stairs for 1 minute, then 1 minute break. Do this sequence 8 times.

Symptom: Breathlessness or smothering feelings

- Hold breath for 30 seconds, then breathe normally for 30 seconds. Do this 15 times.
- Breathe through a narrow, small straw (plug nose if necessary) for 2 minutes, then 1 minute breathe normally. Do this 5 times.
- Sit with head covered by a heavy coat or blanket.

Symptom: Choking feelings, gag reflex

- Place a tongue depressor on the back of the tongue (a few seconds or until inducing a gag reflex). Do this repetitively for 15 minutes.

Symptom: Trembling or shaking

- Tense all the muscles in the body or hold a push-up position for as long as possible for 60 seconds, then rest 60 seconds. Repeat 8 times.

Symptom: Sweating

- Sit in a hot, stuffy room (or sauna, hot car, small room with a space heater)
- Drink a hot drink

Symptom: Dizziness or lightheadedness

- Spin slowly in a swivel chair for 1 minute, then 1 minute break. Do this sequence 8 times.
- Shake head from side-to-side for 30 seconds, then 30 second break. Do this 15 times.
- While sitting, bend over and place head between legs for 30 seconds, then sit up quickly. Do this 15 times.
- Hyperventilate (shallow breathing at a rate of 100-120 breaths per minute) for 1 minute, then normal breathing for 1 minute. Do this 8 times.

Symptom: Derealization (feeling that things are not real)

- Stare at a light on the ceiling for 1 minute, then try to read for 1 minute. Repeat 8 times.
- Stare at self in a mirror for three minutes, then one minute break. Repeat three times.
- Stare at a small dot (the size of a dime) posted on the wall for three minutes.
- Stare at an optical illusion (rotating spiral, “psychedelic” rotating screen saver, etc.) for two minutes, then break for one minute. Repeat five times.

Symptom: Tightness in throat

- Wear a tie, turtleneck shirt, or scarf tightly around the neck for 5 minutes, then take a one minute break. Do this three times.

Exposure Examples: “Internal Cue Exposure,” continued

Let’s see what a course of interoceptive exposure for panic would look like. Janet is a 24 year-old woman with Panic Disorder. She has panic attacks that seem to come from “out of nowhere” and she often worries about having another panic attack. Sometimes she feels a little anxious and she begins to feel dizzy, which then makes her worry the panic will get worse; in fact, it usually does.

Step One: Pick a trigger

Janet decides to start with the “dizziness” trigger, because it most often triggers panicky thoughts that fuel the anxiety and make it worse.

Step Six: Ending exposure

Janet continues to practice the exposure for about 10 weeks, changing the exposure exercise about each week as she moves up the hierarchy. This, with a combination of external cue exposure and cognitive skills, improves her panic symptoms and makes her feel confident that she can manage a panic attack in the future.

Step Five: Middle sessions of exposure

Once Janet feels like her level of anxiety for the hyperventilation exercise has come down to around a “3” during the exercise, she moves on to the next harder exercise on the hierarchy. She continues to practice these exposure exercises daily.

She continues to move up on the hierarchy until she becomes more used to the feeling of being lightheaded and dizzy, as well as more at peace with the possibility that she will have a panic attack when she feels dizzy. Since she also becomes worried when she experiences feelings of tightness in her throat, she decided to do some of these interoceptive exercises, as well.

Along with her interoceptive exposure exercises, she added **external cue exposure** exercises (see previous page) to places that she avoided because she was worried about having a panic attack.

Along with her exposure practice, Janet and her therapist worked on some of the thoughts that tend to “fuel” the anxiety once it is triggered. We will talk more about these thoughts in the **Cognitive Therapy Skills** module of the manual, in a section entitled “The Only Thing We Have to Fear Is...”

Step Two: Create a fear hierarchy

Janet lists the different interoceptive exercises she can use to trigger some anxiety, using a list she got from her therapist.

Exposure exercise (different ways to trigger the anxiety)

- Spin in a swivel chair for 1 minute, then 1 minute break. Do this sequence 8 times.
- Shake head from side to side for 30 seconds, then 30 second break. Do this 15 times.
- While sitting, bend over and place head between legs for 30 seconds, then sit up quickly. Do this 15 times.
- Hyperventilate (shallow breathing at a rate of 100-120 breaths per minute) for 1 minute, then normal breathing for 1 minute. Do this 8 times.

Step Three: Rate the hierarchy

Janet rates each potential exercise using the SUDS scale (see “Exposure, Getting Started,” for more information on the SUDS).

Exposure exercise

Anxiety Rating

-Spin in a swivel chair for 1 minute, then 1 minute break. Do this sequence 8 times.	7
-Shake head from side to side for 30 seconds, then 30 second break. Do this 15 times.	9
-While sitting, bend over and place head between legs for 30 seconds, then sit up quickly. Do this 15 times.	7
-Hyperventilate (shallow breathing at a rate of 100-120 breaths per minute) for 1 minute, then normal breathing for 1 minute. Do this 8 times.	5

Step Four: Starting exposure

Janet picks an item from the list in the “5-6” range on the SUDS. She begins by practicing hyperventilating for one minute, then one minute rest, alternating 8 times, which takes her about 15 minutes. She tracks her progress using the SUDS by rating her level of anxiety before, during and after the exposure. She follows the rules of exposure outlined in the section “The Exposure Formula,” and repeats this daily for one week.

Questions about Exposure

How long do I need to keep doing exposure?

During each practice, do the exposure until the anxiety comes *down by about half* from where it started. Remember to use the SUDS scale to help you rate your anxiety.

Stay in the exposure situation for the full amount that you planned. We usually start with one hour as a rule of thumb. If it is boring, good! Stay with it— it is better to be bored than anxious!



How do I know when to move on to the next exercise?

When your anxiety is consistently below about a “3” on the SUDS for a few days, it is a good time to move to the next item on your hierarchy.

What if it really *is* dangerous?

If something really is dangerous, we will never ask you to do it. Exposure only works when we are avoiding or protecting ourselves around something that is not dangerous, or not so dangerous it is worth avoiding.

Sometimes we are not sure if something is really dangerous, and it can be helpful to find out. Social situations are an example. We may think that trying to talk to people at a party is dangerous, because people may be critical of us. If we like the idea of going to the party but are afraid, perhaps it is best to get a sense of really how dangerous it is. We can do this using two different techniques:

1. **Cognitive skills:** looking at evidence to give us a sense of how dangerous it is.
We'll be talking about this more in the next section of the manual.
2. **Behavioral experiments:** let's try it out and get evidence first hand about whether or not it is dangerous. Ask yourself what the real consequences are of having something bad happen.

How do I know if I am done with exposure?

Each person must decide when they want to stop doing exposure and move to using exposure principles in the course of daily life (see “The Freedom of Choice”). However, there are some points that may help you make this decision.

1. If you are still avoiding things related to the trigger in your daily life, it is best to continue to do the exposure.
2. It is best to really *dominate* the trigger you are working on before deciding to stop exposure. This means that you may even ramp up the exposure to ridiculous proportions. For example, if you are afraid of dogs, you might spend a weekend dog sitting for a friend; you could pet, rub, and play with the dog. A social phobic might volunteer to be the MC for a company event. Once someone becomes comfortable with something that difficult, it is easier to feel OK being exposure to the things we normally see in our daily lives. **Structured, daily exposure practice often takes weeks or months to complete, depending on the type of problem.** It is best to work with a mental health professional or exposure therapy workbook to determine how long to continue to do exposure therapy.
3. There will always be times when we feel challenged by anxiety and may have the urge to avoid. In this sense, we are never “done” with exposure; it becomes a way to address anxiety over the long term in our daily lives.

My exposure questions

Write down questions you have about exposure here and be sure to ask the group leader before you finish all the group sessions.

1. _____ ?
2. _____ ?
3. _____ ?

Exposure for Obsessive-Compulsive Disorder



Obsessive-Compulsive Disorder (OCD) is a chronic and often debilitating condition that affects thousands of people in the United States each year. OCD is characterized by **obsessions** (anxiety provoking, often intrusive thoughts) and **compulsions** (behaviors that aim to neutralize anxiety). These compulsions are also called **rituals**; they are “safety behaviors” that make the person feel less anxiety in the moment but serve to strengthen the anxiety in the long run.

When most people think about OCD they think about anxiety around contamination that may make someone want to wash their hands over and over. OCD has many forms, however; unfortunately we can't go into them in detail here.

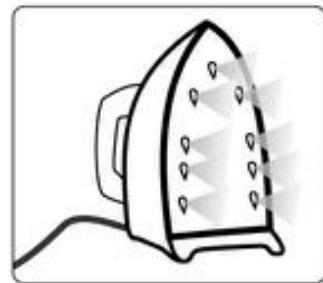
Cognitive-Behavioral Therapy for OCD is called **Exposure and Response Prevention (ERP)**. You now know all about exposure; the “response prevention” part involves resisting the **compulsions**—we “prevent” or “block” our impulse to give in and do the ritual. In this way, we really stand up to the OCD and don’t do what it tells us to do.



ERP looks a lot like other types of exposure, in that we purposefully expose ourselves to the anxiety-provoking trigger in order to show the brain that it is not really dangerous. But with OCD it is even more important **not to add any safety behaviors** (rituals), because these rituals are ultimately what keep the anxiety fire fueled and burning over the long run.

For example, Jeremy tends to check things— irons, locks, stoves, the garage door— because he feels anxious about the possibility that he has left something unlocked, plugged in, turned on, etc. He will check locks over and over, and never feels reassured that the locks are bolted, regardless of how many times he checks. He doubts himself constantly.

ERP for Jeremy involves **purposely creating doubt** that he locked something (exposure) and **resisting the urge to check** (response prevention). He works to see the OCD as something separate from himself: “It’s not me, it’s the OCD telling me to do that.” He practices ERP for 60 minutes a day and works to eliminate all OCD rituals in his daily life.



OCD is not rational!

Another thing that makes OCD different from other anxiety disorders is that the person that the anxiety producing trigger is not rational and doesn’t make sense. Jeremy may try to reassure himself that the doors are locked and even see that they are locked, but his brain continues to signal that anxiety alarm.

For this reason, **it does not help to try to rationalize with the OCD**. In fact, when we try this the anxiety actually gets worse. Why? Because we are trying to reassure ourselves to get rid of the anxiety. What does this sound like? Yes, it is a **safety behavior**—it tells the brain “In order to be sure that I locked the doors I must continue to reassure myself that it is true.” This is a great way to “fuel” our anxiety!



I have OCD and want help; what should I do?

If you are planning to do exposure for OCD, it is best to work with a mental health professional who is trained to administer Exposure and Response Prevention. Here at the UM Anxiety Disorders Clinic we have treatment groups and individual therapists that are well-trained in delivering ERP for OCD. Ask us about how to get involved in ERP.

There are also some self-help books and internet resources about OCD that are helpful; these are listed in the section “Appendix II: Cognitive-Behavioral Therapy Resources for Anxiety.”

Take home point:

Obsessive-Compulsive Disorder is slightly different than other anxiety disorders. OCD treatment involves Exposure and Response Prevention (ERP), which is similar to other types of exposure, with some modifications. If you have OCD and want to begin ERP, it is best to receive guidance from a mental health professional who is trained in ERP.

Barriers in Exposure Treatment

Some people find exposure treatment to be difficult. There are some barriers along the way that make it hard to follow through with treatment. It is important to understand these possible barriers and find ways to work around them. If we do not, exposure therapy is not likely to help. Here are some of the common problems people have with exposure treatment once they get started.



1. **"I don't have enough time to do this much exposure homework."** It is true that exposure takes a commitment of time and energy to work well. If we had evidence that exposure would work in less time, we would recommend to shorten the exposures! But, as we mentioned earlier, repetitive, prolonged exposure practice is essential to success. One question you may ask yourself is "How much time does the anxiety take from me each day? Each month? Each year?" It could be that a commitment of time now could save you a lot of time in the future.
2. **"These exposure exercises do not fit my lifestyle well."** An important aspects of exposure work is finding ways to make exposure exercises *convenient*. Design them in ways that will increase the chances of doing them. This includes finding ways to *remind* you to do the homework. Plan times to do the homework when you will not be bothered and have all of the resources necessary to do it. For example, if someone were doing exposure to driving at night, they would need to plan to do the exposure at times when they are sure they can get the car.
3. **"I feel terrible when I am doing the exposure; I don't want to experience this."** As we mentioned before, for exposure to work we actually need to feel the anxiety during the practice session. When the anxiety gets worse it is a good sign that exposure is working! We just need to stick it out to the end of the exposure. If you are hoping not to feel any anxiety during the exposure, it may not be the right treatment for you.
4. **"Sometimes I do 'safety behaviors' and I don't even know I am doing them."** This is something that comes up often in exposure treatment. As treatment progresses, our goal is to learn more and more how we may be "fueling" the anxiety fire with safety behaviors. The more we are aware of them, the sooner we can extinguish these behaviors. A therapist can be invaluable in identifying potential "covert" safety behaviors and rituals.
5. **"I hate having this anxiety and I don't want to have to keep doing this!"** Especially once treatment has gained some momentum, people often feel discouraged that they will need to continue to fight the anxiety over the long term. We definitely can resonate with this complaint and would like the anxiety to go away forever! However, we know that giving in to impulses to protect, avoid, and otherwise stay comfortable can make the anxiety even worse and keep us from achieving our goals. Accepting that the anxiety exists is necessary before we can do something to manage it.
6. **"This exposure isn't working."** Before making a judgment about whether or not the exposure is working, be sure to review "The Exposure Formula" to be sure you are following all of the rules. Exposure does not work if we just do it "halfway." It is important to follow these guidelines in order to see improvement!

Exercise:

Think about and write down possible barriers to completing exposure therapy for one of your most impairing anxiety triggers, using the information above as a guide.

Take home point:

It is important to understand possible barriers to exposure treatment and find ways to work around them.

1. _____
2. _____
3. _____
4. _____
5. _____

The Freedom of Choice: Exposure in Daily Life



Have you ever felt like anxiety is making choices for you? In many ways, exposure practice is about choices; the ability to choose what to do based on our goals and life aims, instead of what is safest or least anxiety provoking.

In the course of daily life we have many choices, and some of the hardest occur when we have to decide whether or not to “listen” to the anxiety alarm that tries to keep us safe. We now know that making choices based on the anxiety can serve to make the anxiety stronger. It makes sense to have a way to counter this when the anxiety comes up during the day, using exposure techniques.

Once we have overcome a fear using exposure, we may find that we do not experience any anxiety at all around that certain trigger. This is good!

It is also possible that we may have times in which we *do* feel some anxiety around a trigger that we think we’ve conquered. We **use the techniques below** to address anxiety when it seems to come back. When we experience a trigger, we are going to welcome it with the anxiety, and commit to fighting the impulse to avoid or try to protect ourselves.



Why would I start feeling anxiety again?

There are many reasons that someone might begin to feel anxiety once again after using exposure successfully.

One reason is **stress**; we can’t predict when stressful things will happen, and often stress leads to anxiety.

Another reason is that we may not have experienced that trigger for a while, so our brains become less “bored” with it. Remember that becoming “bored” with a trigger is important in reducing the anxiety.

Step One: “That’s just my anxiety; I know it is not dangerous.”



The first step involves recognizing that the anxiety is separate from us, the brain trying to convince us to do something that will hurt us in the long run.

Step Two: “All right, anxiety, go ahead and stay around, I am going to go about my business.”



Step two is an attempt to further accept the anxiety at that moment and resist the urge to avoid or protect ourselves.

Step Three: “Fine, it’s true that this plane is going to crash (or whatever the fear is). I can’t control that.”



In the third step we “ramp up” the approach by doing a “mini” exposure to the content of the fear.

“Bring it on!

When addressing anxiety in the course of daily life, our attitude is the key. Try some of the following “self-statements” to help keep on track:

“Anxiety is uncomfortable, not dangerous.”

“Bring it on!”

“I won’t let anxiety make decisions for me anymore.”

“I want more anxiety—I hope it gets worse!”

“I can take it!”

“I hope that happens. If it does, it gives me a chance to fight this anxiety and learn to cope with hardships.”

“If bad things happen, I will find a way to cope.”

Remember to stay aggressive; the anxiety is waiting for us to become defensive and when we do this, it tries to take over. Staying aggressive with anxiety in our daily lives helps to keep the anxiety from coming back in full force.

Take home point:

Either during or after a course of exposure therapy, it is important to have ways to handle anxiety triggers in your daily life and use them over the long term. We should expect to have anxiety come up at times and be ready to use skills when it does.

Exercise

Design your own step-by-step plan to address anxiety in your daily life, using the example above:

Step One: _____

Step Two: _____

Step Three: _____

Exposure and Desensitization

Summary



In this part of the group manual we learned that **exposure and desensitization** is just one set of skills used in CBT. It works best when we know what triggers our anxiety and we are currently **avoiding** those triggers or using **safety behaviors** when we have to experience the trigger. The goal of exposure is to gradually expose oneself to whatever it is that is being avoided, which helps one to meet his or her life goals and reduce the anxiety.

We also learned ways to decide whether or not exposure is right for us by understanding the ways that anxiety impacts our lives, and we learned about the principle of **desensitization**: through experience and over time we can make our brain less sensitive to certain anxiety triggers.

In the “Getting Started” section we learned to begin exposure by creating a **fear hierarchy** and using the **SUDS** scale (anxiety scale of 0-10) to rate the difficulty of each possible exposure exercise.

In the section “The Exposure Formula” we learned that exposure practice involves **repetitive, prolonged exposures to the anxiety itself, with no “safety behaviors.”**

We then offered tips to maximize the effectiveness of the exposure, and ways to “track” the exposure progress using the **Subjective Units of Distress Scale (SUDS)** — we rate the anxiety on a scale of 0-10 or 0-100.

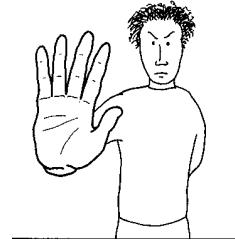


We then learned how a course of exposure looks in the sections titled “Exposure Examples.” We looked at examples of addressing Panic Disorder using **Internal Cue Exposure** and exposure to anxiety triggers in our environment (**External Cue Exposure**).

We then discussed ways to use exposure to treat Obsessive-Compulsive Disorder using a variation of exposure treatment, **Exposure and Response Prevention (ERP)**.

We learned about some common **barriers to exposure treatment** and discussed why it is important to understand these possible barriers to find ways to work around them.

In the section “The Freedom of Choice: Exposure in Daily Life” we discussed the importance of learning to use **exposure techniques when anxiety presents itself in the course of daily life**. This helps one manage anxiety over the long term. We learned that we should expect to have anxiety come up at times and be ready to use skills when it does.



Moving on...

The exposure skills we covered in this section can be used to help us wage our fight against the “anxiety enemy.” Other skills, including **cognitive** (thinking) and **relaxation** skills are often used *with exposure* to gain more ground on the anxiety. In the next two sections of this manual we will learn about these other skills, which can be used either *alone*, or *with* the exposure skills.

Fear Hierarchy Form

List your anxiety trigger below and the list possible exposure exercises that might elicit anxiety. Use the **SUDS** scale to rate how difficult it would be to experience the trigger.

Anxiety trigger _____ (for example, "fear of heights")

Subjective Units of Distress Scale (SUDS)

- 0= no anxiety at all; completely calm
- 3= some anxiety, but manageable
- 5= getting tough; wouldn't want to have it all the time
- 7-8= severe anxiety that interferes with daily life
- 10 = worst anxiety you've ever felt

Exposure Tracking Form

Exposure task: _____

Amount of time each day and how often:

Safety behaviors or rituals to eliminate:

Other guidelines: _____

Subjective Units of Distress Scale (SUDS)

0= no anxiety at all; completely calm

3= some anxiety, but manageable

5= getting tough; wouldn't want to have it all the time

7-8= severe anxiety that interferes with daily life

10 = worst anxiety you've ever felt

Exposure Tracking Example

Exposure task: Performing my presentation for friends

Day/Date	Length of time		SUDS (0-100)			Comments
	Start	Stop	Beginning	Middle	End	
4/15	10:15 am	11:15 am	5	8	4	
4/16	2:00 pm	3:00 pm	3	8	3	
4/17	5:30 pm	6:30 pm	1	9	4	Lost train connection
4/18	5:30 pm	6:30 pm	1	5	2	
4/19	10:00 am	11:00 am	0	4	1	
4/20	6:00 pm	7:00 pm	0	3	1	
4/21	10:15 am	11:15 am	0	2	.5	

Exposure Tracking Form: Hourly Exposure

Exposure task: _____

Amount of time for each exposure: _____

Safety behaviors or rituals to eliminate: _____

Other guidelines: _____

Subjective Units of Distress Scale (SUDS)

- 0= no anxiety at all; completely calm
- 3= some anxiety, but manageable
- 5= getting tough; wouldn't want to have it all the time
- 7-8= severe anxiety that interferes with daily life
- 10 = worst anxiety you've ever felt

Record one SUDS (0-10) level in each box.

Date:											
8:00 am											
9:00 am											
10:00 am											
11:00 am											
12:00 pm											
1:00 pm											
2:00 pm											
3:00 pm											
4:00 pm											
5:00 pm											
6:00 pm											
7:00 pm											
8:00 pm											
9:00 pm											
10:00 pm											

**Exposure Tracking
Example**

Exposure task: Touching rag that had contact with door handle

Day/Date	SUDS (0-10)						
	4/15	4/16	4/17	4/18	4/19	4/20	4/21
8:00 am	8	8	7	5	3	4	3
9:00 am	8	6	5	4	2	3	2
10:00 am	8	5	4	4	3	3	.5
11:00 am	7	5	4	4	1	2	0
12:00 pm	7	5	3	3	.5	2	0
1:00 pm	6	4	4	3	1	1	0
2:00 pm	4	5	3	4	1	1	0
3:00 pm	4	3	2	2	.5	2	0
4:00 pm	4	3	1	1	0	5	0
5:00 pm	5	4	1	1	0	0	1
6:00 pm	3	7	1	1	2	0	0
7:00 pm	3	6	2	.5	0	0	0
8:00 pm	3	5	1	1	0	0	0

Notes

Notes

Cognitive Therapy Skills

“The ancestor of every action is a thought.”
~Ralph Waldo Emerson

In this module, we explore our **thoughts** and explain how they are closely linked to our emotions. We discuss how to identify, understand, and respond to our thoughts as a way to help us feel better.



We will help you **identify** the thoughts that are troubling to you and understand them as well as possible. We then discuss the basic techniques that we use to begin to respond to and modify these thoughts. We respond to thoughts by gathering facts, or “**evidence**,” to see a situation as realistically and in as detailed a way as possible.

Later in the module we go into some detail to discuss the thoughts associated with two common types of anxiety:

- “The fear of fear”—**fear of the anxiety itself**—which is commonly associated with Panic Disorder. It is also a common part of all anxiety disorders.
- **Worry**—often part of “Generalized Anxiety Disorder” but also a common part of most anxiety problems.



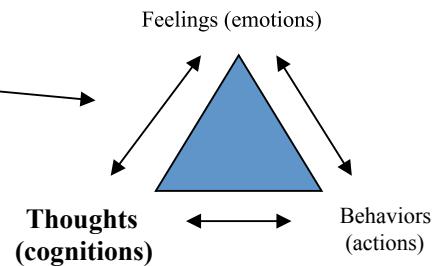
Join us as we learn to change our relationship with our thoughts with Cognitive Therapy Skills!

What are Cognitive Therapy Skills?

You may remember from “**Group Guideposts**” that thoughts, behaviors, and emotions influence one another.

Cognitive is a technical word used to describe anything related to *thoughts*. In this module, we explore how it is that our thoughts can lead to negative emotions, and what we can do about it.

Cognitive Therapy Skills involve **responding to** and **modifying** our **thoughts**—to help us cope better in our daily lives and feel less anxious.



How do Cognitive Therapy Skills Work?



The main goal of cognitive skills is to **gather evidence**. Like a detective, we look to uncover **facts** about something that has happened in the past or is happening right now.



By examining our thoughts, beliefs, and basic assumptions in detail, we can learn to make informed choices about issues that impact us. For example, we may find that **a thought is not completely true**; this helps us decrease our efforts to protect ourselves and lowers our anxiety. Another option is to take these facts and do something with them—**to problem solve**. Finally, these facts may help us understand that nothing can be done to change a situation; we work to **accept** this and let go of our efforts to control. In order to choose one of these options we use cognitive skills to understand thoughts and situations as well as possible.

Examining the Evidence

Scientists and detectives are good at asking the right questions to better understand a situation. With cognitive skills we learn which questions to ask to best explain an anxiety-producing situation. For example:

1. *What is the likelihood that this anxiety-producing event will happen?*
2. *If this event were to happen, how bad would it be? Would it be tragic?*
3. *What would I do if something bad happened? How would I handle it?*
4. *Is there any other explanation to account for what has happened?*
5. *Do I know all of the facts about this situation?*



Put on your “happy face?”

Cognitive Therapy Skills are not just about “thinking positively.” While being aware of positives is a part of CBT, we want to gather all evidence, good and bad, to understand best how to cope with a situation.



For example, we know that driving on the highway has some risks associated with it. However, for most of us driving on the highway is a necessary part of everyday life. We are willing to take this risk because if we didn’t our lives would be limited. A **positive** aspect of driving on the highway is that it helps us achieve our goals. A **negative** one is that under some circumstances it can be dangerous. When we examine the evidence, we find it’s true that there are “two sides to every coin.”



Practice makes... the brain change?

When we modify thoughts, we actually change the brain! Practicing different types of thought patterns over and over actually rewrites our brain so that new, more realistic and helpful patterns of thought can become more natural. This does not mean that our brains are permanently changed by thinking something new just once. It takes consistent practice to keep the brain functioning well, just like it takes consistent exercise to keep the body healthy. Cognitive skills can help us keep our brains healthy, if we are willing to stay well-practiced at it.



In the “**Anxiety Fuel**” section of the manual we discussed the “snowball effect” that is created when negative thoughts, avoidant or protective behaviors, and uncomfortable anxiety symptoms get mixed. Thoughts can serve to make our anxiety worse and even cause more problems for us, especially if they convince us to avoid what makes us anxious.



Let’s take our example of Bill, our friend from the **Exposure and Desensitization** module, who has a fear of public speaking. He has many negative thoughts about speaking in public that come up when he starts to work on his speech. These thoughts cause him to want to avoid anything connected with the speech: he may procrastinate and not prepare for the speech adequately or try to get out of the speech completely. Do any of the thoughts below sound familiar to you?

“What if someone notices I am nervous?”
“People will laugh at me.”
“I may even have to drop out of school.”



“I am going to screw this up.”
“I am going to fail this class.”
“I am not a good public speaker.”

Most of us can relate to Bill’s dilemma; when he has these thoughts it increases his anxiety and makes him want to avoid the speech even more.

When we look at our thoughts realistically and in a detailed way, we “throw water on our anxiety fire.” Responding to and modifying these negative thoughts so they are more realistic can help to keep us from triggering the anxiety over and over again. Most importantly, *they can help to keep us from avoiding things that are important to us*. For example, if Bill avoids his class, it could impact his grade, his program, and ultimately his career.



When should I use Cognitive Therapy Skills?

Cognitive skills can help us with most types of anxiety problems. They work best when...

- ... we can identify negative thoughts that make us feel worse in certain situations
- ...anxiety is triggered by worries about the future and/or negative thoughts about ourselves

“Unifying our Cognitive and Behavioral Forces”... revisited

In the section on **Exposure and Desensitization**, we discussed the importance of “unifying our cognitive and behavioral forces.”

Working with thoughts is just one part of our defense against anxiety; simply learning to think differently can be very helpful. However, we can’t underestimate the importance of behavior in maintaining our anxiety. For example, if we continue to *avoid* speaking in public, the anxiety is very likely to be there when we actually do go to make a speech, regardless of how we think. Unifying our forces means learning to use cognitive skills while practicing confronting our fears with action. As we will state often in this group, effective anxiety management means using lots of different “forces”—CBT skills—to battle anxiety.



Important!



For patients that have **Obsessive-Compulsive Disorder** (OCD), some types of cognitive skills may *not* be helpful. You may remember from the Exposure and Desensitization module that OCD is best treated with **Exposure and Response Prevention**, a specific style of exposure treatment. If you have OCD it may be best to work with an individual or group therapist to learn which skills you can use to treat OCD. That being said, it could still be useful to practice the skills in this module to learn to handle daily stress and worry that may exist separate from the OCD.

Take home points:

Cognitive skills are one set of skills used in CBT. Our goal is to examine the evidence to uncover the facts, both positive and negative, about a situation. By understanding a situation better, we learn to think realistically about the likelihood of bad things happening; we also work to find ways to cope in case those things do happen.

Negative Automatic Thoughts

"I might lose my job and my home."

"One day I am just going to 'snap.'"

"I am an idiot."

"If I have a panic attack it could lead to a heart attack!"

"If I look nervous they won't like me."

"If am not anxious I may be more at risk for something bad to happen."

"If that happened I would not be able to tolerate it."

We all have them. Sometimes they pop into our heads uninvited. Sometimes they stick in our heads for hours. **Negative automatic thoughts** are negative thoughts that come automatically to us when we are feeling anxious, depressed, angry, frustrated; they can come any time we have a negative emotion.

There are different types of negative automatic thoughts. **Worry** is related to fear that something bad might happen in the future. Most troubles with anxiety have some sort of worry attached. For example, the thought in the upper left corner of this page is a worry about what might happen if this person loses his or her job.



Another type of negative automatic thought is a negative statement about ourselves, other people, or the world at large. "I am an idiot" is a good example. It is not a worry, but rather a declarative statement; but it sure can make us feel bad! Often people with depression have these types of thoughts. Cognitive skills can work on these thoughts, too. In this manual, though, we'll be focusing primarily on the *anxiety*-related thoughts and worries.

Why do I have all of these negative thoughts?

You may remember from the "Anxiety Is..." section that the "fight or flight" response automatically causes negative thoughts. You may ask "Why do I think so many negative thoughts when I am anxious? When I am feeling relaxed I don't have these thoughts much at all." As we discussed earlier, there are good reasons we experience negative thoughts when we are anxious.

When we are anxious, the brain wants us to think about potentially dangerous things in our environment, in order to keep us safe. We want our anxiety radar to be sensitive if there is actual danger out there.



Imagine what would happen if we did not have negative thoughts when we were in danger... we probably wouldn't try to protect ourselves! If we really are in danger, it is helpful to have negative thoughts because we are more likely to try to stay safe if we think something is dangerous. The trouble is, sometimes we know that things are not dangerous, yet we have these thoughts anyway. That is why we use cognitive skills to help our brains get on board with what we know— that right now, we are safe.

"Chicken and Egg" revisited...

On page 10 we discussed the "chicken and the egg" phenomenon—anxiety can make a situation seem more dangerous, while a dangerous situation can also trigger anxiety. The same thing holds true for thoughts: negative automatic thoughts certainly can cause anxiety, while when we are anxious we are more likely to have these negative thoughts.



Anxiety



Negative Automatic Thoughts

Types of Negative Automatic Thoughts

Anxiety causes people to assume the worst. There are many different types of anxiety producing thoughts, and it is helpful to be aware of some of the kinds of thoughts that many people with anxiety experience.

1. Overestimating the likelihood of negative events happening: One of the most common tendencies when we are anxious is to predict that dangerous things will happen in the future. We often imagine that something may happen, even when logically we know that it is not likely to happen. For example, Bill may predict that “everyone will think I am stupid if I make one mistake during my presentation.”

2. Catastrophizing: This is a fancy way of saying that we predict things would be “horrible” or “awful” if something bad actually were to happen. We may predict that we would not be able to cope, and we may try to find ways to prevent it from happening to avoid catastrophe.

3. Beliefs that anxiety itself is dangerous: We often have negative thoughts about the anxiety itself. We may predict that we will “go crazy,” “lose control,” not be able to function, have a heart attack, pass out, or suffocate when anxiety symptoms get more extreme.

4. Belief that one cannot tolerate discomfort, pain, or negative events: We question our ability to cope with future events because of the anxiety: “If I can’t tolerate this, what will happen if something *really* bad happens?” We tell ourselves “I cannot take this” when we experience discomfort and/or pain.

5. Positive beliefs about worry: Anxiety and worry often seem to have a protective function. We may say to ourselves “If I don’t worry about this it may actually happen.” Sometimes anxiety helps us get things done that we might otherwise avoid; we rely on it for motivation, even if it is uncomfortable at the same time.

6. Negative thoughts about ourselves, others, the world: We make negative assumptions and blanket statements such as “I am a loser,” “Nobody will ever like me,” or “The world is a dangerous place.” These types of statements can make us feel more anxious, and more depressed, as well.

We all have some patterns of negative thinking, depending on our experience; but sometimes these patterns can get out of control. When these patterns are severe, an anxiety disorder may be at work. Each anxiety disorder has characteristic negative automatic thoughts associated with it. Here are some examples of negative automatic thoughts related to each disorder:

Diagnosis	Thoughts
Generalized Anxiety Disorder (GAD)	→ “I am going to lose my job. I may even end up homeless if that happens.”
Social Anxiety Disorder	→ “People don’t like me.” “People may notice my anxiety and think I am weak.”
Panic Disorder with Agoraphobia	→ “I will have another panic attack.” “This time I could have a heart attack.”
Specific Phobias	→ “The plane could crash... I will worry about this for the whole flight.”
Obsessive-Compulsive Disorder (OCD)	→ “If I do not count to four each time I feel anxious, something bad could happen to my husband.”
Post-Traumatic Stress Disorder (PTSD)	→ “The world is a dangerous place; there is nothing I can do to keep myself safe.” “A stronger person would have gotten over this by now”

Identifying Negative Automatic Thoughts

The first step to begin “restructuring” or responding to negative thoughts is to identify the thoughts that give us trouble. It’s as if we are putting a magnifying glass to our minds to learn more about how we think. Use the following tips to identify the thoughts you’ll start working on using cognitive skills. Once you have identified a thought, write these thoughts down using the **Daily Thought Record Worksheet**.



How to Identify Negative Automatic Thoughts

1. In the course of daily life, write down thoughts that come up when you are feeling anxious.
2. Sit quietly and try to imagine going into an anxiety producing situation: what thoughts come up?
3. Recall an event from the past that was anxiety-producing. What thoughts were going through your mind?
4. Role play an anxiety-producing event with a friend, family member, or therapist. Write down thoughts that come up during this exercise.

When Identifying Thoughts...

...phrase the thoughts in **the form of a statement**, and avoid “what if’s” and questions. For example, if the thought is “What if I lose my job?” it would be better to phrase it “I will lose my job.”

...be specific about the fear. It is better to break more general thoughts up into more manageable pieces. If the thought is “I feel like something bad is going to happen,” make a list of the specific things that you worry might happen. Write down the first negative automatic thoughts that come into your head. You might use the “Thought Cascade” approach, to the left, to learn more about what is scary to you.

...notice the thoughts that seem to come up often or are more impairing than others. You may want to begin with these when you start working on the thoughts.

Take home points:

*The first step of cognitive “restructuring” is to identify negative automatic thoughts and record them in the form of the statement. There are many techniques that can be used to do this, such as writing down thoughts in the course of daily life, visualizing anxiety-provoking situations, and using the **Thought Cascade** method.*

One Thing Leads to Another: The “Thought Cascade”

When we are feeling anxious, it is common to have a thought that leads to a more disturbing thought, which then leads to an even more disturbing thought, and so on, like this:

“I am going to lose my job.”



“I won’t be able to pay my bills.”



“I will lose my house and end up homeless.”



“I will die homeless and penniless”

Believe it or not, this “domino effect” of negative automatic thoughts is common. We can use this technique to uncover some of our most troublesome worries.

Exercise:

Use the techniques on this page to begin to identify some of your negative automatic thoughts. Use the **Daily Thought Record** and the **Thought Cascade Worksheet** to record them for later.

The “Thought Cascade” Worksheet

When we are feeling anxious, it is common to have a thought that leads to a more disturbing thought, which then leads to an even more disturbing thought, and so on. Believe it or not, this type of “domino effect” of negative automatic thoughts is common. We can use this technique to uncover some of our most troublesome worries. Once you find some that are particularly difficult or relevant for you, you can use the **Examining Thoughts Worksheet** to begin working on them.

To use this technique, first write down a thought in the form of a statement, as in the example below. Then ask yourself: “What would be so bad about that?” In other words, what other bad things might happen should the event happen?

<p>Example</p> <p><u>“I am going to lose my job.”</u></p> <p>↓</p> <p><u>“I won’t be able to pay my bills.”</u></p> <p>↓</p> <p><u>“I will lose my house and end up homeless.”</u></p> <p>↓</p> <p><u>“I will die homeless and penniless”</u></p>	<p>Your thoughts</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/>	 <p>What would be so bad if that happened?</p> <p>What other bad things might happen if this happens?</p> <p>What would be so bad if that happened?</p>
<p>Your Thoughts</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/>	<p>Your Thoughts</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/>	<p>Your Thoughts</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/> <p>↓</p> <hr/> <hr/>

Daily Thought Record Worksheet

Try using these tricks to identify negative automatic thoughts:

- Sit quietly and try to imagine going into an anxiety producing situation: what types of thoughts might come up?
 - Recall an event from the past that was anxiety-producing. What thoughts were going through your mind?
 - Role play an anxiety-producing event with a friend, family member, or therapist. Write down thoughts that come up during this exercise.
 - In the course of daily life, write down thoughts that come up when you are feeling anxious.

Write down thoughts that you uncover using techniques on the last few pages. Remember to phrase the thoughts as statements.

Cognitive Distortions

Have you ever seen one of those “fun-house” mirrors? While we know how we really look, what we see in the mirror looks different than what is real.

When we are anxious, the facts of a situation can become distorted, too. **Cognitive distortions** are patterns of thinking that are heavily influenced by our emotions. As you will see when you review the list of cognitive distortions, these distortions tend to follow certain patterns, and many of them overlap with others. Here are some “fun facts” about cognitive distortions:

1. Cognitive distortions tend to be extreme: there is often a “black-and-white” or “all-or-nothing” quality to these thoughts.
2. They tend to emphasize negatives at the expense of positives. As we mentioned earlier, we are programmed to think of negatives first when we feel anxious, because our bodies are trying to protect us.
3. They tend to be general instead of specific.



In the **Exposure and Desensitization** module we used the example of Jessica, our young friend with a fear of dogs. After she saw a news story about someone being bitten by a dog, she became afraid that she might get bitten herself. Some of her negative automatic thoughts might have been “All dogs are dangerous” or “I am going to get bitten by a dog if I get too close to one.” While it is true that dogs can occasionally be dangerous, there are qualities of these thoughts that are not true. We may call them “distorted” because of the extreme nature of the thoughts: “all” dogs are not dangerous and most dogs do not, in fact, bite the people with whom they come into contact.



What do I do when my negative automatic thoughts do *not* seem to be distorted?

Sometimes anxiety producing thoughts are not completely distorted. In fact, there is some truth to almost all of our thoughts. The worry “I am going to lose my job” may have some truth: it is always possible that one could lose their job. If one has determined that it is, in fact, likely that they will lose their job, we would say that this thought is *not* distorted. However, at this point we would want to use the **Thought Cascade** approach to get to some related thoughts, such as “If I lose my job I will end up homeless and destitute.” We would then want to look at possible distortions in that thought, and so on. As we will discuss more later, our main goal is to learn how likely it is that something bad will happen, while also learning how to cope when bad things do happen to us, so whether or not a thought is distorted, we still have work to do!

So, for the purpose of these exercises, record the **possible** distortion for each thought, even if you are convinced that the thought is not distorted.



Why is it important to understand cognitive distortions?

Understanding cognitive distortions is an important part of understanding our thoughts and preparing to work on them using cognitive therapy skills. By understanding some **common faulty patterns of thinking**, it is easier for us to notice our own patterns during the course of our daily lives. The more we notice these patterns, the more likely we are to be able to modify these thoughts and start feeling better.

So here they are! Read through the list of cognitive distortions on the next page, and circle the numbers of those that you suspect may apply to you. 

Examples of Cognitive Distortions



1. **Black-and-White Thinking:** We see things, events, and people as perfect or terrible, all good or all bad. We say "always" or "never" often, not seeing the "grey zone" that is almost always there.
2. **Catastrophizing:** We react to a disappointment or failure as though it means the end of the world.
3. **Jumping to Conclusions:** We assume the worst without checking the evidence. We decide that someone dislikes us, but we don't check it out; or we predict that terrible things will happen even when there is no evidence for this.
4. **Ignoring the Positive:** We don't pay attention to positive experiences, or we reject them or say they somehow "don't count."
5. **"My Fault!":** We take blame or responsibility for things outside of our control, or are not our job.
6. **"Shoulds:"** We criticize ourselves or other people with ideas about what absolutely "should" be done without considering where we get this idea. We ignore the reasons we might have done what we did, or think we could have had knowledge we couldn't have actually had. "Shoulds" sometimes leave us feeling inadequate despite our attempts to be self-motivating.
7. **Magnifying and Minimizing:** We define ourselves by our shortcomings and minimize our strengths.
8. **Labels:** Instead of focusing on peoples' behaviors, we make blanket statements: "I am such an idiot" or "He's such a jerk."
9. **Perfectionism:** We believe that all mistakes are bad and to be avoided. Because of this, we don't take the necessary risks to be successful. We may also try to control all circumstances and make them fit what we think is right.
10. **Reasoning From Our Emotions:** We believe that because we feel a certain way, that indicates the truth about a situation, and we may even act accordingly even if it hurts us in the long run.

Exercise

Write down some of the thoughts you identified earlier. Identify potential distortions related to each thought.

Thought	Distortion

Take home points:

*When we are anxious, it is possible that our thoughts are “distorted” in some way. **Cognitive distortions** are thoughts that are heavily influenced by emotions and may not be consistent with the facts of a situation. An important part of cognitive skills is identifying ways that thoughts may be distorted and noticing patterns in our thinking. As we become more aware of these patterns, we are better able to modify anxiety-producing thoughts.*

Examining the Evidence “Restructuring” Negative Automatic Thoughts



Imagine you are a scientist studying the causes of pollution in a local river. How would you approach this? What types of questions would you ask to uncover the truth? You might look at local industry, plant populations, or invasive species as potential causes. You might look closely at samples of the water to determine what types of pollutants are in the water. You'd want to get as much information as you could to be sure you were right about what you find.

Scientists know that there are many possible explanations for an event or phenomenon. They spend countless hours trying to prove or disprove their hypotheses about what is happening and why it happens. To do this, they set up experiments; ultimately the goal is to find the best possible explanation for something. They might ask questions like: “What are all the possible explanations for this event? Are there any other possibilities?”

Now imagine this scenario: you are walking down the street or hallway and you see someone you know fairly well. You look at them to say hello and they look away and say nothing in return. What types of interpretations might you have about this event? Perhaps you might think “They must not like me-- if they did they would have said hello to me,” or “They must be mad at me.”

What if we replaced these knee-jerk reactions with a more scientific approach? We could look for other explanations, just like the scientist. What are some other explanations to why this person did not look at you and say hello? List some here:

1. _____
2. _____
3. _____

What you just did is a simple example of **examining the evidence**, the most important element of **cognitive restructuring**, a common cognitive therapy skill. “Restructuring” a thought means gathering evidence to see a situation more completely and realistically, which can help us feel better.

Cognitive Restructuring: Basic Questions

When working on our anxiety-related negative automatic thoughts, we look at different **lines of evidence** for each problem, to get closer to the truth about that situation. We call the answer to these questions the **rational response**. We typically start with two basic lines of evidence when addressing anxiety-producing thoughts:

1. How likely is it that this event will happen?

Research has shown that when people are anxious they typically **overestimate** the likelihood that something bad will happen. For example, we may worry about the possibility of losing our job because the economy weakens, without knowing the details of how it specifically impacts our company. We may predict that we are on the flight that will crash into the ocean. To get some more details about the likelihood of something bad happening, we ask questions like:

- What percentage likelihood is it that this event will happen? Am I 100% sure? 50% sure?
- What evidence do I have that this is likely to happen in the future?
- Is there any evidence that it is not likely?
- How many times have I predicted this would happen? How many times has it actually happened?

Our goal here is not to try to prove that this event will not happen; instead we try to **make a realistic assessment of how likely something is**.

2. If it did happen, how bad would it be? Would I be able to cope? What would I do if this happened?

We also know that, when we are anxious, we tend to **catastrophize**. This simply means that we tend to blow out of proportion how bad something would be if it did happen. We often predict that we would not be able to handle a negative event if it occurred. We also don't think much about what we would actually *do* if this event happened. For example, most people, if faced with the challenge of losing their job, would eventually get back out and start looking for another job. Often we do not think this far ahead; we stop after the thought about how bad it would be for something to happen and we focus on *preventing* that thing from happening.

To look at this question, we might ask ourselves how bad it would really be if this happened. What would we do if the event happened? How we might be able to cope with it and move on? If it did happen, what would be the worst consequence? By looking at this basic question in a more detailed way, we may find that we *could* cope if this unfortunate event actually did happen.

The Gambler: Predicting Ourselves Anxious

Are you a gambler? Think of the last time you made a bet with someone. How much did you bet? How confident did you have to feel in order to make that bet? 100% sure? 50% sure? You may know that people that bet on horse races often look at the odds a certain horse has to win before placing their bet. People like to know how likely it is that they will win, or lose, money before making their decision.

We don't often use the same system to gauge the chances of a negative event happening in our lives. Research has shown that when people are anxious they typically **overestimate** the likelihood that something bad will happen. It would be like betting all our money that the underdog horse is going to win, because we are feeling lucky that day.



This style of negative thought features **predictions**. You may remember from the page on **Cognitive Distortions** that this is also called "Fortune Telling." When it comes to anxiety, we will find it is better to get all the information before betting that something will happen. We look at different **lines of evidence** to get to the key question:

"How likely is it that this negative event will happen?"

Remember, we are looking at any evidence, not just evidence disputing our fear. Some lines of evidence are:



- What percentage likelihood is it that this event will happen? Am I 100% sure? 50% sure?
- What evidence do I have that this is likely to happen in the future?
- Is there any evidence that it is not likely?
- How much money would I bet that this will happen?
- How many times have I predicted this would happen? How many times has it actually happened?

Exercise

Think of a fear you have about the future. Use the techniques on earlier pages to identify a thought that is particularly difficult. For now, focus on predictions, thoughts like "I will lose my job" or "She will reject me." Write it on the left. Remember to phrase it in the form of a statement. On the right, write the answers to the questions listed above.

Thought (prediction)	Answers to questions above (rational response)

When you are finished, you should have a good idea of the likelihood that this event will happen. Sometimes we realize that this event really is not likely, and we determine that it is not worth the effort trying to protect ourselves or fix the problem. Then we can remind ourselves of this evidence when we get that thought.

Of course, sometimes bad things actually **do** happen. If it really is likely that something bad could happen, we go to the next important question: "If something bad did happen, how bad would it be?" We discuss this on the next page. Remember that the purpose of the material above is to make a realistic assessment of how likely something is. This is one important part of **examining the evidence**.

Catastrophizing: “That would be horrible!”

Imagine that someone called you on the phone and said “Come home quick-- something horrible has happened!” What types of events would you think may have happened? List a few possibilities here:

1. _____
2. _____
3. _____



Most people would define “horrible” events as “catastrophic” or “life changing.” Think about some of the thoughts and worries you identified on earlier pages. How do they compare with the events listed above?

We know from research that when people are anxious, they tend to **catastrophize**: they blow out of proportion how bad something would be if it happened. Because of this, a big part of cognitive restructuring is getting more evidence to answer the question:

“How bad would it be if this event did happen?”

What if horrible things really have happened, or could happen, to me?



Of course, sometimes horrible things do happen, and when they do, it is likely we will experience some anxiety about these events. In fact, we all should expect that we will be confronted with very difficult circumstances at some point in our lives; after all, there is no way to prevent bad things from happening forever!

When horrible things happen, we have to find ways to grieve our losses and learn to **cope** so that we can eventually move on with our lives. An important part of CBT is learning to cope better when bad things really do happen.



The “Catastro-meter”

Have you ever had the thought, “I know it is not likely that it will happen, but if it did, it would be terrible.” It can be helpful to look more closely at a potentially difficult event to determine how bad the event would be, and how we would cope if that event did happen.

Let’s use the “**catastro-meter**” to rate different types of challenging events to measure how catastrophic these events would be if they happened. Rate each of these events on a scale of 0-10 in terms of how hard it would be to cope with the event:

0= *would have no trouble coping at all*
3= *would have a few bad days as a result, but recover pretty quickly*
5= *would take substantial time to recover, but no doubt it would happen*
7-8= *would be impaired for a while*
10= *would fall apart, go crazy, never recover*

_____ Argument with friend or loved one

_____ Death of a loved one

_____ Get injured in a car accident

_____ Loss of job

_____ Heard someone said something mean about you

_____ Home gets flooded

_____ _____ (insert your own here)

_____ _____ (insert your own here)

One goal of this exercise is to notice the difference between different types of negative events. We can learn that not all bad events have the same degree of severity.



Another common tendency we have when we are anxious is to underestimate our ability to **cope** with difficult events. We may think that we will not be able to handle the emotions associated with a challenging event. Think back to some difficult events you have had in the past. How did you handle them? How long did it take to get over them? Pick a few events and do the following exercise to get some evidence about your ability to cope with tough circumstances.

Past tough event	What I did to cope	How long it took to overcome this and move on

Were you able to cope? Have you moved on from these events, or are you still mired in their consequences? If you were able to cope, this may give you some good evidence that you are better at coping than you thought you were. If you feel you were not able to cope, a part of the work you do in therapy could be to work on developing some coping skills to better handle future negative events. Many of the techniques we learn in Cognitive-Behavioral Therapy can be helpful to learn to cope with difficult events.

Based on your written examples on the last two pages, do the following exercise, gathering evidence about how bad the predicted event would be, as well as whether or not you could find a way to cope with it. Remember, we are trying to look at the situations realistically, so there should be both positive and negative evidence.

Exercise

Think of a prediction about the future that leads to anxiety. Do the exercise on page 48 to determine if it is likely that it will happen. If you determine that it is likely it will happen, or you worry that it would still be horrible if it did happen, write the thought on the left, below. Remember to phrase it in the form of a statement. On the right, write the answers to the questions (lines of evidence) listed here.

- If this happened, would it be horrible?
- What are the likely consequences of this happening?
- If it did happen, would I be able to cope?
- If it did happen, what would I do?
- Would I always be affected by this, or would I eventually get over it?

Thought (prediction)	Answers to questions above (rational response)

Examining Thoughts, Written Method

Over the last three pages, we discussed the two main questions we ask when trying to learn more about an anxiety provoking situation. Once we know which questions to ask, we must start to **record our evidence** to build a strong, realistic argument. When we are beginning to use cognitive restructuring, it is helpful to **write down** our thoughts, distortions, and evidence until we get the hang of it. Here is one method we use to do this is.

You will notice in the example below that this approach uses the skills of identifying thoughts and thought distortions that we practiced on previous pages. We add the “rational response” in the third column. The evidence we gather there is what we will use to remind ourselves of the truth about the situation when we are feeling anxious.

 **Get out that pen and paper!**

Research shows that people who write things down as part of CBT practice do better than those that try to do it all in their heads. While it does involve more work (and may seem like going back to school), we hope you will give it a try at first, until the skills become more natural.

Take thoughts identified using techniques in the “Identifying Negative Automatic Thoughts” section and write them here.

Use what you learned from the section “Cognitive Distortions” to identify any possible thought distortions.

Gather evidence for and against your negative automatic thoughts using multiple **lines of evidence**.

Thought	Possible Distortion	Rational Response
<i>She didn't say much of a hello. She must hate me.</i>	<i>Jumping to conclusions</i>	<i>It is possible he was thinking about other things and does not hate me. In fact he did ask me to lunch last week... etc.</i>
<i>I have no friends. No one likes me.</i>	<i>Black-and-white thinking</i>	<i>Not true! Jim is my friend. John and Joe talk to me a lot, they seem to like me. I could join the company team and make more friends, etc.</i>
<i>I'll never find a wife. I'll always be alone.</i>	<i>Jumping to conclusions</i>	<i>Wait! I am not alone now; I have some friends. I would like more dates; maybe I could join a dating service, etc.</i>
<i>She must think I'm an idiot.</i>	<i>Labels</i>	<i>True, she may say no but she may say yes. I will miss out for sure if I do not try, etc.</i>
<i>If she says no it will be awful!!</i>	<i>Magnification</i>	<i>Sure, it would hurt but probably not forever. If I practice getting rejected it may help me worry less about it, etc.</i>



Important: Gather lots of evidence!

You may have noticed the “etc.” after each rational response in the examples above. What we are trying to communicate is the importance of gathering *as much detailed evidence as possible*. For each negative automatic thought, we may have as many as 7 to 10 facts listed. We use multiple lines of evidence to do this. Each “**line of evidence**” aims to help us illuminate a certain aspect of a situation. For example, one common line of evidence is one’s own personal experience, examined in detail. Another might be the perspective of friends and family.

On the following pages we look at specific types of anxiety, such as panic, and the lines of evidence we can use to help us gather evidence about these issues. Use the **Examining Thoughts Worksheet** on the next page to record the evidence you gather.

Examining Thoughts Worksheet

Take thoughts identified using techniques in the “Identifying Negative Automatic Thoughts” section and write them here.

Use what you learned in the “Cognitive Distortions” section to identify any possible thought patterns. ↓

Gather evidence for and against your negative automatic thoughts using multiple “lines of evidence.” ↓

Thought ↓	Possible Distortion(s)	Rational Responses ↓
		1. 2. 3. 4. 5. 6. 7. 8. 9.
Thought	Possible Distortion(s)	Rational Responses
		1. 2. 3. 4. 5. 6. 7. 8. 9.

Tips:

- Remember to phrase each thought in the form of a statement.
- You should have between 7 and 10 facts in the “rational response” column for each thought.
- Copy this page to use for other thoughts (some extra pages are included at the end of the manual).
- Carry it with you and bring it out each time you have the thought, to remind yourself of the facts.

“The only thing we have to fear is fear itself”

How to work on negative thoughts about anxiety and panic attacks



Have you ever heard of the speech President Franklin Roosevelt made in 1933 about the economy? In the midst of one of the most difficult periods in the nation's history, he said: "The only thing we have to fear is fear itself." Sometimes our reaction to negative events is fearful, which ends up causing more problems. For example, when the stock market crashes as it did in 1929 and 2008, people become afraid they will lose more and pull their money out of the stock market and banks. This, in turn, causes even more trouble for the economy.

Similarly, our own fearful reactions to our body's "fight or flight" response, its attempt to try to keep us safe, can make our anxiety much worse. In this case, the "fear of fear" is really the "fear of anxiety." This means that we:

- Are afraid of having anxiety symptoms
- Believe the anxiety symptoms will be intolerable and/or last forever
- Worry that others will notice our anxiety symptoms
- Try to get rid of, push away, or distract from the anxiety

Earlier we discussed how anxiety can be triggered by something in the world or in our minds. Once the anxiety related to a trigger becomes severe, we begin to **fear the anxiety symptoms themselves**. We may try to avoid anything that makes us feel anxious, or try to protect ourselves against the anxiety.

We also have **negative thoughts about the anxiety** itself. In the section entitled "Anxiety Fuel" we learned that our thoughts can make anxiety worse. These thoughts often sound like this:

- "If that happens I will have anxiety; I won't be able to tolerate that."
- "This anxiety will never end."
- "If I have anxiety or a panic attack, I could have a heart attack, faint, suffocate, go crazy, or even die."

As we discussed before, these thoughts can create a "snowball effect" of thoughts and anxiety symptoms acting on one another, so our brain really thinks we are in danger! In CBT, we learn to step in and restructure these thoughts so they cannot continue to make our anxiety worse.

"I hate this anxiety!"

Have you ever **tried to stop** feeling anxious? How does it work? We may think that getting angry and frustrated about the anxiety may somehow get it to go away. But what is your experience? Does it go away?

Typically when we try to push anxiety away, it comes back even stronger, just like scratching an itch repetitively leads to the itch getting redder, itchier, and more swollen.

Perhaps we could take a different approach: instead of pushing thoughts away, we learn to restructure them when they come up to make them less scary. This way, we don't have to spend so much energy pushing the thoughts away, and we can feel better in case they do come. **Learning not to avoid unpleasant thoughts** is an important part of CBT.



On the next page we learn ways to fight the "fear of fear" by learning to talk back to each of these anxiety fueling thoughts. On the following pages we outline some effective **lines of evidence** to use when battling these troubling thoughts.

Of course, anxiety is uncomfortable, and we don't want you to have to experience it. Sometimes, however, negative thoughts about the anxiety and the avoidance that comes with them can serve to make our anxiety much worse. Let's look at a few common thoughts that often fuel this "fear of fear." Here we clearly define the thought that gives us trouble and look at different "lines of evidence" we might use to better understand the anxiety.

"If that happens I will have anxiety; I won't be able to tolerate that feeling."

Line of evidence #1: Past experience

- How many days have I experienced anxiety in your life?
- Of those days, how many times did I think "I can't tolerate this?"
- How did it work out? Did I get through it?
- How many times did I not get through it? What did I do?
- What is more important, how I feel, or how I respond to adversity?
- Was it intolerable, or was it really uncomfortable? Is there a difference?

Line of evidence #2: The future with or without anxiety

- What would it be like not to have this anxiety?
- Do I think it is worth it to work on minimizing the anxiety, using whatever methods necessary?
- Am I willing to do this for the future, even if it means feeling some discomfort now?
- Is it really best to be completely anxiety free? Is this realistic?

Line of evidence #3: Likelihood of experiencing some pain in the future

- Is it likely that I will experience some pain in the future? Is it possible to prevent pain completely?
- Is it best to try to avoid pain and discomfort completely, or to learn to cope with pain and discomfort in order to make it less unbearable?

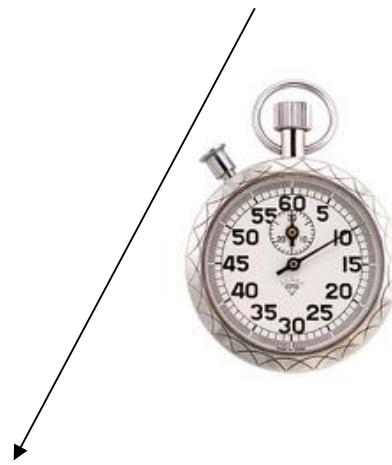
"This anxiety will never end."

Line of evidence #1: Personal experience

- I can think back to an event in which I felt anxious. How long did it last?
- Did the severity of the feelings change during the episode at all?
- If and when the event ended, how did I feel?

Line of evidence #2: Our body is programmed to "turn off" the "fight or flight" response after about 10 minutes

- Review the evidence from the "Just count to ten" section, below.



Just count to ten!

Has anyone ever told you to "count to ten" when you have a strong emotion, to let yourself calm down a bit? Have you ever tried it? For some of us, it seems hard to believe that just giving yourself the count of ten could help us feel better. After all, sometimes it really feels like the anxiety will never end!

The truth is, our bodies are not programmed to allow anxiety to last forever. In fact, once the anxiety response is triggered, it is programmed to *last only around 10 minutes*. That's right! So why does it seem to go on and on?

As we discussed in the "Anxiety Fuel" section, the main reason this anxiety stays around is that the "fight or flight" response **continues to get triggered** again and again. Repetitive negative thoughts are one way this "snowball effect" happens. However, if we do *not* retrigger the anxiety by thinking about it over and over or trying hard to protect ourselves, the anxiety response is **programmed to turn off**. So the truth is, anxiety will not last forever, if we give it a chance to shut down. This is why even just "counting to ten" can be helpful. We can practice this technique of "**emotion regulation**" by reminding ourselves to "ride out" the anxiety without acting on it or trying to fix it, to give it a chance to come down on its own.

As important as this is, it does not mean our *only* job is to learn to "ride out" panic and anxiety. Over the long run we can work to **reprogram our thoughts** using cognitive therapy skills so the anxiety gets triggered—and retriggered—much less.

“What about this panic?!”

Sometimes our “fear of fear” can reach panic proportions; our heart races, we get dizzy and lightheaded, there is pressure in the chest and the feeling of choking, racing thoughts, and a sense of dread and doom. Because these symptoms are so intense, it is understandable that one might worry that they could get worse. There are typically four “catastrophic” predictions that we make when feeling panic. Let’s look at them more closely, one at a time.

Common panic thought #1: “I will have a heart attack.”

Line of evidence #1: Personal history

It is easy to understand why it feels like we are having a heart attack during a panic attack, especially because the heart beats strong and hard, there is often tightness in the chest, as well as feelings of dread and doom. Let’s look at this prediction in more detail, in order to at least get a sense of the likelihood of having a heart attack when we feel panicky.

- How many panic attacks have I had in the past?
- How many of these panic attacks were accompanied by predictions that I could have a heart attack?
- How many heart attacks connected with panic attacks have I had?
- Have I been a good predictor of heart attacks in the past?
- Have I gotten any medical tests to assess my current risk of having a heart attack? What have the doctors told me?
- Given my history with panic attacks versus my history with heart trouble, is it more likely this is a panic attack, or a heart attack?

Line of evidence #2: Clinic history/research

- See “Can I have a heart attack during a panic attack?” to the right.

Line of evidence #3: Difference between heart attacks and panic attacks

- Are there any differences between heart attacks and panic attacks and how they feel? (See “Is it a heart attack, or panic,” below)

Could I have a heart attack during a panic attack?

This is one of the most common thoughts people have during panic attacks; it is a thought that could land you in an emergency room, only to be told “you are fine” when the medical tests come back. While many predict that they may have a heart attack during a panic attack, we have no evidence that there is any connection between panic attacks and heart attacks. Senior clinicians in our clinic and others like it around the country nearly always report that they have never seen a heart attack that was caused by panic. This means that in thousands of patients, with possibly millions of panic attacks, there are few to no reports of panic attacks leading to heart attacks. This means the chance of a heart attack occurring during your next panic attack is very, very small. Do you think it might be helpful to remind yourself of this the next time you feel some panic?



“Is this a heart attack, or panic?”

? Symptoms of a heart attack and panic are very similar. Common symptoms of a heart attack are uncomfortable pressure, fullness, squeezing or pain in the center of the chest lasting more than a few minutes, and mild to intense pain spreading to the shoulders, neck or arms. It may feel like pressure, tightness, burning, or heavy weight. It may be located in the chest, upper abdomen, neck, jaw, or inside the arms or shoulders. Chest discomfort with lightheadedness, fainting, sweating, nausea or shortness of breath is also common, along with anxiety, nervousness and/or cold, sweaty skin, increased or irregular heart rate and a feeling of impending doom. Sound familiar? Many of these symptoms are the same as those listed in the “Anxiety Is...” section on page 7.

One thing that separates panic from heart attacks is that panic attacks tend to improve with movement and exercise, while heart attack symptoms get worse under those conditions. Also, panic tends to reach its peak within 10 minutes and then predictably decline gradually over time. A heart attack will not get better over time. Of course it is important to be aware of potential physical problems, especially if there is a history of heart disease. But given the fact that the symptoms are so similar, we must go with our best bet, given our family history of heart disease, age, and knowledge about our heart health. The best way to solve this dilemma is to get treatment for panic; if panic is not a problem, we’ll have a better idea of whether or not we are in danger of having a heart attack.



Common panic thought #2: “I will suffocate.”

Line of evidence #1: Personal history

- How many panic attacks have I had in the past?
- How many of these panic attacks were accompanied by predictions that I would suffocate?
- Have I ever suffocated due to a panic attack?
- Have I been a good predictor of suffocation in the past?

Line of evidence #2: Possibility of suffocating when having panic

- See “I can’t get enough air!” below.

“I can’t get enough air!”

During a panic attack, the feeling of smothering and tightness in the chest often leads to the worry that one will not get enough oxygen and suffocate. What we find, however, is that when one is panicking, they are actually getting **too much oxygen** by breathing very quickly. This “over-oxygenation” is hyperventilation, which makes one feel dizzy and lightheaded. Suffocation occurs when the body does not get enough oxygen. It is highly unlikely that panic will lead to suffocation.

Common panic thought #3: “I will faint.”

Line of evidence #1: Personal history

- How many times have I fainted in the past? Have I been evaluated to determine if I have a medical problem that might lead to fainting?
- How many panic attacks have I had that were associated with fainting spells in which I actually passed out and *lost consciousness*?
- If I did pass out, how bad would it be? Would I be able to cope in the unlikely event that I did pass out? Would it be a catastrophe?

Line of evidence #2: Compatibility between panic attacks and fainting

- See “Fainting, panic, and blood pressure” to the right.



Fainting, panic, and blood pressure

The idea that we might faint during a panic attack is common, because anxiety causes dizziness, lightheadedness, tunnel vision, and other strange sensations that make us feel like we are going to faint. That being said, it is very rare for a person to pass out during an anxiety attack. This is because **during panic attacks and periods of high anxiety blood pressure is elevated; when we pass out, it is due to a drop in blood pressure**.

Some people have a type of anxiety called **blood/injury/illness phobia**, in which passing out is common. If you think you might have this condition, or if you have passed out multiple times in the past, discuss this with your doctor or therapist; there are ways to deal with this tricky combination of anxiety and fainting.

If you do not have a predisposition to fainting, it is **highly unlikely that you will pass out during a panic attack**. During a panic attack you might remind yourself that it will *feel* like you will pass out, but it is most likely that you will simply continue to feel dizzy and lightheaded until the panic subsides.

Common panic thought #4: “I could go crazy!”

Line of evidence #1: Personal history

- How many panic attacks have I had in the past?
- How many of these panic attacks were accompanied by predictions that I would “go crazy” or “lose it?”
- Have I ever “gone crazy” or “lost it” due to a panic attack?
- Have I been a good predictor of “going crazy” in the past?

Line of evidence #2: Define “going crazy” and “losing it.”

- What does this mean? Am I worried about having “crazy” thoughts or feelings? Am I worried about *doing* something “crazy?”
- Is there something specific I am worried I might *do* (e.g. hurt myself or someone else, make a scene, etc.)? If so, what are the chances I would actually do this?
- What can I do when I am feeling panicky to prevent any erratic and/or harmful behaviors?

Line of evidence #3: Clinic history

- What is my clinician’s experience with this? How many of this clinician’s patients have “gone crazy” or “lost it” as a result of panic attacks?

Line of evidence #4: Relationship between panic and psychosis or schizophrenia

- See “Could I ‘lose it?’” below.



Could I “lose it?”

Often folks with extreme anxiety and panic worry that eventually they will “lose it,” and lose touch with reality or do something extreme. “Losing it” is often equated with “going crazy” or becoming psychotic, which means that a person loses touch with reality. So is it possible? Based on current research, there is no evidence that anxiety and panic are directly causative of disorders that include psychosis, such as schizophrenia and bipolar disorder. If you do not have a history of one of these illnesses, panic is not likely to lead you there. We can remind ourselves, “This feels very uncomfortable, but I am not going crazy; this is my body’s attempt to protect me.”

If you are worried about doing something harmful or have a history of erratic behavior during panic attacks, it may be helpful to talk to a therapist about ways to cope with these difficult feelings so we can keep ourselves and others safe.

Common panic thought #5: “This panic will hurt me in the long run.”

Line of evidence #1: Pros and cons: aggressive treatment versus avoiding panic

- What will happen if I continue to avoid the sensations of panic? Will the panic get better?
- If the panic does not get better by avoiding, is it possible that continuing to take this approach could hurt me even more in the long run?
- Is it better to avoid in order to feel safe now, or to accept that it will be uncomfortable now so I can feel better in the long run?
- See “long term effects of anxiety,” below.

Long term effects of anxiety

It is true that chronic, uncontrolled anxiety causes stress on our bodies, which can make us more susceptible to illness and chronic health conditions.

One way to view this dilemma is to assess how well our methods of treating the anxiety have worked; if they have not worked, is it likely that they will work in the future? If not, we could be increasing the lifespan of the anxiety, which could cause even more stress in the long run. Addressing the anxiety through treatment, while it may cause some stress in the short term, may reduce stress in the long term. It is common to find that “short term pain” can offer us “long term gain.”

“The only thing we have to fear is fear itself”

Take Home Points



- *A common type of anxiety has to do with “fear of fear,” which is fear of the anxiety symptoms themselves.*
- *While this type of anxiety is a defining feature of Panic Disorder, it is also common in other types of anxiety.*
- *It is common to feel frustrated when we feel anxious. Our attempts to rid ourselves of the anxiety may not work, which causes more anxiety and frustration.*
- *Often our thoughts about anxiety are negative and make the problem worse. Common thoughts related to anxiety include worries that panic will cause a heart attack, suffocation, fainting, going crazy, or long-term harm to the body.*
- *In the short term, it is helpful to learn to “ride out” episodes of anxiety so that we do not “fuel” the anxiety. We remind ourselves that anxiety is “uncomfortable, but not dangerous,” and that episodes of anxiety are meant to last only about 10 minutes, if we do not trigger it again.*
- *In the longer term, we use cognitive skills to address these thoughts, using lines of evidence such as personal history and pros and cons to treat these thoughts when they come up in the course of daily life.*

Exercise*

1. If you have not done so already, use the techniques in the “Identifying Negative Automatic Thoughts” section to identify thoughts about the anxiety itself that may fuel your anxiety.
2. Use the “lines of evidence” to examine the evidence about your anxiety.
3. Use the “Examining Thoughts Worksheet” to write down the thoughts, possible cognitive distortions, and evidence you find.
4. Remind yourself of this evidence in the morning before you start your day. When you experience anxiety during the course of the day, remember to “ride out” the anxiety without reacting to it; use the “Examining Thoughts Worksheet” to remind yourself of the evidence. Remember, it takes repetition to retrain the brain!

Important!

Restructuring thoughts related to our “fear of fear” is just *one part* of our overall treatment. It may also be helpful to use these skills to address other types of thoughts, such as everyday worries and/or negative thoughts about social situations. We may also need to use behavioral skills such as exposure or relaxation skills. Most people find that a **combination** of methods and skills works best in managing anxiety over the long term.

*If you suffer from Panic Disorder, talk to your treatment group leader or individual therapist about starting a structured CBT treatment. This treatment will combine these cognitive skills with exposure skills, among other things. Experimenting with these skills now may have some benefit, but a structured treatment is typically necessary to treat a full-blown case of Panic Disorder successfully.

“Don’t worry...”

Cognitive Skills for Daily Worry and Generalized Anxiety



When we are worried, people want to reassure us— “Don’t worry...” they say. Of course, just “not worrying” is much more easily said than done! Trying to control worry can be challenging and frustrating.

Generalized Anxiety Disorder (GAD) is the technical term for the condition in which we experience uncontrollable worry. One fearful thought is replaced by another. After awhile, it may seem that we worry about just about everything.

Repetitive, automatic negative thoughts (worry) about the future is the hallmark characteristic of Generalized Anxiety Disorder. The “triggers” of anxiety are the thoughts themselves. Because thoughts are such a big part of GAD, cognitive skills are a primary component of treatment for this problem.

There are two basic types of worries common in GAD. One type is worry about bad things happening to us or the people close to us. According to anxiety researchers, this is called “Type I” worry. “Type II” worry is *worry about the worrying itself*, which is almost always a part of GAD, and resembles the “fear of the fear” we discussed earlier. In order to treat GAD effectively, it is best to address both types of worries. Observe the examples below to clarify these important aspects of GAD.

Type I Worry

(Worry about bad things happening to us or people we care about)

Examples:

- “I am going to lose my job.”
- “My children will get sick or be hurt.”
- “I am not going to pass this test.”
- “Our country could be attacked by a terrorist.”
- “I am going to end up homeless on the street.”

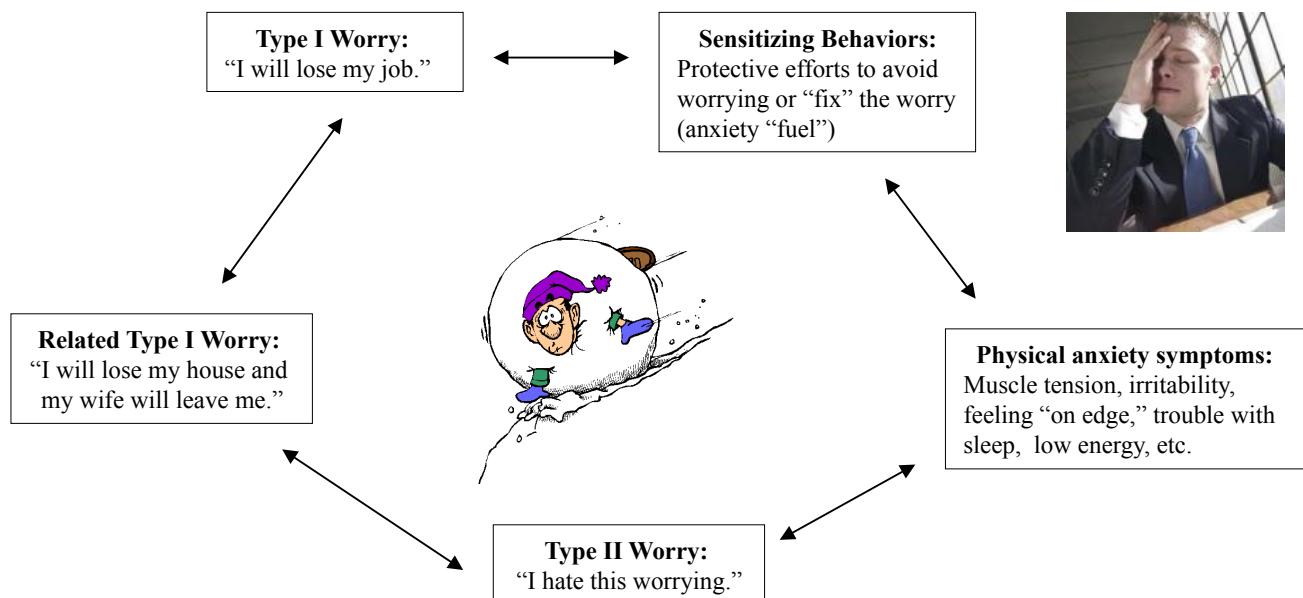
Type II Worry

(Worry about the worry and anxiety itself)

Examples:

- “I will never stop worrying.”
- “I can’t tolerate this anxiety.”
- “I must find a way to stop worrying.”
- “If I keep worrying like this I will eventually go crazy.”
- “Maybe this worry will overcome me and I’ll be trapped inside of it forever.”
- “I am causing harm to my mind and body by worrying all the time.”
- “I hate the way this anxiety feels.”

These two types of worry, uncomfortable feelings, and our responses to the worry create a “snowball effect” of anxiety that makes us feel worse and worse over time:



Below we give some examples of negative automatic thoughts common with Generalized Anxiety Disorder and outline ways to begin to restructure these thoughts, using some of the techniques we learned earlier in this module, such as “defining terms,” using the Thought Cascade approach, and examining the evidence. Use the Examining Thoughts worksheet to record some of the facts you gather from the “lines of evidence” below.

Generalized Anxiety Disorder Example #1: “I am going to lose my job.”



Step #1: Identify the potential cognitive distortions: Examples may be: “Magnification” or “Jumping to Conclusions”

Step #2: Examine the evidence:

Line of evidence #1 (likelihood): *Right now, are there reasons to believe that I will lose my job?*

- Firstly, what has happened to make me believe I may lose my job? Have there been rumors going around? Have I heard anything about my job being in jeopardy?
- Have I gotten any feedback from supervisors about my performance? Positive? Negative? Have there been performance evaluations? How did I do?
- How likely is it that I will lose my job? 100% likely? 50% likely? (assign a percentage to your chances)

Line of evidence #2 (likelihood): *My past job performance*

- Have I ever gotten fired from a job before?

If so, is there any direct evidence that I got fired because of my job performance? Are there any other factors that may have contributed to this? What were the circumstances at the time? Do they at all differ from the circumstances now?

If not, how does this fit with the idea that I am likely to get fired now? Are the circumstances now the same or different?
- Have I ever worried about getting fired because of my job performance before? What has happened? Have I been a good predictor of getting fired in the past?
- Have I gotten feedback from supervisors in the past assessing my job performance? What were the results?

Line of evidence #3: *If it is likely that I will lose my job, how bad would that be?*

- If this happened, what would I do? Would I give up? Would I continue to look for jobs?
- Are there other possibilities?
- Is it likely that the people closest to me would be frustrated with me and disrespect me, or are they likely to be supportive?
- When other people lose their job, what do you think of them? Do you tend to feel critical of them, or do you chalk this up to misfortune or some other factor?
- If there are things I could improve in order to reduce the likelihood of losing a job in the future, what would they be?
- What have I done in the past when I was faced with adversity? Did I find a way to cope? How did things turn out?

Step #3: Write down the evidence gathered on a copy of the Examining Thoughts Worksheet, or list the evidence on a note card. Carry this with you and take it out when this thought occurs in your daily life. Remind yourself of the facts of the situation and then continue with your day.

Step #4: Use the “Thought Cascade” approach to uncover other thoughts related to this thought, especially if you determine that it is likely that you will lose your job. Ask “If I did lose my job, what would be bad about that? What would be the consequence?” Use the same techniques to examine the evidence around the other thoughts.

Step #5: Use problem solving techniques to determine if the situation can be improved.

Step #6: Use acceptance skills to let go of effort to fix things you cannot change.

Generalized Anxiety Disorder Example #2:
“What if something bad happens to one of my children?”

Step #1: Phrase the thought in the form of a statement and define “something bad happens.”

- Specify: “My child will get hurt” or “He will be made fun of at school,” etc.

Step #2: Identify the potential cognitive distortions:

- Examples may be: fortune telling, magnification.

Step #3: Examine the evidence:

Line of evidence #1 (likelihood): *How likely is it that this will happen to my child?*

- Has something like this happened to my child in the past?
- Have I heard of this happening to children in the past? How common is this? Are there statistics available on how likely this is?
- Have I predicted that this would happen before? What did I think about my prediction later? Did it seem just as urgent? How good a predictor am I of this happening?

Line of evidence #2: *If this did happen, how might we cope with it?*

- If this happened, what would I do?
- Have we dealt with difficult circumstances in the past? How did I cope then? If something really bad happened, did we eventually recover, at least partially, and continue to live our lives? What could we do to cope?
- Are others resilient enough to cope with a difficult event like this and continue to live their lives?

Line of evidence #3: *Pros and cons: Protection versus allowing children to live life fully*

- Look at the pros and cons of keeping a child protected from all danger. List these on a piece of paper.
- Look at the pros and cons of allowing a child to live a life without so much protection. List these.
- Consider the following questions:
 1. Is it possible that trying to protect against all danger could leave a child less able to cope with the normal risks we all have to accept in our daily lives?
 2. Could allowing children to live with some risk make them stronger and more able to flourish?
 3. Is there any way to protect against all possible dangers?
 4. Does this worry help me protect against these things?
 5. How does my worry affect my children? Does it help them to feel safe and secure?
 6. Are there things I can do to keep my child adequately protected while also helping them feel confident, competent, and able to cope with adversity?

Step #4: Write down the evidence gathered on a copy of the Examining Thoughts Worksheet, or list the evidence on a note card. Carry this with you and take it out when this thought occurs in your daily life. Remind yourself of the facts of the situation and then continue with your day.

Step #5: Use problem solving techniques to determine if things can be done to improve safety. Be aware of efforts to overprotect in ways that may interfere with your child’s life.

- Try to find a balance of “protection” with “living life” that works for you. Determine which precautions make sense and which achieve little in the way of protection, and instead interfere with your child’s ability to develop and flourish.

Step #6: Write down results of this examination on a note card and carry it with you. When you feel worried or the need to try to take some precaution, review what makes the most sense for the long-term benefit of your child.

Step #7: Use acceptance skills to let go of effort to fix things you cannot change.



Generalized Anxiety Disorder Example #3:
"I am going to get a bad grade on this test."

**Step #1: Define terms**

- Ask yourself: "What is a 'bad' grade? Is it failing? Is it a "C"? Is it a "B"?"

Step #2: Identify potential cognitive distortions

- Examples may be: fortune telling and all-or-nothing thinking.

Step #3: Examine the evidence:*Line of evidence #1:* (likelihood) *How likely is it that I will get a bad grade on this test?*

- How have I performed on tests in the past?
- Have I ever predicted I would perform poorly on a test before? How did the test turn out? Write down the results of the last 5 tests you can remember. Did these tests come with predictions of getting a bad grade? How did they turn out?
- Is this class any different than other classes?

Line of evidence #2: *If I did get a bad grade on this test, what would be the consequences?*

- If this happened, what would I do? Would I give up, or keep trying?
- Have I ever done poorly on a test in the past? What were the consequences of this? How did this test score affect my overall grade?
- Is it likely that getting a bad grade on this test will significantly impact my ability to achieve my long term academic goals?

Line of evidence #3: *Preparedness*

- Have I prepared for this test?
- How does my performance on tests in the past align with my preparedness? Was I ever unprepared for a test on which I performed poorly? How have I performed when I prepare adequately?
- Does anxiety ever interfere with my ability to remember facts? Do I have trouble concentrating?

Step 4: Address "worry about anxiety" (type II worry)

- Often when we worry about tests or other performance situations, there is a concern that the anxiety will make us perform poorly or people will notice it. We do not have time to address this in this manual; however, this is an important issue to address with your group leader or individual therapist.

Step #5: Use the "Thought Cascade" approach to uncover other thoughts related to this thought. Ask "If I did get a bad grade, what would be so bad about that? What would be the consequence?" Use the same cognitive techniques to examine the evidence around the other thoughts.**Step #6: Uncover core beliefs**

- Ask: "Is it possible that my concern about getting a bad grade is related to having unrealistic expectations for myself? Do I ever think that I must be perfect or get an 'A' on every test?"

Step #7: Behavioral techniques

- Use problem solving techniques to determine if the situation can be improved. Is there anything I can do to improve my study habits? Could I practice taking tests to become more comfortable with the anxiety? Do I have good test taking skills?
- Are there any "safety behaviors" or protective behaviors I am using that may actually be making me perform more poorly on tests? For example, do I ever second guess myself repetitively about answers and change them? Do I take more time than necessary deciding on answers?
- Along with cognitive techniques, use exposure skills to get practice taking tests and address avoidance or protective behaviors that may be making the anxiety worse over time.

Step #8: Use acceptance skills to let go of effort to fix things you cannot change. For example, we do not know exactly what questions will be on every test, and it may be healthiest to accept that we may get some questions wrong.

Generalized Anxiety Disorder Example #4:
“This worry will never end” or “This worry will make me go crazy” (Type II worry)

Step #1: Identify potential cognitive distortions

- Examples may be fortune telling and magnification.

Step #2: Examine the evidence:*Line of evidence #1:* (likelihood) *Past experience*

- How has my anxiety and worry fluctuated over the years? Have I ever had times in which I felt better? Was it true that the anxiety lasted forever?
- Have I ever gone “crazy” as a result of worry?

Line of evidence #2: *Ability to function with anxiety*

- Have I been able to function at times, at least well enough to accomplish some of my goals, even with the anxiety and worry?
- Does the anxiety make me avoid things? (If so, this could contribute to the idea that you “can’t function.” Consider exposure skills to practice functioning better with anxiety to manage it and still achieve some of your life aims)

Line of evidence #3: *Anxiety is uncomfortable, not dangerous*

- See “Anxiety is...” & “Could I lose it” (in the previous section on panic disorder) to remind yourself about the danger of anxiety. Although anxiety is uncomfortable and does put stress on the body, remind yourself that it is not dangerous, and does not lead to “going crazy” or becoming psychotic.

Step #3: Emotion regulation and “acceptance of emotion” skills

- Remember that trying to “fix” or avoid anxiety reinforces the anxiety.
- Remind yourself: “Trying to get rid of this anxiety or avoid it will just make it worse. I can accept and tolerate this anxiety feeling and allow it to happen. I can then try to learn the facts about this situation. I can do things that will help me reach my goals, instead of spending time trying so hard to get rid of this anxiety.”

Step #4: Work on other “Type I” worries (everyday worries about bad things happening) that may contribute to this worry, as in examples 1-3 on the previous three pages.

Note: see “The only thing we have to fear is fear itself” for more help with “worry about worry,” especially if worry has led to panic attacks.

Generalized Anxiety Disorder Example #5:

“If I worry, it will help me be safe.” “If I don’t worry, it is more likely something bad will happen.”
“Worrying helps me accomplish things and solve problems.”

Step #1: Examine the evidence:*Line of evidence #1:* *Past experience*

- Has worrying helped me prevent catastrophe in the past? Does it protect me?
- Is it necessary for me to worry to be safe, or could I stay safe even without this anxiety?
- Have I ever accomplished a lot without worry?

Line of evidence #2: *Pros and cons of worrying to stay safe versus living with some risk*

- What are the good things about worrying to stay safe? What are the problems that this worrying creates in my life?
- What are the good things about letting go of the worry? Are there any potential downfalls to this?
- Do I like this worry? Do I want to continue to live with it? Would life be better without it, even if I had to accept some risks?

Step #2: Identify negative automatic thoughts and examine the evidence around the *specific* problems happening at this time.**Step #3:** Use **problem solving skills** to best find a solution to a problem. If there is no feasible solution, use **acceptance skills** to let go of attempts to control what cannot change.

“Don’t worry...”

Cognitive Skills for Daily Worry and Generalized Anxiety

Take Home Points



- *Generalized Anxiety Disorder (GAD) is characterized by uncontrollable worry about multiple areas of one's life.*
- *The two types of worry are worry about bad things happening to ourselves and people close to us (type I worry) and worry about the worry itself (type II worry), both of which contribute to chronic anxiety symptoms.*
- *Worries, related worries, frustration and worry about the anxiety, attempts to fix or avoid the anxiety, and physical anxiety symptoms create the “snowball effect” that makes the anxiety worse, both in the moment and in the long run.*
- *Since thoughts are the primary “triggers” of anxiety in GAD, cognitive therapy skills are an important part of treatment for this concern. We use “lines of evidence” to gather facts about the situation; we look at the likelihood of bad things happening as well as ways to cope with the consequences of them happening.*
- *Problem solving and acceptance skills are also used to address GAD’s negative automatic thoughts.*

Exercise

1. If you have not done so already, use the techniques in the section on “Identifying Negative Automatic Thoughts” about the future (type I worry), or thoughts about the worry itself (type II worry).
2. Use the examples on previous pages as a guide to ask questions about these thoughts and examine the evidence.
3. Use the “Examining Thoughts” worksheet to write down the thoughts, possible cognitive distortions, and evidence you find. You can also write down the evidence on a note card and carry it with you.
4. Remind yourself of this evidence in the morning before you start your day. When these thoughts pop up during the course of the day, take out the “Examining Thoughts” worksheet or the note card to remind yourself of the evidence. Remember, it takes repetition to retrain the brain!

“Unifying Your Forces:” other CBT skills for Generalized Anxiety

On the previous four pages there are examples of specific thoughts that occur when people worry. While thoughts are an important part of generalized anxiety, there are other factors that influence how anxious we are on a daily basis. One factor is our core beliefs and ideas about the world, called “core schemas.” Thoughts such as “I must always give 110% to everything in my life” and “People that make less than \$100,000 a year are failures” are examples of core schemas that may be helpful to modify. Modification of core schemas are a part of CBT that could be helpful for you.

There are also factors, other than the way we think, that can contribute to generalized anxiety. Examples are the goals we set (and whether or not we are reaching them) and how busy we are. Setting reasonable, achievable goals and managing our time effectively are often addressed in a course of CBT.

Common Thoughts about Anxiety and its Treatment

The following are common thoughts that many people have about their own anxiety. Some of these thoughts make it hard to move forward to address the anxiety problem assertively. Check any of the thoughts below that you may have from time-to-time. If there are others you experience that are not listed below, write them in the provided box below. Part of CBT is looking at these thoughts, so be sure to bring them up to your therapist or group leader when you start the active phase of treatment following the group.

Thoughts about anxiety being outside of one's control

- "My anxiety just happens, and I have no control over it."
- "I am completely frozen by my anxiety and can't do anything about it."
- "My anxiety is different than everyone else's."
- "I can't control my anxiety."

Pessimistic predictions about treatment

- "This anxiety will never go away."
- "I haven't gotten better yet, so it won't happen."

Unrealistic expectations about the speed of improvement

- "I want the anxiety to go away right now. I want a cure."
- "I want this to happen right now."
- "I don't have time to spend on this."

Deficiencies in knowledge

- "I don't understand."
- "I don't even know why it happens."
- "I don't understand how this could be helpful for me."

Worry/anxiety/panic is harmful

- "Treating anxiety by having to think about it will cause harm to me."
- "Worry is harming me."
- "If I have anxiety during treatment I won't be able to handle it."
- "If I open this can of worms, it will never close."
- "It will just be too overwhelming."
- "Anxiety will never end if I let it happen."
- "If I don't control my thoughts and emotions they will take over and never end."
- "If I allow myself to worry it will get out of control."
- "If I treat my panic by challenging the anxiety, I will have a heart attack, suffocate, go crazy, or faint."

Positive beliefs about anxiety/worry

- "Anxiety helps me: if I get rid of it, I will not perform as well, or fail."
- "Worries help me solve problems."
- "Anxiety and worry makes me perform better."



Other thoughts about anxiety or treatment I have, not listed above:

" _____ "

" _____ "

" _____ "

" _____ "

" _____ "

Cognitive Therapy Skills

Summary



Cognitive Therapy Skills are one set of skills used in CBT. They are based on the idea that our thoughts can affect how we feel.

We learned what cognitive therapy skills are and how they work: we gather **evidence** to understand a situation as realistically and in as detailed a way as possible.



Cognitive Therapy Skills are not just “thinking positive.” In fact, some situations *are* really bad. Our goal is to **Examine the Evidence** and practice reminding ourselves of this evidence when we are in a challenging situation, in order to cope better with that situation.

Cognitive skills are best **used in combination with behavioral skills** such as exposure. If we can understand how dangerous a situation is, we can make good decisions about whether or not it would improve our lives if we were to stop avoiding a situation or over-protecting ourselves, which can be limiting.

We learned how to identify **Negative Automatic Thoughts** and the “worst-case scenario” thoughts that are often connected with them. Identifying Negative Automatic Thoughts is the first important step in using Cognitive Therapy Skills.

We learned about **Cognitive Distortions**, such as “All-or-Nothing Thinking,” which are unhelpful patterns of negative thinking. Sometimes it can be helpful to understand whether or not we have some of these patterns in order to more effectively battle our Negative Automatic Thoughts.

We **Examine the Evidence**, using techniques to understand two important questions:

1. *How likely is it that something bad will happen?*
2. *If it did happen, how bad would it be? What would I do if it happened? How might I cope?*

The **Examining Thoughts Worksheet** is one tool that can help us organize the evidence we gather when we are first learning cognitive skills. Writing down evidence about a thought helps us see things more objectively and remind ourselves of information that is hard to remember when we are feeling anxious. Eventually, we hope to be able to remind ourselves of the evidence quickly in the course of daily life, without needing these types of aids.

One important part of an anxiety problem is fear of the anxiety itself; because anxiety feels so bad and makes it hard to accomplish our aims, we worry about having it. We also may start wondering if the anxiety could harm us in some way; these thoughts about the anxiety can make the anxiety even worse. We dispute some of these thoughts to **battle the “fear of fear.”**

Worries are a common part of anxiety, and we give examples of how to battle these worries using cognitive skills. “I’m going to lose my job” and “What if something happens to one of my children?” are examples.

Problem solving, acceptance skills, setting achievable goals, and **managing time effectively** are other important factors that can reduce anxiety. We combine cognitive therapy skills, relaxation skills, and exposure skills with these other skills to manage GAD and chronic worry.

Notes

Notes



Relaxation

KGSXSTOU

“The time to relax is when you don’t have time for it.”

~Attributed to both Jim Goodwin and Sydney J. Harris

Have you ever been told to “just relax?” Of course feeling relaxed would be ideal—this is why we come to get help in the first place! But anyone who has felt panic or extreme anxiety knows “just” relaxing is much easier said than done.

One set of skills used to supplement other CBT skills (such as exposure and cognitive skills) are **relaxation skills**. Relaxation skills address anxiety from the standpoint of *the body* by reducing muscle tension, slowing down breathing, and calming the mind. Relaxation skills can be structured; examples are slow diaphragmatic breathing, meditation, and yoga. Other factors, such as self-care and enjoying pleasurable activities, are also helpful to make us feel more relaxed. In this module we’ll explore some of these strategies, explaining how they are used and why they work.

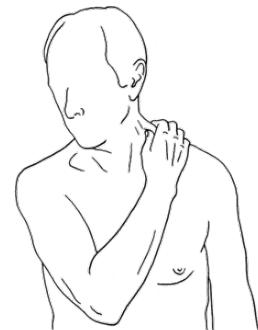
As we will emphasize in this section, relaxation skills are best used in conjunction with other CBT skills and are most effective when practiced consistently. Different skills work for different people, so the first step is to try to find the relaxation strategies that appeal to you and try them out. Enjoy!

What are relaxation exercises?

The Problem: “Somatic” Anxiety Symptoms

Most people that experience anxiety also experience unpleasant physical sensations regularly. In medical lingo, the fancy term for “physical” is *somatic*. We all know some of the most common somatic symptoms of anxiety: muscle tension, headaches, backaches, a clenched jaw, feeling keyed up, restless, and “on edge,” as well as difficulty concentrating. You may remember that these symptoms are a side effect of our body’s attempts to protect us; blood moves around our body and brain, into our large muscles, like our arms, legs, back, and neck, to get us ready to “fight” or to “flee.” This changes the feelings in our bodies. In short the body is working hard to protect us, and these feelings are uncomfortable! Relaxation happens when the body stops trying to protect us, which helps us feel more calm and at ease.

When we experience mild to moderate levels of anxiety on a daily basis for long periods of time, we get used to this tense, jittery state, until it is hard to even know what it is like to be relaxed! In this case, we would say a person’s anxiety and tension is resting, or “baseline,” at a high level. The goal of these types of relaxation exercises is to change this baseline to a lower level.



Relaxation skills are like exercise!

Imagine a friend of yours telling you that she is planning to train for a 10K race. Despite the fact that she has never run a race before and does not jog regularly, she tells you her training will consist singularly of practicing running the full 10 kilometers on the day before the race. What would you think about this?

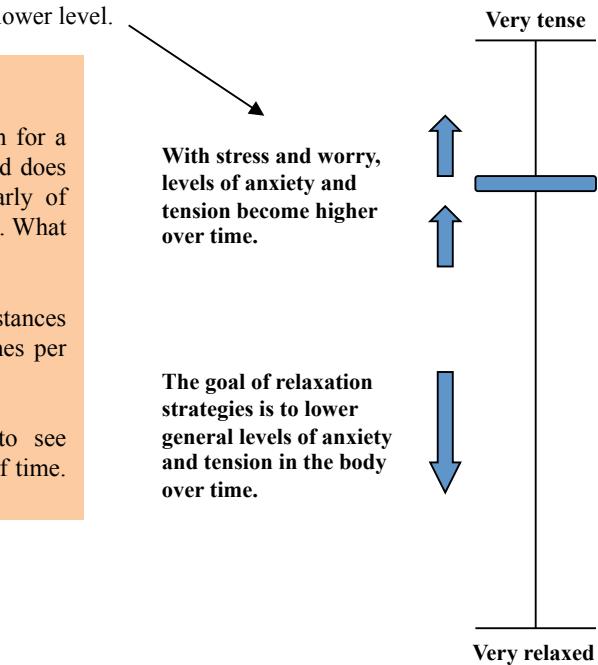
We know that the body needs time to learn how to run for long distances and build strength. She would need to practice at least a few times per week for a number of weeks to be ready.

Relaxation skills are developed just like exercise: in order to see significant results, we must use them regularly over long periods of time. This is not a one shot deal!



Each person is different-- we all relax in different ways. In this module we’ll discuss a number of different methods to try:

1. Find a relaxation exercise that you can practice daily or multiple times per week. Examples are progressive muscle relaxation, yoga, mindfulness, and deep breathing.
2. Adjust your lifestyle to make it less busy, hectic, and rushed.
3. Take part in activities that give you pleasure, make you feel competent, or give you a chance to take a break from other, more stressful activities.



Goals of relaxation skills

1. Learn when and how to use these skills.
2. Learn to breathe in ways that will promote calm and relaxation.
3. Slow down activity in the mind to avoid or learn to better tolerate “racing thoughts.”
4. Increase awareness of tension in the body and improve awareness of the difference between tension and relaxation.
5. Lower general levels of tension and restlessness in the body.
6. Learn to incorporate activities into our lives that are fun and/or make us feel competent.
7. Be calmer in our daily lives by learning to “slow down” and set realistic goals for our time.

Relaxation Strategies: When? How? Why?

Relaxation strategies are just one set of skills used in CBT. We all would like to spend more time feeling relaxed, but relaxation skills are not always the right skills to improve our anxiety in the long run. One important CBT skill is knowing when to use certain techniques, so we want to know when relaxation strategies are or are not helpful for us.

Relaxation strategies are best used as a **companion to exposure and cognitive skills, but not as a replacement** to them. Sometimes relaxation strategies can actually make anxiety *worse* in the long run. Why? Because sometimes relaxation strategies are used as a way to get rid of anxiety when we are in distress; trying to get rid of something trains our brains to see it as “bad.” So we teach the brain to set off the anxiety “alarm” even louder when the anxiety presents itself. In the long run, this makes the anxiety worse. In short, there are times and places for relaxation skills!

When to use relaxation strategies

-As a daily practice, like exercise, to lower tension and feel calmer in our bodies over time

-During times of distress in order to **prevent avoidance** of something that is integral to our life aims

Why? It is more assertive: “Doing this exercise will not cure my anxiety, but it will keep me from avoiding the situation.”

(When we face the anxiety, the brain learns that it is not so dangerous, which, in turn, lowers the anxiety in the long run)

When not to use relaxation strategies

-In times of panic or severe distress as a way to get rid of the anxiety

-As a replacement for other types of CBT skills such as cognitive restructuring and exposure

Why? It is overprotective: “This anxiety is unbearable! I must do something to make it feel better!”

(This trains in the idea that anxiety is dangerous, which causes more anxiety over time)



“How should I relax? What will work for me?”

Everyone is different— some relaxation skills work well for some people, and others for other people. It is likely that there are some methods that you already use to relax. Think about exercises, practices, or activities you use regularly in order to relax and list them below. If you are having a hard time coming up with something, see page 74, “Finding Relaxation Strategies That Work for You” and review the list of some common methods of relaxation.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Take home points:

Relaxation strategies can be useful in reducing general levels of anxiety and tension over time. They are not typically a “cure” for anxiety; they are best used together with other CBT skills such as cognitive restructuring and exposure and practiced regularly, like exercise. They also should not be used to prevent or get rid of panic or severe anxiety symptoms. For each person there is a different set of activities and skills that help them relax. Our best strategy is to find the ones that work for us and practice them.

Just breathe!

You may have been told in the past to “take a few deep breaths” when you were feeling worried or upset about something. On one hand this is helpful to just slow down and cool off. However, altering the speed of our breath actually can slightly change our body’s anxiety response. **Slow diaphragmatic breathing** is a developed technique that involves slowing down the breath to communicate “safety” to the brain.

While we do not recommend that you use breathing techniques to try to eliminate anxiety when you are feeling anxious, it can be a way to get through a tough situation and calm the body some so that we can make a good decision about what to do next. Try the following exercise:

“Slow Diaphragmatic Breathing”

1. Sit comfortably in a chair with your feet on the floor. You can lie down if you wish.
2. Fold your hands on your belly.
3. Breathe in slowly and calmly. Fill up the belly with a *normal* breath. Try not to breathe in too heavily. The hands should move up when you breathe in, as if you are filling up a balloon. Avoid lifting the shoulders as you inhale; rather, breathe into the stomach.
4. Breathe out slowly to the count of “5.” Try to slow down the rate of the exhale. After the exhale, hold for 2-3 seconds before inhaling again.
5. Work to continue to slow down the pace of the breath.
6. Practice this for about 10 minutes.
7. This works best if you practice this two times each day for 10 minutes each time. Try to find a regular time to practice this each day.



Slow Diaphragmatic Breathing Tips:

1. The speed of the breath is more important than the depth of the breath. Avoid trying to “catch” your breath by taking really deep breaths.
2. Don’t use breathing exercises to “get rid of” the anxiety; use the breath to help get you through a tough situation, or practice it daily to “train in” a slower, calmer breathing style over time.
3. Practice! It takes time to learn how to calm the body using the breath.



Take home points:

Slow diaphragmatic breathing is one relaxation skill used in CBT. It is best used as a daily practice, like exercise, or as a way to get through a tough situation without leaving or making things worse. For best results, practice slow breathing twice a day for around 10 minutes each time.

Slow down the mind...

Mindfulness for relaxation and anxiety management

Take a moment to observe the photo to the right and then try this exercise:

Just describe what you see in completely *objective* terms. Just notice colors, shapes, shades, etc. Write what you see here:

Now notice the memories and thoughts that come up when you look at this picture. Allow your mind to wander as it will, and write down what “pops” into your mind as it comes up. Take 1-2 minutes to do this.

The techniques you were just using are called **mindfulness** skills. These are techniques that originate in Buddhist meditation practices, but they have been studied and used more and more by psychologists and physicians in the last 20 years or so to help people regulate their emotions and calm their minds. So how do they work?

It is not fully understood why mindfulness is so helpful, but we have some ideas. The goal of mindfulness is to describe all kinds of experiences *objectively* and *non-judgmentally*, focusing on the facts about the present moment. Sound familiar? It may remind you of **cognitive skills**, which are an attempt to gather evidence around a thought that triggers our anxiety, which lessens the power of that thought. Another way to lessen the power of the thought is to see it for what it is: just a thought. And one thing we know about thoughts is that they *change*. It is difficult to adequately capture the gist of mindfulness by trying to explain it, so try the exercise to the right.



Mindfulness Exercise

1. Sit quietly with your feet on the floor, or lie down, and relax your body. Begin with some **slow, diaphragmatic breathing**. Focus your mind on your breath as it flows in and out of your nostrils. Continue to follow your breath to whatever extent you can.
2. As you breathe, notice the tendency of the mind to wander. Instead of trying to focus just on the breath, *just notice what the mind does*. It may wander to a worry, or a memory, or to what you plan to do later today. You may notice sensations in your body, such as a pain or itch. You may hear or smell things. Just notice whatever happens and then gently bring yourself back to your breath. You can remind yourself that you will tend to these other things later, and for now you will just spend time paying attention to your breath and to your mind.
3. Allow the mind to wander as it will, time after time. Avoid the tendency to try hard to focus on something. Simply allow your mind to wander and then bring yourself back to your breath. Notice the tendency of your experience to *change*. Imagine that each thought, sensation, emotion—anything—is like a cloud floating through the sky, soon to be replaced by another one.
4. Continue to practice this for about 10 minutes. Depending on your schedule you can add time to your practice if you want. Practice once or twice a day.
5. Remember that there is no “right” way to do this, other than to just notice whatever comes into your consciousness. It is impossible to “fail” at mindfulness—just let your mind wander!

"I can't control my mind!"

On the last page we suggested that you “let your mind wander.” This may seem to be the opposite of what you have been told to do while trying to meditate or complete a task. We go into something expecting to have “control” of our minds.

We know from research that we cannot completely “control” our minds, no matter how hard we try, especially when we are feeling anxious. Why do you think this is true?

Think back to the “Anxiety 101” section of this manual where we described the function of anxiety to help protect us. When we are anxious, the **amygdala**, our anxiety center of the brain is trying to send off its “anxiety alarm.” One way it does this is by trying to alert us to the possibility that something is dangerous, either “out there” in the environment or inside our bodies. After all, if we are too focused on one thing, we could be hurt by something else! So the mind tries to distract us, making it very difficult to “control” the mind. In fact, you may find that the more you try to control it, the more the mind tries to distract you!



Having trouble getting “mindful?”

Try this: pretend your mind is like a movie screen. You are sitting in the movie theater, observing what is projected on the screen, but you are not in control; you just watch and follow what you see.

Try closing your eyes and just notice what images, thoughts, or memories get projected on that screen. They may be related or not—whatever gets projected is fair game! If you start feeling attached to the content of the “movie,” just notice that attachment and then let the movie continue to something else.



“Why should I practice mindfulness?”

Mindfulness techniques are an important part of CBT for the following reasons:

-Trying to “control” the mind is a futile endeavor. In fact, trying to control the mind often makes us feel worse, because we keep failing at it! The first step to any CBT intervention is to stop trying to control the mind through force; only after we do this are we prepared to influence the anxiety using CBT skills.

-Mindfulness helps us practice observing but not reacting to anxiety and other emotions. We learn to accept or tolerate these emotions, rather than trying to eradicate them.

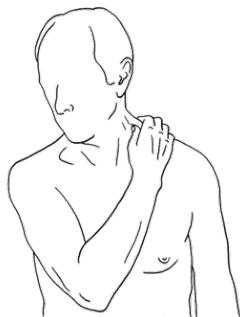
-Mindfulness helps to retrain the brain; by not reacting to the anxiety and not trying to fix it, we communicate to the amygdala that it is not dangerous. This is one way to work on addressing the “fear of fear.”

-When we stop and pay attention to the present moment, we listen to our anxiety “alarm.” If we give it time and keep from “fueling” the anxiety, the body can eventually learn that it does not need this alarm any longer, so it can turn it off.

Mindfulness: Take Home Points

Mindfulness is a relaxation strategy that can be helpful in calming the mind by reducing our tendency to try to control it, which often makes the anxiety worse. Mindfulness techniques focus on facts and objective information about current experiences, including emotions, thoughts, memories, and sensations. Our aim is to notice these experiences without judgment or any attempt to change them; we simply observe them, like clouds in the sky or the images on a movie screen. Mindfulness techniques are not likely to cure anxiety all by themselves, but they can be helpful if used with other CBT skills, and can provide a foundation upon which to develop these skills.

Progressive Muscle Relaxation



One way to think about relaxation is that it is the *absence of tension* in the body's muscles. Imagine being able to simply release your body's tension instantly without taking medication or having a drink! In the 1920's Edmund Jacobson, a Chicago physician, created a set of exercises aimed to do just that—he published his intervention in a book entitled *Progressive Relaxation*. What Jacobson knew to be true is that deep muscle relaxation is incompatible with our body's anxiety response. He worked with the knowledge that by consciously working to reduce muscle tension, we can actually influence how anxious we feel.

The aim of what we now call **Progressive Muscle Relaxation (PMR)** is to gradually learn to release tension in the muscles through daily exercises. This communicates calm and safety to our body, reducing the body's need to activate the “fight or flight” response.

Exercise

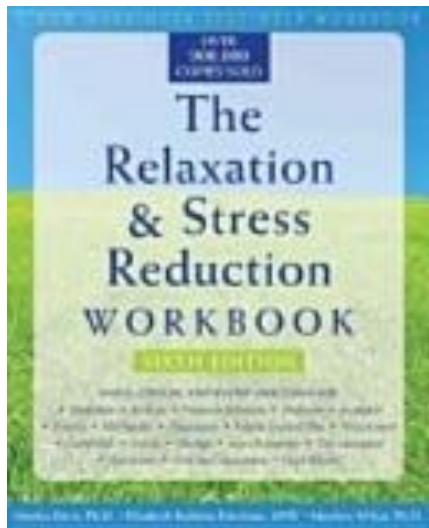
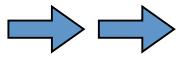
To get a taste of this, try tensing the muscles of the arms by “flexing” your biceps, as in the picture to the right. Tense your biceps hard enough to feel significant tension for between 5 and 7 seconds.



Now let go, dropping your arm to your side. Feel the difference between the tension you just felt and the relaxation that is coming over your arm now. You may notice the feeling of blood flowing to the arm, and a feeling of warmth. PMR involves doing this with each group of muscles in the body, as a regularly practiced exercise that takes effect over a period of time.

To get a full “dose” of Progressive Muscle Relaxation, **try the track “Progressive Muscular Relaxation”** on the Anxiety Disorders Program Website. This will take you about 16 minutes. This track will help you relax the body, one muscle group at a time. It is best to try to practice this for two weeks, once or twice a day. Some people find that it is helpful to do it in the morning when they wake up, or at night before going to bed.

After you try this, you can decide if you want to continue with **Applied Relaxation**, which is the program described on the next page. This program builds on what we have learned from Progressive Muscle Relaxation



Progressive Muscle Relaxation: Take Home Points

Progressive Muscle Relaxation (PMR) is a set of exercises aimed at helping us reduce anxiety and tension in the body. Through the practice of tensing and relaxing groups of muscles, we learn to feel the difference between tension and relaxation and release muscle tension when we feel it. It works best if practiced regularly. As with any skill, relaxation takes time and practice to master.

Applied Relaxation (see the next page) builds on the skills learned in PMR to more quickly reach a relaxed state, even under stressful circumstances.

For more information about Progressive Muscle Relaxation and Applied Relaxation, refer to **Davis, Robbins, and McKay's Relaxation and Stress Reduction Workbook**, which has written scripts for these techniques.

Applied Relaxation

The Swedish physician **L.G. Öst** took the principles of Progressive Muscle Relaxation and developed **Applied Relaxation**, a program that aims to increase our ability to relax quickly, even in stressful circumstances. This is a set of skills that takes time to develop—as you can see from the outline of the stages below, each of the stages of treatment involves one to two weeks of practice. Full scripts of this program are available in **Davis, Robbins, and McKay's *Relaxation and Stress Reduction Workbook***.

1A: Progressive Muscle Relaxation

Progressive Muscle Relaxation (PMR) is the basic skill (this is discussed further on the previous page). While guided by a therapist (or recording), a person practices tensing and then relaxing individual muscle groups, which releases tension and makes one more aware of the difference between tension and relaxation. It is good to practice in the morning or at night before going to bed. Try practicing it one or two times per day for two weeks before expecting to see results.

6. Applied Relaxation

This final stage uses the same techniques used in Stage 5, now applied to more stressful situations, including those that involve some degree of anxiety.



5. Rapid Relaxation

Rapid Relaxation allows us to bring the time to relaxation down to 20-30 seconds. We learn to pick something in our daily life with which we have contact regularly, such as a clock or watch, and associate this cue to the relaxation we have learned in the previous stages. Some people find it helpful to put a piece of colored tape on whatever cue they pick. It works best if we can practice this 15-20 times a day in *normal, non-stressful situations*.

You will know when you are ready to move on to the next step when you can bring a sense of relaxation to the body within 20-30 seconds.



Applied Relaxation

Stage 1A: Progressive Muscle Relaxation (PMR) (Track One): 2x per day in 18 minute increments for 2 weeks.

Stage 1A: PMR Shorthand Procedure (Track Two): 2x per day in 7-8 minute increments for 2 weeks.

Stage 2: Release-Only Relaxation (Track Three): 2x per day in 5-7 minute increments for 1-2 weeks.

Stage 3: Cue-Controlled Relaxation (Track Four): 2x per day in 2-3 minute increments for 1-2 weeks.

Stage 4: Differential Relaxation (Tracks Five and Six): 2x per day in 10 minute increments

Stage 5: Rapid Relaxation (Track Seven): Practiced multiple times a day in the flow of daily life.

Stage 6: Applied Relaxation (Track 8): Here the goal is to learn to relax quickly under actual stressful circumstances.



1B: Progressive Muscle Relaxation: "Shorthand Procedure"

Once a person has mastered the basics of Progressive Muscle Relaxation, we can begin to learn to reach this relaxed state more quickly, by tensing and relaxing larger groups of muscles at one time. This shortens the time to do the exercises to 8 to 9 minutes.



2: Release-Only Relaxation

In this phase of Applied Relaxation treatment, we take out the “tensing” step, to learn to release muscles and feel relaxed even more quickly-- in around 5-7 minutes.



3: Cue-Controlled Relaxation

Cue-Controlled Relaxation reduces the amount of time to deep relaxation. We learn to be able to relax whenever we choose, for example, when we say the word “relax.” It is possible to reduce the time to relaxation to around 2-3 minutes in most cases.



4. Differential Relaxation

The goal of **Differential Relaxation** is to help one learn to relax in the midst of daily activities. Most daily activities involve use of some muscles but not others. In this step we learn to isolate the muscles we need for a specific task and relax the rest of our body. In this way we can learn to incorporate relaxation into the flow of daily life.

Finding Relaxation Strategies that Work for You

Imagine that you are at a supermarket shopping for breakfast cereal. So many choices! Some people like a simple granola, others enjoy their cereal sweet, and others like something with fruit in it. You might choose something you've enjoyed before, or you might try something new because it looks like it would be tasty or nutritious.

When it comes to relaxation strategies, there are many options. We have to find the ones that work for us. So far we've introduced three available "brands" of relaxation: **breathing, mindfulness, and Progressive Muscle Relaxation**.

You may have listed some relaxation strategies that work for you in the section: "Relaxation Strategies: When? How? Why?" Below we list a number of other popular, formal relaxation strategies that have been used successfully by others. You might try some and add them to your list!



"Soothing" Activities

- Sounds: music you enjoy; ambient music; "new age," repetitive music; sounds of nature, such as babbling brooks or ocean waves
- Smells (Aromatherapy): incense, candles, etc.
- Sights: Visualization: beaches, falling leaves, etc.
- Nature: hiking, swimming, parks, etc.



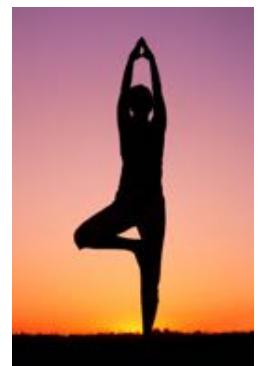
"Mind-based" Relaxation Strategies

- Meditation (**Mindfulness meditation**, Transcendental Meditation, etc.)
- "Body Scan"/body awareness exercises
- Prayer
- Autogenics



"Body-based" Relaxation Strategies

- Slow-paced diaphragmatic breathing
- Yoga
- **Progressive Muscle Relaxation and Applied Relaxation**
- Massage
- Hot tubs, hot baths, or sauna



Did you know?

Yoga is a well-established, historic discipline that incorporates a powerful combination of mental and physical elements: breathing, stretching, meditation, and strengthening exercises, aimed at improving physical and mental well-being. It involves a series of challenging body positions that stretch and strengthen muscles. It is best learned by taking a class with a certified yoga instructor, and has many benefits, both physical and mental.

On this page we introduced some of the structured approaches to relaxation that have been used successfully by others over the years. However, some of the most relaxing activities are those that we enjoy, or make us feel good because we are good at them and can be creative or skillful. On the next page we discuss **mastery** and **pleasure**, two important elements of living a relaxing and enjoyable life.



A Life Worth Living: Pleasure and Mastery

If someone were to ask you “What do you do to relax?” it is likely that you would say something like “I like to hang out with friends,” “I watch TV,” or “I play golf.” While these are not formal relaxation strategies, they bring us pleasure and/or make us feel good about ourselves; we certainly feel more relaxed when that is the case. These are the things that the anxiety tries to take away from us, which is even more of a reason to spend time doing them!

For the purpose of exploration here, we outline two important generators of good feelings: pleasure and mastery. **Pleasure** involves activities, or “play” that we enjoy for the sake of the activity itself. **Mastery** involves activities, such as work or sports, that involve the development of skills; we are able to accomplish things and feel a sense of mastery over our environment. When enjoyed in moderation and diversified well with other activities, they can increase positive emotions and improve how we feel about ourselves.

“Pleasure”

Hobbies and other “play”

- Reading
- TV, movies, plays
- Dancing
- Playing or listening to music
- Board games or cards
- Arts and crafts, sewing, painting
- Cooking
- Walking, hiking, enjoying nature, fishing
- Sports (basketball, softball, swimming, etc.) or going as a spectator
- Martial arts (karate, etc.)
- Museums/zoos
- Video games
- Traveling, sightseeing, going to the beach, sunbathing
- Shopping
- Gardening/decorating
- Photography
- Comedy: TV, recordings, live
- Religion or spirituality



List enjoyable activities in which you take part now or have enjoyed in the past. Add others from the list above that appeal to you or others that you think you might enjoy:

1. _____
2. _____
3. _____
4. _____
5. _____

“Mastery”

Job or Meaningful Daytime Activity

Look for or attempt to develop some of these qualities in your occupation, volunteer work, or other meaningful daytime activity:



- Enjoyment
- Creativity
- Feelings of competence (able to accomplish tasks satisfactorily)
- Potential for development of skills
- Ability to “move up” in the organization or take on more responsibility, if this is desired
- Social contact with coworkers, colleagues, others in the field



Other skill-based activities

- Sports
- Music practice and performance
- Home improvement/building
- Woodworking
- Visual art (painting, drawing, pottery, sewing, knitting)
- Learning about interests (history, politics, food, language, culture, etc.)

List skill-based activities, such as work or sports, that are a part of your daily routine and lead to positive feelings and a sense of self-worth. Choose others from the list above or fantasize about possible activities that seem rewarding. Write them here.

1. _____
2. _____
3. _____
4. _____
5. _____

"Self-care:" An Important Weapon In Our Fight Against Anxiety

As we have discussed throughout this manual, battling anxiety requires a multifaceted strategy; we have to "unite our forces" to keep anxiety from interfering with our life aims. CBT supplies us with some of the ammunition to wage this battle, but other lifestyle factors are important, as well. Below we discuss some of these factors; consider them when assessing your challenges with anxiety and consider trying out some changes to see if they help.

Moderate and Balance Coping Skills

Address anxiety from a variety of different angles by confronting fear, problem solving, accepting that which cannot be controlled, and modifying thinking when necessary. Take care of the body and mind, addressing the important elements of self-care listed below. Remember that "diversity" is the cardinal rule when it comes to coping with challenges; the more skills and coping methods we have, the more flexible we can be when challenges arise.

Avoid or limit use of "mind altering drugs"

Be aware that all drugs that alter state of mind such as alcohol, caffeine, nicotine, marijuana, other illicit drugs, can exacerbate anxiety in both the short and long term. Discuss your use of these substances openly with a prescribing clinician to understand better your own risk factors.

Treat Mental Illness

Learn to manage anxiety using CBT skills. Treat other forms of mental illness if they interfere with your life. If the therapy you try does not seem to be working, try another therapy style or therapist. Consider a "combination therapy," which combines a assortment of therapy skills, medication, and self-care.

Diet

Eating a balanced diet helps us maintain health, improves energy, and contributes to good mood. Be aware of the quality of your food, as well as how much you eat; eating either too much or too little can affect how you feel on a daily basis.

Sleep

Research has shown that most people need an average of about 7 hours of sleep per night. Sleeping well is an important aspect of managing anxiety. Talk to your doctor or therapist about a referral for a consultation with a sleep expert if you suffer from insomnia or sleep apnea.

"Slow down"

Ask yourself: "Has there been a day this week in which I did not "rush" at all? Keeping a constant fast pace in activity, whether walking, working, or even planning leisure activities, communicates a sense of urgency to the brain, raising blood pressure and tension in the body. This has an impact on our anxiety from day-to-day. Practice "slowing down" your pace of life consciously to reduce this sense of urgency.

Goal Setting

Set realistic goals in line with your life aims. Strive for balance of meaningful work, interpersonal (family and friends), and enjoyment-oriented goals. Remember to take one small step at a time to reach larger goals.

Treat Physical Illness

Scientific research shows a connection between physical health, mood, and anxiety. Learn about your family medical history, go to the doctor as needed, and take prescribed medications.

Time Management

Set realistic goals about what can be accomplished in a certain amount of time. Avoid multi-tasking excessively. Plan your day with enough time left over to sleep enough, exercise, and enjoy a leisure activity. If you feel that you have trouble managing your time, discuss it with a therapist or life coach.

Social Support

When we feel supported by others, we feel more safe, secure, and happy. One important approach to treating anxiety is to reduce symptoms; another way is to increase positive experiences, especially with people that help us feel good about ourselves.



My Relaxation Plan

Use the following worksheet and design your own relaxation plan to begin incorporating relaxation skills into your daily life. Be specific and come up with as many choices as you can imagine—remember that not all strategies will “stick,” but in time you can find the ones that feel best to you. The only thing left to do is give them a try!

My Relaxation Plan **(how I plan to incorporate relaxation into my daily life)**

Formal relaxation exercises (Progressive Muscle Relaxation, Mindfulness, Slow Diaphragmatic Breathing, Yoga):

How often (days per week, time of day, etc.): _____

Pleasure and Mastery (activities I enjoy, socializing, things I am good at):

Self-care (see the section on “Self-care” and write down examples that would improve your life):

Other soothing activities: _____

Are there any aspects of my lifestyle (time management, too many projects, etc.) that increase my level of tension and anxiety on a daily basis?

What could be modified? _____

How would my life improve if I incorporated some of the elements above into my daily life?

What is one thing I can do today or tomorrow to make a small step toward more relaxation in my daily life?

Relaxation

Summary

Relaxation strategies battle anxiety from the standpoint of the body. They are just one set of exercises used in CBT.

We discussed **what relaxation strategies are** and how we can use them to help us battle anxiety symptoms. We learned that relaxation strategies work best if they are **practiced over the long term**, like exercise, to reduce muscle tension, slow down the pace of breathing, and “slow down the mind.”



Relaxation strategies are not ultimately helpful as a way to reduce severe anxiety symptoms, such as panic, when these symptoms arise. Relaxation skills are **used in combination with the cognitive and behavioral skills** discussed throughout this manual. Cognitive therapy and exposure skills work to retrain the brain to have fewer anxiety triggers. Relaxation exercises are not very effective at “retraining” these triggers, which is why they are not typically enough on their own to teach the brain that it can let the “guard” down.

We discuss **breathing skills**. The most important element of breathing is **slowing down the pace of the breath**, which takes practice, especially if anxiety is in the picture.



We introduced **mindfulness** skills, which are techniques that aim to “slow down the mind.” We learn to see thoughts and feelings for what they are—thoughts and feelings—that come in and out of our awareness. By allowing them to come and go without trying to “fix” them, we communicate less urgency and more “calm” to the body.

Progressive Muscle Relaxation (PMR) involves tensing and relaxing groups of muscles to learn to better understand the difference between tension and relaxation. Through a program called **Applied Relaxation**, we can learn to do this more and more quickly with practice.

There are many formal relaxation strategies, and each person may find something different that works for them. The important thing is to **find the strategies that work for you** and practice them consistently over time.

Some of the most relaxing activities are those that involve things we enjoy or are good at. “**Pleasure**” and “**mastery**” feel good, so doing more of these things can only help! The anxiety often gets in the way of some of these things, but avoiding pleasurable activities is likely to make things worse. It is important to incorporate some of these activities into our daily lives on a regular basis.



Finally, we review important elements of **self-care**, such as exercise, diet, and time management. It is difficult, for example, to feel relaxed when we do not get enough sleep or are too busy. Slowing down the pace of life and taking care of our bodies can help us feel more relaxed from day-to-day.

So now what?



So far we have discussed many of the skills used in CBT. Our final step is to learn how to put them all together and manage anxiety over the long term. That’s what the next section, “Anxiety Management,” is all about. We’ll also learn about the CBT treatment options that we offer here at U of M. It’s time to take your life back from anxiety by formally starting your CBT treatment!

Notes

Notes

Anxiety Management

Managing the “Tug of War” with anxiety and stress

“Courage is resistance to fear, mastery of fear—not absence of fear.”
~Mark Twain

Now that we've learned about many of the skills you'll see in CBT, let's talk about how to put them all together. This section uses the analogy of a “tug of war” to describe our **battle with anxiety and stress over time**. The information in this section helps us approach treatment of anxiety in a realistic, effective way. This especially applies to treatment of anxiety over long periods of time—periods in which it is inevitable that we will experience stress of some sort or another.

We talk about the **balance between risk and protection** that underlies each decision we make, and how these decisions make us more or less vulnerable to anxiety. We also spend time in this section discussing what “causes” anxiety, the **risk factors** that make us more vulnerable to it, including genetics and stress.



We briefly discuss some “other” CBT skills for anxiety, **problem solving** and **acceptance skills**.



At the end of this section we also describe the **CBT treatment options available to you at the University of Michigan Anxiety Disorders Clinic** to help you with the next steps in your journey to free yourself from anxiety.

Tug of War:

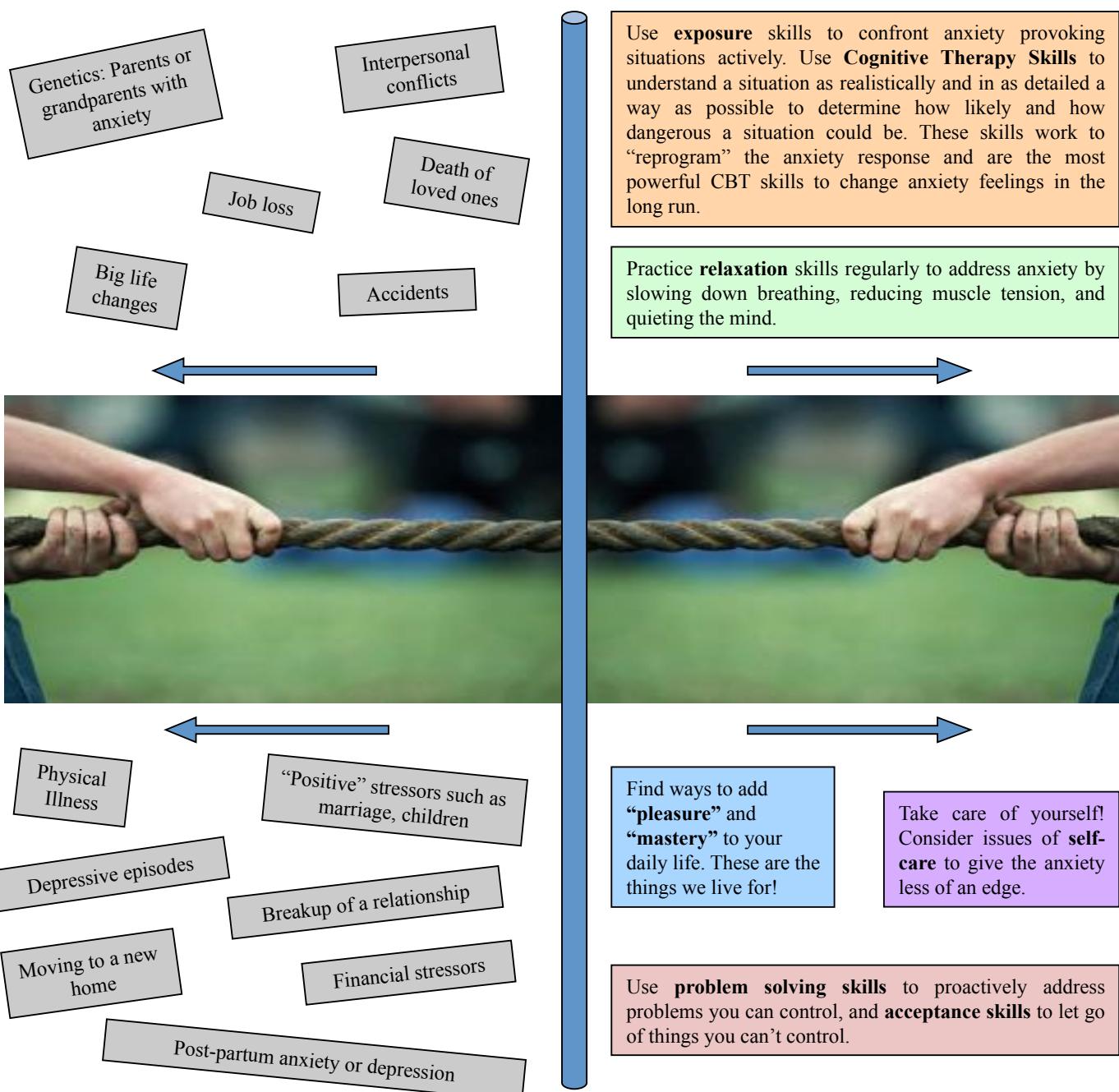
Managing anxiety over the long term

Think back to the last time you had a “tug of war” at a fair or on the beach. Your team has some influence on the outcome; but the other team may (or may not...) make things hard for you to achieve your aim.

Managing anxiety over the long term can sometimes feel like a “tug of war.” Despite our attempts at creating a happy, comfortable life, there is always the possibility that some “external stressor,” like an accident, job loss, or interpersonal conflict, could arise. One important goal of CBT skills is to give us confidence that we can cope with these unexpected stressors when they happen.

The opponent in a game of “tug of war” is as integral to the game as stress is to our lives. And just as it is in the game, we can only win if we participate. Participation in the game of life means accepting stress and finding ways to manage it to achieve our life aims. The diagram below may help you to understand how to use CBT skills to assist you in your “tug of war” with stress.

To the left are **stressors** that are often outside of our control; on the right are the **coping skills** we need to keep the anxiety from interfering with our life aims.



Another way to look at our battle with stress and anxiety is to try to **balance** a normal desire for protection with a hope of achieving certain life aims. This may seem like an abstract concept, so let's look at some specific examples of balancing risk with life aims.

Should I take the chance? Or...

How often do you drive or ride as a passenger in a car? Probably every day! Automobiles have changed how we live our lives; they are convenient and help us achieve our life aims quickly and efficiently. It is hard to imagine living without them.



Of course, driving or riding in a car involves some risk. According to the United States Department of Transportation, there is a 1 in 84 chance of being killed in an automobile accident at some point in our lives. So why do we take this risk?

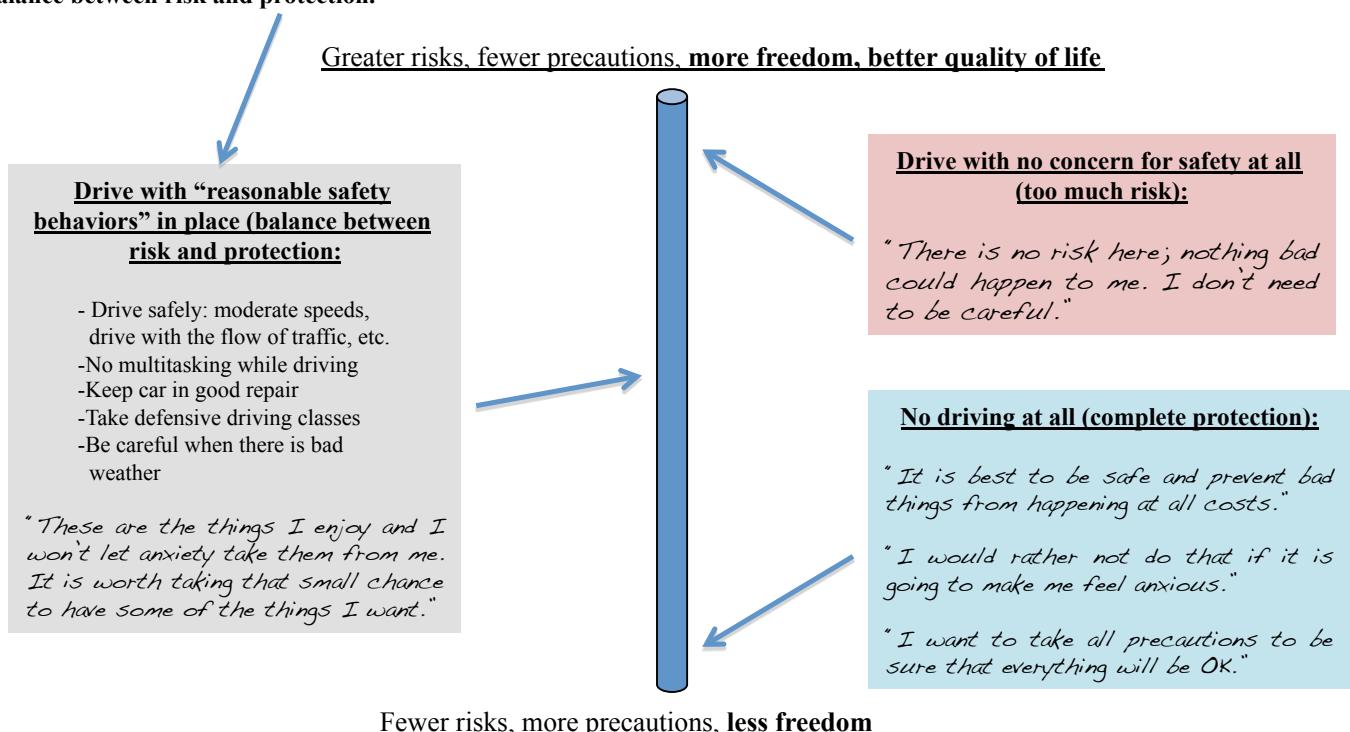
It must be worth it to take this chance. We take the small risk of getting into an accident in order to take advantage of the benefits automobile travel can afford us. Of course, the fact that it is relatively unlikely certainly helps!

Every day we take risks to reach our life aims. While we probably aren't noticing this process, we have "pros and cons" playing in our head about most decisions we make. Check out the example below:

Pros and Cons: Driving or riding in a car

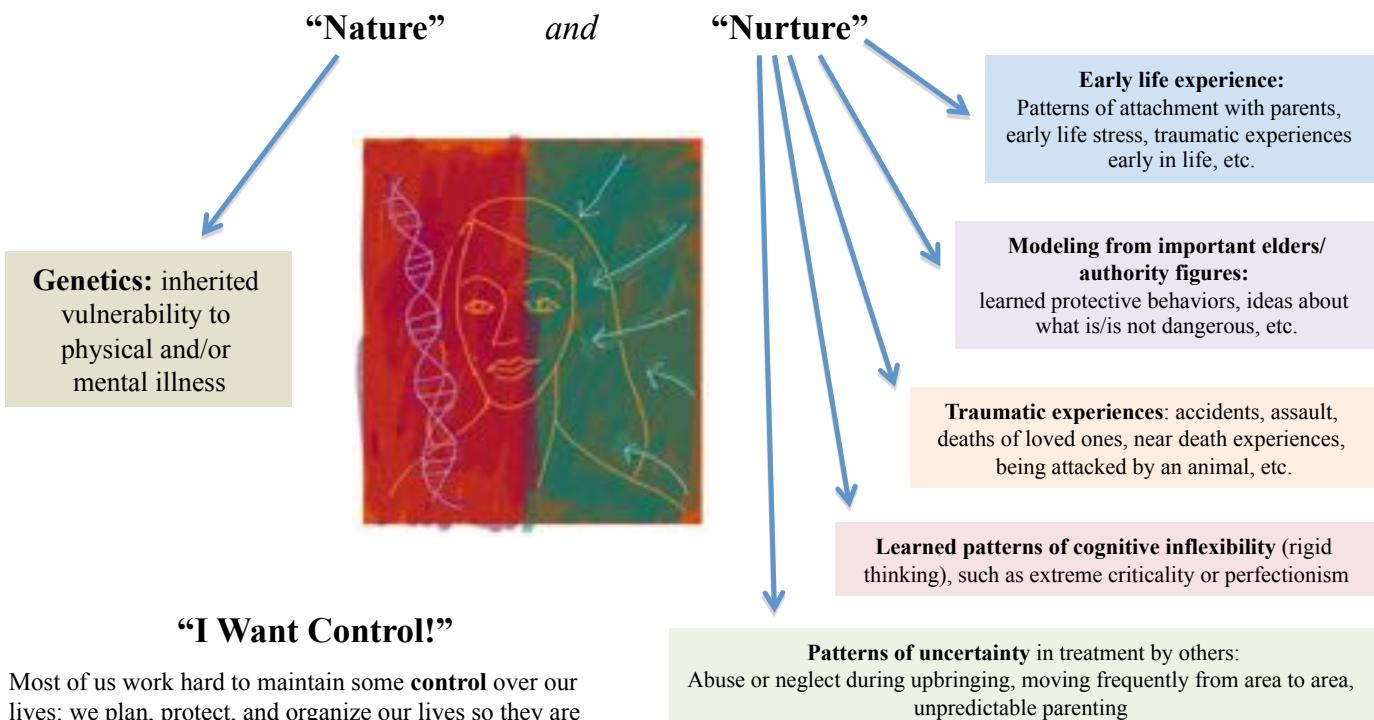
"Cons"	"Pros"
<ul style="list-style-type: none"> 1. Small chance of getting hurt or killed in an accident 1. Costs associated with driving (gas, repairs, etc.) 	<ul style="list-style-type: none"> 1. Get to destination faster 2. Accomplish more of my goals each day: work, daily chores, fun and hobbies, etc. 3. Increase number of activities that are available to me

As the above example illustrates, our lives are filled with decisions about when to take risks and when to protect ourselves. Usually we are trying to find a balance between protection and risk. We try to have as much as we can without increasing the chance of harm too much. There are many options. Below, we illustrate this continuum and decisions we make that move us more toward risk (and more freedom) or protection (and less freedom). It is our choice to decide how much risk to take most people try to find a **reasonable balance between risk and protection**.



Nature or nurture? Revisited...

In the “Anxiety 101” section of this manual we briefly discussed the causes of anxiety. While there are many factors that lead to an anxiety problem, we know that our vulnerability to anxiety is related to *both* “nature” and “nurture.” **Nature** is what we inherit from our parents: our genetics. **Nurture** is life experiences. **Risk factors** (genetics or experiences that make one more “at risk” for developing anxiety) are a mixture of these two basic elements. Below we list some of the most common risk factors for anxiety.



While there are some things in our lives that we can successfully control, there are other things that we cannot. In fact, we may find that the more we try to control some things, the more this control eludes us.

One thing that is very hard to control completely is our body; sometimes it seems as if we experience a constant influx of pain, anxiety, emotion, and thought. The truth about these automatic impulses is that we cannot completely control them, no matter how hard we try. Once a thought comes into our head, it is there; once an emotion happens, it happens. As we have learned at times earlier in this manual, trying to get rid of thoughts and feelings often makes them last longer or grow in intensity. However, our *responses to these impulses can influence how we experience the anxiety in the future*. We use skills learned in CBT to influence the anxiety in this way.

It is for this reason that in CBT we frame anxiety management as an effort to *influence* the anxiety, through skills and adaptive responses to it, rather than to “control” it. Complete control is impossible, but at the least we can manage the symptoms of anxiety, which are likely to come up from time to time. Look at the quotations below to further understand this difference.

Influence

- “While my decisions have a part to play in how things turn out, there are some things out of my control.”
- “I can’t prevent thoughts and feelings from happening, but my responses to these impulses can influence how I experience the anxiety in the future.”
- “Learning to cope with hardships is a part of life. I can respond well to make it the ‘best case scenario’, whatever happens.”

Control

- “If I work hard enough, I can make things just right.”
- “I need to be sure everything will be safe at all costs.”
- “If there is even the slightest chance something bad could happen I do not want to do it.”
- “I hope nothing bad happens today.”

Exercise #1: “How I can balance my anxiety vulnerability with coping skills”

Vulnerability factors

(Check the ones that apply to you)



- Genetics** (family member with anxiety or depression)
- Traumatic experiences** (especially in early life)
- Modeling of important elders/authority figures** (how we learn what is/is not dangerous)
- Learned patterns of cognitive inflexibility** (rigid thinking such as extreme perfectionism)
- Patterns of uncertainty in treatment by others** (parents, elders, etc.)

Skills I can use to manage anxiety and balance my vulnerability

- Exposure skills** (confront anxiety to desensitize triggers and achieve aims)
- Cognitive skills** (challenging negative automatic thoughts)
- Relaxation strategies** (slow diaphragmatic breathing, mindfulness meditation, Progressive Muscle Relaxation, etc.)
- Self-care** (exercise, diet, sleep, manage illnesses, limit use of substances, etc.)
- Mastery and Pleasure** (time to enjoy activities, achieve life aims)
- Problem solving and acceptance skills** (adaptively address problems and accept things we cannot control)

Exercise #2: See the connection between stressful life events and anxiety/depression

Think about times in which you were particularly anxious or depressed and write them on the left. What external stressors were going on at the time? Write those on the right. While our own anxiety sensitivity is one factor in developing an anxiety problem, stress usually plays a role!

Time of life (e.g. “When I was 16”)

External stressors (e.g. grandfather passed away)



“Tug of War” Take Home Points:



Managing anxiety over the long term can feel like a “tug of war;” as we have experienced stress in the past, it is also likely to come up in the future. One important goal of CBT is to understand our vulnerability to anxiety and use coping skills to offset this vulnerability.

We all have to find our own balance of “risk” versus “protection” to achieve our life aims. While we all would like to be completely safe, there is always some risk in each decision we make. With CBT we learn what risks are worth taking to reach our aims.

Problem Solving and Acceptance: the “other” CBT Skills

When a problem arises, there many possible responses. As we have discussed throughout this manual, some responses to anxiety and problems can help to solve these problems; others can serve to make things worse. Below we describe three ways of addressing a problem. One approach may work best, or all three may apply. The “take home point” here is that all situations are different, and require different types of approaches to help you meet your life aims.

Adaptive Response #1: Problem solving (actions/behaviors)

Sometimes the best answer to a problem is working to “solve” the problem somehow—it is not a problem with our thinking or behavior, it is a problem with the external circumstances. For example, if someone is consistently aggressive or abusive of us, we may want to find a way to set firm limits with that person or leave the relationship altogether. There are many problem solving skills, some of which are outlined below:

- Exposure skills to address avoidance
- Assertively address interpersonal conflicts
- Take small steps to make progress on long-term projects
- Plan for the future
- Manage your time effectively
- many others...

Talk to your therapist or group leader about other behavioral skills to directly address problems that arise.

How to take action to solve a problem

1. Write down clearly what the problem is.
2. Brainstorm about ways to solve the problem, even “ridiculous” ways, writing down all possibilities.
3. Rank the possible solutions in order, from best to worst. Think “how likely is it for this approach to work?”
4. Decide on a plan of action for each reasonable solution. Rate how probable it would be each each plan to work.
5. Pick the most reasonable plan and put the plan into action. If it doesn’t work, go to the next best solution and try that one. Continue to try until you solve the problem.

Adaptive Response #2: Get the facts (thinking)

Use cognitive skills to better understand the “facts” of a situation. Perhaps there is a problem, and perhaps there is not. Sometimes the first step is to understand the facts of a situation, and then decide whether or not to use problem solving skills (above) or accept things that are outside of our control (below). See the section on “Cognitive Therapy Skills.”

Adaptive Response #3: Accept what cannot be controlled (letting go)

There are times that we believe we should be able to control something, yet our consistent attempts to do so are met with failure. This “beating a dead horse” makes us more and more frustrated, angry, anxious, and depressed. Sometimes letting go of things we cannot control is necessary to prevent problems from getting even worse; we also lift some of the burden of failing over and over.

How do I know what to do to make it better?



Sometimes it is difficult to know which approach to take to make a situation better. While it is ultimately an individual decision, one that may take trial and error, therapy is a place to work out some of these difficult choices. The various skills in CBT are meant to help us get some clarity around some of these decisions. While we don’t have room in this manual to discuss in detail how to make these decisions, this is something to discuss with your group or individual therapist as you move through treatment.

CBT Treatment at the University of Michigan Anxiety Disorders Clinic

Cognitive-Behavioral Therapy is an effective, evidence-based treatment that has been proven to have an impact on anxiety in both the short and long term. Our clinic specializes in delivery of this intervention to people like you, who want anxiety to stop interfering with their lives. Below we explain some of what to expect from CBT treatment.

Cognitive Behavioral Therapy...

...is **regular**. It works best when you come to treatment once per week for most of the treatment course. It is common to go to once every other week or once a month once the symptoms have been reduced and you have entered the “maintenance” period of treatment.

...typically **lasts for between 12 and 16 sessions**. Depending on the problem, it may take more or less. This is not a treatment that is meant to last for significant amounts of time.

...is **structured**. This is not the style of therapy in which one comes into the session only to “vent” or have someone with whom to talk. The treatment is focused specifically on treatment aims, which usually include reducing the impact of anxiety on our lives and feeling better, by learning skills and techniques to respond to anxiety when it arises.

...has a **variety of skills**. As you may have noticed from this manual, there are different ways to manage an anxiety problem. Most people find it helpful to use a variety of skills, instead of searching for just one “silver bullet.” *There is most likely not just one answer to your anxiety problem.* However, the anxiety symptoms can usually be managed well if one practices *multiple skills* repetitively over time and incorporates them into the flow of daily life.

...requires **practice**. Call it homework, daily practice, or whatever you choose. Regardless, it takes daily repetition to learn skills and retrain one’s anxiety response. A rule of thumb is to expect to spend **about one hour a day** practicing CBT in between sessions. We want you to feel better outside of sessions and after you finish treatment, not just while you are at our clinic.

...depends on **follow-through**. The most important factor in whether or not treatment works is the amount of work you put into it. Consider it an investment in a future with more freedom and flexibility.

...is **collaborative**. Individual and group CBT are structured, but are also centered around *your* life aims. The patient and therapist work together to define treatment targets, adapt skills to the patient’s unique circumstances, and troubleshoot as barriers arise. If certain skills do not work, it is common to try others. If something does not seem to be working, one can discuss this with the therapist or group leader. Communication is an important part of CBT.

...is **evidence-based**. This means that the concepts and skills are based on scientifically-validated concepts, and the interventions have been tested to be sure they are helpful.



On the next page we discuss the different treatment options at this clinic to continue with CBT once you finish the basic group. 

What do I do after the CBT Basic Group for Anxiety?

Option 1: Cognitive-Behavioral Therapy Treatment Groups

A popular option for the next step in treatment is our CBT Treatment Groups, which takes the skills we discussed in the Basic Group one step further. These groups focus on the two main skill sets of CBT, Exposure and Desensitization and Cognitive Therapy Skills. Individuals that take part in these groups are asked to share with the group their treatment targets and anxiety triggers, while designing cognitive and behavioral interventions to address specific problems. Patients are expected to practice skills in between sessions.

Each group meets for one month of weekly sessions at a time, and the two groups alternate months. For example, the Exposure group may meet in January for four sessions, and the Cognitive Therapy Skills group meets in February for the same amount. This pattern repeats. If a patient wishes to take part in both groups they may, and they are encouraged to repeat groups to get more experience and practice with CBT skills.

The Exposure and Desensitization groups are ideal for patients with panic disorder, agoraphobia, social anxiety, obsessive-compulsive disorder, and specific phobias. Patients with generalized anxiety disorder are encouraged to attend this group, but may find the most benefit from the Cognitive Therapy Skills group.

The Cognitive Therapy Skills group is ideal for chronic worry, generalized anxiety disorder, social anxiety, panic disorder, and specific phobias. Patients with Obsessive-Compulsive Disorder (OCD) may find this group helpful, but the primary mode of treatment for OCD is exposure.

Patients with a primary diagnosis of Post-Traumatic Stress Disorder (PTSD) are encouraged to pursue individual therapy, which typically involves an exposure-based mode of treatment called Prolonged Exposure for PTSD. Talk to your referring clinician or group leader about this option if you are interested.

Option 2: Individual Cognitive Behavioral Therapy

If treatment groups are not the best option for you, another option is individual therapy. Individual CBT therapy is recommended if you cannot attend the CBT Treatment Groups due to a schedule conflict. Also, some anxiety problems are best treated in individual therapy. If you have a question about whether to attend groups or individual therapy, talk to your CBT Basic Group leader or the clinician that referred you to the group. If it is determined that individual therapy would be most helpful for you, we will discuss your case in the Anxiety Team Meeting on the following Monday and get back to you with our recommendations and referral options.

Option 3: Some other form of psychotherapy

CBT is not for everyone. If after you complete this group you realize that you are not interested in group or individual CBT, talk to your referring clinician about other therapy options. Some of these options include group and individual therapy aimed at addressing such problems as relationship issues, depression, and Bipolar Disorder. Whatever your problem, the best option is to discuss what you are looking for with the clinician that worked with you at your initial evaluation. You can also ask your Basic Group Leader for advice about this. For some, we recommend a one-session “therapy evaluation” with an experienced clinician to help make decisions about the next steps in treatment with us.

Option 4: Individual therapy evaluation

For some, especially anyone that is confused about which direction to go with their treatment, we recommend a one-session “therapy evaluation” with an experienced clinician to help make decisions about the next steps in treatment with us. Let us know if you are interested in this option.

What about medication?

Research suggests that the most effective treatments for anxiety often involve a combination of therapy with some sort of psychotropic medication, usually an antidepressant. Sometimes a medication can be helpful in reducing some of the most painful anxiety symptoms in order for a patient to better take advantage of therapy. That being said, medication is not typically a “cure” by itself, but can be used in combination with other forms of treatment to manage anxiety. Your psychiatrist or nurse practitioner is the expert on this subject. If you have not had a medication evaluation, you can tell the person who referred you to this group or your group leader that you are interested in exploring this option. Just let us know!



Congratulations!

Congratulations on finishing the CBT Basic Group for Anxiety! We hope the group was helpful in explaining the basics of CBT and preparing you for the next steps in your treatment. Please let us know if there is anything we can do to help you with these next steps in treatment.

Your understanding of the material in this manual before the next steps of treatment will enhance your response to CBT treatment. If you haven't already, try some of the exercises in the manual to further clarify your treatment aims and start seeing how these skills may be helpful for you.

Also, see the "Resources" section for further reading and other media on anxiety and CBT.

Good luck with your treatment!

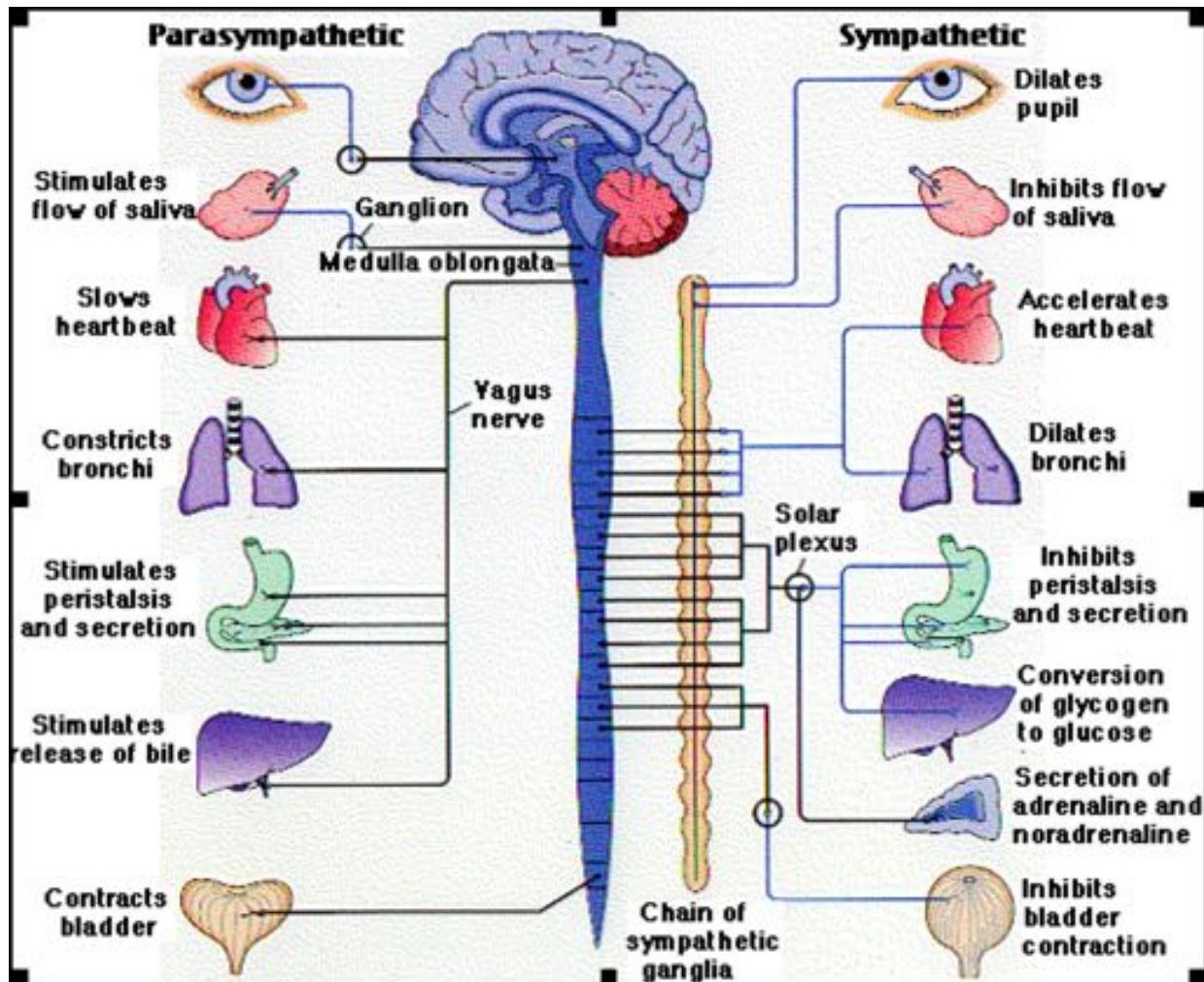


Notes

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Appendix I

The Biology of “Fight or Flight”



Appendix II: Cognitive-Behavioral Therapy Resources for Anxiety

Workbooks and Self-help Books by Disorder

Comprehensive Self-help Workbooks for All Anxiety Disorders:

- Bourne, Edmund: *The Anxiety & Phobia Workbook* (Fourth Edition)
- Bourne, Edmund: *Coping with Anxiety: 10 Simple Ways to Relieve Anxiety, Fear & Worry*
- Burns, David: *When Panic Attacks: The New Drug-Free Anxiety Therapy That Can Change Your Life*
- Davis, McKay, Eshelman: *The Relaxation and Stress Reduction Workbook*
- Farchione, Fairholme, Ellard, Barlow, Boisseau, Allen, May: *Unified Protocol for Transdiagnostic Treatment of Emotional Disorders* (workbook) from the "Treatments That Work" series
- Ramirez-Basco, Monica: *Never Good Enough: How to Use Perfectionism to Your Advantage Without Letting it Ruin Your Life*
- Smits, Jasper and Otto, Michael: *Exercise for Mood and Anxiety Disorders*
- Otto, Pollack, Barlow: *Stopping Anxiety Medication: Panic Control Therapy for Benzodiazepine Discontinuation*

Generalized Anxiety Disorder

- Craske, Michelle and Barlow, David: *Mastery of Your Anxiety and Worry* (workbook) from the "Treatments That Work" series
- Brantley, Jeffrey: *Calming Your Anxious Mind: How Mindfulness and Compassion Can Free You from Anxiety, Fear, and Panic*
- Davis, McKay, Eshelman: *The Relaxation and Stress Reduction Workbook*
- Ramirez-Basco, Monica: *Never Good Enough: How to Use Perfectionism to Your Advantage Without Letting it Ruin Your Life*
- Benson, Herbert and Proctor, William: *Relaxation Revolution: Enhancing Your Personal Health Through the Science & Genetics of Mind Body Healing*
- Lackner, Jeffrey: *Controlling IBS the Drug-free Way: A 10-step Plan for Symptom Relief*

Post-Traumatic Stress Disorder

- Foa, Edna: *Reclaiming Your Life From a Traumatic Experience* (workbook) from the "Treatments That Work" series
- Hickling, Edward, and Blanchard, Edward: *Overcoming the Trauma of Your Motor Vehicle Accident* (workbook) from the "Treatments That Work" series
- Olasov, Barbara and Foa, Edna: *Reclaiming Your Life After Rape: Cognitive-Behavioral Therapy for Posttraumatic Stress Disorder* (workbook) from the "Treatments That Work" series
- Williams, Mary Beth and Poijula, Soili: *The PTSD Workbook: Simple, Effective Techniques for Overcoming Traumatic Stress Symptoms*
- Follette, Victoria and Pistorello, Jacqueline: *Finding Life Beyond Trauma: Using Acceptance and Commitment Therapy to Heal from Post-Traumatic Stress and Trauma-Related Problems*
- U.S Department of Health and Human Services: *Directory of Services and Resources for Survivors of Torture*

Specific Phobias

- Antony, Craske, and Barlow: *Mastering Your Fears and Phobias* (workbook) from the "Treatments That Work" series
- Ridley, Layne: *White Knuckles: Overcoming the Fear of Flying*
- Brown, Duane: *Flying Without Fear: Effective Strategies to Get You Where You Need to Go*

Panic Disorder and Agoraphobia

- Barlow, David and Craske, Michelle: *Mastery of Your Anxiety and Panic* (workbook) from the "Treatments That Work" series
- Carbonell, David: *Panic Attacks Workbook: A Guided Program for Beating the Panic Trick*
- Wilson, Reid: *Don't Panic: Taking Control of Anxiety Attacks* (3rd Edition)

Obsessive-Compulsive Disorder

- Hyman, Bruce and Pedrick, Cherry: *The OCD Workbook: Your Guide to Breaking Free from Obsessive-Compulsive Disorder*
- Foa, Edna and Kozak, Michael: *Mastery of Obsessive-Compulsive Disorder: A Cognitive-Behavioral Approach* (workbook) from the "Treatments That Work" series

Social Anxiety Disorder

- Hope, Heimberg, Turk: *Managing Social Anxiety* (workbook) from the "Treatments That Work" series
- Rapee, Ronald: *Overcoming Shyness and Social Phobia: A Step-by-Step Guide*
- Markway, Carmin, Pollard, & Flynn: *Dying of Embarrassment*
- Antony, Martin and Swinson, Richard: *The Shyness and Social Anxiety Workbook: Proven, Step-by-Step Techniques for Overcoming Your Fear*
- Erika Hilliard: *Living Fully With Shyness and Social Anxiety: A Comprehensive Guide to Gaining Social Confidence*
- Soifer, Zqourides, Himle, Pickering: *Shy Bladder Syndrome: Your Step-by-Step Guide to Overcoming Paruresis*
- Fine, Debra: *The Fine Art of Small Talk*

Appendix II: Cognitive-Behavioral Therapy Resources for Anxiety

Workbooks and Self-help Books by Disorder (con.)

Impulse Control Disorders:

(Trichotillomania (compulsive hair pulling), skin picking, pathological gambling, compulsive stealing, pyromania/fire setting, compulsive buying)

Penzel, Fred: *The Hair-Pulling Problem: A Complete Guide to Trichotillomania*

Grant, Donahue, Odlaug: *Overcoming Impulse Control Problems* (workbook) from the "Treatments That Work" series

Ladouceur, Robert, and Lachance, Stella: *Overcoming Your Pathological Gambling* (workbook) from the "Treatments That Work" series

Woods, Douglas, and Twohig, Michael: *Trichotillomania: An ACT-enhanced Behavior Therapy Approach* (workbook) from the "Treatments That Work" series

Shulman, Terrence: *Something for Nothing: Shoplifting Addiction and Recovery*

Hoarding

Neziroglu, Bubrick, & Yaryura-Tobias: *Overcoming Compulsive Hoarding: Why You Save & How You Can Stop*

Steketee, Gail, and Frost, Randy: *Compulsive Hoarding and Acquiring* (workbook) from the "Treatments That Work" series

Tolin, Frost, Steketee: *Buried in Treasures: Help for Compulsive Acquiring, Saving, and Hoarding*

Frost, Randy and Steketee, Gail: *Stuff*

Health Worries/Hypochondriasis

Asmundson, Gordon J.G. and Taylor, Steven:
It's Not All in Your Head: How Worrying About Your Health Could Be Making You Sick— and What You Can Do About It

Body Dysmorphic Disorder

Claiborn, James and Pedrick, Cherry: *The BDD Workbook*

Attention Deficit/Hyperactivity Disorder (ADHD) in Adults

Sprich, Safren, Perlman, Otto: *Mastering Your Adult ADHD* (workbook) from the "Treatments That Work" series

Depression and Bipolar Disorder

Burns, David: *Feeling Good: The New Mood Therapy*

Burns, David: *The Feeling Good Handbook*

Gilson, Freeman, Yates, Freeman: *Overcoming Depression* (workbook) from the "Treatments That Work" series

Otto, Reilly-Harrington, Knauz, Henin, Kogan, Sachs: *Managing Bipolar Disorder* (workbook) from the "Treatments That Work" series

Rohan, Kelly: *Coping with the Seasons: A Cognitive-Behavioral Approach to Seasonal Affective Disorder* (workbook) from the "Treatments That Work" series

Williams, Teasdale, Segal, and Kabat-Zinn: *The Mindful Way Through Depression: Freeing Yourself From Chronic Unhappiness*

Appendix III: Cognitive-Behavioral Therapy Resources for Anxiety

Other Resources

Books on Anxiety Disorders (informational)

Anxiety Disorders and Mental Health (general)

Ross, Jerilyn and Carter, Rosalynn: *Triumph Over Fear: A Book of Help and Hope for People with Anxiety, Panic Attacks, and Phobias*
Schwartz, Jeffrey and Begley, Sharon: *The Mind and the Brain: Neuroplasticity and the Power of Mental Force*

Obsessive Compulsive Disorder

Osborn, Ian: *Tormenting Thoughts and Secret Rituals*
Baer, Lee: *The Imp of the Mind: The Silent Epidemic of Obsessive Bad Thoughts*

Posttraumatic Stress Disorder

Phillips, Suzanne and Kane, Dianne: *Healing Together: A Couple's Guide to Coping with Trauma and Post-traumatic Stress*
Orange, Cynthia: *Shock Waves: A Practical Guide to Living with a Loved One's PTSD*
Paulson, Daryl and Krippner, Stanley: *Haunted by Combat: Understanding PTSD in War Veterans Including Women, Reservists, and Those Coming Back from Iraq*
Judith Herman: *Trauma and Recovery*

Body Dysmorphic Disorder

Phillips, Katharine: *The Broken Mirror: Understanding and Treating Body Dysmorphic Disorder*

Social Phobia

Swiggett, Chelsea Rae: *My True Story of Fear, Anxiety and Social Phobia (Louder Than Words)*
Cunningham, Terry: *The Hell of Social Phobia: One Man's 40 Year Struggle*

Panic Disorder

Berman, Carol: *100 Questions and Answers about Panic Disorder (2nd Edition)*

Books on Mindfulness

Kabat-Zinn, Jon: *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain and Illness.*

Williams, Teasdale, Segal, and Kabat-Zinn: *The Mindful Way Through Depression: Freeing Yourself From Chronic Unhappiness*

Support Groups in Michigan

Obsessive-Compulsive Disorder

Ann Arbor OCD Support Group
1st Thursday of each month 1:00-2:30
Community Support & Treatment Services (CSTS)
2140 E. Ellsworth Rd., Ann Arbor, MI
Contact Jim: 734-477-0326, jhm420@juno.com
OR
Jeannie at 734-761-4629,
michiganlady64@gmail.com

Depression and bipolar

Support Groups for patients and families of persons with depression or bipolar disorder
UM Depression Center, Rachel Upjohn Building, 4250 Plymouth Rd., Ann Arbor
2nd and 4th Wednesdays of each month, 7:00pm-8:15pm

Listing of other Michigan Support Groups:
<http://www.anxietypanic.com/michigan.htm>

Other Mental Health Resources

General

National Alliance on Mental Illness (NAMI): <http://www.nami.org/>
Treatments That Work: http://www.oup.com/us/companion_websites/umbrella/treatments/?view=usa
Michigan Mental Health Networker: <http://www.mhweb.org/>

Hoarding

Children of Hoarders: <http://childreninhoarders.com/wordpress/>

Washtenaw County Hoarding Task Force
Info: <http://www.hoardingtaskforce.org/taskforces/the-hoarding-task-force-of-washtenaw-county>
Contact: Harriet Balakar at 734-998-9355

Social Anxiety Disorder

Toastmasters: <http://www.toastmasters.org/>

University of Michigan Anxiety Disorders Clinic, Department of Psychiatry, Rachel Upjohn Building 4250 Plymouth Road, Ann Arbor, MI 48109; Phone: 734-764-0231; <http://www.psych.med.umich.edu/anxiety/clinic.asp>

Anxiety Disorder Foundations and Associations

Anxiety Disorders Association of America: www.adaa.org
Obsessive-Compulsive Foundation: www.ocfoundation.org
Agoraphobics in Motion: www.aim-hq.org
Social Phobia/Social Anxiety Association: <http://www.socialphobia.org/>
Social Anxiety Institute: <http://www.socialanxietyinstitute.org>
Posttraumatic Stress Disorder Association: <http://www.ptsdassociation.com>
African American Post Traumatic Stress Disorder Association: <http://www.aaptsdassn.org>
Heal My PTSD, LLC: <http://healmypsd.com>



Appendix IV: “This is so much information! Where do I start?”

Wondering where to start? We know this is a lot of information to consume at once, so refer to the information below to focus your reading on the specific problems with which you are dealing.

Generalized Anxiety Disorder

Sections to review, in order of importance:

1. Anxiety 101
2. Cognitive Therapy Skills
3. Relaxation
4. Anxiety Management
5. Exposure

Panic Disorder with Agoraphobia

Sections to review, in order of importance:

1. Anxiety 101
2. Cognitive Therapy Skills
3. Exposure
4. Anxiety Management
5. Relaxation

Obsessive-Compulsive Disorder

Sections to review, in order of importance:

1. Anxiety 101
2. Exposure
3. Cognitive Therapy Skills
4. Anxiety Management
5. Relaxation

Social Anxiety Disorder

Sections to review, in order of importance:

1. Anxiety 101
2. Cognitive Therapy Skills
3. Exposure
4. Relaxation
5. Anxiety Management

Posttraumatic Stress Disorder

Sections to review, in order of importance:

1. Anxiety 101
2. Exposure
3. Cognitive Therapy Skills
4. Relaxation
5. Anxiety Management

Specific Phobias

Sections to review, in order of importance:

1. Anxiety 101
2. Cognitive Therapy Skills
3. Exposure
4. Relaxation
5. Anxiety Management

Appendix V: Anxiety Inconvenience Review Worksheet

Some people ask themselves “is it worth it to put in some hard work to get my anxiety under control?” This is a personal choice, and everyone has different reasons for working on their anxiety. One way to help answer this question is to examine different parts of your life and how the anxiety impacts them.

First, let's make a list of the different parts of your life that are important to you. Some examples are below.

<u>Areas of my life that are important to me are:</u>	<u>How important (0-10)</u>
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____

Sample important life areas:

- Family
- Friends
- Social life
- Work/career
- School
- Leisure
- Hobbies
- Spirituality/religion
- Volunteering/giving back
- Physical health
- Mental health
- Free time
- Others...

Blank page

Remember to tear out this page after you have filled out the “Anxiety Inconvenience Review Form” and put it somewhere you can see it easily as you go through your day.

Worksheets (additional copies)

- Exposure Tracking Form
- Examining Thoughts Worksheet

Exposure Tracking Form

Exposure task: _____

Amount of time each day and how often:

Safety behaviors or rituals to eliminate:

Other guidelines: _____

Subjective Units of Distress Scale (SUDS)

0= no anxiety at all; completely calm

3 some anxiety but manageable

5= getting tough; wouldn't want to have it all the time

7-8= severe anxiety that interferes with daily life

10 = worst anxiety you've ever felt

Exposure Tracking Example

Exposure task: Performing my presentation for friends

Day/Date	Length of time		SUDS (0-100)			Comments
	Start	Stop	Beginning	Middle	End	
4/15	10:15 am	11:15 am	5	8	4	
4/16	2:00 pm	3:00 pm	3	8	3	
4/17	5:30 pm	6:30 pm	1	9	4	Lost train o
4/18	5:30 pm	6:30 pm	1	5	2	
4/19	10:00 am	11:00 am	0	4	1	
4/20	6:00 pm	7:00 pm	0	3	1	
4/21	10:15 am	11:15 am	0	2	.5	

Exposure Tracking Form

Exposure task: _____

Amount of time each day and how often:

Safety behaviors or rituals to eliminate:

Other guidelines: _____

Subjective Units of Distress Scale (SUDS)

0= no anxiety at all; completely calm

3= some anxiety, but manageable

5= getting tough; wouldn't want to have it all the time

7-8= severe anxiety that interferes with daily life

10 = worst anxiety you've ever felt

Exposure Tracking Example

Exposure task: Performing my presentation for friends

Day/Date	Length of time		SUDS (0-100)			Comments
	Start	Stop	Beginning	Middle	End	
4/15	10:15 am	11:15 am	5	8	4	
4/16	2:00 PM	3:00 PM	3	8	3	
4/17	5:30 PM	6:30 PM	1	9	4	Lost train o
4/18	5:30 PM	6:30 PM	1	5	2	
4/19	10:00 am	11:00 am	0	4	1	
4/20	6:00 PM	7:00 PM	0	3	1	
4/21	10:15 am	11:15 am	0	2	.5	

Examining Thoughts Worksheet

Take thoughts identified using techniques in the “Identifying Negative Automatic Thoughts” section and write them here.

Use what you learned in the “Cognitive Distortions” section to identify any possible thought patterns. ↓

Gather evidence for and against your negative automatic thoughts using multiple “lines of evidence.” ↓

↓ Thought	Possible Distortion(s)	Rational Responses
		1. 2. 3. 4. 5. 6. 7. 8. 9.
Thought	Possible Distortion(s)	Rational Responses
		1. 2. 3. 4. 5. 6. 7. 8. 9.

Tips:

- Remember to phrase each thought in the form of a statement.
- You should have between 7 and 10 facts in the “rational response” column for each thought.
- Copy this page to use for other thoughts (some extra pages are included at the end of the manual).
- Carry it with you and bring it out each time you have the thought, to remind yourself of the facts.

Examining Thoughts Worksheet

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Use what you learned in the “Cognitive Distortions” section to identify any possible thought patterns. ↓

Gather evidence for and against your negative automatic thoughts using multiple “lines of evidence.” ↓

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Notes

Notes

Notes

Notes



RESEARCH ARTICLE

The Effectiveness of Cognitive Behavior Therapy on Anxiety, Physical Symptoms, Worry, and Attention Deficit in Women with Generalized Anxiety Disorder

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Abstract:

Background:

Generalized Anxiety Disorder (GAD) causes a person's life to be full of worries by involving cognitive processes and not tolerating uncertainty and increasing worry and affecting the quality of sleep and attention of these people, and disrupting life functions.

Objective:

This study investigated the effectiveness of cognitive-behavioral therapy (CBT) on anxiety, physical symptoms, worry, and attention deficits in people with GAD.

Methods:

It was a quasi-experimental pre-test and post-test study with an experimental group and a control group. In this study, 30 women with GAD were selected using a voluntary sampling method. After matching, participants were randomly divided into experimental and control groups. The experimental group received CBT for 10 sessions, but the control group did not receive any treatment. The research instruments included the attention skills Questionnaire by Savari and Oraki and the Pennsylvania State Worry Scale.

Results:

There was a significant difference in physical symptoms in the experimental group compared to the control group ($P < 0.01$, $F = 65.28$), while in the experimental group, there was a significant difference in worry compared to the control group. Moreover, there was a significant difference in attention deficit in the experimental group compared to the control group.

Conclusion:

The results showed that CBT improved attention deficit and worry in women with GAD.

Keywords: Cognitive-behavioral therapy, Attention deficit, Worry, Generalized anxiety disorders, Mental disorder, Conflict.

Article History

Received: April 15, 2022

Revised: May 23, 2022

Accepted: July 14, 2022

1. INTRODUCTION

Anxiety disorders are one of the most common mental disorders. The study of anxiety disorders provides a good opportunity to understand the relationship between the nature and upbringing in the etiology of mental disorders [1]. Anxiety warns the person that danger is on the way and allows the person to take action to deal with the danger. It is found in response to a threat that is unknown, internal, and ambiguous or that stems from conflict [2]. Anxiety can be constructive and

helpful to some extent, but if it becomes persistent and chronic, it can cause a wide range of problems [3].

Physical symptoms are also one of the symptoms of Generalized Anxiety Disorder (GAD). It has objective and physical manifestations related to anxiety that are clinically significant and cause disturbances in normal functioning [4]. According to Beck, physical symptoms include numbness and tingling (shaking, hotness, trembling in the legs, inability to calm down, fear of a bad accident, dizziness and nausea, palpitations and shortness of breath, suffocation, tremors of hands and body shaking) [5].

Pervasive anxiety disorder is associated with excessive and

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uncontrollable anxiety. Unlike other anxiety disorders, GAD involves ambiguous anxiety in the absence of specific objects, stimuli, or situations. There is a reason why these people engage in this kind of perception without any evidence to support it [4].

On the other hand, patients with anxiety disorders face problems in their attention and concentration. These people are affected in their cognitive processes and information processing due to worry and fear of ambiguous situations, and their concentration and attention decrease [6]. Attention is one of the most important aspects of the mind. Loneliness is one of the main parts of cognitive structure that also plays an important role in the structure of intelligence, memory, and perception. It is a process in which people focus on certain aspects of information and ignore other aspects [7].

Various cognitive therapeutic approaches have been proposed to deal with GAD, one of which is the cognitive-behavioral approach [8, 9]. This approach combines theories and techniques of behavior therapy and cognitive therapy. Behavioral and cognitive approaches are both, to some extent, empirical traditions and their emphasis is on increasing cognitive skills and reducing maladaptive cognitive activities. They also use behavioral tasks to change behavior and these methods are used according to the progress of patients in each session. Cognitive-behavioral therapy (CBT) is commonly used in clinical practice and involves the use of various cognitive and behavioral techniques to influence factors that stimulate or stabilize the signs and symptoms of various disorders [10]. Simple techniques such as agenda setting, self-monitoring, behavioral testing, and dysfunctional thinking may also be used to help [11].

The origins of CBT go back to Beck (1976) and the most important step in Beck therapy is to help clients to identify misconceptions and maladaptive perceptions that cause their problems [12].

In cognitive-behavioral therapy, the cognitive therapy approach is a key item. Cognitive-behavioral therapies also try to change the patient's patterns and behavioral patterns. It is on this basis that in this approach, various methods such as factor conditioning, muscle relaxation strategies, coping skills training and scheduling, and management of enjoyable and joyful activities are used [13]. In this treatment, special importance is given to the beliefs and hypotheses of the individual that are effective in understanding and interpreting events and the formation of emotions and maladaptive behavior. In CBT, the individual is helped to learn to evaluate his or her thoughts and ideas about unpleasant issues in a realistic way. He tests them with objective evidence, corrects his cognitive distortions, and finds new knowledge and compatibility with himself and the world [14].

Studies have shown that GAD is a widespread disorder. Chronic disorders and anxiety, worry, and attention deficit problems are also common among people with GAD. Therefore, CBT, due to its strong theoretical and research foundations, will have its effects on the symptoms of anxiety, worry, and attention deficit among this group of patients with GAD; this study aimed at evaluating the effectiveness of CBT

on anxiety, physical symptoms, worry, and attention deficit in women with GAD [12]. Women make up more than half of the world's population and play an important role in the family and in the growth and development of society. Therefore, women's health is one of the most important factors affecting the productivity of the family and society [13]. Epidemiological studies show that the prevalence of lifelong anxiety disorder is widespread and at the top, and the time ratio of women to men is 2.5 to 1 [14]. Since in previous studies, these three variables were not addressed together in women with generalized anxiety disorder, it was felt necessary to address the physical symptoms of anxiety as well as lack of concentration alongside the main component of anxiety in generalized anxiety disorder.

2. MATERIALS AND METHODS

It was a quasi-experimental pre-test post-test study with experimental and control groups. Statistical population of all women referred to psychology clinics in Tehran in 2019 who were diagnosed with GAD. The sample size consisted of 30 people who were randomly assigned to an experimental group (15 people) and a control group (15 people). In experimental studies (semi-experimental), the minimum number of samples is 15 [15], and in this study, due to the sensitivity of the statistical population, which included women with generalized anxiety disorder, 15 samples were selected for each group and until the end of the treatment, the sample did not fall, and finally, the study was performed with 30 people.

Inclusion criteria were having 30 to 50 years of age, having a minimum literacy, and all participants were female. According to the DSM, the average age for developing generalized anxiety disorder (before starting treatment) is 25, and the prevalence and severity of the disorder are usually higher in the age range of 30 to 50 years. It has also been pointed out that with increasing age (after age 50), the severity of generalized anxiety disorder gradually decreases [14], and therefore, this age range has been selected for research.

Exclusion criteria were receiving psychological interventions in the past year and a history of using psychiatric drugs, having mental retardation, which makes clients unable to understand the process of treatment and self-treatment, and serious thoughts of suicide and a history of drug abuse. After announcing their readiness for a call, all participants were examined in terms of entry and exit criteria, and people who did not meet the required criteria were excluded. Then, they were randomly divided into the experimental and control groups. All members of the experimental group participated in an individual evaluation session. In this session, the researcher evaluated the appropriateness of treatment for patients and explained the history of cognitive and behavioral therapy and how this method can help participants, emphasizing the implementation of this treatment method, which requires a lot of effort and patience. All participants completed the questionnaires before the beginning of the session and after the end of the treatment sessions. It should be noted that all participants participated in the study after providing their consent. The agreement states that all client information will be confidential and the therapist will not use this information except in research cases. Moreover, attendance at the treatment

process is optional and participants can leave the treatment process if they wish.

After that, patients participated in 10 cognitive and behavioral therapy sessions weekly (two months in total). In each session, individuals were first asked to describe the experiences they had gained during the exercise. Immediately after each exercise, the necessary feedback about the exercise (homework) was given to the clients and these feedbacks were considered the main tool of treatment. Then, they talked about the problems. Learning was based on the participants' experiences and not on the researcher's lectures. It was also followed by introducing the model and teaching the principles of treatment or effective skills or techniques related to the relevant session through the treatment protocol.

In the present study, the Zung Self Rating anxiety scale, Pennsylvania Worry Scale, and Concentration Skills Questionnaire were used.

2.1. Zung Self Rating Anxiety Scale

It has 20 items. Criteria for diagnosis (S.A.S) on this scale had 5 emotional and 15 physical signs. This scale is used to measure the level of anxiety that a person feels in different situations. This scale can be used in clinical and research situations. The Scale (S.A.S) emphasizes the main symptoms of anxiety. In real life, one shows those many times and can easily comment on those attributes. In this scale, a number of questions (16 items) emphasize positive symptoms and others (4 items) emphasize negative symptoms. The score of questions that emphasize a negative attitude is from never or rarely (4) to almost always (1). The structure of the scale (S.A.S) is such that on this scale, people with less anxiety get a lower score and those with more anxiety get a higher score. The reliability of the S.A.S scale was certified using the internal correlation coefficient method (Cronbach's alpha) and

showed a coefficient of 0.84, indicating a very high validity of the scale. The validity of the scale has been proved in various studies, such as a high correlation with the Hamilton Anxiety Scale (1959) with a Pearson correlation method of 0.71 [16].

2.2. Pennsylvania Worry Scale

It is a 16-item self-report scale that measures severe, excessive, and uncontrollable worry. This questionnaire is used as a GAD screening tool. The Likert scale has 5 degrees, from 1 (not true at all) to 5 (very true). The total score is between 16 and 80. Salehpour *et al.* (2017) reported Cronbach's alpha coefficient of 0.74 for this scale, its concurrent validity with related tools had been confirmed, its differentiation analysis for patients, and the healthy group was approved and its overall classification accuracy was reported to be 63.1% [17].

2.3. Concentration Skills Questionnaire

This scale was designed by Savari and Orki (2016) to measure the accuracy and concentration of people in general situations. This scale has 13 items and on a 1 to 5 Likert scale (never to most of the time). It has two subscales of voluntary concentration (8 items) and involuntary concentration (5 items). Savari and Orki reported Cronbach's alpha coefficient for the whole scale of 0.74, for the subscale of voluntary concentration as 0.72 and involuntary concentration as 0.70. The validity of this questionnaire has been confirmed using confirmatory factor analysis [18]. In the present study, the cognitive and behavioral therapy protocol of Douglas and Robbie Chaudh was used, and in this book, 10 treatment sessions were used [19]. A summary of CBT sessions is given in Table 1.

In this research, data analysis was performed using SPSS software version 21 and analysis of covariance and descriptive statistics variables stated as mean and standard deviation.

Table 1. Cognitive and behavioral therapy sessions.

Session	Topic	Assignment	Description
First	Familiarity with clients and assessment of anxiety problems	Recognizing and identifying thoughts: A three-column sheet of thoughts	1. Preparing a list of the patient's current problems and formulating a formulation 2. Assessing anxiety problems 3. Introducing the model and principles of cognitive and behavioral therapy for the treatment of Generalized Anxiety Disorder 4. Identifying worry areas
Second	The logic of treatment and awareness about worry	Identifying the triggers of anxiety and recording the patient's worry	1. Checking homework 2. Providing the principles of cognitive and behavioral therapy 3. Introducing the treatment model: Symptoms of Generalized Anxiety Disorder 4. Awareness raising about worry
Third	Providing methods for diagnosing uncertainty and behavioral exposure	Identifying the type of worry	1. Checking the homework of the previous session 2. Accepting uncertainty 3. Uncertainty intolerance detectors 4. Suggestions for dealing with uncertainty

(Table 1) contd.....

Session	Topic	Assignment	Description
Fourth	Providing methods for re-evaluating the usefulness of worry	Preparing a table from a diverse list of uncertainty intolerance detectors	1. Checking the homework of the previous session 2. Identifying positive beliefs about the usefulness of worry 3. Strategies for re-evaluating positive beliefs about worry 4. Overcoming the negative orientation towards understanding and solving the problem
Fifth	Problem solving training	Use problem solving skills	1. Checking the homework of the previous session 2. Identifying the problem before it is too late 3. Looking at problems as a part of life 4. Seeing the problem as an opportunity for growth, not a threat
Sixth	Problem definition and goal formulation	Implementing solutions and re-evaluating them	1. Checking the homework of the previous session 2. Providing different solutions 3. Decision making 4. Final explanation to solve the problem
Seventh	Commitment to get rid of worry	Signing agreement	1. Checking the homework of the previous session 2. Advantages and disadvantages of worry 3. The positive and negative aspects of worry control 4. Adherence to change
Eighth	Relaxation technique	Conducting the technique	1. Checking the homework of the previous session 2. Special techniques of relaxation 3. Diaphragmatic breathing 4. Guided imaging technique manual
Ninth	Facing worry	Apply anxiety management skills	1. Checking the homework of the previous session 2. Dealing with worry 3. Compilation of hierarchy 4. Practicing illustration skills 5. Facing worry
Tenth	Prevention of recurrence	-	1. Daily continuity factors 2. Identifying high-risk situations 3. Preparing for high-risk situations

3. RESULTS

Descriptive results related to research variables are presented in Table 2. As can be seen, the mean of the experimental group in anxiety symptoms and its components has changed compared to the control group, while the mean of the control group has not changed much.

Levene test was used to evaluate the equality of variance error in the research variables (Table 3). The value of F obtained for anxiety symptoms was 0.133, for physical symptoms was 0.394, for worry was 0.025, and for

concentration was 0.129, which was not significant at the 0.05 level, so the assumption of the equality of variance was accepted.

Table 4 shows the results of the analysis of covariance to examine the differences between groups in research variables. The f value for anxiety symptoms was equal to 119.675, which was significant at the level of 0.01. Therefore, in the experimental group, there was a significant difference in anxiety symptoms compared to the control group. According to the results, the research hypothesis was confirmed and the CBT for anxiety symptoms in people with GAD was effective.

Table 2. Mean and standard deviation of research variables.

Variable	Posttest (Mean ± SD)		Pretest (Mean ± SD)	
	Experimental	Control	Experimental	Control
Anxiety symptoms	63.60 ± 5.30	63.53 ± 5.29	49.07 ± 6.36	62.07 ± 6.53
Physical symptoms	38.00 ± 3.38	37.93 ± 3.51	28.53 ± 4.53	37.20 ± 4.36
worry	45.93 ± 4.47	48.33 ± 3.19	29.60 ± 3.85	48.40 ± 3.31
Attention	39.47 ± 3.06	37.33 ± 3.55	27.66 ± 2.99	38.60 ± 4.03

Table 3. Equality of variance error in research variables.

Variable	F value	df 1	df 2	Sig.
Anxiety symptoms	0.133	1	28	0.718
Physical symptoms	0.394	1	28	0.535

(Table 3) contd.....

Variable	F value	df 1	df 2	Sig.
Worry	0.025	1	28	0.876
Concentration	2.453	1	28	0.129

Table 4. Investigating the differences between groups in research variables.

Variable	Source of Variance	Sum of Squares	df	Mean of Squares	F	Sig.	Etha
Anxiety symptoms	Group	1281.203	1	1281.203	119.675	0.01	0.816
	Error	289.053	27	10.706	-	-	-
	Total	95061.00	30	-	-	-	-
Physical symptoms	Group	571.773	1	571.773	65.280	0.01	0.707
	Error	236.487	27	8.759	-	-	-
	Total	3352.00	30	-	-	-	-
Worry	Group	1985.040	1	1985.040	376.076	0.01	0.933
	Error	142.514	27	5.278	-	-	-
	Total	48642.00	30	-	-	-	-
Attention	Group	1129.260	1	1129.260	371.497	0.01	0.939
	Error	82.073	27	3.040	-	-	-
	Total	34184.00	30	-	-	-	-

In the variable of physical symptoms, the f value was 65.280, which was significant at the level of 0.01. Therefore, in the experimental group, there was a significant difference in the physical symptoms compared to the control group. According to the results, the research hypothesis was confirmed and the CBT was effective on the physical symptoms of people with GAD.

The f value for the worry variable was equal to 376.076, which was significant at the level of 0.01. Therefore, there was a significant difference in worry in the experimental group compared to the control group. According to the results, the research hypothesis was confirmed and the CBT was effective on the worry level of people with GAD. In addition, the value of f for the attention deficit variable was equal to 371.497, which was significant at the level of 0.01. As a result, in the experimental group, there was a significant difference in attention compared to the control group. According to the results, the research hypothesis was confirmed and the CBT was effective on the attention of people with GAD.

4. DISCUSSION

This study aimed at evaluating the effectiveness of CBT on anxiety, physical symptoms, worry, and attention deficit in people with GAD. Findings showed that CBT has been significantly effective on anxiety symptoms in people with GAD. The results indicated that CBT has been effective on anxiety symptoms in individuals with GAD in the experimental group compared with controls in the post-test phase. This finding was consistent with the findings of McAvoy, Salmon, Heath *et al.* [20] and Rat Najarian *et al.* [21] on the effectiveness of CBT in the treatment of anxiety. In their study, they found that CBT reduces anxiety symptoms in people with GAD. They found that CBT for the treatment of GAD, according to the research results, was a very strong therapeutic approach and, in most cases, reduced anxiety [20, 21]. Explaining this hypothesis, based on the evaluation of the

results of the CBT of anxiety, people with GAD had inappropriate feelings and behaviors and their interpretation of events is threatening and dangerous. Accordingly, in explaining the results of the present study, it can be said that after years of identifying potential threats and responding in the form of anxiety, worry, and avoidance, these clients find patterns of automatic and continuous response. Moreover, anxious thoughts, feelings, and behaviors are persistent and repetitive, so this chain is completely out of consciousness. Since generalized anxiety is a disorder that arises from the interaction of physiological, cognitive, and behavioral components, comprehensive CBT can have high effectiveness on it [22]. Among all anxiety disorders, generalized anxiety disorder is the one that has the least therapeutic effectiveness [23]. The reason is that treatment of generalized anxiety disorder seems to be difficult and it is a treatment-resistant disorder [24]. The treatment of generalized anxiety disorder includes two general categories: drug therapy and psychological therapy. There are various forms of psychological treatments for generalized anxiety disorder, including cognitive, behavioral, cognitive-behavioral, metacognitive, psychodynamic, and biological feedback therapies [25]. The most common treatment for generalized anxiety disorder is cognitive-behavioral therapy, on which most studies in the treatment of generalized anxiety disorder have been conducted [26]. Cognitive-behavioral therapy is a combination of cognitive and behavioral approaches. This treatment helps the patient identify his/her distorted thinking patterns and dysfunctional behaviors. In order to enable the patient to change these distorted and dysfunctional thoughts, regular discussions and precisely organized behavioral tasks are used [27]. According to many experts, this type of treatment is still at the forefront of psychological treatments for generalized anxiety disorder [1]. However, research has shown that only 50% of patients with generalized anxiety disorder have improved with cognitive-behavioral therapy [28]. Another

finding among research on the outcome of treatment for anxiety disorders is that cognitive therapy and CBT are better than drugs in the long run. Drugs and CBT have comparable efficacy for patients in the short term, but in the long term, when the drug is discontinued, its success is significantly reduced [14].

The present study's results showed a significant difference in the physical symptoms in the experimental group compared to the control group. According to the results, CBT was effective on the physical symptoms of people with GAD and reduced the physical symptoms of anxiety in these people. These results were consistent with the findings of String *et al.* [29], Saito *et al.* [30], and Silk *et al.* [31]. To explain this hypothesis, it can be said that CBT has led to a reduction in physical symptoms in people with GAD. Instead of avoiding them, they face stressful situations and react differently before the anxiety process spreads [32].

The experimental group had a significant difference in worry compared to the control group. The results indicated that CBT has been effective on the level of worry in people with GAD. These results were in line with the findings of Momeni *et al.* [7] and Kodal *et al.* [8]. They stated that CBT reduced anxiety in people with GAD. Based on this, it can be said that the existence of defects in the problem-solving process of worried and anxious people is a hypothesis that there is strong scientific evidence to support it, and many studies have shown that most anxious people have deficiencies in problem-solving skills [6]. Therefore, in explaining this hypothesis, it can be said that problem solving helps a person to look at problems as a part of life instead of extreme stress on life, because, according to the Douglas cognitive model, the main mechanism of worry persistence in people with GAD is a negative approach to the problem, thus preventing the use of problem-solving skills. As a result, training in CBT by targeting it during treatment, through strategies such as problem-solving training, visual exposure, as well as recording thoughts and worries, recognizing unpleasant and uncontrollable thoughts, gives them the ability to overcome their worries and not consider ambiguous situations catastrophic [2].

In this study, the results showed that there was a significant difference in attention in the experimental group compared to the control group. Therefore, CBT was effective on the attention deficit of people with GAD. These results of the present study were in line with the findings of Soleimani *et al.* [33] and Saito *et al.* [34]. CBT has led to improved attention in people with GAD. Explaining these findings, it can be concluded that beliefs related to uncontrollability, dangerousness of worry, and cognitive distortions lead to physiological symptoms and attention deficits in activities and, consequently, reduce a person's performance in social situations. CBT helps the person to consciously interpret information carefully, as anxiety leads to a state of alertness in the individual and causes cognitive resources to be distorted for information processing. This method increases attention and thus leads to potential abilities and improves individual performance [35]. Difficulty concentrating is one of the most common diagnostic criteria across DSM-5 categories,

especially within the emotional (mood- and anxiety-related) disorders. A substantial literature has characterized cognitive functioning in emotional disorders using objective (behavioral) computerized cognitive tasks. However, diagnoses are typically formed on the basis of subjective (self-reported; clinician-rated) assessments of symptoms, and little is known about difficulty concentrating as a symptom. These questions are particularly important for generalized anxiety disorder (GAD), which has long been the subject of neurological debates, and for which several theoretical models that suggest a central role for cognitive impairments (including difficulty concentrating) in the maintenance of psychopathology have been proposed. The present study evaluated the incremental utility of difficulty concentrating and its relationship to worry and other symptoms in 175 GAD-diagnosed adults. Clinician-assessed difficulty concentrating incrementally predicted clinician-rated GAD, anxiety, and depression severity even after other GAD symptoms were controlled. Consistent with theoretical models of GAD that propose a direct relationship between worry and cognitive impairment, difficulty concentrating mediated the relationship between trait worry and clinical severity. These findings suggest that difficulty concentrating has value as a diagnostic criterion and is a potential mechanism by which worry increases distress and impairment [36].

Nowadays, DSM-5 2 defines GAD as “the presence of excessive anxiety and worry about a variety of topics, events, or activities. Worry occurs more often than not for at least 6 months and is clearly excessive.” People suffering from GAD have great difficulty controlling these worries. They may also present with edginess or restlessness, difficulty sleeping, difficulty concentrating, and an increase in muscle aches or soreness. GAD sufferers are generally burdened by the significant consequences the disorder has on their relationships or on their functioning [29].

CONCLUSION

The results of the study showed that cognitive-behavioral therapy has been able to significantly improve anxiety, physical symptoms, worry and attention deficit. Based on the results, cognitive-behavioral therapy can be used as an effective intervention for improvement in women with Generalized Anxiety Disorder, and it can be said that the application of cognitive-behavioral techniques includes identification, challenge and change of automatic thoughts, and dysfunctional rules and assumptions, nuclear beliefs of incompetence and dislike, challenges with cognitive distortions, helping people increase resistance, behavioral activation with a consistent presence in the group, socializing and intimacy with group members, receiving positive feedback from others, gaining a realistic view of the strengths and weaknesses of oneself and others. It has played a role in reducing anxiety, physical symptoms, worry and attention deficit of members. In this regard, it is suggested that counselors and therapists use cognitive-behavioral therapy methods to improve physical symptoms, worry and attention deficit.

LIST OF ABBREVIATIONS

- GAD** = Generalized Anxiety Disorder
CBT = cognitive-Behavioral Therapy

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

All procedures carried out in studies involving human participants were in accordance with the ethical committee of Islamshahr Islamic Azad University, Iran (No. 2312900540298721398142948).

HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All human research procedures were followed in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

Informed consent was obtained from all subjects prior to data collection.

AVAILABILITY OF DATA AND MATERIALS

The data that support the findings of this research are available from the corresponding author [M.A.Y] upon request with permission from the Ethics Committee of Islamshahr IAU.

FUNDING

None.

CONFLICT OF INTEREST

There are no conflicts of interest regarding the publication of this article.

ACKNOWLEDGEMENTS

The authors would like to thank all the people who helped us in this study.

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Pharmacotherapy of Anxiety Disorders: Current and Emerging Treatment Options

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OPEN ACCESS

Edited by:

Marijn Lijffijt,
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Specialty section:

This article was submitted to
Psychopharmacology,
a section of the journal
Frontiers in Psychiatry

Received: 17 August 2020

Accepted: 13 November 2020

Published: 23 December 2020

Citation:

Garakani A, Murrough JW, Freire RC,
Thom RP, Larkin K, Buono FD and
Iosifescu DV (2020) Pharmacotherapy
of Anxiety Disorders: Current and
Emerging Treatment Options.
Front. Psychiatry 11:595584.
doi: 10.3389/fpsy.2020.595584

Anxiety disorders are the most prevalent psychiatric disorders and a leading cause of disability. While there continues to be expansive research in posttraumatic stress disorder (PTSD), depression and schizophrenia, there is a relative dearth of novel medications under investigation for anxiety disorders. This review's first aim is to summarize current pharmacological treatments (both approved and off-label) for panic disorder (PD), generalized anxiety disorder (GAD), social anxiety disorder (SAD), and specific phobias (SP), including selective serotonin reuptake inhibitors (SSRIs), serotonin norepinephrine reuptake inhibitors (SNRIs), azapirones (e.g., buspirone), mixed antidepressants (e.g., mirtazapine), antipsychotics, antihistamines (e.g., hydroxyzine), alpha- and beta-adrenergic medications (e.g., propranolol, clonidine), and GABAergic medications (benzodiazepines, pregabalin, and gabapentin). Posttraumatic stress disorder and obsessive-compulsive disorder are excluded from this review. Second, we will review novel pharmacotherapeutic agents under investigation for the treatment of anxiety disorders in adults. The pathways and neurotransmitters reviewed include serotonergic agents, glutamate modulators, GABAergic medications, neuropeptides, neurosteroids, alpha- and beta-adrenergic agents, cannabinoids, and natural remedies. The outcome of the review reveals a lack of randomized double-blind placebo-controlled trials for anxiety disorders and few studies comparing novel treatments to existing anxiolytic agents. Although there are some recent randomized controlled trials for novel agents including neuropeptides, glutamatergic agents (such as ketamine and d-cycloserine), and cannabinoids (including cannabidiol) primarily in GAD or SAD, these trials have largely been negative, with only some promise for kava and PH94B (an inhaled neurosteroid). Overall, the progression of current and future psychopharmacology research in anxiety disorders suggests that there needs to be further expansion in research of these novel pathways and larger-scale studies of promising agents with positive results from smaller trials.

Keywords: anxiolytic, phobia, panic, agoraphobia, psychopharmacology, experimental

INTRODUCTION

Anxiety disorders are the most common class of psychiatric disorders, with a lifetime prevalence in the United States of around 32%, according to the National Comorbidity Survey Replication (NCS-R) (1). Among the anxiety disorders, social anxiety disorder (SAD) and specific phobia (SP) are the most common (1). According to the World Health Organization, there are about 264 million people globally who suffer from anxiety disorders, representing a 15% increase since 2005 (2). Anxiety can lead to work and school absences and have a larger cost burden than other psychiatric disorders due to their higher prevalence (3–5). Despite this, there has been far less recent research on novel medication treatments for anxiety disorders over the past 5–10 years compared to the number of experimental drug trials on treatments for major depressive disorder (MDD), bipolar disorder, and schizophrenia (www.clinicaltrials.gov).

Part of the reason for the relative paucity of new drug compounds may be the existence of Food and Drug Administration (FDA)-approved efficacious medications and psychotherapies for anxiety disorders, as well as the perception that anxiety disorders are managed adequately with the currently available treatments. The literature, however, indicates that only 60–85% of patients with anxiety disorders respond (experience at least a 50% improvement) to current biological and psychological treatments (6). In addition, only about half of the responders achieve recovery (defined as minimal anxiety symptoms) (6). There is also evidence to suggest that patients with anxiety disorders, in particular generalized anxiety disorder (GAD) and SAD (7), have high rates of recurrence and/or experience persistent anxiety symptoms, especially if they have comorbid MDD (8). There could be several explanations for the potential refractory nature of these disorders, including misdiagnosis, poor adherence to treatment, substance use, or other comorbidities, although it does suggest that conventional treatments may not be effective for all patients and alternative pharmacotherapies should be developed (9). Unfortunately, many of the treatments that are currently being investigated are simply modifications of already approved treatments.

The nosology of anxiety disorders underwent a shift with the publication of the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) in 2013 (10). Due to questions about the phenomenological and neurobiological bases of the diseases, both posttraumatic stress disorder (PTSD) and obsessive-compulsive disorder (OCD) were removed from Anxiety Disorders section and placed into their own diagnostic classes. Selective mutism and separation anxiety disorder were also added to the Anxiety Disorders section of the DSM-5. Agoraphobia was separated from and is now a disorder distinct from panic disorder (PD). Given the extensive research done separately on OCD and PTSD and their potentially divergent neurobiochemical pathways and heritability (11), this review will focus on the following DSM-5 Anxiety Disorders: PD, GAD, SAD, and SP. For a thorough review that includes both anxiety disorders and OCD and PTSD, please see Sartori and Singewald (12). Finally, although there is strong evidence for the use of psychotherapies including cognitive behavioral therapy

(CBT) and exposure therapy for anxiety disorders, as well as emerging data for the role of neurostimulation strategies such as transcranial magnetic stimulation (TMS), this review will only consider pharmacotherapies. Additionally, this review will only discuss the treatment of anxiety in adults and will exclude research on children and adolescents. Ongoing clinical studies identified on the Clinical Trials database (www.clinicaltrials.gov) will be cited by their National Clinical Trial (NCT) number.

CURRENT TREATMENTS FOR ANXIETY DISORDERS

Serotonergic/Norepinephrinergic Antidepressants

The Food and Drug Administration (FDA) has approved several selective serotonin reuptake inhibitors (SSRIs) and serotonin norepinephrine reuptake inhibitors (SNRIs) for PD, GAD, and SAD. Despite these classifications, medications not approved for a condition are commonly used “off-label” in clinical practice. The European Union has similar indications for the use of SSRIs and SNRIs for the treatment of anxiety disorders as the FDA but with broader indications of SSRIs (12). See **Table 1** for a list of FDA-approved and off-label medications for anxiety.

Selective serotonin reuptake inhibitors and SNRIs are both first-line treatments for PD, GAD, and SAD and have been shown to be efficacious for the treatment of anxiety disorders (13–16). A recent meta-analysis reported that most SSRIs and SNRIs are more efficacious than placebo in GAD, with escitalopram and duloxetine potentially having the largest effect sizes (17). The recommended duration of treatment can vary but may be as short as 3–6 months, or up to 1–2 years or even longer. Although there may be concern about tachyphylaxis, there is limited evidence of adverse outcomes with the chronic use of SSRIs or SNRIs (18). These medications also tend to be well-tolerated, with usually manageable or short-lived adverse effects such as nausea, headache, dry mouth, diarrhea, or constipation. Sexual dysfunction tends to be a more durable and problematic adverse effect of SSRIs and SNRIs but can be managed with adjunctive treatments. There is the possibility of patients developing antidepressant-induced jitteriness or anxiety, potentially due to initial surge of serotonin, although this anxiety can be mitigated by slower titration or adjunctive use of benzodiazepines (19).

The tricyclic antidepressants (TCAs), which act as reuptake inhibitors of serotonin and norepinephrine transporters, were one of the first classes of medications used for anxiety disorders (20). Despite comparable efficacy to SSRIs, they are now less frequently prescribed due to concerns about side effects including weight gain, dry mouth, sedation, urinary hesitancy or retention, arrhythmias, and risk of mortality with overdose (20). Clomipramine and imipramine (both TCAs) are FDA-approved for PD. Monoamine oxidase inhibitors (MAOIs) are also older antidepressant medications which are now typically used only as a third-line option because of side effects and dietary restrictions. They are not FDA-approved for anxiety disorders but may be considered in patients with SAD who are non-responsive to SSRIs (21).

TABLE 1 | Current treatments for anxiety disorders.

Medication class	Mechanism of action	FDA approvals for anxiety disorder	Off-label uses	Therapeutic dose ranges (mg/day)
SSRIs:				
Fluoxetine	Selective 5-HT reuptake inhibitor	PD	GAD, SAD	20–60
Sertraline	(20)	PD, SAD	GAD	50–200
Citalopram		None	GAD, PD, SAD	20–40
Escitalopram		GAD	PD, SAD	10–20
Paroxetine		PD, SAD, GAD	None	20–60
Paroxetine ER		PD, SAD	GAD	27–75
Fluvoxamine		None	GAD, PD, SAD	100–300
SNRIs:				
Duloxetine	5-HT, NE (and DA) reuptake inhibitor (17)	GAD	PD, SAD	30–60
Venlafaxine (XR)		GAD	PD, SAD	75–300
Desvenlafaxine		None	GAD, PD, SAD	50–100
TCA:				
Clomipramine	NE and 5-HT reuptake inhibitor (20)	None	GAD, PD, SAD	100–250
Imipramine		None	GAD, PD, SAD	100–300
Desipramine		None	GAD, PD, SAD	100–200
Nortriptyline		None	GAD, PD, SAD	50–150
MAOIs:				
Phenelzine	MAO inhibitor (21)	None	GAD, PD, SAD	30–90
Mixed antidepressants:				
Mirtazapine	5-HT ₂ , 5-HT ₃ , α ₂ , H ₁ antagonist (27)	None	Anxiety, GAD, PD, SAD	15–45
GABAergic drugs:				
Pregabalin	Unclear, may modulate Ca channels (51)	None	GAD, SAD	150–600
Gabapentin		None	GAD, SAD, PD	600–2,400
Benzodiazepines:				
Clonazepam	GABA-A agonist (44)	PD	Anxiety, GAD, PD, SAD	1–2
Alprazolam		Anxiety, PD	GAD, PD, SAD	1–4
Lorazepam		Anxiety	GAD, PD, SAD	2–6
Chlordiazepoxide		Anxiety	GAD, PD, SAD	20–100
Oxazepam		Anxiety	GAD, PD, SAD	30–60
Antipsychotics:				
Trifluoperazine	D ₂ antagonist (84)	Anxiety	GAD, PD, SAD	2–6
Olanzapine	D ₂ , 5-HT ₂ H ₁ antagonist (85)	None	Anxiety, GAD	5–15
Quetiapine	D ₂ , 5-HT ₂ H ₁ antagonist (85)	None	Anxiety, GAD	50–300
Beta-blockers:				
Propranolol	β-1, β-2 antagonist (77)	None	Anxiety, PD, SAD	60–120
Antihistamines:				
Hydroxyzine	H ₁ antagonist (76)	Anxiety	GAD, PD, SAD	25–100
Other anxiolytics:				
Buspirone	5-HT _{1A} partial agonist (22)	Anxiety	GAD	15–60

Key: 5-HT, Serotonin; AGP, Agoraphobia; DA, Dopamine; D₂, dopamine-2 receptor; ER, XR, Extended Release; FDA, Food and Drug Administration; GAD, Generalized Anxiety Disorder; GABA, Gamma Aminobutyric Acid; H₁, Histamine 1 receptor; MAO, Monoamine Oxidase; MAOI, Monoamine Oxidase Inhibitors; NE, Norepinephrine; PD, Panic Disorder; SSRI, Selective Serotonin Reuptake Inhibitor; SNRI, Serotonin Norepinephrine Reuptake Inhibitor; SAD, Social Anxiety Disorder; TCA, Tricyclic Antidepressants.

Buspirone, a 5-HT_{1A} partial agonist classified under the azapirones, is FDA-approved for use in anxiety, and is commonly used as an adjunctive treatment with SSRIs or SNRIs primarily for GAD (22). It is the only azapirone currently approved in the United States. A Cochrane review of buspirone for GAD found that it was superior to placebo but had a smaller effect size in GAD compared to benzodiazepines and antidepressants (22). Moreover, it was not as well-tolerated (nausea and dizziness) and less effective in those with past benzodiazepine use (22). A subsequent Cochrane review compared buspirone

to placebo for PD and found buspirone to be less efficacious than placebo but the review was limited by the dearth of high-quality studies (23). Buspirone is generally dosed two to three times a day and has a gradual onset of action of around 10 days to 4 weeks. Adverse effects include nausea, dizziness, and headache, and there are reports of buspirone-induced movement disorders (24). There is also anecdotal reporting for using buspirone to offset sexual side effects from SSRIs but there are few studies offering empirical support of this practice (25, 26).

Mixed Antidepressants

Mirtazapine has a broad pharmacological effect, with presynaptic antagonism of the alpha-2 adrenergic receptor, postsynaptic blockade of 5-HT₂ and 5-HT₃ receptors, and antagonism of histamine-1 (H₁) receptors (27). Mirtazapine is FDA-approved for the treatment of MDD in adults. Its benefits include positive effects on sleep and appetite and its general safety for elderly patients, fewer drug-drug interactions, and less likelihood of sexual side effects compared to SSRIs and SNRIs. Adverse effects include weight gain and other antihistamine effects like sedation and dry mouth. There are very few clinical trials assessing mirtazapine for anxiety disorders. In PD, one small randomized controlled trial (RCT) reported that mirtazapine was comparable in efficacy to escitalopram (28). In SAD, one RCT of women showed a significant improvement in anxiety symptoms compared to placebo (29), while a subsequent study failed to show separation from placebo (30). There are no controlled studies of mirtazapine in GAD to date. Overall, in the absence of further trials, the evidence has suggested that mirtazapine may have efficacy in improving anxiety but primarily as an adjunctive agent.

Bupropion is a dopamine norepinephrine reuptake inhibitor approved for the treatment of MDD, attention-deficit/hyperactivity disorder (ADHD), and smoking cessation (31). Although bupropion has been used in patients with anxiety who are being treated with SSRIs as an adjunct to offset sexual side effects, there has been limited investigation of this medication as a monotherapy for anxiety. Although there is a common perception that bupropion can worsen anxiety, this may not be entirely accurate based on previous research of bupropion on anxiety symptoms in MDD when compared to SSRIs (31–33). To date, there is only one controlled trial of bupropion in anxiety disorders, a RCT comparing bupropion XL to escitalopram in GAD, which found that the two drugs had comparable anxiolytic efficacy (34). The evidence regarding efficacy of bupropion for the treatment of PD is conflicting (35, 36). Further work is needed to determine if bupropion and similar dopamine-enhancing agents are efficacious for the treatment of anxiety disorders.

Nefazodone, a serotonergic modulating antidepressant thought to inhibit 5-HT reuptake and block postsynaptic 5-HT₂ receptor (37), is only FDA-approved for the treatment of MDD. There have been several open-label studies suggesting potential benefit in PD and GAD but no controlled studies have been conducted (37–40). One RCT of nefazodone in SAD did not report separation from placebo (41). Overall, its use has been limited by concerns related to very rare but severe cases of liver toxicity.

Gamma Aminobutyric Acid (GABA)

Benzodiazepines have been a longstanding treatment for anxiety and are still among the most widely prescribed class of psychiatric medications in the world (42, 43) although there has been increasing stigma surrounding the use of benzodiazepines in clinical practice (44). Critics of benzodiazepines cite their being prescribed as first-line treatments for anxiety in primary care settings before SSRIs, potential risks of tolerance, dependence,

abuse or misuse, and concerns about falls in the elderly (45). However, there is a lack of strong evidence that SSRIs and other first-line treatments are superior to, or better-tolerated than, benzodiazepines for anxiety disorders, in particular GAD (46), especially for short-term treatment (44, 47), and possibly beyond 8 weeks as well (48). Benzodiazepines, which act as GABA-A agonists, are highly versatile medications that can be prescribed for a wide range of conditions including alcohol withdrawal, agitation or aggression, anesthesia, catatonia, mania, insomnia, muscle spasms, epilepsy or seizures, and REM sleep behavior and movement disorders (44). Although some reports suggest a potential risk of dementia associated with the chronic use of benzodiazepines, these have been called into question and it appears there is not an increased risk of neurocognitive disorders (49). Benzodiazepines are no longer considered first-line monotherapy for PD or other anxiety disorders but can be used in the short-term on either a standing or as-needed basis for PD, GAD, and SAD in conjunction with SSRIs and SNRIs (Table 1) (14–16). Caution is needed in children, geriatric patients, those with medical comorbidities, and individuals with substance use disorders, especially those using other central nervous system depressants like opioids and/or alcohol. Additionally, chronic use of benzodiazepines to treat anxiety with comorbid depression may result in reduced efficacy of antidepressants (50).

Anticonvulsants, some of which have GABAergic properties, include medications like pregabalin, gabapentin, tiagabine, lamotrigine, and topiramate. There is scant research on the use of this class of medications for anxiety disorders (51), with the strongest evidence for the use of pregabalin in GAD, including a meta-analysis of multiple RCTs reporting superiority to placebo and comparable effects to benzodiazepines (52). Pregabalin is thought to have anti-epileptic effects by its activity on the alpha-2 delta subunit of calcium channels to reduce neurotransmitter release (51). Pregabalin has FDA approvals for neuropathic pain, post-herpetic neuralgia, fibromyalgia, and as an adjunctive treatment for partial seizures. It was approved for GAD by the European Union in 2006, although since it was not approved by the FDA in the United States in 2009 the FDA application was withdrawn in 2010. Pregabalin was also shown to have potential efficacy in SAD (53), but only at doses of 450 or 600 mg, based on three randomized, double-blind, placebo-controlled trials (54–56). Pregabalin is generally well-tolerated, with the most common adverse effects being sedation, dizziness, and weight gain. Since there is the potential for abuse and dependence with pregabalin, it is listed as a Schedule V medication by the United States Drug Enforcement Administration (DEA), and providers need to be mindful of tapering the medication to prevent withdrawal, and to monitor prescribing in patients with substance use problems, especially opioids, for which there is an increased risk of overdose death (57–59).

Gabapentin, much like pregabalin, acts to modulate neurotransmitter release on voltage-dependent calcium channels (51). It is FDA-approved for the treatment of neuropathic pain, post-herpetic neuralgia, and partial seizures, but has been widely used off-label for various indications including fibromyalgia. There is increasing evidence for its use in alcohol use disorder,

primarily for the treatment of withdrawal (60). Gabapentin has also been prescribed off-label for anxiety despite a lack of research evidence supporting such use (61). It was found to be efficacious in a small ($N = 69$) randomized, double-blind, placebo-controlled study in SAD (62). Another RCT of patients with PD found a difference between gabapentin and placebo but only in patients with severe panic symptoms (62). A third study found that gabapentin may help with anxiety related to public speaking (63). There are also several trials of gabapentin showing efficacy in perioperative anxiety (61). Gabapentin has similar adverse effects as pregabalin including sedation, dry mouth, constipation, weight gain, and pedal edema. Although gabapentin is not listed as a DEA controlled substance in the US, it may vary on how it is scheduled between states, and there is, like pregabalin, a risk of withdrawal and abuse potential, meaning caution must be used when prescribing this medication to patients taking opioids or those with substance use disorders (57, 59, 64). There are currently no known ongoing trials of gabapentin for anxiety disorders.

Another anticonvulsant, tiagabine, is FDA-approved for the treatment of partial seizures and has been shown to have potential anxiolytic effects in preclinical studies (65). Its mechanism of action is unknown, although it is thought to increase GABA activity by inhibiting GABA uptake in presynaptic neurons (51). While there have been promising open-label studies for PD, GAD, and PTSD (51), several RCTs do not support the efficacy of tiagabine in GAD (66) or PD (67). A small, randomized, double-blind crossover study with gabapentin and tiagabine in SAD reported that both drugs may be effective in reducing anxiety scores (68). There are no known active studies of tiagabine in anxiety disorders.

Lamotrigine is an anticonvulsant thought to inhibit voltage-dependent sodium channels causing decreased glutamate release (51). It is FDA-approved for the maintenance treatment of bipolar I disorder and for several types of seizure disorders. Lamotrigine was shown to have anxiolytic properties in preclinical studies (69). There are, however, very few studies of lamotrigine in anxiety disorders. One small case series reported improvement in symptoms in PD with agoraphobia (70). To date, no studies of lamotrigine for anxiety disorders are underway. Other anticonvulsants, like topiramate (thought to inhibit voltage-dependent calcium sodium channels to enhance GABA, block glutamate and inhibit carbonic anhydrase) have very limited data (51), mostly in open-label trials for SAD (71), although there is a trial listed on the Clinical Trials database for topiramate augmentation in treatment-refractory SAD (NCT00182455). There is only one known RCT of valproate, also known as valproic acid (which blocks voltage-dependent sodium channels and is thought to increase GABA by inhibiting glutamate-mediated excitation), in which is primarily used to treat bipolar disorder (51). In terms of GAD (72), valproic acid showed separation from placebo, and an open-label trial in SAD suggesting potential efficacy (73). Levetiracetam, approved only for seizure disorders (and with unclear mechanism, but thought to reduce hyperexcitation of brain cells through binding to the synaptic vesicle protein SV2A, but to not interfere with normal electrical activity) (51), has undergone two RCTs for SAD

in which the medication failed to show a statistically significant difference compared to placebo (74, 75). There are no known RCTs of carbamazepine or oxcarbazepine in anxiety disorders.

Antihistamines

Hydroxyzine is the most studied antihistamine for anxiety and the only antihistamine which is FDA-approved for use in anxiety. Antihistamines like hydroxyzine are histamine-1 receptor (H_1) blockers that are commonly used as alternatives to benzodiazepines for anxiety, panic attacks, and insomnia, in both inpatient and outpatient settings (76). Hydroxyzine and other antihistamines like diphenhydramine may also be safer to use in children and adolescents and in pregnant women. There is, however, concern about the risk of anticholinergic toxicity or delirium in the elderly or patients with neurocognitive disorders. Antihistamines are generally well-tolerated, aside from adverse effects like dry mouth, constipation, sedation, and risks of use while driving. The primary drawback to this medication class is that patients tend to develop tolerance to antihistamines over time. A Cochrane review of 39 studies of GAD reported that hydroxyzine was superior to placebo and comparable to benzodiazepines and buspirone but the authors cited a high risk of study bias and concerns about sedation with hydroxyzine (76). To date, there have not been RCTs of hydroxyzine done in SAD and PD.

Alpha- and Beta-Adrenergic Agents

Propranolol is a beta-adrenergic antagonist that is FDA-approved for multiple indications including hypertension, angina, atrial fibrillation and arrhythmias, migraine prophylaxis, and essential tremor (77). Although it is not approved for any psychiatric indications, it has been widely prescribed for SAD and performance anxiety. There is, however, a lack of research support for the use of propranolol in anxiety disorders (77) although it may still have a role in certain task-specific anxieties (78). Evidence for the use of other beta-blockers like pindolol in anxiety is sparse.

Clonidine and guanfacine are alpha-2 adrenergic receptor agonists FDA-approved for the treatment of hypertension (79, 80). Extended-release formulations of guanfacine and clonidine are also approved for ADHD in children and adolescents and clonidine is also approved for adjunctive use of cancer pain and is used off-label for management of opioid withdrawal. Clonidine has been studied previously as a research drug on the noradrenergic system in GAD and PD but was not found to have much utility in clinical settings (79, 81, 82). There have been no further RCTs of clonidine in anxiety disorders other than studies of the drug as pre-medication for children for preoperative anxiety (83). Both clonidine and guanfacine may have limited practical use in anxious patients given the lack of proven efficacy and concerns about hypotension and sedation.

Antipsychotics

There is currently only one antipsychotic, trifluoperazine, a first-generation antipsychotic (FGA), which is FDA-approved for the treatment of anxiety. In spite of this, antipsychotics, most of which are dopamine-2 (D_2) receptor antagonists, have

been utilized on an off-label basis for multiple indications other than psychosis including anxiety (84). Several systematic reviews of antipsychotics in anxiety have reported that the majority of studies were of quetiapine, a second-generation antipsychotic (also with antagonism of the 5-HT₂ and H₁ receptors), in GAD, and showed the potential utility of quetiapine monotherapy in GAD despite poor tolerability (85, 86). The Canadian guidelines for anxiety and related disorders recommend olanzapine (D₂, 5-HT₂ and H₁ antagonist), aripiprazole (a partial D₂ and 5-HT_{1A} agonist and 5HT_{2A} antagonist) and risperidone (D₂, and 5-HT₂ antagonist), as augmentation strategies for GAD and PD (87). Risperidone and aripiprazole are also recommended as adjunctive drugs in the treatment of SAD (87). There is reasonable concern about the short- and long-term risks of using antipsychotics in anxiety disorders. First, there are limited studies to date in other anxiety disorders such as SAD and PD (85, 88). Second, it is unclear whether patients receive appropriate psychoeducation about the risks of tardive dyskinesia, extrapyramidal symptoms, neuroleptic malignant syndrome, weight gain, and metabolic syndrome. Further large-scale research and longitudinal studies of antipsychotics in anxiety are needed before these medications can be recommended.

NOVEL TREATMENTS FOR ANXIETY DISORDERS

The focus of research on the pharmacotherapy of anxiety disorders has shifted from serotonin, norepinephrine and GABA systems to other neurotransmitters and pathways including glutamate and neuropeptides (89). Presented below is a review of recent and ongoing studies of medications for GAD, PD, and SAD. A summary of the findings is on **Table 2**.

Serotonergic Agents

The serotonin [5-hydroxytryptamine (5-HT)] system has been studied extensively in the etiology of anxiety and anxiety disorders, and the primary first-line pharmacotherapeutic agents for anxiety are serotonergic, including SSRIs, SNRIs, and azapiroles like buspirone. There has been work on developing agents that work on several 5-HT receptors and may mimic the effects of SSRIs but with more favorable side effect profiles. For example, vilazodone, listed as an SSRI while also having partial agonistic properties on 5-HT_{1A}, was approved by the FDA for the treatment of MDD in 2011 and it also has been studied in GAD and SAD (90). A meta-analysis of vilazodone for GAD reported that three 10-week RCTs that found a separation from placebo (90) but a later meta-analysis did not support the use of vilazodone in GAD (91). There was also a small pilot randomized, placebo-controlled trial of vilazodone in adult separation anxiety disorder which did not show significant separation between drug and placebo at 12 weeks but reported some differences in other anxiety measures (92). There has been one randomized, double-blind, placebo-controlled trial of vilazodone in SAD which showed potential efficacy and promise (93) and another study listed as active but not recruiting (NCT01712321). There

are no known studies, active or recruiting, of vilazodone in PD. Vilazodone may confer benefits over SSRIs, including a possible lessened risk of sexual dysfunction (94), although gastrointestinal side effects may limit tolerability. Further comparison studies in anxiety disorders are needed.

Vortioxetine, a 5-HT₃ antagonist and 5-HT_{1A} agonist, was FDA-approved for MDD in 2013, but its efficacy for anxiety is not clear (95). Despite initial promise in GAD (96, 97), and an initial meta-analysis recommending further study (95), two subsequent meta-analyses failed to show significant efficacy of vortioxetine over placebo in GAD despite fairly good tolerability (91, 98) and thus further study and pursuit of FDA approval in GAD was abandoned in 2015. There was one open-label study of vortioxetine in PD reporting improvement in panic symptoms (99) but no known RCTs. There is one study in SAD comorbid with MDD underway (NCT04220996), but no studies of vortioxetine in other anxiety disorders.

As noted above, buspirone has been FDA-approved for the treatment of anxiety, which led to the consideration of other azapiroles (100). Gepirone, an azapirone and a selective 5-HT_{1A} receptor partial agonist, in its extended-release (ER) form, has been studied previously as an antidepressant, although it has been shown to have also anxiolytic properties (101, 102). Gepirone ER is currently in Phase 2 trials for GAD, MDD, and hypoactive sexual desire disorder (103). Tandospirone, yet another azapirone studied for depression and anxiety, showed promise in reducing anxiety in patients with anxious depression (104, 105). There was one completed trial of tandospirone in GAD but no published results yet (NCT01614041). There are also no recent or active, ongoing studies of other azapiroles such as ipsapirone or lesopitron. In terms of non-azapirone 5-HT_{1A} agonists, PRX-00023 was studied in GAD in a RCT and, despite good tolerability, it did not show separation from placebo on endpoint anxiety (106). Additionally, there are other selective 5-HT_{1A} partial agonists, such as TGK08AA, in development for GAD (89), and TGW00AA (FKW00GA) in Phase 2 studies for GAD and SAD (107).

Some 5-HT₆ receptor antagonists, such as AVN-101 and AVN-397, have been reported to have anxiolytic properties in animal studies (108). AVN-101 was shown to be safe and well-tolerated in Phase 1 studies and is under investigation for Alzheimer's Disease and may have potential for study in anxiety disorders due to its anxiolytic effects (109).

Ondansetron, approved to treat nausea and vomiting, is a selective 5-HT₃ antagonist that was found to improve anxiety in a small RCT in GAD (110) and an open-label trial in PD (111). There have, however, been no further studies of ondansetron in anxiety disorders, with the only recent and current studies focused on its use in OCD and tic-related disorders.

Agomelatine, a melatonin-1/melatonin-2 agonist and 5-HT_{2C} receptor antagonist, has been studied more extensively in depression, although it was also found to have anxiolytic properties (112). Based on several RCTs including comparisons with escitalopram (113–117), a meta-analysis of treatments for GAD determined that agomelatine was well-tolerated and potentially efficacious with the caveat of small sample sizes (91).

TABLE 2 | Novel medication treatments for anxiety disorders.

Medication Class	Mechanism of action	FDA approvals	Past RCTs in anxiety	Ongoing/future trials in anxiety
Serotonergic agents:				
Vilazodone	Selective 5-HT reuptake inhibitor, 5-HT _{1A} partial agonist (90)	MDD	GAD (90, 91) SAD (93) Sep. Anxiety (92)	SAD (NCT01712321)
Vortioxetine	Selective 5-HT reuptake inhibitor 5-HT ₃ antagonist 5-HT _{1A} agonist (95)	MDD	GAD (95–98) PD (99)	Comorbid SAD, MDD (NCT04220996)
Gepirone ER	5-HT _{1A} partial agonist (102)	None	None	GAD (103)
Tandospirone	5-HT _{1A} partial agonist (104)	None	None	GAD (NCT01614041)
PRX-00023	5-HT _{1A} partial agonist (106)	None	None	None
TGFK08AA	5-HT _{1A} partial agonist (89)	None	None	GAD (89)
TGW00AA	5-HT _{1A} partial agonist (107)	None	None	GAD, SAD (107)
AVN-101	5-HT ₆ receptor antagonist (108)	None	None	Anxiety Disorders (109)
Ondansetron	5-HT ₃ receptor antagonist (110)	Nausea/vomiting	GAD (110) PD (111)	None
Agomelatine	Melatonin-1/2 agonist, 5-HT _{2C} antagonist (112)	None	GAD (113)	None
Psilocybin	5-HT _{2A} , 5-H _{1A} , 5-HT _{2C} agonist (118)	None	"Life-threatening anxiety" (118)	Cancer-related anxiety (NCT00957359)
Lysergic diethylamide (LSD)	Unclear, modulates multiple 5-HT receptors (119)	None	None	"Life threatening anxiety" (NCT03153579)
Glutamate:				
LY354740	mGluR2-3 agonist (121)	None	PD (121)	None
LY544344	mGluR2-3 agonist (122)	None	GAD (122)	None
JNJ40411813 (ADX-71149)	mGluR2 (+) allosteric modulator (123)	None	Anxious depression (123)	None
Ketamine	NMDA receptor antagonist (124)	MDD	SAD (137)	None
Riluzole	Inhibits glutamate release (143)	Amyotrophic lateral sclerosis	GAD (143–145)	None
Troriluzole (BHV-4157)	Reduces synaptic glutamate (NCT03829241)	None	GAD (NCT03829241)	None
D-cycloserine (DCS)	NMDA partial agonist (148)	Tuberculosis	PD, SAD and specific phobias (153–167)	None
Memantine	NMDA receptor antagonist (169)	Alzheimer's dementia	GAD (169)	None
Nitrous Oxide (N ₂ O)	NMDA receptor antagonist (170)	Inhaled anesthetic	None	None
GABAergic medications:				
AZD7325	GABA-A alpha-2-3 modulator (NCT00808249)	None	GAD (NCT00808249)	None
PF-06372865	GABA-A (+) allosteric modulator (176)	None	GAD (176)	None
BNC-210	α_7 nicotinic Ach (-) allosteric modulator, GABA modulator (177)	None	GAD (177)	None
SAGE-17	GABA-A (+) allosteric modulator (180)	None	None	GAD (179)
Neuropeptides:				
Oxytocin	Unclear	Labor induction	SP (184) SAD (188)	Anxiety + depression (NCT03566069)
LY686017	Neurokinin-1 antagonist (194)	None	SAD (194)	None
L-759274	Neurokinin-1 antagonist (195)	None	GAD (195)	None
Neuropeptide Y	Y1 agonist (197)	None	PTSD (199)	None
SSR149415	V1b antagonist (202)	None	MDD + GAD (202)	None
SRX246	V1a antagonist (203)	None	None	Experimental anxiety (NCT02922166)
Pexacerfont (BMS-562086)	CRF-1 antagonist (210)	None	GAD (210)	None
Verucerfont (GSK561679)	CRF-1 antagonist (NCT00555139)	None	GAD (NCT00555139)	None
Emicerfont (GW876008)	CRF-1 antagonist (NCT00555139)	None	GAD (NCT00555139)	None

(Continued)

TABLE 2 | Continued

Medication Class	Mechanism of action	FDA approvals	Past RCTs in anxiety	Ongoing/future trials in anxiety
Suvorexant	Orexin 1,2 antagonist (216)	Primary Insomnia	PD (NCT02593682)	None
Neurosteroids:				
Mifepristone (RU486)	Progesterone inhibitor (220)	Early pregnancy termination	PTSD, GAD, PD or anxiety NOS (220)	None
PH94B	Binds to nasal chemosensory receptors to trigger neural circuits (221)	None	SAD (221, 222)	Adjustment disorder with anxiety symptoms (NCT04404192)
Cannabinoids:				
Cannabidiol (CBD)	CB1 (-) allosteric modulator, CB2 antagonist-inverse agonist, 5HT _{1A} agonist (229)	None	SAD (26, 225, 227)	PD, GAD, SAD agoraphobia (NCT03549819)
Delta-9-tetrahydrocannabinol	CB1, CB2 partial agonist (229)	None	None	None
Dronabinol	CB1 agonist (229)	Chemo-related nausea/vomiting	None	None
Nabilone	CB1, CB2 agonist (229)	Chemo-related nausea/vomiting	GAD, "anxiety neuroses" (237, 238)	None
Natural remedies:				
Kava	Unclear, activity on Na, Ca channels or GABA-A receptor (244)	None	GAD (247)	None
Galphimine-B (G-B)	Unclear, inhibition of DA neurons in ventral tegmental area (250)	None	GAD (250)	Anxiety (NCT03702803)
Chamomile	Unclear, modulates GABA receptors (251)	None	GAD (251)	None
Lavender	Inhibition of voltage-gated Ca channels (249)	None	GAD (248, 249)	Dental anxiety (NCT04285385) Pre-operative anxiety (NCT03445130)
Saffron	Unclear, inhibiting 5-HT reuptake in synapses (252)	None	Anxiety symptoms (252)	GAD (NCT02800733)

Key: 5-HT, Serotonin; Ach, Acetylcholine; CB, Cannabinoid Receptor; CRF, Corticotropin Releasing Factor; ER, XR, Extended Release; FDA, Food and Drug Administration; GABA, Gamma Aminobutyric Acid; GAD, Generalized Anxiety Disorder; MDD, Major Depressive Disorder; NMDA, n-methyl-d-aspartate; NRI, Norepinephrine Reuptake Inhibitor; NOS, Not Otherwise Specified; PD, Panic Disorder; RCT, Randomized Controlled Trial; SAD, Social Anxiety Disorder; Sep. Anxiety, Separation Anxiety Disorder; SNRI, Serotonin Norepinephrine Reuptake Inhibitor; SSRI, Selective Serotonin Reuptake Inhibitor.

Despite its apparent positive response in GAD, there are no known controlled studies of agomelatine in PD or SAD or any known ongoing trials in anxiety disorders.

Finally, it is worthwhile to discuss hallucinogens, which act on serotonin receptors, and their anxiolytic potential. Psilocybin (4-phosphoryloxy-N,N-DMT) is an indolealkylamine derived from mushrooms that causes perceptual changes in humans (altered thinking, synesthesia, illusions) and is listed as a DEA Schedule I controlled substance. It has been shown to have the potential to reduce anxiety, with several completed RCTs of psilocybin in cases of "life-threatening anxiety" (patients with anxiety who have life-threatening diseases like cancer) (118). Lysergic acid diethylamide (LSD) is a widely abused hallucinogen with similar effects as psilocybin and is also a Schedule I drug. Prior evidence for the use of LSD in anxiety is less robust and favors its use in alcohol use disorder (119). There is an active clinical trial of psilocybin in cancer-related anxiety (NCT00957359) and a randomized, double-blind, placebo-controlled trial testing LSD in patients with anxiety with or without life-threatening diseases (NCT03153579). The difficulties regulating Schedule I drugs

may limit whether hallucinogens have potential for widespread clinical application.

Glutamate Modulators

Glutamate is the primary excitatory neurotransmitter of the central nervous system. Receptors for glutamate include ionotropic receptors [N-methyl-D-aspartate (NMDA), α -Amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA)/kainate and metabotropic receptors (mGluR)]. Several preclinical studies have reported anxiolytic effects of mGluR modulators (120), although human studies have not been as promising. For example, LY354740, an mGluR 2-3 agonist, did not separate from placebo in a randomized controlled comparison study with paroxetine (121) in patients with PD. After studies with LY354740 were halted due to concerns about bioavailability, LY544344, a pro-drug of LY354740, was studied for GAD in an 8-week randomized placebo-controlled trial with reported efficacy but the study was halted due to concerns about convulsive activity in preclinical trials (122). JNJ-40411813 (ADX-71149), an mGluR2 positive allosteric modulator, was

studied in a RCT for anxious depression but did not show efficacy (123).

Ketamine, originally developed as an anesthetic, has shown rapid and robust antidepressant effects in multiple randomized controlled clinical trials. The majority of these studies have tested the safety and efficacy of a single intravenous (IV) infusion of the ketamine in adults with treatment-resistant depression (TRD), most commonly at a dose of 0.5 mg/kg (124–127). Subsequent studies provide evidence for a favorable safety and efficacy profile of repeated doses of ketamine administered over several weeks (128–130). It should be noted that the use of IV ketamine for TRD is off-label and there is currently a lack of data concerning the longer-term safety and efficacy of this approach (124, 131). Ketamine exists as a 1:1 racemic mixture of R-ketamine and S-ketamine. In 2019, an intranasal (IN) form of S-ketamine (“esketamine”) gained approval from the FDA for the treatment of MDD in adults with treatment-resistant depression (132). Buoyed by these observations in depression, recent studies have examined the tolerability and potential efficacy of ketamine in anxiety disorders, based on preclinical observations (133).

An early study reported the benefit of daily oral ketamine on symptoms of both depression and anxiety in adults in hospice care (134). A small open-label study suggested benefit of ketamine administered subcutaneously in a single ascending dose design in patients with refractory SAD and/or GAD (135). The same group showed preliminary benefit of ketamine 1 mg/kg injected subcutaneously dosed once or twice weekly for 3 months among patients who had responded in the initial ascending dose study (136). More recently, a double-blind RCT of intravenously administered ketamine at 0.5 mg/kg compared to saline placebo showed benefit in patients with SAD measured using the Liebowitz Social Anxiety Scale (LSAS) (137). There are no known ongoing trials of ketamine in PD, GAD, or SAD.

Riluzole, a glutamate modulator approved for the treatment of amyotrophic lateral sclerosis (ALS), also has been studied previously as an adjunctive agent in TRD (138–140). Animal studies supported the efficacy of riluzole in models of anxiety (141, 142). To date, there is only one trial of riluzole in anxiety disorders which was an open-label study of 18 participants with GAD. The trial reported response or remission in a majority of patients, as measured on the Hamilton Anxiety Scale, although the results are limited by the lack of a control group and the small number of participants (143). Subsequent functional neuroimaging studies of open-label riluzole in GAD reported that patients experienced changes in hippocampal volumes and N-acetylaspartate (NAA) concentrations which correlated with improvement on anxiety scales compared with healthy volunteers (144, 145). An analog of riluzole, troriluzole (BHV-4157), underwent a Phase III trial in GAD which has been completed although the results have not been published (NCT03829241).

There are several animal studies of AMPA modulators, including PEPA, primarily in fear extinction models of anxiety, showing positive anxiolytic effects (146). One AMPA modulator, Org 26576, has been studied for MDD (147). To date, however, there are no known studies in the pipeline for AMPA modulators for anxiety disorders.

D-cycloserine (DCS), an NMDA partial agonist, is among the most widely studied glutamatergic agents in anxiety (148). D-cycloserine is unique in that research to date has focused on the effects of DCS on anxiety in the context of psychotherapy or fear learning. In animal and human studies, DCS has been shown to facilitate fear extinction (148). Although not known to be efficacious as a monotherapy (149), DCS at a low dose of 50 mg/day (which is largely an NMDA agonist) has been successfully used in augmentation of exposure therapy or CBT, including reducing anxiety in persons performing cognitive tasks (150) and facilitating declarative learning (151) by reducing reactivity to phobic stimuli in persons with specific phobia on functional MRI (152). D-cycloserine has been studied for augmentation of psychotherapy in PD, SAD, and specific phobias. A 2015 Cochrane review reported no difference between DCS and placebo in augmentation of cognitive and behavioral therapies in anxiety and related disorders at study endpoint or follow up, in both children and adolescents (153). A 2017 meta-analysis of DCS in anxiety disorders found a small difference between DCS and placebo post-treatment but minimal gains on follow-up treatments (154). Subsequent studies of DCS augmentation in PD have been mixed (155, 156). In SAD, despite earlier studies showing promise for the use of DCS augmentation of exposure therapy (157–159), there have been far less encouraging findings in subsequent studies (157, 160–162). Studies of DCS in SP, including acrophobia and spider phobia, have yielded inconsistent but mostly negative findings for DCS compared to placebo (163–167). There are no active clinical trials of DCS augmentation in PD, GAD, SAD, or SP. On balance, while initial studies of DCS showed promise for use in augmentation of psychotherapies, subsequent larger-scale studies have been disappointing.

Memantine, an NMDA receptor antagonist FDA-approved for the treatment of Alzheimer dementia, moderate-severe, was tested previously in preclinical studies as a potential antidepressant (168). One study reported minimal improvement in seven patients with GAD, while 10 participants with OCD experienced modest benefit (169). There are no known active studies of memantine for anxiety disorders.

Finally, nitrous oxide (N₂O), an inhaled anesthetic most often used in dental procedures, is a NMDA receptor antagonist (170). Nitrous oxide can be used recreationally and has been associated with potential neurologic and psychiatric adverse effects (171). There also has been some study of N₂O for the treatment of alcohol withdrawal (172) and a proof-of-concept study in MDD (173). Although there is literature on using N₂O for the treatment of dental phobia and other procedure-related anxiety (174), there is, to date, no known past or current study of N₂O as a pharmacologic treatment of PD, GAD, or SAD.

GABAergic Medications

Given how efficacious benzodiazepines (GABA-A agonists) are for the treatment of anxiety disorders, and how there may be potential benefits with pregabalin and gabapentin, there has been an effort to find novel GABAergic anxiolytic agents. To date, however, several GABA-A receptor subtype agonists have either failed to reach market due to lack of efficacy or poor

tolerability (89, 175). AZD7325, a GABA-A alpha-2-3 modulator, failed to separate from placebo in a Phase 2 comparative trial with placebo and alprazolam for GAD (NCT00808249). PF-06372865, a GABA-A positive allosteric modulator, tested at two doses, failed to separate from placebo as an adjunctive treatment in patients with GAD (176). On an encouraging note, BNC-210 (IW-2143), an α 7 nicotinic acetylcholine receptor-negative allosteric modulator which also modulates the GABA receptor, was reported to result in reduced amygdalar activation to fearful faces compared to placebo and comparably to lorazepam, in patients with GAD (177). Although it is unknown how many GABA modulators are being studied in anxiety, preclinical research suggests that several agents may be in the pipeline (178). For instance, SAGE-217 is a GABA-A positive allosteric modulator that is under Phase III study for MDD and postpartum depression and is being explored for treatment of GAD (179, 180). Finally, phytochemical (herbal) compounds that have GABAergic properties are also under investigation (see “Natural Remedies” section below).

Neuropeptides

Neuropeptides are small proteins that work as neuronal signaling molecules and are involved in an array of brain functions such as analgesia, reward systems, social behaviors, learning, and memory. In addition, specific neuropeptides such as oxytocin, substance P, neuropeptide Y (NPY), arginine vasopressin (AVP), and cholecystokinin (CCK) play significant roles in modulating fear and anxiety.

Oxytocin is a neuropeptide involved in attachment and prosocial behaviors. Due to its poor absorption in the digestive tract, oxytocin must be administered either intravenously, intranasally or sublingually, where it is well-tolerated with no known serious adverse effects (181). Studies have shown that in healthy adults, oxytocin has positive effects on emotion modulation (182), and that low oxytocin has been associated with high anxiety (183). Animal studies suggest that oxytocin has anxiolytic effects and human research suggests that oxytocin may increase anxiety acutely. For example, a double-blind, placebo-controlled study of intranasal oxytocin on single-session exposure-based psychotherapy for arachnophobia found that oxytocin impaired treatment response compared to placebo (184). Overall, however, oxytocin may have overall positive effects on anxiety depending on the frequency and context of administration (183). Research on oxytocin for the treatment of anxiety disorders has been focused on SAD (185, 186), with studies reporting increasing amygdalar-prefrontal activity in response to emotional faces (187), and enhancing prosocial behaviors (188). Although there is a large body of research on the use of oxytocin for augmentation of antipsychotics in schizophrenia (189), several of these trials have been called into question (190) due to study design and sample size and there has been controversy about whether oxytocin can be absorbed into the brain with intranasal administration or if peripheral levels reflect central activity (191). Currently, there is one known study evaluating intranasal oxytocin in patients suffering from acute anxiety and depression during psychiatric hospitalization (NCT03566069).

Substance P is one of the major neuropeptides found in the nervous system (192). Given its abundance in the fear center of the brain, Substance P and its neurokinin receptor system have been a great topic of interest in anxiety disorder research (193). Despite ample research interest, several trials have failed to demonstrate the efficacy of Substance P in reducing symptoms of anxiety disorders (194, 195), which has led to a decrease in pharmaceutical studies (193). A recent study conducted by Frick et al. (196) however, found that individuals with SAD demonstrated more NK1 receptor availability in the right amygdala when compared to healthy controls. This finding highlights the need for further research on utilizing NK1 receptor antagonists for the treatment of some anxiety disorders. Currently, there are not any ongoing clinical studies that evaluate the use of Substance P for the treatment of anxiety disorders.

Neuropeptide Y is one of the most abundant neuropeptides in the brain and numerous reports have found that NPY is critical for the stress adaptation process (197). In humans, NPY has been closely linked to trauma. Most recently, a small RCT of intranasally administered NPY in patients with MDD showed potential benefit for depression (198). A study conducted by Sayed et al. found that intranasally administered NPY was associated with greater treatment response and improvement in anxiety ratings when compared to placebo in individuals with PTSD (199). This finding encourages future research that studies the safety and efficacy of NPY as an anxiolytic treatment. There are however no active trials of NPY in GAD, PD, or SAD.

Arginine Vasopressin (AVP) has been shown in animal models to be related to anxiety responses and vasopressin V1a and V1b receptor antagonists may have anxiolytic properties (200, 201). Few human studies of V1 antagonists have been published. Griebel et al. (202) compared the vasopressin V1b antagonist, SSR149415, in a randomized, double-blind study, to escitalopram, paroxetine and placebo, in MDD and GAD, reporting that SSR149415 did not differentiate from placebo in outcome measures for GAD. Conversely, studies conducted by Fabio et al. (203), and Lee et al. (204) have shown safety and promise of V1a receptor SRX246 as an anxiolytic, with an active study of this compound in an experimental model of anxiety in humans (NCT02922166). There are currently no known clinical trials studying V1a antagonists in the treatment of anxiety disorders.

Cholecystokinin (CCK) is a peptide which helps regulate gastric secretions and motility and biliary function in the gastrointestinal system; in the brain, CCK is found in the brain's fear network (e.g., the amygdala, hypothalamus, etc.) (205). Current research surrounding CCK is complex in that CCK agonists are panicogenic, but CCK-2 antagonists fail to alleviate human anxiety (206), leaving many unanswered questions regarding the role of CCK in human anxiety. According to clinicaltrials.gov, there are currently no known clinical studies evaluating CCK antagonists for the treatment of anxiety disorders.

Corticotropin-releasing factor (CRF) plays a role in stress response and individuals with anxiety disorders exhibit aberrant CRF homeostasis (207). Conversely, CRF receptor antagonists have been shown to have potential anxiolytic effects in

animal models (208). The results from preliminary research in anxiety disorders, however, have been disappointing (209). One randomized, double-blind trial of the CRF-1 antagonist, pexacerfont (BMS-562086), compared to escitalopram and placebo for the treatment of GAD, found that it did not separate from placebo (210). There are also completed, but not published, studies for SAD comparing CRF-1 antagonists verucerfont (GSK561679) and emicerfont (GW876008) to alprazolam and placebo (NCT00555139), and a Phase 2 trial of patients with GAD comparing GW876008 to paroxetine and placebo (NCT00397722). Research on CRF-1 antagonists appears to have shifted toward addiction with recent trials of pexacerfont and verucerfont in alcohol use disorder (211, 212). There are no known active trials of CRF-1 antagonists in anxiety disorders.

Orexin, also known as hypocretin, is a neuropeptide associated with arousal, appetite, and wakefulness (213). Orexin is also thought to play a role in stress response with alterations in orexin found in depression and anxiety (214). Based on the research finding that orexin levels are increased in CSF of individuals with PD (215), orexin is thought to have anxiogenic effects, leading to research on orexin-1 and orexin-2 receptor, and dual-receptor antagonists for treatment of anxiety disorders (216). Suvorexant, an orexin-1 and orexin-2 receptor antagonist, is FDA-approved for primary insomnia, and is under study in PD, comparing the drug to placebo to monitor orexin levels and response to a carbon dioxide challenge (NCT02593682). There are no other known ongoing studies of orexin antagonists in anxiety disorders.

In summary, neuropeptides appear to be a promising emerging field for the treatment of anxiety disorders but there are no clear therapeutic candidates for anxiety disorder have been identified as of yet.

Neurosteroids

Neurosteroids, also known as neuroactive steroids, act as transcription factors to regulate gene expression and endogenously modulate neuronal excitability by interacting with GABA-A, NMDA, and glutamate receptors (217). Both preclinical and clinical studies have demonstrated evidence of aberrant neurosteroid homeostasis in anxiety disorders (218). The antidepressant effects of SSRIs have been shown to correlate with increased brain and cerebrospinal fluid levels of allopregnanolone, a neurosteroid with potent modulatory activity on GABA-A receptors (219). Because of their ability to rapidly control the excitability of the central nervous system, there has been increasing interest in the role of neurosteroids as novel treatments for anxiety disorders. To date, two compounds with neurosteroidal activity, mifepristone (RU486) and PH94B, have been investigated for the treatment of anxiety symptoms.

RU486 is a progesterone inhibitor used for early pregnancy termination (220). It is a glucocorticoid antagonist and has been studied for MDD with psychotic features, improving cognition in patients with bipolar disorder and schizophrenia, and for the treatment of PTSD. A 12-week, pilot clinical trial assessed the effect of mifepristone in older adults as a treatment for anxiety disorders with co-morbid cognitive dysfunction (220). The study included 15 older adults (ages 60 years and older) with an anxiety

disorder (GAD, PD, or anxiety disorder not otherwise specified). Subjects were randomized to either mifepristone 300 mg daily or placebo for the first week of the study. After the first week, all patients received treatment with mifepristone 300 mg daily for an additional 3 weeks. At the end of week 4, mifepristone was discontinued, and follow-up assessments of memory, executive function, and anxiety were completed at week 12. Subjects with higher baseline cortisol levels had improvements in memory, executive function, and anxiety, while those with low or normal baseline cortisol levels experienced little to no mifepristone-related improvement. There are no active studies of mifepristone in anxiety disorders.

PH94B, an intranasally administered neurosteroidal aerosol, has been investigated for the acute treatment of SAD. In a phase 2, multi-center, randomized, double-blind, placebo-controlled, single-dose study, 91 females (ages 19–60 years) with SAD were randomized to receive either placebo or PH94B nasal spray 15 min prior to a public speaking or social interaction challenge under laboratory settings (221). Seventy-five percent of the subjects who received PH94B were considered responders [either "much" or "very much improved" as measured by the Clinical Global Impressions-Improvement (CGI-I)], compared with 37% of the subjects who received placebo. There were no differences in adverse events reported by the PH94B and placebo groups. A second study assessed the use of PH94B for the treatment of symptoms of SAD in real-world settings in a pilot, randomized, double-blind, placebo-controlled trial (222). Twenty-two males and females (ages 18–65 years) with SAD were randomized to either placebo or PH94 nasal spray. The subjects were instructed to self-administer the nasal spray 15 min prior to a distressing social interaction or performance, up to four times per day. PH94B was superior to placebo in decreasing mean peak levels of symptoms of social anxiety, as measured by subject-reported subjective units of distress (SUDs). The results of an open-label study of PH94B for the treatment of adjustment disorder with anxiety symptoms in adults which has planned to begin enrollment in 2020 will be of great interest (NCT04404192).

Alpha- and Beta-Adrenergic Agents

As noted above, clonidine may be used off-label for anxiety but there have been no recent clinical studies of clonidine in anxiety disorders. There are no current drug trials of clonidine in PD, SAD, GAD, or SP. One RCT of guanfacine ER in children and adolescents (ages 8–17 years) with GAD, separation anxiety disorder, and SAD reported that the medication was safe and well-tolerated but it is unclear whether it is efficacious (80). To date, there are also no known active studies of guanfacine in anxiety disorders. As noted earlier, there is currently limited active investigation of propranolol for anxiety disorders outside of the extensive research done on memory consolidation and PTSD.

Cannabinoids

In many parts of the world, cannabis is consumed for its euphoric and relaxing effects. There is a widespread belief that cannabis, cannabidiol (CBD), and other cannabinoids are harmless substances and can lower anxiety and induce

relaxation. However, the literature does not support the belief that cannabinoids are safe for patients with anxiety disorders, nor does it support the notion that cannabinoids improve anxiety and related symptoms in those patients. The quality of evidence currently available from clinical trials with cannabinoids and anxiety is very low. This is in part because most of the studies included participants with a primary diagnosis of chronic non-cancer pain, multiple sclerosis or fibromyalgia, rather than anxiety disorders. Other limitations of these studies include small sample size and other methodological flaws (223).

Endogenous and exogenous cannabinoids act on the cannabinoid type 1 (CB1) receptor, serotonergic type 1A (5HT_{1A}) receptor and the transient receptor potential vanilloid type 1 (TRPV1) receptor. Cannabinoid type 1 receptor agonists have a biphasic effect: they have anxiolytic properties in low doses and anxiogenic properties in high doses. While the activation of the CB1 receptor produces inhibitory effect in the neuron, leading to an anxiolytic effect, high doses of CB1 receptor agonists induce activation of TRPV1 receptor, which produces anxiogenic effects (224). Several drugs that act as 5HT_{1A} receptor agonists proved to be effective in the treatment of anxiety disorders; recent studies indicate that cannabidiol and other cannabinoids also act on the 5HT_{1A} receptor, potentially resulting in anxiolytic effects (224).

The most studied cannabinoid in anxiety is CBD. Preclinical animal model studies and human trials indicate that CBD is a potentially effective treatment for PD, GAD, and SAD (224). In the study from Bergamaschi et al. (225), the authors found that the administration of a single dose of CBD (600 mg) successfully attenuated the anxiety response to a public speaking test in subjects with SAD. In another study, the same research team found that a single 400 mg dose of CBD reduced the anxiety associated with a SPECT scan in patients with SAD (226). One small RCT which included 37 adolescents with SAD (CBD $n = 17$, placebo $n = 20$) showed promising results (227). Subjects received 300 mg of CBD or placebo daily for 4 weeks. The Liebowitz Social Anxiety Scale (LSAS) scores decreased by 16% ($P = 0.03$) pre- and post-treatment in the CBD group. The drug-placebo difference in LSAS was not statistically significant. Currently, there is a RCT with CBD underway (NCT03549819) with an estimated completion date of October 2020. Flexibly dosed CBD (200–800 mg/day) will be administered for 8 weeks to patients with PD, GAD, SAD, or agoraphobia.

Excessive activity in limbic and paralimbic cortical areas has been consistently implicated in the pathophysiology of anxiety disorders. The parahippocampal gyrus and hippocampus are thought to play a key role in mediating fear and anxiety. The public speaking test produces activation of limbic areas in SAD subjects, but in subjects treated with citalopram there is a decreased regional cerebral blood flow (rCBF) response in the amygdala, hippocampus, and the periamygdaloid, rhinal and parahippocampal cortices (228). In the study from Crippa et al. (226) they found that CBD administration decreased resting rCBF in the limbic area, namely in the left parahippocampal gyrus and hippocampus. Although the effects of citalopram and CBD were similar in some areas, citalopram produced decreased

rCBF in the cingulate gyrus, while CBD produced increased rCBF in the right posterior cingulate gyrus (226).

The anxiolytic effects observed with CBD are in contrast to the anxiogenic effects induced by delta-9-tetrahydrocannabinol (229). Delta-9-tetrahydrocannabinol (THC) is a partial agonist of the CB1 receptor that can have anxiolytic effect in low doses, but in high doses can induce anxiety and panic attacks (229). In a clinical trial for treatment of Tourette syndrome, the authors found worsening of obsessive-compulsive behavior after the administration of THC. No significant differences were found in anxiety scores, but there was a trend of higher phobic anxiety after administration of THC (230). There are no registered trials for THC in anxiety disorders.

Dronabinol is a synthetic trans isomer of THC and, compared to THC has higher affinity to the CB1 receptor (229). Two RCTs found that dronabinol was effective for treatment for pain, but neither study found significant changes in anxiety scores (231, 232). In the study by Narang et al. two subjects experienced high anxiety as a side effect of a higher dronabinol dose (20 mg) (232). There is one registered study listed as withdrawn (NCT03369639) with dronabinol and anxiety disorders; there are no active studies.

Nabilone is also a synthetic cannabinoid which is similar to but more potent than THC. It has high affinity to CB1 and CB2 receptors. Four studies assessed the effects of nabilone in pain as a primary outcome and anxiety as a secondary outcome (233–236). One RCT (233) which included subjects with neuropathic pain demonstrated that nabilone was effective for the treatment of pain but did not produce any changes in anxiety. In the study by Toth et al. 1–4 mg/day of nabilone was effective in relieving pain, improving disturbed sleep, reducing anxiety, and increasing the quality of life of patients with diabetic peripheral neuropathic pain (236). Skrabek et al. (235) also found that nabilone produced improvement of pain, decreased anxiety, and increased quality of life in fibromyalgia patients. In patients with chronic headache, nabilone was more effective than ibuprofen for pain management, but there were no significant differences in anxiety scores (234). In the first of two small clinical trials (237), patients with either GAD or “anxiety neuroses” received placebo or nabilone over four sessions, 7 days apart. Anxiolytic effects were observed only in a small portion of the patients. In another study, 25 patients with anxiety received 2–10 mg/day of nabilone for 28 days and had significant improvement of anxiety in an open-label phase (238). In the RCT phase of the same study, patients received nabilone 3 mg/day for 28 days and the improvement in the nabilone group was superior to the placebo group. Side effects included drowsiness, dry mouth, and dry eyes. Significant improvements in anxiety scores were also noted in a cross-over comparison of nabilone (1–2.5 mg twice daily) and placebo in 11 anxious patients (239). There are currently no registered clinical trials assessing nabilone in anxiety disorders.

Preparations including both THC and CBD (THC-CBD) have been tested as treatments for pain in two RCTs. In two small RCTs which included patients with multiple sclerosis, THC-CBD did not increase or decrease anxiety (240, 241). In one of those studies (240), THC-CBD was effective in the treatment of pain and sleep disturbances, while in the second study (241) THC-CBD was not effective for pain. In a RCT

of THC-CBD for the treatment of Huntington's Disease (242), there were no significant improvements of motor, cognitive, behavioral, and functional scores. Also, there were no significant changes in anxiety scores. There are no registered trials for THC-CBD in anxiety disorders, but there is one trial underway (NCT03491384) assessing the effect of recreational cannabis use on anxiety symptoms.

Regarding the safety of cannabinoids, currently there are no studies showing that CBD or nabilone increase anxiety or cause panic attacks, suggesting that these medications are safe for patients with anxiety disorders. However, THC and dronabinol are likely not safe drugs for these patients because they can induce anxiety and panic attacks depending on the doses and individual predispositions of each patient. In conclusion, cannabidiol and nabilone are the most promising cannabinoids in the treatment of anxiety disorders, but the level of evidence for these drugs is still very low. Overall, THC, THC-CBD and dronabinol seem to be ineffective and potentially harmful for subjects with anxiety disorders.

Natural Remedies

There has been increased study of herbal medications for depression and anxiety, with over 30 medications having been tested in some capacity over the past 15 years (243). Despite this burgeoning interest in natural agents, the data for most of them remains sparse. The most widely studied herbal compound is kava, a plant containing kavapyrones, which are thought to exert anxiolytic effects through activity on sodium and calcium channels or most likely from action on GABA-A receptors (like benzodiazepines) (244). A Cochrane meta-analysis of RCTs of kava in anxiety disorders, published in 2003, reported reductions in anxiety scores and separation from placebo (245). A more recent analysis was more conservative and noted that kava could be recommended for short-term use in anxiety but should not replace longer-term medications (246), while another review concluded that, given insufficient evidence, kava could not be recommended for GAD (247). All the above reviews also noted the risk of liver toxicity, including potentially severe liver toxicity, with the use of kava. There are no known active or upcoming studies of kava in anxiety disorders.

Several systematic reviews of other herbal compounds for the treatment of anxiety and anxiety disorders have been conducted and reported including RCTs for several agents such as ashwagandha, passionflower, galphimia, echinacea, ginkgo, chamomile, lemon balm, valerian, and lavender (243, 248, 249). A recent trial compared Galphimine-B (G-B), isolated from Galphimia (and found in rats to have anxiolytic effect through inhibition of dopaminergic neurons in the ventral tegmental area), to alprazolam, a benzodiazepine, as a control, in patients with GAD and reported that G-B had comparable efficacy to alprazolam with less sedation (250). Although there have been several positive studies of natural treatments for GAD, in particular for chamomile (251), the agent with strongest evidence for use is kava. Currently, there are ongoing clinical trials using lavender (thought to treat anxiety by inhibiting voltage-gated calcium channels) for dental (NCT04285385) and pre-operative anxiety (NCT03445130) and a Phase 2 randomized double-blind

trial comparing galphimia to alprazolam for the treatment of anxiety (NCT03702803). Although saffron (*Crocus sativus*) has been studied for depression and anxiety, due to its possible effects of inhibiting serotonin reuptake in synapses (252), there is only one listed study, a randomized, double-blind RCT in mild to moderate GAD, although its status is unknown (NCT02800733).

DISCUSSION

Since this group's last review of novel therapies for anxiety disorders in 2014 (253), there has been little headway made in the development or clinical evaluation of new drugs for PD, GAD, and SAD. There have been no new medications approved by the FDA for any anxiety disorder during that time. Although there have been trials of serotonergic agents (like vortioxetine and agomelatine), glutamate modulators (such as riluzole and ketamine), neuropeptides, and even cannabinoids, very few have advanced to Phase III trials or have shown real promise for anxiety disorders. This trend lies in contrast to the greater number of studies taking place for PTSD, OCD, mood/depressive disorders, and schizophrenia. Moreover, the field lacks data contrasting specific drugs (or mechanisms of action) with efficacy, which would be required to propose rational protocols for the selection of optimally efficacious treatments.

The traditional areas of research for anxiety included serotonin, norepinephrine, and GABA, and indeed there are several drugs recently studied and under investigation targeting these neurotransmitters. This research, however, has been built upon the previous success of SSRIs, SNRIs, and GABAergic agents like benzodiazepines, and, to a lesser extent, pregabalin and gabapentin, neither of which are approved in the United States but are prescribed off-label for anxiety. The temptation to continue work on these pathways is due to the acknowledgment that these treatments are effective while failing to expand beyond this comfort zone. Indeed, the neurobiology of anxiety has expanded well beyond the research on fear condition, false suffocation alarms, and the neuroendocrine and HPA-axis models of panic and fear. The early neurocircuitry models of anxiety were based on pre-clinical research and cast a wide net, including PTSD in those models. It is now better understood how much heterogeneity exists between PTSD and other anxiety disorders and even in the class of anxiety disorders, among PD, SAD, and GAD (11). While neuroimaging studies in the last two decades have led to a refined understanding of brain circuits involved in fear and anxiety, this knowledge has not yet translated in insights leading to novel treatments (with the exception, perhaps, of attempts to use transcranial magnetic stimulation to modulate anxiety and fear circuitry) (254). This is also because in general pharmacotherapies are less clearly related to the functioning of specific brain circuits.

The pursuit of novel pharmacotherapies for anxiety disorders has been fraught with many complications. The first-line treatments, SSRIs and SNRIs, were originally approved for depressive disorders and then later for anxiety disorders. There have been very few drugs developed *de novo* for anxiety. Studies

of newer agents have been hampered by flawed study designs such as lack of controls or using placebos instead of comparison to established medications such as SSRIs or benzodiazepines. While this may seem like an insurmountable hurdle, there is hope in that several compounds, including neurosteroids, neuropeptides, and phytochemicals (herbal compounds), have shown some potential. It also would help to study medications specifically for how the disorder manifests clinically, such as how PH94B has been investigated for performance anxiety in SAD by being administered 15 min before the participant is to have a social interaction or give a performance (222). Although study designs may be tricky, studying the use of pro re nata (PRN) or “as-needed” medications may be of more clinical use to patients, especially given that this is how a significant portion of patients are prescribed benzodiazepines.

Therein lies a second area of concern. Although it has been assumed that most patients respond to SSRI or SNRI medications, benzodiazepines, psychological treatments, or some combination, about one-third of these patients have treatment-refractory anxiety. There is still little known about treatment resistance in anxiety disorders and how to treat it effectively. It also remains unclear how many patients are being treated with effective doses or being given adequate trials or are potentially being misdiagnosed or treated with inappropriate regimens. Anxiety disorders, in addition to their high prevalence, are a leading cause of disability, which is exacerbated by their high comorbidity with depression (255). Naturalistic studies may be needed to understand how to treat anxiety patients with psychiatric, medical, and substance comorbidities.

Perhaps the clearest limitation of this synopsis is the intentional omission of psychotherapies for anxiety disorders. Although their efficacy in PD, GAD, and SAD, has been documented, this review aimed to focus on pharmacotherapies. That said, it is impossible to ignore the importance of therapy-assisted medications such as DCS or potentially even psychedelic medications. Ideally, such medications could reduce the distress related to exposure techniques and enhance the retention of information in anxiety-focused psychotherapy,

ultimately increasing its overall efficacy. Such medications are also important given the lack of access to care and how few patients are in fact being treated first by psychiatrists (for medication management) and can receive appropriate CBT or exposure therapies for their anxiety disorders. This is certainly an area that needs greater investigation. Further research on augmented psychotherapies should not, however, preclude the concomitant development of novel pharmacotherapies, especially given evidence for greater efficacy of pharmacologic treatments over psychological therapies for certain anxiety disorders such as GAD (256).

Since this review did not uncover a wide range of support for promising pharmacotherapies for anxiety disorders in development, we need to reconsider what treatments currently work best, and what areas to focus on going forward. While developing serotonergic or GABAergic agents with more favorable side effect profiles (compared to SSRIs, SNRIs, and benzodiazepines, gabapentin and pregabalin) may have some clinical value, there needs to be further expansion into agents targeting neuropeptide pathways, glutamate, endocannabinoids, and multi-modal medications (including phytochemicals and hallucinogens). These newer compounds may not replace the current treatments but may over time serve as adjuncts or aid in therapy, at least until the field can develop better biomarkers and incorporate brain imaging, pharmacogenomic and other neurobiochemical advances. In terms of pharmacological development, it is time for anxiety disorders to catch up to depression, PTSD, bipolar disorder, and schizophrenia.

AUTHOR CONTRIBUTIONS

AG, JM, RT, RF, and DI contributed to conception and design and wrote the original draft of the manuscript. AG, JM, RF, RT, KL, FB, and DI contributed to manuscript revisions, review and analysis of the literature, and creation of the tables. All authors reviewed and approved the final draft of the manuscript and made substantial contributions to this study.

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Conflict of Interest: In the past 5 years, JM has provided consultation services and/or served on advisory boards for Allergan, Boehringer Ingelheim, Clexio Biosciences, Fortress Biotech, FSV7, Global Medical Education (GME), Impel Neuropharma, Janssen Research and Development, Medavante-Prophase, Novartis, Otsuka, and Sage Therapeutics. JM is named on a patent pending for neuropeptide Y as a treatment for mood and anxiety disorders and on a patent pending for the use of ezogabine and other KCNQ channel openers to treat depression and related conditions. The Icahn School of Medicine (employer of JM) is named on a patent and has entered into a licensing agreement and will receive payments related to the use of ketamine or esketamine for the treatment of depression. The Icahn School of Medicine is also named on a patent related to the use of ketamine for the treatment of PTSD. JM is not named on these patents and will not receive any payments. In the last 5 years, DI has received consulting honoraria from Alkermes, Axsome, Centers for Psychiatric Excellence, Jazz, Lundbeck, Otsuka, Precision Neuroscience, Sage, Sunovion; he has received research support (through his academic institution) from Alkermes, Astra Zeneca, Brainsway, Litecure, Neosync, Otsuka, Roche, Shire.

The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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The Efficacy of Cognitive Behavioral Therapy: A Review of Meta-analyses

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Published online: 31 July 2012
© Springer Science+Business Media, LLC 2012

Abstract Cognitive behavioral therapy (CBT) refers to a popular therapeutic approach that has been applied to a variety of problems. The goal of this review was to provide a comprehensive survey of meta-analyses examining the efficacy of CBT. We identified 269 meta-analytic studies and reviewed of those a representative sample of 106 meta-analyses examining CBT for the following problems: substance use disorder, schizophrenia and other psychotic disorders, depression and dysthymia, bipolar disorder, anxiety disorders, somatoform disorders, eating disorders, insomnia, personality disorders, anger and aggression, criminal behaviors, general stress, distress due to general medical conditions, chronic pain and fatigue, distress related to pregnancy complications and female hormonal conditions. Additional meta-analytic reviews examined the efficacy of CBT for various problems in children and elderly adults. The strongest support exists for CBT of anxiety disorders, somatoform disorders, bulimia, anger control problems, and general stress. Eleven studies compared response rates between CBT and other treatments or control conditions. CBT showed higher response rates than the comparison conditions in seven of these reviews and only one review reported that CBT had lower response rates than comparison treatments. In general, the evidence-base of CBT is very strong. However, additional research is needed to examine the efficacy of CBT for randomized-controlled studies. Moreover, except for children and elderly populations, no meta-analytic studies of CBT have

been reported on specific subgroups, such as ethnic minorities and low income samples.

Keywords CBT · Efficacy · Meta-analyses · Comprehensive review

Introduction

Cognitive-behavioral therapy (CBT) refers to a class of interventions that share the basic premise that mental disorders and psychological distress are maintained by cognitive factors. The core premise of this treatment approach, as pioneered by Beck (1970) and Ellis (1962), holds that maladaptive cognitions contribute to the maintenance of emotional distress and behavioral problems. According to Beck's model, these maladaptive cognitions include general beliefs, or schemas, about the world, the self, and the future, giving rise to specific and automatic thoughts in particular situations. The basic model posits that therapeutic strategies to change these maladaptive cognitions lead to changes in emotional distress and problematic behaviors.

Since these early formulations, a number of disorder-specific CBT protocols have been developed that specifically address various cognitive and behavioral maintenance factors of the various disorders. Although these disorder-specific treatment protocols show considerable differences in some of the specific treatment techniques, they all share the same core model and the general approach to treatment.

Consistent with the medical model of psychiatry, the overall goal of treatment is symptom reduction, improvement in functioning, and remission of the disorder. In order to achieve this goal, the patient becomes an active participant in a collaborative problem-solving process to test and challenge the validity of maladaptive cognitions and to

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modify maladaptive behavioral patterns. Thus, modern CBT refers to a family of interventions that combine a variety of cognitive, behavioral, and emotion-focused techniques (e.g., Hofmann 2011; Hofmann et al. in press). Although these strategies greatly emphasize cognitive factors, physiological, emotional, and behavioral components are also recognized for the role that they play in the maintenance of the disorder.

A recent review of meta-analyses of CBT identified 16 quantitative reviews that included 332 clinical trials covering 16 different disorders or populations (Butler et al. 2006). To our knowledge, this was the first review of meta-analytic studies examining the efficacy of CBT for a number of psychological disorders. This article has since become one of the most influential reviews of CBT. However, the search strategy was restrictive, because only one meta-analysis was selected for each disorder. Furthermore, the search only covered the period up to 2004, but many reviews have been published since then. In fact, the majority of studies (84 %) was published after 2004. The goal of our review was to provide a comprehensive survey of all contemporary meta-analyses examining the evidence base for the efficacy of CBT to date. The meta-analyses included in the present review were all judged to be methodologically sound.

Methods

Search Strategy and Study Selection

To obtain the articles for this review, we searched PubMed, PsychInfo, and Cochrane library databases. Searches were conducted for studies published between the first available year and January 26, 2012 using the following key words: *meta-analysis AND cognitive behav**, *meta-analysis AND cognitive therapy*, *quantitative review AND cognitive behav**, *quantitative review AND cognitive therapy*. This initial search yielded 1,163 hits, of which 355 were duplicates and had to be excluded. The remaining 808 non-duplicate articles were further examined to determine if they met specific inclusionary criteria for the purposes of this review. All included studies had to be quantitative reviews (i.e., meta-analyses) of CBT. In order to limit this review to contemporary studies, only articles published since 2000 were included. The final sample included in this review consisted of 269 meta-analyses (Fig. 1). Out of those, we described a representative sample of 106 meta-analytic studies. The complete reference list for the final sample of included meta-analyses can be obtained by accessing the webpage www.bostonanxiety.org/cbtreview.html. As already noted, the majority (84 %) of these studies was published after 2004, the most recent year covered by

the meta-analysis by Butler et al. (2006). The number of meta-analytic reviews per year is depicted in Fig. 2.

Categorization of Meta-analyses

The 269 meta-analyses were categorized into groups to provide the most meaningful and extensive examination of the efficacy of CBT across a range of problem areas and study populations. The major groupings were the following: substance use disorder, schizophrenia and other psychotic disorders, depression and dysthymia, bipolar disorder, anxiety disorders, somatoform disorders, eating disorders, insomnia, personality disorders, anger and aggression, criminal behaviors, general stress, distress due to general medical conditions, chronic pain and fatigue, pregnancy complications and female hormonal conditions. In addition, some meta-analyses specifically examined CBT for disorders in children and elderly adults. For each disorder and population grouping, data were described qualitatively, considering the findings of all meta-analyses within that group. The 269 meta-analyses included a wide variety of studies that employed different methodologies and effect size estimates. Therefore, we used the designation *small*, *medium*, and *large* for the magnitude of effect sizes in our review of the 106 representative meta-analyses (Cohen 1988). In addition, we provide reported response rates, a widely accepted and common metric in psychiatry, from a subsample of 11 studies that examined the efficacy of CBT in randomized controlled trials.

Results

Addiction and Substance Use Disorder

There was evidence for the efficacy of CBT for cannabis dependence, with evidence for higher efficacy of multi-session CBT versus single session or other briefer interventions, and a lower drop out rate compared to control conditions (Dutra et al. 2008). However, the effect size of CBT was small as compared to other psychosocial interventions (e.g., contingency management, relapse prevention, and motivational approaches) for substance dependence, and agonist treatments showed a greater effect size than CBT in certain drug dependencies, such as opioid and alcohol dependence (Powers et al. 2008b).

Treatments for smoking cessation found that coping skills, which were partially based on CBT techniques, were highly effective in reducing relapse in a community sample of nicotine quitters (Song et al. 2010), and another meta-analysis noted superiority of CBT (either alone or in combination with nicotine replacement therapy) over nicotine replacement therapy alone (García-Vera and Sanz 2006). Furthermore, there was evidence for superior performance of

Fig. 1 Flow diagram showing effects of inclusionary and exclusionary criteria on final sample selection

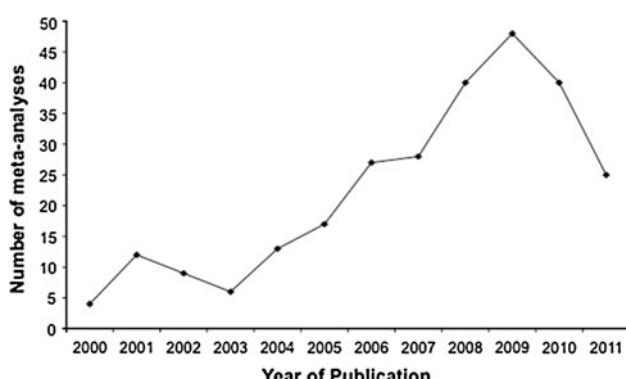
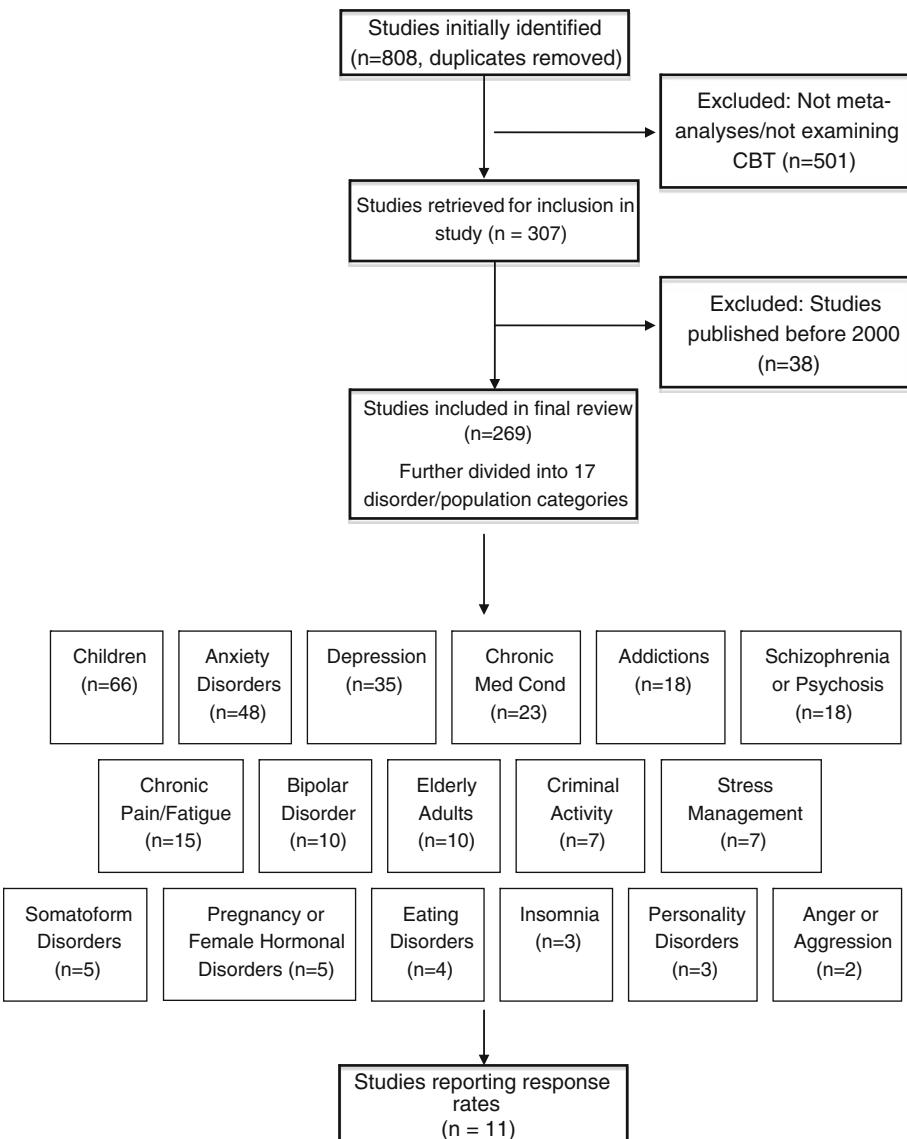


Fig. 2 Number of meta-analyses published by year since 2000. Note that the number of studies corresponding to 2011 only covered studies until September of that year

behavioral approaches in the treatment of problematic gambling as compared to control treatments (Oakley-Browne et al. 2000). One meta-analysis (Leung and Cottler 2009) reported larger effect sizes of CBT when this treatment was grouped with other non-pharmacological treatments (such as brief interventions) as compared to pharmacological agents (e.g., naltrexone, carbamazepine, and topiramate), but CBT was not more efficacious than these other briefer, less expensive approaches.

Schizophrenia and Other Psychotic Disorders

Meta-analyses examining the efficacy of psychological treatments for schizophrenia revealed a beneficial effect of CBT on positive symptoms (i.e., delusions and/or hallucinations).

nations) of schizophrenia (e.g., Gould et al. 2001; Rector and Beck 2001). There was also evidence (e.g., Zimmermann et al. 2005) that CBT is a particularly promising adjunct to pharmacotherapy for schizophrenia patients who suffer from an acute episode of psychosis rather than a more chronic condition.

CBT appeared to have little effect on relapse or hospital admission compared to other interventions, such as early intervention services or family intervention (e.g., Bird et al. 2010; Álvarez-Jiménez et al. 2011). However, CBT had a beneficial effect on secondary outcomes. For example, a more recent meta-analysis by Wykes et al. (2008) examined controlled trials of CBT for schizophrenia and confirmed findings from previous meta-analyses (e.g., Gould et al. 2001; Rector and Beck 2001), suggesting that CBT had a small to medium effect size as compared to control conditions on both positive and negative symptoms. In addition, this meta-analysis revealed medium effect sizes for improvements in secondary outcomes that were not the direct targets of treatment, including general functioning, mood, and social anxiety.

Depression and Dysthymia

CBT for depression was more effective than control conditions such as waiting list or no treatment, with a medium effect size (van Straten et al. 2010; Beltman et al. 2010). However, studies that compared CBT to other active treatments, such as psychodynamic treatment, problem-solving therapy, and interpersonal psychotherapy, found mixed results. Specifically, meta-analyses found CBT to be equally effective in comparison to other psychological treatments (e.g., Beltman et al. 2010; Cuijpers et al. 2010; Pfeiffer et al. 2011). Other studies, however, found favorable results for CBT (e.g., Di Giulio 2010; Jorm et al. 2008; Tolin 2010). For example, Jorm et al. (2008) found CBT to be superior to relaxation techniques at post-treatment. Additionally, Tolin (2010) showed CBT to be superior to psychodynamic therapy at both post-treatment and at 6 months follow-up, although this occurred when depression and anxiety symptoms were examined together.

Compared to pharmacological approaches, CBT and medication treatments had similar effects on chronic depressive symptoms, with effect sizes in the medium-large range (Vos et al. 2004). Other studies indicated that pharmacotherapy could be a useful addition to CBT; specifically, combination therapy of CBT with pharmacotherapy was more effective in comparison to CBT alone (Chan 2006).

Bipolar Disorder

Meta-analyses examining the efficacy of CBT for bipolar disorder revealed small to medium overall effect sizes of

CBT at post-treatment, with effects typically diminishing slightly at follow-up. These findings emerged from examinations of both manic and depressive symptoms associated with bipolar disorder (e.g., Gregory 2010a, b). There is little evidence that CBT as a stand-alone treatment (rather than as an adjunct to pharmacotherapy) is effective for the treatment of bipolar disorder.

In addition to examining CBT for attenuating symptoms of bipolar disorder, some meta-analyses focused on the efficacy of CBT for preventing relapse in bipolar patients. One study (Beynon et al. 2008) examined the efficacy of CBT for preventing relapse and found it to be somewhat effective when comparing CBT versus treatment as usual. Overall, CBT for bipolar disorder was an effective method of preventing or delaying relapses (e.g., Lam et al. 2009; Cakir and Ozerdem 2010). Furthermore, the efficacy of CBT at preventing relapse did not seem to be influenced by the number of previous manic or depressive episodes.

Anxiety Disorders

In general, CBT is a reliable first-line approach for treatment of this class of disorders (Hofmann and Smits 2008), with support for significant positive effects of CBT on secondary symptoms such as sleep dysfunction and anxiety sensitivity (Ghahramanlou 2003). Further, internet-delivered or guided self-help CBT showed some promise in immediate symptom relief as compared to no treatment, but the long-term maintenance with this modality of CBT remains unclear (Öst 2008; Coull and Morris 2011).

CBT for social anxiety disorder evidenced a medium to large effect size at immediate post-treatment as compared to control or waitlist treatments, with significant maintenance and even improvement of gains at follow-up (Gil et al. 2001). Further, exposure, cognitive restructuring, social skills training and both group/individual formats were equally efficacious (Powers et al. 2008a), with superior performance over psychopharmacology in the long term (Fedoroff and Taylor 2001). Similarly, interoceptive exposure for treatment of panic disorder was moderately effective and superior to control/pill placebo treatments and applied relaxation (Haby et al. 2006; Furukawa et al. 2007). For panic disorder without agoraphobia, combination treatment of CBT and applied relaxation was equal in efficacy to use of either therapy approach alone, and use of either or both were superior to use of medications (Mitte 2005).

Various CBT techniques for specific phobia (systematic desensitization, exposure, cognitive therapy) were as effective as applied relaxation and applied tension, producing effect sizes in the large range, with long-term maintenance of gains (Ruhmland and Margraf 2001). For generalized anxiety disorder, CBT was superior as compared to control or pill

placebo conditions, and equally efficacious as relaxation therapy, supportive therapy, or psychopharmacology, but less efficacious in comparison to attention placebos and in those with more severe generalized anxiety disorder symptoms.

CBT for post-traumatic stress disorder was equal in efficacy to eye movement desensitization and reprocessing (Bisson et al. 2007), with both being superior to treatment as usual, waitlist, or other treatments (such as supportive counseling) for post-traumatic stress disorder (Bisson and Andrew 2008). However, it is questionable whether the eye-movement technique is an active treatment ingredient.

Clinical trials also revealed a large effect size for CBT and/or exposure response prevention for obsessive-compulsive disorder, with evidence suggesting that a combination of in vivo and imaginal exposures outperformed the use of only in vivo exposures (Ruhmland and Margraf 2001). Furthermore, CBT was found to be similarly efficacious than clomipramine and selective reuptake inhibitors (Eddy et al. 2004).

Somatoform Disorders

Within the somatoform disorders category of DSM-IV, meta-analyses primarily examined the efficacy of psychological interventions for hypochondriasis and body dysmorphic disorder. One meta-analysis found a large mean effect size for CBT, which outperformed other psychological treatments (i.e., psychoeducation, explanatory therapy, cognitive therapy, exposure and response prevention, and behavioral stress management), with effect sizes in the large range, as well as pharmacotherapy treatments (paroxetine, fluoxetine, fluvoxamine, and nefazodone), which also evidenced large effect sizes (Taylor et al. 2005). The mean effect size for control conditions (e.g., wait-list control) was small. These results were partially supported by other evidence, as a more recent meta-analysis found superior outcomes of CBT for hypochondriasis compared to waiting list control, usual medical care or placebo at 12-months follow-up (Thomson and Page 2007). However, this meta-analysis also found no differences between CBT and waiting list/placebo at post-treatment.

Meta-analyses comparing the efficacy of CBT to control treatments found that CBT was superior in significantly reducing body dysmorphic disorder symptoms (Ipser et al. 2009). In comparing relative efficacy of CBT versus pharmacotherapy, effect sizes were large on body dysmorphic disorder severity measures for CBT, and ranged from medium to large for pharmacotherapy (Williams et al. 2006). In addition, another meta-analysis found that CBT for body image disturbances was effective, with effect sizes ranging from medium to large (Jarry and Ip 2005).

Eating Disorders

For bulimia nervosa, meta-analyses compared the efficacy of CBT to control treatments and found effect sizes in the medium range (Thompson-Brenner 2003). However, the effect of behavior therapy was greater than that of CBT, with the average effect size for behavior therapy in the large range (Thompson-Brenner 2003). Another meta-analysis comparing CBT with control treatments found remission response rates to be higher for CBT, with a medium relative risk ratio (Hay et al. 2009). When comparing CBT to other psychotherapies, specifically, interpersonal therapy, dialectical behavioral therapy, hypnotherapeutic therapy, supportive psychotherapy, behavioral weight loss treatment, and self-monitoring, CBT fared significantly better in remission response rates for bulimia nervosa, with a large relative risk ratio (Hay et al. 2009).

For binge eating disorder, a recent meta-analysis found that psychotherapy and structured self-help yielded large effect sizes, when compared to pharmacotherapy, which yielded medium effect sizes (Vocks et al. 2010). Although this study did not parse out the efficacy of CBT specifically, a majority of the included trials for psychotherapy involved CBT (19 out of 23 trials). Furthermore, a review and meta-analysis by Reas and Grilo (2008) suggested that combination treatment of psychotherapy and medications did not enhance binge-eating outcomes, but may have enhanced weight loss outcomes.

Insomnia

CBT for insomnia (CBT-I) has long been shown to be more efficacious than control treatments. A recent meta-analysis examined its efficacy on both subjective and objective sleep parameters in comparison to a control group for individuals with primary insomnia (Okajima et al. 2011). Effect sizes for the efficacy of CBT-I versus control at the end of treatment on subjective sleep measures, which included sleep onset latency, total sleep time, wake after sleep onset, total wake time, time in bed, early morning awakening, and sleep efficiency, ranged from minimal (total sleep time) to large (early morning awakening; Okajima et al. 2011). For objective measures using a polysomnogram or actigraphic evaluation, effect sizes ranged from small (total sleep time) to large (total wake time; Okajima et al. 2011). These findings were consistent with results from another meta-analysis, which examined the relative efficacy of behavioral interventions for insomnia including CBT, relaxation, and only behavioral techniques (Irwin et al. 2006). This study reported effect sizes ranging from $-.75$ to 1.47 for CBT, $-.60$ – $.53$ for relaxation techniques, and $-.82$ – $.91$ for only behavioral techniques on subjective sleep outcomes.

Personality Disorders

There was one meta-analysis that examined the relative efficacy of CBT versus psychodynamic therapy for the treatment of personality disorders (Leichsenring and Leibing 2003). The findings indicated a larger overall effect size for psychodynamic therapy compared to CBT. This was consistent with observer-rated measures, which showed a similar pattern of effect sizes: stronger for psychodynamic therapy than for CBT (although this effect size was also large). Self-report measures, however, indicated larger effect sizes for CBT than for psychodynamic therapy.

Another meta-analysis compared the efficacy of eleven different psychological therapies, including CBT, for antisocial personality disorder (Gibbon et al. 2010). Results suggested that compared to control treatment, CBT plus standard maintenance was more efficacious in terms of leaving the study early and cocaine use for outpatients with antisocial personality disorder and comorbid cocaine dependence. However, CBT plus treatment as usual was not better than a control condition for these antisocial personality disorder patients with regard to levels of recent verbal or physical aggression. The relative efficacy of psychological treatments for borderline personality disorder, in particular, was also examined, which yielded no differences between dialectical behavioral therapy and treatment as usual in individuals meeting criteria for borderline personality disorder at 6 months, or in hospital admissions in the previous 3 months (Binks et al. 2006).

Anger and Aggression

Two meta-analytic reviews focused on anger control problems and aggression (Del Vecchio and O'Leary 2004; Saini 2009). The findings from these meta-analyses suggested that CBT is moderately effective at reducing anger problems. Findings from these reviews also suggested that CBT may be most effective for patients with issues regarding anger expression.

CBT produced medium effect sizes as compared to other psychosocial treatments and control conditions across the two reviews that conducted quantitative analyses. A meta-analysis on the effectiveness of anger treatments for specific anger problems (Del Vecchio and O'Leary 2004) included only studies in which subjects met clinically significant levels of anger on standardized anger measurements prior to treatment. This meta-analysis examined the effects of CBT, cognitive therapy, relaxation, and 'other' (e.g., social skills training, process group counseling) on various anger problems including driving anger, anger suppression, and anger expression difficulties.

Criminal Behaviors

Four separate meta-analytic studies supported the efficacy of CBT for criminal offenders (Illescas et al. 2001; Lösel and Schmucker 2005; Pearson et al. 2002; Wilson et al. 2005). Out of several theoretical orientations and types of psychological interventions for criminal activity, behavior therapy and CBT appeared to be the superior interventions in reducing recidivism rates, both with medium mean effect sizes (Illescas et al. 2001). Effect sizes for other interventions ranged from small to medium (Illescas et al. 2001). Another study demonstrated consistent findings with a small weighted mean effect size of behavior therapy or CBT for reducing recidivism (Pearson et al. 2002). Similarly, Wilson et al. (2005) found an overall small-to-medium mean effect size for CBT programs for convicted offenders.

For sexual offenders in particular, physical treatments, such as surgical castration and hormonal treatment, were demonstrated to have greater efficacy in reducing sexual recidivism in comparison to CBT, with large significant odds ratios for both of these alternative interventions (Lösel and Schmucker 2005). Of the various psychological interventions for sexual offenders, however, classical behavioral and CBT approaches indicated the strongest efficacy, with odds ratios in the medium to large range (Lösel and Schmucker 2005) as compared to insight-oriented and therapeutic community interventions.

A study of CBT for domestic violence indicated no differences between CBT and the Duluth model (which is based on a feminist psycho-educational approach) for treating domestically violent males (Babcock et al. 2004). The aggregated data from experimental and quasi-experimental studies showed that CBT had an overall small effect size, and the Duluth model had an overall slightly larger, but still small effect size (Babcock et al. 2004).

General Stress

Four meta-analyses examined occupational stress and the majority of their results were quite similar: CBT interventions were more effective in comparison to other intervention types such as organization focused therapies, especially when CBT focused on psycho-social outcomes in employees (Kim 2007; Richardson and Rothstein 2008; van der Klink et al. 2001). For example, Richardson and Rothstein (2008) found CBT alone to be more effective in comparison to CBT combined with additional psychological components. These studies found a large effect size for overall CBT interventions, large effect size for single-mode CBT interventions, and small effect size for CBT interventions with four or more components. In contrast, Marine et al. (2006) chose not to

compare CBT with other interventions, such as relaxation techniques for psychological stress, because most interventions comprised both elements and could not be evaluated separately. With respect to stress in parents of children with developmental disabilities, positive effects were found for CBT, but the effect size was relatively small (Singer et al. 2007). In contrast to the results of Richardson and Rothstein (2008), this meta-analysis found multiple component interventions which combined CBT, behavioral parent training and in some cases other forms of support services, to have a higher and large effect size in comparison to CBT alone (Singer et al. 2007).

Distress due to General Medical Conditions

Limited well-controlled studies existed in the study of non-ulcer dyspepsia, multiple sclerosis, physical disability following traumatic injury, non-epileptic seizures, post-concussion syndrome, chronic obstructive pulmonary disease, hypertension, Type II diabetes, and burning mouth syndrome (e.g., Soo et al. 2004; Thomas et al. 2006; Baker et al. 2007; Ismail et al. 2004). However, cancer was studied more rigorously and with more robust methodological attention, indicating small to medium effect sizes of individual CBT as compared to patient education only in gynecological and head/neck cancers (Zimmermann and Heinrichs 2006; Luckett et al. 2011), on secondary outcomes such as quality of life, psychological distress (i.e., depression and anxiety), and pain. Further, CBT was shown to be equally effective as exercise interventions in treating cancer-related fatigue (Kangas et al. 2008).

Small to medium effect sizes were observed in treatment of secondary symptoms (anxiety and stress) experienced by individuals who were HIV positive, with particular efficacy (particularly for stress management) in reducing anger symptoms as compared to supportive therapy (Crepaz et al. 2008), but not for outcomes such as low cell count, medication adherence, or when used with marginalized populations such as ethnic minorities and women (Crepaz et al. 2008; Rueda et al. 2006).

CBT was shown to be superior in the treatment of secondary symptoms of spinal cord injury as compared to controls in assertiveness skills, coping, depression and quality of life (Dorstyn et al. 2011), better than placebo or diet/exercise alone (Shaw et al. 2005), but equal to yoga/education in depressive symptoms (Martinez-Devesa et al. 2010). CBT was only slightly more effective than usual care or waitlist condition in the treatment of irritable bowel syndrome, with peppermint oil having greater efficacy in providing relief in this particular disorder (Enck et al. 2010).

Chronic Pain and Fatigue

Meta-analyses examining the efficacy of psychosocial treatments for chronic pain have investigated chronic low back pain, fibromyalgia, rheumatoid arthritis, chronic fatigue syndrome, chronic musculoskeletal pain, and non-specific chest pain. These reviews have examined the effect of a range of treatments on chronic pain, including relaxation techniques, mindfulness-based techniques, acceptance-based techniques, biofeedback, psycho-education, and behavioral and cognitive-behavioral treatments. Results of these meta-analyses revealed varying effect sizes for these treatments depending on the type of chronic pain targeted; however, CBT treatments for chronic pain were consistently in the small to medium effect size range.

Similar results were found in a meta-analysis examining psychological treatments for fibromyalgia (Glombiewski et al. 2010). This meta-analysis revealed that CBT was superior to other psychological treatments for decreasing pain intensity. Pre-post analyses revealed a medium effect size for CBT as compared to a small effect size for all other psychological treatments combined (excluding CBT). CBT treatments for chronic fatigue syndrome were moderately effective (e.g., Malouff et al. 2008; Price et al. 2008). Malouff et al. (2008) conducted a meta-analysis revealing a medium effect size in post-treatment fatigue for participants receiving CBT versus those in control conditions.

Pregnancy Complications and Female Hormonal Conditions

One meta-analysis found CBT to be more effective in comparison to control conditions for perinatal depression (Sockol et al. 2011), and another meta-analysis found beneficial effects of CBT for postnatal depression, but these results need to be interpreted with caution because it is difficult to causally link depression with pregnancy and hormonal changes in these studies (Dennis and Hodnett 2007). Further, Bledsoe and Grote (2006) found greater decreases in depression for women experiencing non-psychotic major depression in pregnancy and postnatal periods treated with combination treatment in comparison to antidepressant medication alone, which was itself more effective in comparison to CBT alone. The effect size for postnatal treatments was large in comparison to the small to medium effects of prenatal treatments, but when pharmacological treatments were excluded, the effect size for postnatal treatments decreased to the medium range.

For the treatment of premenstrual syndrome, Busse et al. (2009) found that CBT significantly reduced depressive and anxiety symptoms associated with this syndrome, as indicated by a medium effect size. Once again, these results need to be interpreted carefully due to the small number of well-controlled studies on which these reviews were based.

CBT for Special Populations

Children

Within internalizing symptoms, there was support for the preferential use of CBT approaches in treatment of anxiety disorders in children and adolescents, with effect sizes in the large range (Santacruz et al. 2002; James et al. 2005). Further, CBT treatment for obsessive compulsive disorder as compared to alternative approaches (no treatment, other psychosocial treatments and medications such as clomipramine and fluvoxamine) resulted in significantly better outcomes (Phillips 2003; Guggisberg 2005). The data supporting CBT for depression was less strong, but still in the medium effect size range across meta-analyses, with maintenance in 6-months follow-up periods (Santacruz et al. 2002). In addition, CBT seemed to work equally well as other psychotherapies (i.e., interpersonal therapy and family systems therapy), but was regarded as superior to selective reuptake inhibitors due to reduced chance of side effects and greater cost effectiveness (Haby et al. 2004). The studies on efficacy of CBT for addressing suicidal behaviors were scarce (Robinson et al. 2011), and warrant further investigation.

The picture was more mixed for other disorders, with CBT showing equal efficacy in reducing disruptive classroom behaviors and aggressive/antisocial behaviors, as other psychosocial treatments, better efficacy as compared to no treatment or treatment as usual, and less efficacy than pharmacological approaches (Lösel and Beelmann 2003; Özabaci 2011). Similarly, CBT for attention deficit hyperactivity disorder showed some efficacy, but was not superior to medications (Van der Oord et al. 2008). The efficacy of behavioral techniques (e.g., motivational enhancement and behavioral contingencies) was small to medium for the treatment of adolescent smoking and substance use as compared to no treatment, but not more so than other psychotherapies. In addition, there was a medium to large effect size of CBT over waitlist across meta-analyses examining chronic headache pain. Finally, the data on efficacy for CBT in juvenile sex offenders, childhood sexual abuse survivors, childhood obesity, fecal incontinence, and juvenile diabetes was limited, showing preliminary support for CBT as compared to no treatment, but equal efficacy to other psychosocial approaches (Walker et al. 2005; Macdonald et al. 2006).

Elderly Adults

With respect to mood disorders, with depression as the most commonly examined disorder, nearly all meta-analyses showed that CBT was more effective than waiting list control conditions, but equally effective in comparison to other active treatment methods, such as reminiscence, (an

intervention that uses recall of past events, feelings and thoughts to facilitate pleasure, quality of life or adaptation to the present; Peng et al. 2009), psychodynamic therapy, and interpersonal therapy (Krishna et al. 2011; Wilson et al. 2008). Pinquart et al. (2007), however, found a large effect size for CBT, whereas the effect sizes for the other active treatment conditions were in the medium-large range. When long-term outcomes were examined, results of one meta-analysis indicated that treatment gains of CBT for depression were maintained at 11-months follow-up (Krishna et al. 2011), but long-term follow-up data remained scarce in the other meta-analyses. In a meta-analysis assessing the additive effects of CBT and pharmacological approaches, Peng et al. (2009) found that CBT was more effective in comparison to placebo, but CBT as an adjunct to antidepressant medication did not increase the effectiveness of antidepressants in this population.

For anxiety disorders in the elderly, CBT (alone or augmented with relaxation training) did not enhance outcomes beyond relaxation training alone (Thorp et al. 2009), although many of these studies were uncontrolled. In contrast to the findings by Thorp et al. (2009), Hendriks et al. (2008) found that anxiety symptoms were significantly decreased following CBT than after either a waiting-list control condition or other treatment methods. Additionally, CBT significantly alleviated accompanying symptoms of worry and depression when compared to waiting-list control or an active control condition.

Response Rates of Randomized Controlled Studies

The meta-analytic studies that provided response rates are listed in Table 1. The response rates of CBT varied between 38 % for treating obsessive compulsive disorder (Eddy et al. 2004) and 82 % for treating body dysmorphic disorder (Ipser et al. 2009). In contrast, the response rates of the waitlist groups ranged from 2 % for the treatment of bulimia nervosa (Thompson-Brenner 2003) to 14 % for generalized anxiety disorder (Hunot et al. 2007). CBT also demonstrated higher response rates in comparison to treatment as usual in treatment of generalized anxiety disorder and chronic fatigue (Price et al. 2008), and higher or equal response rates as compared to other therapies or psychopharmacological interventions in most studies. CBT only produced a lower response rate than psychodynamic therapy for the personality disorders (47 vs. 59 %; Leichsenring and Leibing 2003).

Discussion

CBT is arguably the most widely studied form of psychotherapy. We identified 269 meta-analytic reviews that

Table 1 Pooled meta-analytic response rates for CBT versus other conditions across disorders

Disorder	Author (year)	Number of studies	CBT (%)	MED	OT (%)	PBO (%)	TAU (%)	WL (%)	Comparison
Boderline personality disorder	Ipser et al. (2009)	2	82 ^a	56 % ^a	—	18 ^a	—	—	CBT, MED > PBO
Panic disorder	Siev and Chambless (2008)	5	77	—	50	—	—	—	CBT > OT
Anger/aggression	Del Vecchio and O'Leary (2004)	23	66–69	—	65–70	—	—	—	CBT = OT
Depression	Leichsenring (2001)	6	51–87	—	45–70	—	—	—	CBT > OT
Childhood anxiety	James et al. (2005)	13	56	—	—	28 ^b	—	—	CBT > PBO
Chronic fatigue	Malouff et al. (2008)	5	50	—	—	—	—	—	—
Personality disorders	Leichsenring and Leibing (2003)	25	47 ^c	—	59 ^d	—	—	—	CBT < OT
Generalized anxiety disorder	Hunot et al. (2007)	8	46 ^e	—	—	—	14	14	CBT = OT; CBT > TAU,WL
Chronic fatigue	Price et al. (2008)	6	40	—	—	—	26	—	CBT > TAU
Bulimia nervosa	Thompson-Brenner (2003)	26	40–44	—	—	27	—	2	CBT > PBO, WL
Obsessive compulsive disorder	Eddy et al. (2004)	3	38–50	—	—	—	—	—	—

The table shows response rate percentages for CBT (from highest to lowest) compared to each comparison condition for every meta-analytic study reporting such data across disorder groups; —: no data reported; >: higher efficacy; <: lower efficacy; =: equal efficacy. MED medication/pharmacological approaches, OT other therapies (consisting of relaxation therapy, supportive therapy, or psychodynamic therapy), PBO placebo/control treatments, TAU treatment as usual, WL waitlist treatment, BDD body dysmorphic disorder, PD panic disorder without agoraphobia, GAD generalized anxiety disorder, OCD obsessive-compulsive disorder. ^aOne study; ^bHeterogeneous response rate pooling placebo/control, waitlist, and supportive treatment conditions; ^c11 studies; ^d14 studies; ^eResponse rate of OT not reported in paper; stated as being equal to CBT (as indicated in comparison column)

examined CBT for a variety of problems, including substance use disorder, schizophrenia and other psychotic disorders, depression and dysthymia, bipolar disorder, anxiety disorders, somatoform disorders, eating disorders, insomnia, personality disorders, anger and aggression, criminal behaviors, general stress, distress due to general medical conditions, chronic pain and fatigue, distress related to pregnancy complications and female hormonal conditions. Additional meta-analytic reviews examined the efficacy of CBT for various problems in children and elderly adults. The vast majority of studies (84 %) was published after 2004, which was the last year of coverage of the review by Butler et al. (2006), making the present study the most comprehensive and contemporary review of meta-analytic studies of CBT to date.

For the treatment of *addiction* and *substance use disorder*, the effect sizes of CBT ranged from small to medium, depending on the type of the substance of abuse. CBT was highly effective for treating cannabis and nicotine dependence, but less effective for treating opioid and alcohol dependence. For treating *schizophrenia and other psychotic disorders*, the empirical literature suggested appreciable efficacy of CBT particularly for positive symptoms and secondary outcomes in the psychotic disorders, but lesser efficacy than other treatments (e.g.,

family intervention or psychopharmacology) for chronic symptoms or relapse prevention.

The meta-analytic literature on the efficacy of CBT for *depression and dysthymia* was mixed with some studies suggesting strong evidence and others reporting weak support. Some authors have suggested that the strong effects in some studies may be an overestimation due to a publication bias (Cuijpers et al. 2010). Similarly, the efficacy of CBT for *bipolar disorder* was small to medium in the short-term in comparison to treatment as usual. However, there was limited evidence for the superiority of CBT alone over pharmacological approaches; for the treatment of depressive symptoms in bipolar disorder, the use of CBT was well supported. However, the long-term superiority compared to other treatments is still uncertain.

The efficacy of CBT for *anxiety disorders* was consistently strong, despite some notable heterogeneity in the specific anxiety pathology, comparison conditions, follow-up data, and severity level. Large effect sizes were reported for the treatment of obsessive compulsive disorder, and at least medium effect sizes for social anxiety disorder, panic disorder, and post-traumatic stress disorder. Medium to large CBT treatment effects were reported for *somatoform disorders*, such as hypochondriasis and body dysmorphic disorder. However, more studies using larger trials and

greater sample sizes are needed to draw more conclusive findings with regard to CBT's relative efficacy in comparison to other active treatments.

For the treatment of *bulimia*, CBT was considerably more effective than other forms of psychotherapies, but less is known for other eating disorders. Similarly, CBT demonstrated superior efficacy as compared to other interventions for treating *insomnia* when examining sleep quality, total sleep time, waking time, and sleep efficiency outcomes. However, although there were small effects of CBT for sleep problems among older adults (aged 60+), these effects may not be long lasting (Montgomery and Dennis 2009).

For *personality disorders*, there was some evidence for superior efficacy of CBT as compared to other psychosocial treatments for the personality disorders. However, the studies showed considerable variation in measurement methods, comorbid disorders, and demographic variables. CBT also produced medium to large effect sizes for treating *anger and aggression* (e.g., Saini 2009), although a greater number of well-controlled studies are needed to more adequately parse out the specific efficacy of CBT compared to the psychosocial treatments for anger on the whole. Similarly, more studies are needed before any firm conclusions can be drawn about the efficacy of this treatment for *criminal behaviors*.

As a *stress management* intervention, CBT was more effective than other treatments, such as organization-focused therapies. However, more research on the long-term effects of CBT for occupational stress is needed. Furthermore, there are open questions about the relative efficacy of CBT versus pharmacological approaches to stress management. Similarly, several common concerns recurred across meta-analytic examinations of CBT for *chronic medical conditions*, *chronic fatigue* and *chronic pain*, namely: (1) a scarcity of studies and small sample sizes; (2) poor methodological design of studies that are included in meta-analyses; and (3) grouping of CBT with a host of other psychotherapies (such as psychodynamic therapy, hypnotherapy, mindfulness, relaxation, and supportive counseling), which made it difficult to parse out whether there are any superior effects of CBT in the majority of medical conditions examined.

There was preliminary evidence for CBT for treating *distress related to pregnancy complications and female hormonal conditions*. However, more research is needed due to a scarcity of follow-up data and low quality studies. This appeared to be a highly promising area for CBT given that the alternative—pharmacological treatments—can be associated with serious risks of adverse effects for pregnant women and breastfeeding mothers.

In our review of meta-analyses, CBT tailored to *children* showed robust support for treating internalizing disorders,

with benefits outweighing pharmacological approaches in mood and anxiety symptoms. The evidence was more mixed for externalizing disorders, chronic pain, or problems following abuse. Moreover, there remains a need for a greater number of high-quality trials in demographically diverse samples. Similarly, CBT was moderately efficacious for the treatment of emotional symptoms in the *elderly*, but no conclusions about long-term outcomes of CBT or combination therapies consisting of CBT, and medication could be made.

Finally, our review identified 11 studies that compared response rates between CBT and other treatments or control conditions. In seven of these reviews, CBT showed higher response rates than the comparison conditions, and in only one review (Leichsenring and Leibing 2003), which was conducted by authors with a psychodynamic orientation, reported that CBT had lower response rates than comparison treatments.

In sum, our review of meta-analytic studies examining the efficacy of CBT demonstrated that this treatment has been used for a wide range of psychological problems. In general, the evidence-base of CBT is very strong, and especially for treating anxiety disorders. However, despite the enormous literature base, there is still a clear need for high-quality studies examining the efficacy of CBT. Furthermore, the efficacy of CBT is questionable for some problems, which suggests that further improvements in CBT strategies are still needed. In addition, many of the meta-analytic studies included studies with small sample sizes or inadequate control groups. Moreover, except for children and elderly populations, no meta-analytic studies of CBT have been reported on particular subgroups, such as ethnic minorities and low income samples.

Despite these weaknesses in some areas, it is clear that the evidence-base of CBT is enormous. Given the high cost-effectiveness of the intervention, it is surprising that many countries, including many developed nations, have not yet adopted CBT as the first-line intervention for mental disorders. A notable exception is the Improving Access to Psychological Therapies initiative by the National Health Commissioning in the United Kingdom (Rachman and Wilson 2008). We believe that it is time that others follow suit.

Acknowledgments The authors would like to acknowledge the following research assistants who provided crucial and much-appreciated assistance with background literature reviews, initial identification of articles, and obtained articles for use by the authors: Dan Brager, Rachel Kaufmann, Rebecca Grossman, and Brian Hall. This study was partially supported by NIMH grants MH-078308 and MH-081116 awarded to Dr. Hofmann and MH-73937.

Conflict of interest Dr. Hofmann is a paid consultant of Merck Pharmaceutical (Schering-Plough) for work unrelated to this study.

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Treatment of anxiety disorders in clinical practice: a critical overview of recent systematic evidence

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Mangolini VI, Andrade LH, Lotufo-Neto F, Wang YP. Treatment of anxiety disorders in clinical practice: a critical overview of recent systematic evidence. Clinics. 2019;74:e1316

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The aim of this study was to review emerging evidence of novel treatments for anxiety disorders. We searched PubMed and EMBASE for evidence-based therapeutic alternatives for anxiety disorders in adults, covering the past five years. Eligible articles were systematic reviews (with or without meta-analysis), which evaluated treatment effectiveness of either nonbiological or biological interventions for anxiety disorders. Retrieved articles were summarized as an overview. We assessed methods, quality of evidence, and risk of bias of the articles. Nineteen systematic reviews provided information on almost 88 thousand participants, distributed across 811 clinical trials. Regarding the interventions, 11 reviews investigated psychological or nonbiological treatments; 5, pharmacological or biological; and 3, more than one type of active intervention. Computer-delivered psychological interventions were helpful for treating anxiety of low-to-moderate intensity, but the therapist-oriented approaches had greater results. Recommendations for regular exercise, mindfulness, yoga, and safety behaviors were applicable to anxiety. Transcranial magnetic stimulation, medication augmentation, and new pharmacological agents (vortioxetine) presented inconclusive benefits in patients with anxiety disorders who presented partial responses or refractoriness to standard treatment. New treatment options for anxiety disorders should only be provided to the community after a thorough examination of their efficacy.

KEYWORDS: Anxiety Disorders; Therapeutics; Psychotherapy; Psychopharmacology; Systematic Review.

INTRODUCTION

According to the World Health Organization (1), anxiety disorders are burdensome “common mental disorders” to communities. These prevalent disorders are not communicable and affect approximately one in every five individuals of the world population (2-4). This figure represents the largest share of the prevalence of all mental disorders, whereas severe psychotic and bipolar disorders affect only between 1% and 2% of the population. In an upper-middle income country such as Brazil, the 12-month prevalence of anxiety disorders has been estimated as 19.9% among the dwellers of a large metropolitan area (5).

The cost of anxiety disorders to the working world is remarkable, corresponding to a total loss of 74.4 billion Euros in 2010 (3). The global burden of anxiety disorders represents 10.4% of years lived with adjusted disability (DALY) of mental disorders, reaching 26,800,000 DALYs (2). Despite the societal burden of this morbidity, only approximately one in

five patients diagnosed with anxiety disorder obtain access to treatment (6,7).

Anxiety disorders present an early onset, even during childhood. Their enduring waxing and waning course deeply affects patients’ functionality and interpersonal relationships throughout the lifespan (8). Most pathological anxiety (specific phobias, social anxiety, generalized anxiety, separation anxiety, obsessive-compulsive, and panic disorder) is underrecognized, and patients seek treatment in outpatient settings, either in medical or specialized mental health-care contexts (7). However, anxiety disorders receive less attention from clinicians when compared with major mental disorders, such as psychotic conditions and substance use disorders that require hospitalization. Moreover, anxiety is less reported in the media than depression and suicide attempts, which reduces the help-seeking behaviors of patients suffering from anxiety. Figure 1 summarizes key uncontroversial characteristics and clinical practices regarding the treatment of anxiety disorders (9-11). Most experts advocate either psychotherapy and/or pharmacotherapy for alleviating or controlling symptoms of anxiety. The combination of psychological treatment with psychotropic drugs is recommended for patients with severe cases of disabling anxiety.

Traditionally, several talk therapies are subsumed as techniques of psychological treatment and have been recommended to handle different degrees of anxiety (11). Well-accepted but not always efficacious modalities of psychotherapy vary from psychoanalytic, cognitive-behavioral, interpersonal, supportive, and group therapy to brief therapy.

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No potential conflict of interest was reported.

Received for publication on April 17, 2019. **Accepted for publication on** September 17, 2019

DOI: 10.6061/clinics/2019/e1316



Key points	
<ul style="list-style-type: none"> Anxiety disorders are common conditions in the population, which present early onset and are persistent throughout the lifespan. Despite the high burden of anxiety, it is estimated that approximately 20% of patients receive some type of treatment. Numerous techniques of psychotherapy can be used to treat different degrees and presentations of anxiety. Severe and disabled cases may benefit from using psychotropic drugs in combination with psychological treatment. 	
Treatment modalities	
<i>Nonbiological or psychological therapy</i>	<i>Biological or pharmacological therapy</i>
<ul style="list-style-type: none"> Cognitive-behavioral therapy Psychoanalysis Supportive counseling Brief psychotherapy Group psychotherapy 	<ul style="list-style-type: none"> Antidepressants Buspirone Benzodiazepines Beta-blockers Antipsychotics

Figure 1 - What we already know about the treatment of anxiety disorders (9,10,11).

The literature on cognitive-behavioral therapy (CBT) has established a foundation of effectiveness evidence for different anxiety disorders (9,11), but new therapeutic modalities should have their benefit assessed. In addition, the existing number of mental health professionals is insufficient for the number of patients who need treatment (6). Thus, a more accessible and cost-effective modality of psychotherapeutic treatment for anxiety should be offered to the community.

More than six decades ago, since the synthesis of chlordiazepoxide in 1957 (12), benzodiazepine medications have become the main class of pharmacological agents for the treatment of anxiety disorders. The introduction of these anxiolytic medicines received an immediate welcome from medical professionals and anxiety-laden patients. Nonetheless, the risk of side effects, a withdrawal syndrome and dependence on benzodiazepines have led patients in need of treatment to seek less harmful therapeutic substitutes, which do not always have proven efficacy. Accepted psychopharmacological medicines include antidepressants, buspirone, beta-blockers, and antipsychotics. Their efficacy has been demonstrated in well-designed clinical trials and abridged in comprehensive reviews (10). The combined use of psychological treatment with psychotropic drugs is more commonly recommended for cases of anxiety of greater severity and disability (11).

Many complementary and alternative treatments of mild forms of anxiety have gained popularity because of their alleged harmlessness. Examples of complementary treatment include aromatherapy, acupuncture, herbal medicine, homeopathy, massage therapy, yoga, mindfulness, exercise practice, relaxation, etc. (6,7). The diversity of modalities that a patient is exposed to varies in accordance with the guidance of the therapist, use of an active substance, and body manipulation. Exhaustive classification is difficult. While mental health professionals support the adjunctive addition of these modalities, for anxiety disorders in particular, the

exclusive use of alternative therapies as a surrogate to well-established forms of treatment should be avoided (11). Most complementary and alternative treatments lack evidence of effectiveness. It is possible that a placebo effect and a good therapeutic relationship between the practitioner and patients underlie their positive outcomes.

There are a wealth of treatments devoted to controlling the symptoms of anxiety, but nonconventional and newer psychotherapeutic treatments and pharmacological agents are propagated without an acceptable confirmation of benefit. In the present review, we searched for recent evidence of nonbiological (psychological) and biological (pharmacological) modalities for treating anxiety disorders. The comprehensive summary of treatment advances is organized for a professional who is in training or is not a specialist in mental health to supplement existing modalities. Complementary and alternative treatments with evidence of effectiveness are explored herein under the group of nonbiological therapies. Additionally, high-quality systematic reviews (SRs) were chosen over sparse clinical trials in need of additional replication. The usefulness and public health importance of the treatment of anxiety are subsequently discussed.

■ METHODS

Our research question was to update the evidence on recent interventions for the broad category of anxiety disorders. In the present study, the PICO components included adult Patients with a clinical diagnosis of "anxiety disorder", who were subjected to one or more Interventions (either biological or nonbiological). The intervention must be Compared with a placebo or standard therapeutics for assessing the treatment Outcomes.

We searched for articles in the PubMed and EMBASE databases on the treatment of anxiety disorders. The key Medical Subject Heading (MeSH) terms were "anxiety



disorders" AND "treatment". The retrieved articles were displayed in the Mendeley platform and filtered in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines (13). The arguments of the search strategy can be found in Supplementary Table 1.

For inclusion, the article type must be an SR, with or without meta-analysis, of clinical trials involving adult patients diagnosed with an anxiety disorder. Rigorous randomized clinical trials (RCTs) compared with placebo or active interventions were considered the highest evidence of effectiveness. Those articles wherein participants encompassed a mixed sample of adults and children were not eligible unless separate data were comprehensively presented. Only articles published in the last 5 years, from January 2013 through September 31, 2018, were considered appropriate. There was no language restriction regarding published articles.

After hand searching, by reading the reference list of retained articles and chapters, and contact with potential authors, we identified two additional articles (14,15).

Regarding exclusion criteria, articles containing primary data, duplicate SR or animal models of anxiety were not eligible. Posttraumatic stress disorder was not considered in the present overview because this disorder is not covered under the MeSH term "anxiety disorders" and is no longer listed in the DSM-5 chapter of anxiety disorders (16). In contrast, while the DSM-5 describes obsessive-compulsive disorders in a separate chapter, this group of disorders is still listed under the MeSH entry of anxiety disorders. Furthermore, treatments on the cooccurrence of anxiety disorders in a specialized medical context (e.g., heart disease, endocrinological, neurological conditions, pain clinics, etc.) were eliminated. Observational studies, case reports, comments, practice guidelines and editorials on therapeutic modalities were also excluded from this overview. Two authors (V.I.M. and Y.P.W.) decided the final list of selected articles.

Study method

Often, an individual SR cannot address all proposed interventions for the same problem. Recent advances in the treatment of anxiety disorders are updated in the current study with the methodological framework of a systematic overview (17). Accordingly, this type of meta-review is a relatively new method to achieve a high level of evidence, wherein systematic evidence gathered from more than one SR or meta-analysis is examined in a single accessible work, also known as a "systematic review of systematic reviews" (17). The compilation of evidence synthesizes different interventions for the same problem or condition on different outcomes for different conditions, problems or populations. The ultimate result provides a global summary of the available evidence rather than providing data synthesis (17,18). Thus, an overview aims to examine the highest level of evidence and provide a global account of findings (19). This type of review has the advantage of rapidly combining relevant data to make evidence-based clinical decisions. Stakeholders, managers and health professionals can appraise multiple high-quality studies in a single general summary of a particular question.

The quality of the retained review articles was assessed in accordance with "A Measurement Tool to Assess systematic Reviews" (AMSTAR version 2) (20). The 16-item AMSTAR checklist (<https://amstar.ca>) represents a critical appraisal of

the quality of SRs, covering different aspects related to study planning and conduct, such as the research question, review protocol, selection of study design, search strategy, explicit inclusion and exclusion criteria, risk assessment of bias, and publication bias. For the interpretation of detected weaknesses in critical and noncritical items, the AMSTAR recommends a categorization of the overall confidence in the results of the SR as follows: high, moderate, low, and critically low. The assessment of the risk of bias of an SR was supplemented with the Risk Of Bias In Systematic review (ROBIS) guidelines (21), which allows classification of the existence of bias as low, high or unclear. All rating disagreements were reconciled during discussion meetings.

■ RESULTS

Figure 2 shows the PRISMA flow diagram of the retrieved articles in this overview. From the initial 96 review articles published between 2013 and 2018, 92 nonduplicated articles were screened for title and abstract. Most studies ($k=66$) were removed because the participants presented anxiety symptoms in the context of medical diseases or were nonadults. After eliminating ineligible articles that fell outside the topic of overview, 26 articles were retained for full-text reading. An additional 7 articles were excluded because 6 did not present an SR and 1 did not contain recent data. The reasons for article exclusion can be found in Supplementary Table 2. Accordingly, 19 recent SRs were included in the final list for the qualitative synthesis. Of these studies, 3 did not estimate the pooled effect size of the outcomes through a meta-analytical quantitative synthesis (22-24).

Table 1 summarizes the main characteristics and methods of the 19 retained studies. From these articles, 11 referred to nonbiological treatments for anxiety (media- or internet-assisted CBT therapy, brief psychodynamic therapy, Morita therapy, effects of safety behavior, practices of exercise, mindfulness, and yoga, etc.), 5 referred to biological treatments for anxiety (repetitive transcranial magnetic stimulation and pharmacotherapy), and 3 referred to multimodal combined treatment comparisons (stepped care vs. care-as-usual and comparison of multiple treatments). All articles were published in English, and the investigators had searched for relevant articles in at least two databases. Although our search was restricted between 2013 and 2018, the majority of retained SRs covered the previous period, from the database inception date up to 2017.

Across the SRs, there were a total of 811 RCTs (range: 2-234 RCTs), with an included total of 87,773 adult participants (range: 40-37,333 patients). Three SRs (15,35,36) included over 10,000 participants, 6 SRs (25-29,37) between 9,999 and 1,000 participants, 8 SRs less than 1,000 participants (22,23,30-34,38), and 2 SRs did not report the exact number due to the mixture of adult and underage participants (14,24). Most SRs ($k=14$) did not report or summarize the percentage of female participants. The other 5 SRs (25,28,30,33,38) indicated the proportion of women (range: 55.5%-67.7%).

Regarding the diagnosis of the participants, the majority of studies investigated the disorder either under a generic diagnostic label of anxiety disorders or common mental disorders. SRs evaluated the effects of specific interventions in social anxiety (14,15,23,24,35), panic (14,15,33), generalized anxiety (14,15), and obsessive-compulsive disorder (36). All articles described the exclusion of ineligible participants (e.g., posttraumatic stress or acute stress disorders,



Table 1 - Characteristics of 19 systematic reviews on the treatment of anxiety disorders (2013-2018).

Author, Year	Research question	Period	Studies	Participants	N	Women
Nonbiological or psychological treatments						
Mayo-Wilson, 2013 (25)	Media-delivered behavioral and cognitive behavioral therapies	Up to 2013	101 RCTs	Adults with anxiety disorders	8,403	67%
Javakody, 2014 (22)	Exercise vs. other treatments	Up to 2011	8 RCTs	Adults with anxiety disorders	563	NR
Arnberg, 2014 (26)	Internet-delivered psychological treatment	Up to 2013	40 RCTs	Participants* with anxiety or mood disorders	2,622	NR
Abbas, 2014 (27)	Efficacy of short-term psychodynamic psychotherapies	Up to 2014	33 RCTs	Adults with common mental disorders	2,173	NR
Norton, 2015 (23)	Mindfulness and acceptance-based treatment	Up to 2014	9 RCTs	Adults with social anxiety	330	NR
Olthuis, 2015 (28)	Therapist-supported internet cognitive behavioral therapy	Up to 2015	38 RCTs	Adults with a primary anxiety disorder	3,214	67.7%
Newby, 2015 (29)	Clinician-guided internet/computerized or face-to-face treatments	Up to 2014	50 RCTs	Adults with a primary anxiety or depressive disorder	1,865	NR
Wu, 2015 (30)	Morita therapy	Up to 2014	7 RCTs	Adults with anxiety disorders	449	55.5%
Piccirillo, 2016 (24)	Safety behaviors in social anxiety	Up to 2015	39 RCTs	Adults with social anxiety	NR	NR
Stubbs, 2017 (31)	Exercise in people with anxiety and/or stress-related disorders	Up to 2015	6 RCTs	Adults with a primary anxiety or stress disorders	262	NR
Cramer, 2018 (32)	Effectiveness of yoga	Up to 2016	6 RCTs	Adults with anxiety disorders	319	NR
Biological or pharmacological treatments						
Li, 2014 (33)	Repetitive transcranial magnetic stimulation	Up to 2014	2 RCTs	Adults with panic disorder	40	60%
Patterson, 2016 (34)	Augmentation strategies in treatment-resistant anxiety	1990-2015	6 RCTs	Treatment-resistant adults with anxiety disorders	557	NR
Williams, 2017 (35)	Pharmacotherapy for social anxiety disorder	Up to 2015	66 RCTs	Adults diagnosed with social anxiety	11,597	NR
Sugarman, 2017 (36)	Antidepressants in obsessive-compulsive disorders	1994-2008	56 RCTs	DSM-IV-based anxiety disorders	15,167	NR
Yee, 2018 (37)	Vortioxetine	Up to 2017	7 RCTs	Patients* in treatment for anxiety disorders	2,391	NR
Multimodal combined treatment comparisons						
Bandelow, 2015 (15)	Efficacy of all treatments for anxiety disorders	1980-2013	234 RCTs	Adults with DSM-based GAD, panic disorder or social anxiety	37,333	NR
Ho, 2016 (38)	Stepped care prevention and treatment compared with care-as-usual	Up to 2015	10 RCTs	Participants with depressive and/or anxiety disorders	488	63.5%
Bandelow, 2018 (14)	Enduring effects of treatments for anxiety disorders	1980-2016	93 RCTs	Adults with DSM-based GAD, panic disorder or social anxiety	NR	NR

Table 1 - Continued.

Interventions	Exclusion	Main Outcomes	Quality of evidence	Conclusions
Nonbiological or psychological treatments				
CBT and behavioral therapy, media-delivered alone or as adjuncts to another treatment	PTSD and acute stress disorder	Change in symptoms of anxiety; continuous symptom measures, response and recovery	Cochrane	Self-help may be useful for people who cannot use other services. However, face-to-face CBT is probably clinically superior.
Different forms of exercise (alone or in combination with other treatments)	Depressive disorders	Changes in symptoms of anxiety, improvement in mental state or quality of life, relapse, and compliance with exercise treatment	Cochrane	Exercise seems to be effective as an adjunctive treatment, but it is less effective than antidepressant treatment.
Theory-based psychological interventions, as delivered via the internet	Primary physical illness	Change in symptoms of anxiety, adverse events, and cost per effect and per quality-adjusted life-years	Cochrane	Internet-based CBT is a viable treatment option. Methodological questions remain before broad implementation can be supported.
Individual short-term psychodynamic psychotherapies or approaches (40 weeks on average, 45- to 60-minute sessions)	Psychotic disorders	Improvement in general symptoms as measured by psychiatric instruments or criteria and somatic symptoms	Cochrane	Short-term psychodynamic psychotherapies show modest to large gains. Larger studies of higher quality and with specific diagnoses are warranted.
Mindfulness and acceptance-based treatment	No statistical analyses, irrelevant interventions, not peer reviewed studies	Changes in cognitive, behavioral, and physiological symptoms	Cochrane	The benefit of mindfulness and acceptance-based treatment can be considered a viable alternative. CBT remains best practice for first-line treatment of social anxiety.
Therapist-supported CBT delivered via internet (web pages or e-mail)	Other comorbidity and anxiety symptoms that did not meet diagnosis criteria	Clinical improvement determined by interview scores and reduction in symptoms of anxiety by scores	Cochrane	Therapist-supported internet-based CBT appears to be an efficacious treatment for anxiety in adults.
Manualized psychological treatments (at least 2 sessions)	Insufficient data, under age 18, case studies, and case series	Improvement in symptoms of anxiety, as measured by instruments and quality of life scores	Cochrane	Transdiagnostic psychological treatments are efficacious, but higher quality research studies are needed.
Morita therapy by the carers (at least two of the four phases)	Secondary anxiety symptoms of a different disorder, comorbid disorders	Clinical response, dropouts and measure of total acceptability.	Cochrane	The evidence base on Morita therapy was limited. All included studies were conducted in China, curbing the applicability of conclusions to Western countries. Limited evidence suggests that reductions in the use of safety behaviors are related to better CBT outcomes, and reductions in social anxiety predict reduced safety-behavior use over the course of treatment.
Exposure to safety behaviors as attempts to prevent or avoid feared outcomes (threatening or catastrophic) during CBT	No data on safety behaviors, children and adolescent, not in English, case studies, not social anxiety	Change in measures of safety behaviors, e.g., Social Behaviors Questionnaire (SBQ) and Subtle Avoidance Frequency Evaluation (SAFE)	NR	Data suggest that exercise is an effective intervention in improving anxiety symptoms in people with anxiety and stress-related disorders
Exercise vs. a nonactive group (usual-care, wait-list, placebo or social activities)	Yoga, tai chi or qigong; and comparison with active treatments (pharmacotherapy or psychotherapy).	Mean change in anxiety symptoms in the exercise vs. control group according to a validated outcome measure	Cochrane	Yoga is effective and safe for individuals with elevated anxiety. There was inconclusive evidence for effects of yoga in anxiety disorders.
Multicomponent yoga, posture-based yoga, and breathing/meditation-based yoga	Obsolete diagnoses	Improvement in severity of anxiety and remission	Cochrane	There is insufficient evidence to draw any conclusions about efficacy. Further RCTs are needed.
Biological or pharmacological treatments				
Repetitive transcranial magnetic stimulation of high or low frequency (alone or in combination with other interventions)	Single-pulse intervention, or treatment period of less than one week	Effectiveness measured by symptom severity, and acceptability, dropouts and adverse effects	Cochrane	The quality of evidence of efficacy for SSRIs is low to moderate. The tolerability was lower than placebo.
Pharmacotherapy or CBT augmentation of a first-line SSRI (with a placebo control)	Concomitant medication trials or not SSRIs as first-line treatment	Clinical Global Impression, changes in symptom severity, disability and functional impairment	Cochrane	Augmentation does not appear to be beneficial in treatment-resistant anxiety disorders
Any medication administered to treat social anxiety versus an active or nonactive placebo	Trials that included only a subset of participants that met the review inclusion criteria in the analysis	Treatment efficacy measured as clinical global impressions and relapse rate, and treatment tolerability	NR	The quality of evidence of efficacy for SSRIs is low to moderate. The tolerability was lower than placebo.
Second generation antidepressant for anxiety-related psychiatric diagnoses	Not second generation antidepressant	Changes in pre-post scores on symptom inventories	NR	Overall score changes were smaller for OCD compared to other anxiety disorders for both antidepressants and placebo.
Vortioxetine for treating anxiety disorders	Not human studies and not English language	Change from baseline at the final week of study on the Hamilton Anxiety Scale	NR	The evidence supports the use of vortioxetine for anxiety disorders. However, further long-term placebo-control observational studies or a postmarket survey would strengthen the existing evidence.



Interventions	Exclusion	Main Outcomes	Quality of evidence	Conclusions
Multimodal combined treatment comparisons Effective drugs, psychological therapies and combined treatments, as shown in RCTs	Missing information, sample size of less than 10, children and adolescents	Evaluation of pre-post effect sizes for treatments	SIGN	The average pre-post effect sizes of medications were more effective than psychotherapies. Psychotherapy effects did not differ from pill placebo.
Stepped care treatment or prevention (versus care-as-usual or wait-list)	Studies with no ‘stepping-up’ criteria	Changes in pre-post scores on symptom inventories	Cochrane	Stepped-care model appeared to be better than care-as-usual in treating anxiety disorders.
Effective drugs, psychological therapies and combined treatments (RCTs with up to 24 months follow-up)	Missing information, sample size of less than 10, children and adolescents	Evaluation of effect sizes in different follow-up moments	SIGN	Not only psychotherapy but also medications and, to a lesser extent, placebo conditions have enduring effects. Long-lasting treatment effects observed in the follow-up period may be superimposed.

CCDA: **NCTR**: The Cochrane Depression, Anxiety and Neurosis Review Group's Specialized Register; **CDSR**: Cochrane Database of Systematic Reviews; **CENTRAL**: The Cochrane Central Register of Controlled Trials; **CINAHL**: Cumulative Index to Nursing and Allied Health Literature; **Cochrane**: Cochrane's Collaboration Tool to Assess Risk of Bias; **CRD**: Centre for Reviews and Dissemination; **DAI**: Dissertation Abstracts International; **ICTRP**: World Health Organization's trials portal; **PBSC**: Psychology and Behavioral Sciences Collection; **SIGN**: Scottish Intercollegiate Guidelines Network.
*Includes nonadult participants; **CBT**: cognitive behavioral therapy; **GAD**: generalized anxiety disorders; **PTSD**: posttraumatic stress disorders; **RCT**: randomized controlled trials; **NR**: data not reported, not available or not comprehensively summarized; **DSM**: Diagnostic and Statistical Manual; **SSRI**: selective serotonin reuptake inhibitors; **OCD**: obsessive compulsive disorder.

depressive disorders, comorbid physical illnesses, psychotic disorders, nonappropriate psychiatric diagnoses, underage participants, etc.) and inappropriate studies (e.g., small sample size or case studies, sampling or statistical issues, unsuitable interventions, etc.).

The Cochrane's Collaboration Tool to Assess Risk of Bias was the most commonly used instrument ($k=14$) to evaluate the risk of bias in each individual SR. Two SRs (14,15) used the Scottish Intercollegiate Guidelines Network (SIGN) checklist, and an additional 3 SRs (24,36,37) did not assess the risk of bias.

Evidence of treatment efficacy

Regarding the results of nonbiological or psychological treatments, 5 SRs evaluated computer-delivered psychological therapy (14,15,25,26,28). The evidence suggested that the online therapeutic approach is a feasible and beneficial treatment option. However, face-to-face therapist-guided therapy seemed to be clinically superior when compared with the computer-guided approach. Additionally, the benefit widely varied in accordance with the type and characteristics of anxiety disorder.

A meta-analysis (27) reported that short-term psychodynamic psychotherapies appear to show a reduction in anxiety symptoms in the short and medium term. The SR of Morita therapy—a specific type of self-acceptance method—showed data of limited applicability because all eligible studies were conducted in China, restricting the utility of conclusions in Western countries (30).

Three SRs (23,24,35) had specifically included patients with social anxiety. Mindfulness and acceptance-based treatment (23) was a viable option, but the level of evidence was limited due to the risk of bias. For social anxiety, limited evidence suggested that reductions in the use of safety behaviors or avoidance were related to a better CBT outcome (24). In addition, symptomatic decreases in social anxiety predicted reduced safety-behavior use over the course of treatment.

Two SRs (22,31) evaluated the benefit of exercise in reducing anxiety symptoms. Both studies indicated that the exercise practice was effective, regardless of the type and intensity of physical activity. However, exercise alone was less effective than standard antidepressant treatment (15). Although the effect of yoga on anxiety disorder was considered a safe intervention, the gathered evidence for its effects was inconclusive (32). Main critiques referred to the variety of diagnoses, heterogeneity of interventions, potential bias of low-quality studies, and lack of comparison to other treatments.

Regarding biological or pharmacological treatments, one meta-analysis (33) assessed transcranial magnetic stimulation in 40 participants with panic disorder. However, there was insufficient evidence to draw any solid conclusion about its efficacy because of the small sample size and significant methodological flaws. In addition to sampling issues (randomization and allocation concealment), the evidence in the 2 RCTs reviewed was of very low quality.

For pharmacological treatments, there was evidence of low-to-moderate quality for the use of selective serotonin reuptake inhibitors (SSRIs) for social anxiety (35). However, their tolerability seemed to be lower than placebo. The augmentation strategy did not appear to be beneficial in patients with treatment-resistant anxiety disorders, e.g.,

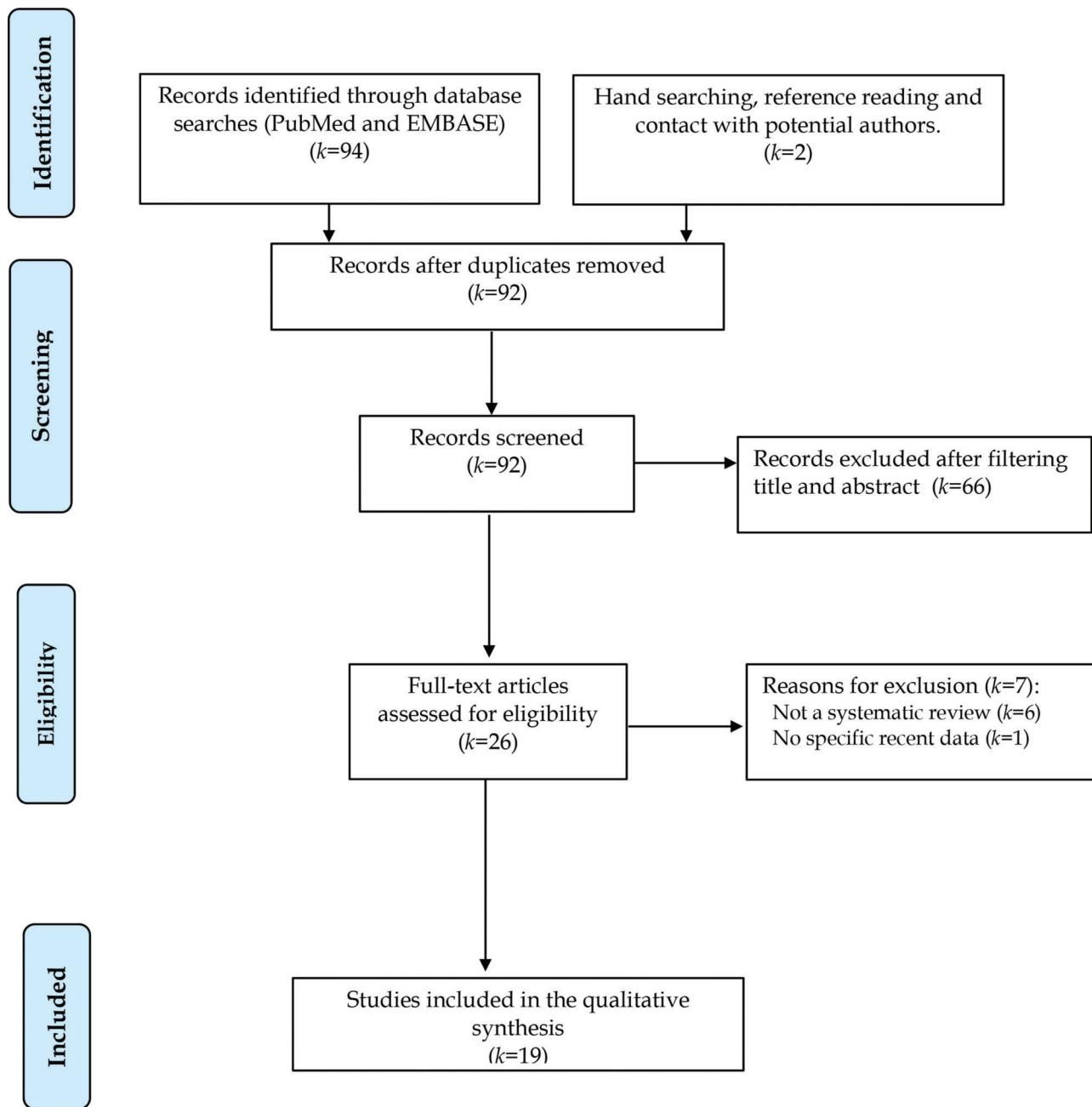


Figure 2 - Flow diagram according to PRISMA (www.prisma-statement.org) for identifying eligible articles (k =number of studies).

generalized anxiety, social anxiety, and panic disorder (34). In a comparison of the effects of second-generation antidepressants for obsessive-compulsive *vs.* generalized anxiety disorder, panic disorder, posttraumatic stress disorder, and social anxiety disorder (in over 15,000 participants), an SR (36) found that pharmacotherapy presented a smaller overall change score than placebo for those five categories of anxiety disorders. Finally, an SR of incipient trials of vortioxetine supported its use for anxiety (37), but more long-term placebo-controlled trials are warranted.

The SR on multimodal combined treatments reviewed 10 RCTs and compared the package of stepped care *versus* care-as-usual (38). The authors concluded that the stepped-care model of treatment of anxiety disorders appeared to be

superior than care-as-usual in terms of efficacy and cost-effectiveness. As a consequence, stepped care can reduce the burden on service providers and increase availability. In a comprehensive SR on multiple treatment modalities with over 37 thousand participants (15), the average pre-post effect sizes of medications were more effective than psychotherapies. In general, the effects of psychotherapies did not differ from placebo pills. Surprisingly, not only psychotherapy but also medications and, to a lesser extent, placebo conditions have shown similar enduring effects in the improvement of anxiety disorders (14). Nevertheless, long-lasting treatment effects observed in the follow-up period were superimposed in patients receiving different therapeutics at the same time.



Quality of evidence

Using the AMSTAR guideline, Table 2 presents the assessment of the quality of each individual SR. The overall confidence of each study was rated after evaluating critical and noncritical items of the AMSTAR. Several SRs ($k=6$) were rated as high quality (25,27,28,30,33,35); 3, as moderate (23,26,31); 7, as low (14,15,22,29,31,34,38); and 3, as critically low (24,36,37). All six reliable articles (AMSTAR high quality and ROBIS low risk of bias) were published in the Cochrane Database of Systematic Reviews and rigorously adhered to the guidelines of the Cochrane's Collaboration Tool to Assess Risk of Bias.

Most of the studies clearly described the planning phase of the SR, which included explicit research questions, selection criteria, data extraction and assessment of the risk of bias. Not all studies previously registered a protocol before performing the SR. Only 3 studies reported the source of funding of the included studies (25,30,35). During the data interpretation, the most frequent problems were no clear discussion of the individual bias of selected studies ($k=9$) and did not account for publication bias ($k=5$). Notably, the 3 SRs that did not subject the RCTs to a meta-analytical synthesis also presented several shortcomings that critically affected the quality of the articles (e.g., omission of excluded studies, nonevidence-based discussion of results, and no prior protocol registration).

The risk of bias was rated with the aid of ROBIS (Table 2), with 8 SRs having low risk (25-28,30,31,33,35); 8, uncertain risk (14,15,22,23,29,31,34,38); and 3, high risk (24,36,37). There was a rough agreement between the quality of an SR (AMSTAR) and the risk of bias (ROBIS). Unsurprisingly, while most high-to-moderate quality studies presented a low risk of bias, all three studies of critically low quality also presented a high risk of bias (24,36,37). In Supplementary Table 3, detailed ROBIS ratings for each retained study are shown.

■ DISCUSSION

The current overview summarized the evidence of the efficacy of emerging treatment options in the last 5 years for adult patients with an anxiety disorder. The conclusions of 19 relevant SRs were synthesized and combined, for a total of 87,773 participants distributed in 811 RCTs. There was great cross-study heterogeneity in terms of the research question, target disorder, type of intervention, methodology, number of included RCTs, sample size of participants, and measured outcomes. Most studies investigated the benefit of different forms of psychotherapy and physical activity. In terms of biological treatments, no great evidence of effectiveness was found for transcranial magnetic stimulation and pharmacological strategies (drug augmentation or novel agents).

Newer treatments for anxiety disorders are highly relevant because the majority of cases are underdetected and undertreated within health-care systems, even in economically developed countries (14). Most anxious patients worldwide do not receive standard treatment with combined psychotherapy and pharmacological agents in terms of adherence, frequency, and adequacy (6,9,11). Consequently, untreated patients with these disorders chronically endure these symptoms, which are associated with severe impairments and restrictions in role functioning and disabilities (6). The present overview of SRs presented a resynthesis of existing data to allow better choices among emerging

interventions for anxiety disorders. This rapid review of high-quality evidence can be of great clinical utility for decision-makers and public health administrators. Until more robust evidence is published, the initial enthusiasm for many proposed anti-anxiety alternatives has shrunk. Meanwhile, the evidence of many therapeutic alternatives should be watchfully disseminated to the community.

Interpretation and implications

From the present overview, there is convincing evidence that computer-delivered psychological treatment is helpful for the treatment of distressing anxiety of different intensities (25). However, the therapist-oriented CBT approach has yielded better results (25,28). Along similar lines, short-term psychodynamic psychotherapies have shown consistent gains, but larger studies with specific anxiety disorders are warranted (27). From a public health standpoint, computer-assisted treatment is not readily accessible in several non-developed countries, but this strategy can benefit those patients living in distant places or unwilling to start formal psychotherapy. Furthermore, sharing a single computer device and delivering brief psychotherapy are cost-effective for a community (40).

There is evidence of moderate-to-high quality suggesting that the online approach may be favorable and more efficacious than a wait list, informational pamphlets, or online discussion groups (25). Therefore, the self-help approach can be recommended as the first step in the treatment of mild anxiety disorders, but the short- and long-term effects of computer-delivered interventions and brief psychotherapies need to be fully established.

Although the SR of Morita therapy was of high quality and free of the risk of bias, its applicability is limited (30). All 7 RCTs of Morita therapy were conducted in Eastern countries, curbing its generalizability to Western populations (41).

Two promising high-quality SRs still required additional evidence of effectiveness with additional RCTs; pioneering transcranial magnetic stimulation (33) and the use of SSRIs in social anxiety (35) have shown insufficient evidence of efficacy. The SR of transcranial stimulation studies was conducted on 2 RCTs with 40 patients with panic disorder. Therefore, further trials with a larger sample are needed. The use of SSRIs in social anxiety has shown low-to-moderate evidence of efficacy and was less tolerable than placebo (35). These two strategies can be advised for specific anxiety disorders and those patients who presented partial response or refractoriness to standard treatment (35,42-45). In a further meta-analysis based on weekly outcome data (46), the treatment benefits of SSRIs and serotonin norepinephrine reuptake inhibitors (SNRIs) were shown for social anxiety. Higher doses of SSRIs, but not SNRIs, were associated with symptomatic improvement and treatment response. However, the potential risk of intolerance may surpass the benefit to the patients (46).

With an ever-growing list of psychotropic compounds showing apparent anxiolytic properties, current pharmacological options for treating clinical anxiety are broad and vast. Existing SRs (14,15) demonstrate that the magnitude of efficacy for most anxiolytic agents compared with placebo was superior. However, the likelihood of symptomatic remission after a pharmacological trial remains largely unknown. Progress in neuroscience and neurophysiology may unravel the pathways of therapeutic responsiveness.



Table 2 - Assessment of the quality and risk of bias of 19 selected systematic reviews of treatments for anxiety disorders, in accordance with the AMSTAR Tool to Assess systematic Reviews (AMSTAR 2.0) and Risk Of Bias In Systematic reviews (ROBIS).

Author	PICO	Protocol	Study selection	Literature search	Selection in duplicate	Extraction in duplicate	Included studies	Excluded studies	Individual risk of bias	Funding of studies	Appropriate meta-analysis	Impact of risk of bias	Interpreting/ discussing results	Discussion of heterogeneity	Publication bias	Confidentiality of interest	Quality	Risk of bias	AMSTAR	ROBIS	
																			1	2	
Nonbiological or psychological treatments																					
Mayo-Wilson, 2013 (25)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	High	Low	Low	
Jayakody, 2014 (22)	+	-	+	+	+	+	+	+	-	NA	NA	NA	+	+	+	+	+	Low	Uncertain		
Amberg, 2014 (26)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	Moderate	Low	Low	
Abbas, 2014 (27)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	High	Low	Low	
Norton, 2015 (23)	+	-	+	+	+	+	+	+	-	NA	NA	NA	+	+	+	+	+	Moderate	Uncertain		
Othius, 2015 (28)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	High	Low	Low	
Wu, 2015 (30)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	High	Low	Uncertain	
Newby, 2015 (29)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	Low	Uncertain		
Piccinillo, 2016 (24)	-	-	-	-	-	-	-	-	-	NA	NA	NA	-	-	-	-	-	Critical low	High	High	
Stubbs, 2017 (31)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	Moderate	Low	Low	
Cramer, 2018 (32)	-	-	-	-	-	-	-	-	-	NA	NA	NA	-	-	-	-	-	Low	Uncertain		
Biological or pharmacological treatments																					
Li, 2014 (33)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	High	Low	Low	
Patterson, 2016 (34)	+	-	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	Low	Uncertain		
Williams, 2017 (35)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	High	Low	Low	
Sugerman, 2017 (36)	-	-	-	-	-	-	-	-	-	NA	NA	NA	-	-	-	-	-	Critical low	High	High	
Yee, 2018 (37)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	Critical low	High	High	
Multimodal combined treatment comparisons																					
Banerjee, 2015 (15)	-	-	-	-	-	-	-	-	-	NA	NA	NA	-	-	-	-	-	Low	Uncertain		
Ho, 2016 (38)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	Low	Uncertain		
Banerjee, 2018 (14)	+	+	+	+	+	+	+	+	+	NA	NA	NA	+	+	+	+	+	Low	Uncertain		

Footnotes:

+ Yes

- No

+ Partial Yes

NA: not applicable - no meta-analysis

RCT/NRCT: randomized controlled trials/nonrandomized controlled trials



Thus, the generalizability of emerging treatments, e.g., transcranial stimulation and newer pharmacological strategies, is limited due to sampling issues, methodological flaws, and applicability in specific anxiety disorders. These potential interventions might not be available to all consumers, and therefore, larger and more pragmatic RCTs are needed to evaluate and maximize the benefits of available interventions (42-45).

Behavioral recommendations of regular exercise (22,31), mindfulness practice (23), and yoga (32) have also been shown to be beneficial for improving anxiety symptoms. However, these SRs were of low-to-moderate quality and vulnerable to the risk of bias. The universal campaign of healthy activities might be recommended as an adjunctive treatment to standard treatment and a cost-effective strategy in regions where there is a shortage of qualified therapists. Nonetheless, these practices were less effective when compared with antidepressant pharmacotherapy (15). Even without sufficient evidence of effectiveness, these nonstandard treatments seem to be safe, inexpensive and can be easily implemented with preventive purposes to community dwellers (47).

Although methodological questions remain before its broad implementation can be supported, the personalized therapist-guided CBT approach is the most recommended nonpharmacological treatment for anxiety (48). Similarly, while the practice of physical activities is safe and helpful, traditional antidepressant treatment presents better results (9,14). One unanswered question refers to the potential adverse effects of the nonsupervised use of computer-assisted therapies and exercise practice. These concerns need to be refined in future RCTs.

Among those patients receiving long-term treatments with partial response or refractoriness, it is possible that novel strategies can enhance and sustain the improvements in anxiety. Hence, there is a large amount of room for amendments to treatment plans (34-38), at least for specific and severe anxiety disorders. Future studies should include stratification of anxiety by severity status and persistence to characterize the dose-response relationship of interventions and the combined efficacy of psychotherapy and pharmacotherapy in treating anxiety disorders, in addition to rule out potential confounding factors that affect treatment effectiveness (49,50).

Some SRs were untrustworthy due to their low quality and serious biases. For example, the impact of safety behaviors in social anxiety remains unknown (24), as well as the reduced response to placebo and antidepressants in obsessive-compulsive disorders (36) and the benefit of vortioxetine for the treatment of anxiety disorders (37). In general, the most common shortcomings were the lack of a published protocol, unclear study selection, inadequate search strategy, lack of explicit inclusion and exclusion criteria, nonexhaustive assessment of bias, invalid interpretation, and no report of publication bias. Consequently, these topics require urgent clarification, using a more stringent methodology and longer follow-up to answer the proposed research question.

Limitations

The heterogeneous interventions reported in these SRs with diverse outcomes preclude conducting a quantitative meta-analytical synthesis as an umbrella review (17-19,39). However, the present systematic overview has assessed the

risk of bias of each individual SR, and it is secure to claim that most of the evidence reported herein was trustworthy.

The search for recent SRs on the treatment of anxiety disorders has identified main review articles, but some gray literature might have been missed. Although the studies in the Cochrane library were covered in PubMed and EMBASE, ongoing SRs must be finalized to draw solid conclusions. Along these lines, the Cochrane register and PROSPERO data were not scanned to detect other SRs. However, preliminary findings or unpublished SRs should not be integrated into the present overview. It is possibly that a selection bias of new treatment alternatives for specific anxiety disorders occurred at the time of the search. The potential omission of ongoing RCTs cannot be ruled out, but untrustworthy or partial evidence should not be taken as high-quality information.

A potential bias of overview studies is overlap in the retrieved articles or the use of the same primary study in multiple included SRs (51,52). In the present review, most of the treatment modalities were addressed by only one included SR, which probably reduced the probability of overlap across those studies. However, there were two interventions that were addressed by multiple studies: media-delivered psychotherapy and physical exercises. Five SRs examined media-delivered psychotherapy, with a total of 463 RCTs included in the reviews. It is possible that overlap occurred across these SRs, and subtle differences exist regarding the sample, scientific question, comparator, and inclusion of therapist. Therefore, we cannot rule out the possibility of overlapping articles, and the strength of the conclusion about media-delivered psychotherapy should be softened. In contrast, in the two existing SRs on physical exercises, we found 16.7% overlap across the included RCTs. In addition, the overall quality of the articles on physical exercise was low-to-moderate according to the AMSTAR analysis. This fact likely endorses the lower efficacy of physical exercises than standard care.

The covered period of five years may have not included all published studies before 2013. Nevertheless, these recent articles have offered updated coverage of previous studies conducted more than five years ago. Because our primary goal was to condense recent advances on the evidence-based therapeutics for anxiety, well-known modalities were outside the scope of the present review. Notwithstanding, two comprehensive meta-analyses conducted by Bandelow's group (14,15) provided a broad summary of existing evidence on treatments for anxiety disorders, as well as the comparative enduring effect of psychological treatments and efficacy of treatments.

Trials with negative results might remain unpublished, and practitioners continue advising off-label use without any evidence of effectiveness or benefit. This publication bias of the file drawer effect cannot be ruled out. Small study bias and excluded participants may have affected the scientific soundness of the conclusions. For example, repetitive transcranial stimulation still requires a larger sample (42-45), and Morita therapy should be investigated in Western countries and regions in different stages of development (41).

CONCLUSIONS

The present overview of recent treatment trends for anxiety disorders provides an account of the evolving directions to pursue, in terms of state-of-art scientific



development. Effective and older treatments should be enhanced with technological innovations such as computer-based CBT and supplemented by adjunctive physical activities. New biological or pharmacological treatment modalities for anxiety disorders still need further evidence of usefulness. Thus, all treatments for anxiety disorders with proven effectiveness should be continuously investigated to make them available to the community.

The worldwide burden of anxiety disorders is high. Therefore, obtaining access to reliable health-care services is a bonafide and essential need in a globalized world. However, direct-to-consumer universal access to emerging treatments for anxiety should be recommended only after demonstration of robust evidence of efficacy.

ACKNOWLEDGMENTS

V.I.M. has been awarded a scholarship for graduate students from the São Paulo Research Foundation (FAPESP #2017/15060-0). The National Council for Scientific and Technological Development (CNPq) supports L.H.A.

AUTHOR CONTRIBUTIONS

Mangolini VI and Wang YP contributed equally to the manuscript and were responsible for the study conception, data acquisition and extraction, and manuscript drafting. Andrade LH and Lotufo-Neto F have critically reviewed the discussion and conclusion. All of the authors approved the final version of the submitted manuscript.

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■ APPENDIX

Supplementary Table 1 - Search Strategies

SEARCH

DATABASE #1

PubMed

- Article types: Review
- Time period covered: Last 5 years
- Language: English, Portuguese and Spanish
- Age: Adults 19+
- Species: Humans

Search strategy:

anxiety disorders[Title/Abstract] AND treatment[Title/Abstract] AND (Review[ptyp] AND "2013/01/01"[PDAT] : "2018/12/31"[PDAT] AND "humans"[MeSH Terms] AND (English[lang] OR Portuguese[lang] OR Spanish[lang]) AND "adult" [MeSH Terms])

of articles retrieved: 72

DATABASE #2

EMBASE

- Article types: Review
- Time period covered: 2013-2018
- Language: English, Portuguese and Spanish
- Age: Adults
- Species: Humans

Search strategy:

'anxiety disorder':ab,ti AND 'treatment':ab,ti AND [review]/lim AND ([english]/lim OR [portuguese]/lim OR [spanish]/lim) AND [adult]/lim AND [humans]/lim AND [2013-2018]/py

of articles retrieved: 22



Supplementary Table 2 - List of excluded studies.

Author, Year	Reason for exclusion
Alladin A., 2014	Not a systematic review
Bluett E., 2014	Not a systematic review
Palm U., 2017	Not a systematic review
Spiegel S., 2014	Not a systematic review
Reinhold J., 2015	Not a systematic review
Shahar B., 2014	Not a systematic review
Gotink R., 2015	No specific recent data

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7. Gotink RA, Chu P, Busschbach JJ, Benson H, Fricchione GL, Hunink MG. Standardised mindfulness-based interventions in healthcare: an overview of systematic reviews and meta-analyses of RCTs. *PLoS One.* 2015;10(4):e0124344.



Supplementary Table 3 - Ratings of Phase 2 and Phase 3 of ROBIS (Risk Of Bias In Systematic review) in 19 selected systematic reviews on the treatment of anxiety disorders (2013-2018).

Author	Phase 2				Phase 3			ROBIS rating
	1. Study eligibility criteria	2. Identification and selection	3. Data collection and appraisal	4. Synthesis and findings	A. Interpretation of concerns (Phase 2 assessment)?	B. Relevance of identified studies?	C. Avoid emphasizing results?	
Nonbiological or psychological treatments								
Mayo-Wilson, 2013 (25)	Low	Low	Low	Low	Yes	Yes	Yes	Low risk
Jayakody, 2014 (22)	Low	Low	Low	High	Yes	Probably Yes	Yes	Uncertain
Arnberg, 2014 (26)	Low	Low	Low	Low	Yes	Probably Yes	Yes	Low risk
Abbas, 2014 (27)	Low	Low	Low	Low	Yes	Probably Yes	Yes	Low risk
Norton, 2015 (23)	Low	Low	Low	High	Yes	Yes	Yes	Uncertain
Oltmans, 2015 (28)	Low	Low	Low	Low	Yes	Yes	Yes	Low risk
Wu, 2015 (30)	Low	Low	Low	Low	Yes	Yes	Yes	Low risk
Newby, 2015 (29)	Low	Low	High	High	Unclear	No	Yes	Uncertain
Piccirillo, 2016 (24)	High	High	High	High	Probably Yes	Yes	Yes	High risk
Stubbs, 2017 (31)	Low	Low	Low	Low	Yes	Yes	Yes	Low risk
Cramer, 2018 (32)	Low	Low	High	High	Probably Yes	Yes	Yes	Uncertain
Biological or pharmacological treatments								
Li, 2014 (33)	Low	Low	Low	Low	Yes	Yes	Yes	Low risk
Patterson, 2016 (34)	Low	Low	Low	High	No	Probably Yes	Yes	Uncertain
Williams, 2017 (35)	Low	Low	High	High	Yes	Yes	Yes	Low risk
Sugarman, 2017 (36)	High	High	High	High	No	Probably Yes	Yes	High risk
Yee, 2018 (37)	High	High	High	High	No	Probably Yes	Yes	High risk
Multimodal treatment comparisons								
Bandelow, 2015 (15)	Unclear	Low	Low	Unclear	Unclear	Unclear	Yes	Uncertain
Ho, 2016 (38)	Low	Low	Low	High	No	Probably Yes	Yes	Uncertain
Bandelow, 2018 (14)	Low	Low	Low	Unclear	Unclear	Unclear	Yes	Uncertain

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).

Generalized Anxiety Disorder and Worrying: A Comprehensive Handbook for Clinicians and Researchers, First Edition. Edited by Alexander L. Gerlach and Andrew T. Gloster.

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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 metacognitive 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 non-judgmental 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.

<i>Old plan</i>	<i>New plan</i>
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

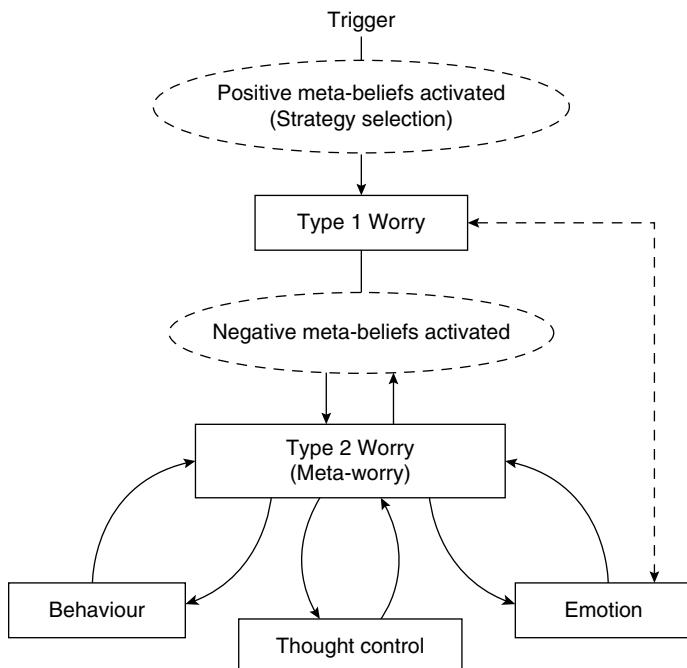


Figure 10.1 Schematic representation of the targets of metacognitive therapy in generalized anxiety disorder (GAD). Source: From Wells (1997).

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).

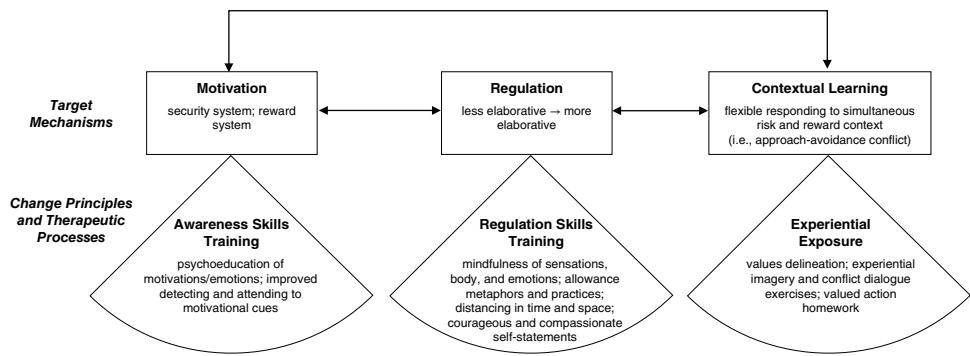


Figure 10.2 Target mechanisms, change principles, and therapeutic process in ERT for GAD.

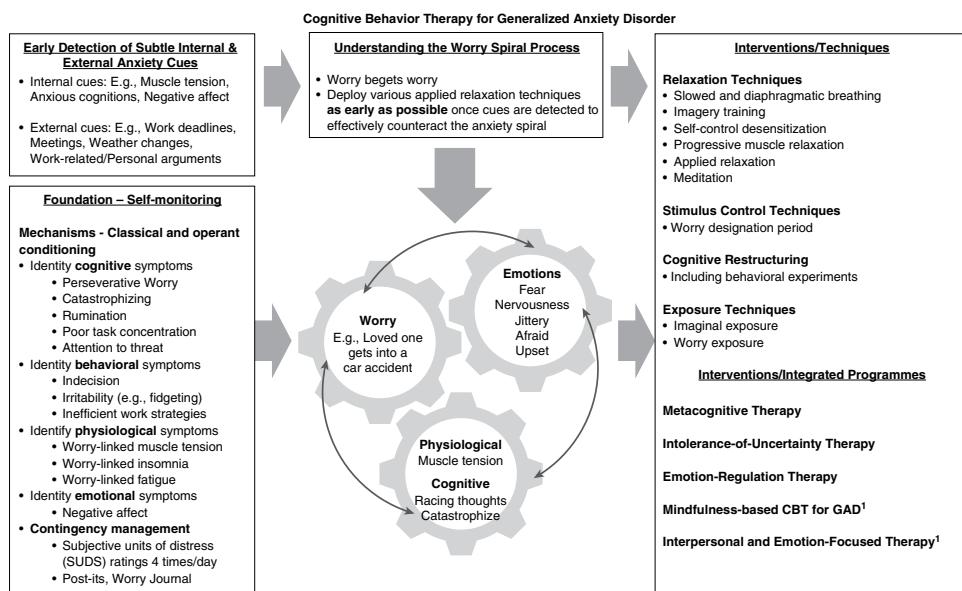


Figure 10.3 Integration of core principles, mechanisms, and techniques of CBT for GAD.

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 standardized interventions (e.g., Persons, Roberts, Zalecki, & Brechwald, 2006). In addition, the lack of differences between directly compared treatments highlight the importance 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 treatment 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 consistent 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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Treatment of anxiety disorders in clinical practice: a critical overview of recent systematic evidence

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Mangolini VI, Andrade LH, Lotufo-Neto F, Wang YP. Treatment of anxiety disorders in clinical practice: a critical overview of recent systematic evidence. Clinics. 2019;74:e1316

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The aim of this study was to review emerging evidence of novel treatments for anxiety disorders. We searched PubMed and EMBASE for evidence-based therapeutic alternatives for anxiety disorders in adults, covering the past five years. Eligible articles were systematic reviews (with or without meta-analysis), which evaluated treatment effectiveness of either nonbiological or biological interventions for anxiety disorders. Retrieved articles were summarized as an overview. We assessed methods, quality of evidence, and risk of bias of the articles. Nineteen systematic reviews provided information on almost 88 thousand participants, distributed across 811 clinical trials. Regarding the interventions, 11 reviews investigated psychological or nonbiological treatments; 5, pharmacological or biological; and 3, more than one type of active intervention. Computer-delivered psychological interventions were helpful for treating anxiety of low-to-moderate intensity, but the therapist-oriented approaches had greater results. Recommendations for regular exercise, mindfulness, yoga, and safety behaviors were applicable to anxiety. Transcranial magnetic stimulation, medication augmentation, and new pharmacological agents (vortioxetine) presented inconclusive benefits in patients with anxiety disorders who presented partial responses or refractoriness to standard treatment. New treatment options for anxiety disorders should only be provided to the community after a thorough examination of their efficacy.

KEYWORDS: Anxiety Disorders; Therapeutics; Psychotherapy; Psychopharmacology; Systematic Review.

INTRODUCTION

According to the World Health Organization (1), anxiety disorders are burdensome “common mental disorders” to communities. These prevalent disorders are not communicable and affect approximately one in every five individuals of the world population (2-4). This figure represents the largest share of the prevalence of all mental disorders, whereas severe psychotic and bipolar disorders affect only between 1% and 2% of the population. In an upper-middle income country such as Brazil, the 12-month prevalence of anxiety disorders has been estimated as 19.9% among the dwellers of a large metropolitan area (5).

The cost of anxiety disorders to the working world is remarkable, corresponding to a total loss of 74.4 billion Euros in 2010 (3). The global burden of anxiety disorders represents 10.4% of years lived with adjusted disability (DALY) of mental disorders, reaching 26,800,000 DALYs (2). Despite the societal burden of this morbidity, only approximately one in

five patients diagnosed with anxiety disorder obtain access to treatment (6,7).

Anxiety disorders present an early onset, even during childhood. Their enduring waxing and waning course deeply affects patients’ functionality and interpersonal relationships throughout the lifespan (8). Most pathological anxiety (specific phobias, social anxiety, generalized anxiety, separation anxiety, obsessive-compulsive, and panic disorder) is underrecognized, and patients seek treatment in outpatient settings, either in medical or specialized mental health-care contexts (7). However, anxiety disorders receive less attention from clinicians when compared with major mental disorders, such as psychotic conditions and substance use disorders that require hospitalization. Moreover, anxiety is less reported in the media than depression and suicide attempts, which reduces the help-seeking behaviors of patients suffering from anxiety. Figure 1 summarizes key uncontroversial characteristics and clinical practices regarding the treatment of anxiety disorders (9-11). Most experts advocate either psychotherapy and/or pharmacotherapy for alleviating or controlling symptoms of anxiety. The combination of psychological treatment with psychotropic drugs is recommended for patients with severe cases of disabling anxiety.

Traditionally, several talk therapies are subsumed as techniques of psychological treatment and have been recommended to handle different degrees of anxiety (11). Well-accepted but not always efficacious modalities of psychotherapy vary from psychoanalytic, cognitive-behavioral, interpersonal, supportive, and group therapy to brief therapy.

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No potential conflict of interest was reported.

Received for publication on April 17, 2019. **Accepted for publication on** September 17, 2019

DOI: 10.6061/clinics/2019/e1316



Key points	
<ul style="list-style-type: none"> Anxiety disorders are common conditions in the population, which present early onset and are persistent throughout the lifespan. Despite the high burden of anxiety, it is estimated that approximately 20% of patients receive some type of treatment. Numerous techniques of psychotherapy can be used to treat different degrees and presentations of anxiety. Severe and disabled cases may benefit from using psychotropic drugs in combination with psychological treatment. 	
Treatment modalities	
<i>Nonbiological or psychological therapy</i>	<i>Biological or pharmacological therapy</i>
<ul style="list-style-type: none"> Cognitive-behavioral therapy Psychoanalysis Supportive counseling Brief psychotherapy Group psychotherapy 	<ul style="list-style-type: none"> Antidepressants Buspirone Benzodiazepines Beta-blockers Antipsychotics

Figure 1 - What we already know about the treatment of anxiety disorders (9,10,11).

The literature on cognitive-behavioral therapy (CBT) has established a foundation of effectiveness evidence for different anxiety disorders (9,11), but new therapeutic modalities should have their benefit assessed. In addition, the existing number of mental health professionals is insufficient for the number of patients who need treatment (6). Thus, a more accessible and cost-effective modality of psychotherapeutic treatment for anxiety should be offered to the community.

More than six decades ago, since the synthesis of chlordiazepoxide in 1957 (12), benzodiazepine medications have become the main class of pharmacological agents for the treatment of anxiety disorders. The introduction of these anxiolytic medicines received an immediate welcome from medical professionals and anxiety-laden patients. Nonetheless, the risk of side effects, a withdrawal syndrome and dependence on benzodiazepines have led patients in need of treatment to seek less harmful therapeutic substitutes, which do not always have proven efficacy. Accepted psychopharmacological medicines include antidepressants, buspirone, beta-blockers, and antipsychotics. Their efficacy has been demonstrated in well-designed clinical trials and abridged in comprehensive reviews (10). The combined use of psychological treatment with psychotropic drugs is more commonly recommended for cases of anxiety of greater severity and disability (11).

Many complementary and alternative treatments of mild forms of anxiety have gained popularity because of their alleged harmlessness. Examples of complementary treatment include aromatherapy, acupuncture, herbal medicine, homeopathy, massage therapy, yoga, mindfulness, exercise practice, relaxation, etc. (6,7). The diversity of modalities that a patient is exposed to varies in accordance with the guidance of the therapist, use of an active substance, and body manipulation. Exhaustive classification is difficult. While mental health professionals support the adjunctive addition of these modalities, for anxiety disorders in particular, the

exclusive use of alternative therapies as a surrogate to well-established forms of treatment should be avoided (11). Most complementary and alternative treatments lack evidence of effectiveness. It is possible that a placebo effect and a good therapeutic relationship between the practitioner and patients underlie their positive outcomes.

There are a wealth of treatments devoted to controlling the symptoms of anxiety, but nonconventional and newer psychotherapeutic treatments and pharmacological agents are propagated without an acceptable confirmation of benefit. In the present review, we searched for recent evidence of nonbiological (psychological) and biological (pharmacological) modalities for treating anxiety disorders. The comprehensive summary of treatment advances is organized for a professional who is in training or is not a specialist in mental health to supplement existing modalities. Complementary and alternative treatments with evidence of effectiveness are explored herein under the group of nonbiological therapies. Additionally, high-quality systematic reviews (SRs) were chosen over sparse clinical trials in need of additional replication. The usefulness and public health importance of the treatment of anxiety are subsequently discussed.

■ METHODS

Our research question was to update the evidence on recent interventions for the broad category of anxiety disorders. In the present study, the PICO components included adult Patients with a clinical diagnosis of "anxiety disorder", who were subjected to one or more Interventions (either biological or nonbiological). The intervention must be Compared with a placebo or standard therapeutics for assessing the treatment Outcomes.

We searched for articles in the PubMed and EMBASE databases on the treatment of anxiety disorders. The key Medical Subject Heading (MeSH) terms were "anxiety



disorders" AND "treatment". The retrieved articles were displayed in the Mendeley platform and filtered in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines (13). The arguments of the search strategy can be found in Supplementary Table 1.

For inclusion, the article type must be an SR, with or without meta-analysis, of clinical trials involving adult patients diagnosed with an anxiety disorder. Rigorous randomized clinical trials (RCTs) compared with placebo or active interventions were considered the highest evidence of effectiveness. Those articles wherein participants encompassed a mixed sample of adults and children were not eligible unless separate data were comprehensively presented. Only articles published in the last 5 years, from January 2013 through September 31, 2018, were considered appropriate. There was no language restriction regarding published articles.

After hand searching, by reading the reference list of retained articles and chapters, and contact with potential authors, we identified two additional articles (14,15).

Regarding exclusion criteria, articles containing primary data, duplicate SR or animal models of anxiety were not eligible. Posttraumatic stress disorder was not considered in the present overview because this disorder is not covered under the MeSH term "anxiety disorders" and is no longer listed in the DSM-5 chapter of anxiety disorders (16). In contrast, while the DSM-5 describes obsessive-compulsive disorders in a separate chapter, this group of disorders is still listed under the MeSH entry of anxiety disorders. Furthermore, treatments on the cooccurrence of anxiety disorders in a specialized medical context (e.g., heart disease, endocrinological, neurological conditions, pain clinics, etc.) were eliminated. Observational studies, case reports, comments, practice guidelines and editorials on therapeutic modalities were also excluded from this overview. Two authors (V.I.M. and Y.P.W.) decided the final list of selected articles.

Study method

Often, an individual SR cannot address all proposed interventions for the same problem. Recent advances in the treatment of anxiety disorders are updated in the current study with the methodological framework of a systematic overview (17). Accordingly, this type of meta-review is a relatively new method to achieve a high level of evidence, wherein systematic evidence gathered from more than one SR or meta-analysis is examined in a single accessible work, also known as a "systematic review of systematic reviews" (17). The compilation of evidence synthesizes different interventions for the same problem or condition on different outcomes for different conditions, problems or populations. The ultimate result provides a global summary of the available evidence rather than providing data synthesis (17,18). Thus, an overview aims to examine the highest level of evidence and provide a global account of findings (19). This type of review has the advantage of rapidly combining relevant data to make evidence-based clinical decisions. Stakeholders, managers and health professionals can appraise multiple high-quality studies in a single general summary of a particular question.

The quality of the retained review articles was assessed in accordance with "A Measurement Tool to Assess systematic Reviews" (AMSTAR version 2) (20). The 16-item AMSTAR checklist (<https://amstar.ca>) represents a critical appraisal of

the quality of SRs, covering different aspects related to study planning and conduct, such as the research question, review protocol, selection of study design, search strategy, explicit inclusion and exclusion criteria, risk assessment of bias, and publication bias. For the interpretation of detected weaknesses in critical and noncritical items, the AMSTAR recommends a categorization of the overall confidence in the results of the SR as follows: high, moderate, low, and critically low. The assessment of the risk of bias of an SR was supplemented with the Risk Of Bias In Systematic review (ROBIS) guidelines (21), which allows classification of the existence of bias as low, high or unclear. All rating disagreements were reconciled during discussion meetings.

■ RESULTS

Figure 2 shows the PRISMA flow diagram of the retrieved articles in this overview. From the initial 96 review articles published between 2013 and 2018, 92 nonduplicated articles were screened for title and abstract. Most studies ($k=66$) were removed because the participants presented anxiety symptoms in the context of medical diseases or were nonadults. After eliminating ineligible articles that fell outside the topic of overview, 26 articles were retained for full-text reading. An additional 7 articles were excluded because 6 did not present an SR and 1 did not contain recent data. The reasons for article exclusion can be found in Supplementary Table 2. Accordingly, 19 recent SRs were included in the final list for the qualitative synthesis. Of these studies, 3 did not estimate the pooled effect size of the outcomes through a meta-analytical quantitative synthesis (22-24).

Table 1 summarizes the main characteristics and methods of the 19 retained studies. From these articles, 11 referred to nonbiological treatments for anxiety (media- or internet-assisted CBT therapy, brief psychodynamic therapy, Morita therapy, effects of safety behavior, practices of exercise, mindfulness, and yoga, etc.), 5 referred to biological treatments for anxiety (repetitive transcranial magnetic stimulation and pharmacotherapy), and 3 referred to multimodal combined treatment comparisons (stepped care vs. care-as-usual and comparison of multiple treatments). All articles were published in English, and the investigators had searched for relevant articles in at least two databases. Although our search was restricted between 2013 and 2018, the majority of retained SRs covered the previous period, from the database inception date up to 2017.

Across the SRs, there were a total of 811 RCTs (range: 2-234 RCTs), with an included total of 87,773 adult participants (range: 40-37,333 patients). Three SRs (15,35,36) included over 10,000 participants, 6 SRs (25-29,37) between 9,999 and 1,000 participants, 8 SRs less than 1,000 participants (22,23,30-34,38), and 2 SRs did not report the exact number due to the mixture of adult and underage participants (14,24). Most SRs ($k=14$) did not report or summarize the percentage of female participants. The other 5 SRs (25,28,30,33,38) indicated the proportion of women (range: 55.5%-67.7%).

Regarding the diagnosis of the participants, the majority of studies investigated the disorder either under a generic diagnostic label of anxiety disorders or common mental disorders. SRs evaluated the effects of specific interventions in social anxiety (14,15,23,24,35), panic (14,15,33), generalized anxiety (14,15), and obsessive-compulsive disorder (36). All articles described the exclusion of ineligible participants (e.g., posttraumatic stress or acute stress disorders,



Table 1 - Characteristics of 19 systematic reviews on the treatment of anxiety disorders (2013-2018).

Author, Year	Research question	Period	Studies	Participants	N	Women
Nonbiological or psychological treatments						
Mayo-Wilson, 2013 (25)	Media-delivered behavioral and cognitive behavioral therapies	Up to 2013	101 RCTs	Adults with anxiety disorders	8,403	67%
Javakody, 2014 (22)	Exercise vs. other treatments	Up to 2011	8 RCTs	Adults with anxiety disorders	563	NR
Arnberg, 2014 (26)	Internet-delivered psychological treatment	Up to 2013	40 RCTs	Participants* with anxiety or mood disorders	2,622	NR
Abbas, 2014 (27)	Efficacy of short-term psychodynamic psychotherapies	Up to 2014	33 RCTs	Adults with common mental disorders	2,173	NR
Norton, 2015 (23)	Mindfulness and acceptance-based treatment	Up to 2014	9 RCTs	Adults with social anxiety	330	NR
Olthuis, 2015 (28)	Therapist-supported internet cognitive behavioral therapy	Up to 2015	38 RCTs	Adults with a primary anxiety disorder	3,214	67.7%
Newby, 2015 (29)	Clinician-guided internet/computerized or face-to-face treatments	Up to 2014	50 RCTs	Adults with a primary anxiety or depressive disorder	1,865	NR
Wu, 2015 (30)	Morita therapy	Up to 2014	7 RCTs	Adults with anxiety disorders	449	55.5%
Piccirillo, 2016 (24)	Safety behaviors in social anxiety	Up to 2015	39 RCTs	Adults with social anxiety	NR	NR
Stubbs, 2017 (31)	Exercise in people with anxiety and/or stress-related disorders	Up to 2015	6 RCTs	Adults with a primary anxiety or stress disorders	262	NR
Cramer, 2018 (32)	Effectiveness of yoga	Up to 2016	6 RCTs	Adults with anxiety disorders	319	NR
Biological or pharmacological treatments						
Li, 2014 (33)	Repetitive transcranial magnetic stimulation	Up to 2014	2 RCTs	Adults with panic disorder	40	60%
Patterson, 2016 (34)	Augmentation strategies in treatment-resistant anxiety	1990-2015	6 RCTs	Treatment-resistant adults with anxiety disorders	557	NR
Williams, 2017 (35)	Pharmacotherapy for social anxiety disorder	Up to 2015	66 RCTs	Adults diagnosed with social anxiety	11,597	NR
Sugerman, 2017 (36)	Antidepressants in obsessive-compulsive disorders	1994-2008	56 RCTs	DSM-IV-based anxiety disorders	15,167	NR
Yee, 2018 (37)	Vortioxetine	Up to 2017	7 RCTs	Patients* in treatment for anxiety disorders	2,391	NR
Multimodal combined treatment comparisons						
Bandelow, 2015 (15)	Efficacy of all treatments for anxiety disorders	1980-2013	234 RCTs	Adults with DSM-based GAD, panic disorder or social anxiety	37,333	NR
Ho, 2016 (38)	Stepped care prevention and treatment compared with care-as-usual	Up to 2015	10 RCTs	Participants with depressive and/or anxiety disorders	488	63.5%
Bandelow, 2018 (14)	Enduring effects of treatments for anxiety disorders	1980-2016	93 RCTs	Adults with DSM-based GAD, panic disorder or social anxiety	NR	NR

Table 1 - Continued.

Interventions	Exclusion	Main Outcomes	Quality of evidence	Conclusions
Nonbiological or psychological treatments				
CBT and behavioral therapy, media-delivered alone or as adjuncts to another treatment	PTSD and acute stress disorder	Change in symptoms of anxiety; continuous symptom measures, response and recovery	Cochrane	Self-help may be useful for people who cannot use other services. However, face-to-face CBT is probably clinically superior.
Different forms of exercise (alone or in combination with other treatments)	Depressive disorders	Changes in symptoms of anxiety, improvement in mental state or quality of life, relapse, and compliance with exercise treatment	Cochrane	Exercise seems to be effective as an adjunctive treatment, but it is less effective than antidepressant treatment.
Theory-based psychological interventions, as delivered via the internet	Primary physical illness	Change in symptoms of anxiety, adverse events, and cost per effect and per quality-adjusted life-years	Cochrane	Internet-based CBT is a viable treatment option. Methodological questions remain before broad implementation can be supported.
Individual short-term psychodynamic psychotherapies or approaches (40 weeks on average, 45- to 60-minute sessions)	Psychotic disorders	Improvement in general symptoms as measured by psychiatric instruments or criteria and somatic symptoms	Cochrane	Short-term psychodynamic psychotherapies show modest to large gains. Larger studies of higher quality and with specific diagnoses are warranted.
Mindfulness and acceptance-based treatment	No statistical analyses, irrelevant interventions, not peer reviewed studies	Changes in cognitive, behavioral, and physiological symptoms	Cochrane	The benefit of mindfulness and acceptance-based treatment can be considered a viable alternative. CBT remains best practice for first-line treatment of social anxiety.
Therapist-supported CBT delivered via internet (web pages or e-mail)	Other comorbidity and anxiety symptoms that did not meet diagnosis criteria	Clinical improvement determined by interview scores and reduction in symptoms of anxiety by scores	Cochrane	Therapist-supported internet-based CBT appears to be an efficacious treatment for anxiety in adults.
Manualized psychological treatments (at least 2 sessions)	Insufficient data, under age 18, case studies, and case series	Improvement in symptoms of anxiety, as measured by instruments and quality of life scores	Cochrane	Transdiagnostic psychological treatments are efficacious, but higher quality research studies are needed.
Morita therapy by the carers (at least two of the four phases)	Secondary anxiety symptoms of a different disorder, comorbid disorders	Clinical response, dropouts and measure of total acceptability.	Cochrane	The evidence base on Morita therapy was limited. All included studies were conducted in China, curbing the applicability of conclusions to Western countries.
Exposure to safety behaviors as attempts to prevent or avoid feared outcomes (threatening or catastrophic) during CBT	No data on safety behaviors, children and adolescent, not in English, case studies, not social anxiety	Change in measures of safety behaviors, e.g., Social Behaviors Questionnaire (SBQ) and Subtle Avoidance Frequency Evaluation (SAFE)	NR	Limited evidence suggests that reductions in the use of safety behaviors are related to better CBT outcomes, and reductions in social anxiety predict reduced safety-behavior use over the course of treatment.
Exercise vs. a nonactive group (usual-care, wait-list, placebo or social activities)	Yoga, tai chi or qigong; and comparison with active treatments (pharmacotherapy or psychotherapy).	Mean change in anxiety symptoms in the exercise vs. control group according to a validated outcome measure	Cochrane	Data suggest that exercise is an effective intervention in improving anxiety symptoms in people with anxiety and stress-related disorders
Multicomponent yoga, posture-based yoga, and breathing/meditation-based yoga	Obsolete diagnoses	Improvement in severity of anxiety and remission	Cochrane	Yoga is effective and safe for individuals with elevated anxiety. There was inconclusive evidence for effects of yoga in anxiety disorders.
Biological or pharmacological treatments				
Repetitive transcranial magnetic stimulation of high or low frequency (alone or in combination with other interventions)	Single-pulse intervention, or treatment period of less than one week	Effectiveness measured by symptom severity, and acceptability, dropouts and adverse effects	Cochrane	There is insufficient evidence to draw any conclusions about efficacy. Further RCTs are needed.
Pharmacotherapy or CBT augmentation of a first-line SSRI (with a placebo control)	Concomitant medication trials or not SSRIs as first-line treatment	Clinical Global Impression, changes in symptom severity, disability and functional impairment	Cochrane	Augmentation does not appear to be beneficial in treatment-resistant anxiety disorders
Any medication administered to treat social anxiety versus an active or nonactive placebo	Trials that included only a subset of participants that met the review inclusion criteria in the analysis	Treatment efficacy measured as clinical global impressions and relapse rate, and treatment tolerability	Cochrane	The quality of evidence of efficacy for SSRIs is low to moderate. The tolerability was lower than placebo.
Second generation antidepressant for anxiety-related psychiatric diagnoses	Not second generation antidepressant	Changes in pre-post scores on symptom inventories	NR	Overall score changes were smaller for OCD compared to other anxiety disorders for both antidepressants and placebo.
Vortioxetine for treating anxiety disorders	Not human studies and not English language	Change from baseline at the final week of study on the Hamilton Anxiety Scale	NR	The evidence supports the use of vortioxetine for anxiety disorders. However, further long-term placebo-controlled observational studies or a postmarket survey would strengthen the existing evidence.



Interventions	Exclusion	Main Outcomes	Quality of evidence	Conclusions
Multimodal combined treatment comparisons Effective drugs, psychological therapies and combined treatments, as shown in RCTs	Missing information, sample size of less than 10, children and adolescents	Evaluation of pre-post effect sizes for treatments	SIGN	The average pre-post effect sizes of medications were more effective than psychotherapies. Psychotherapy effects did not differ from pill placebo.
Stepped care treatment or prevention (versus care-as-usual or wait-list)	Studies with no ‘stepping-up’ criteria	Changes in pre-post scores on symptom inventories	Cochrane	Stepped-care model appeared to be better than care-as-usual in treating anxiety disorders.
Effective drugs, psychological therapies and combined treatments (RCTs with up to 24 months follow-up)	Missing information, sample size of less than 10, children and adolescents	Evaluation of effect sizes in different follow-up moments	SIGN	Not only psychotherapy but also medications and, to a lesser extent, placebo conditions have enduring effects. Long-lasting treatment effects observed in the follow-up period may be superimposed.

CCDA: NCTR: The Cochrane Depression, Anxiety and Neurosis Review Group's Specialized Register; **CDSR**: Cochrane Database of Systematic Reviews; **CENTRAL**: The Cochrane Central Register of Controlled Trials; **CINAHL**: Cumulative Index to Nursing and Allied Health Literature; **Cochrane**: Cochrane's Collaboration Tool to Assess Risk of Bias; **CRD**: Centre for Reviews and Dissemination; **DAI**: Dissertation Abstracts International; **ICTRP**: World Health Organization's trials portal; **PBSC**: Psychology and Behavioral Sciences Collection; **SIGN**: Scottish Intercollegiate Guidelines Network.
*Includes nonadult participants; **CBT**: cognitive behavioral therapy; **GAD**: generalized anxiety disorders; **PTSD**: posttraumatic stress disorders; **RCT**: randomized controlled trials; **NR**: data not reported, not available or not comprehensively summarized; **DSM**: Diagnostic and Statistical Manual; **SSRI**: selective serotonin reuptake inhibitors; **OCD**: obsessive compulsive disorder.

depressive disorders, comorbid physical illnesses, psychotic disorders, nonappropriate psychiatric diagnoses, underage participants, etc.) and inappropriate studies (e.g., small sample size or case studies, sampling or statistical issues, unsuitable interventions, etc.).

The Cochrane's Collaboration Tool to Assess Risk of Bias was the most commonly used instrument ($k=14$) to evaluate the risk of bias in each individual SR. Two SRs (14,15) used the Scottish Intercollegiate Guidelines Network (SIGN) checklist, and an additional 3 SRs (24,36,37) did not assess the risk of bias.

Evidence of treatment efficacy

Regarding the results of nonbiological or psychological treatments, 5 SRs evaluated computer-delivered psychological therapy (14,15,25,26,28). The evidence suggested that the online therapeutic approach is a feasible and beneficial treatment option. However, face-to-face therapist-guided therapy seemed to be clinically superior when compared with the computer-guided approach. Additionally, the benefit widely varied in accordance with the type and characteristics of anxiety disorder.

A meta-analysis (27) reported that short-term psychodynamic psychotherapies appear to show a reduction in anxiety symptoms in the short and medium term. The SR of Morita therapy—a specific type of self-acceptance method—showed data of limited applicability because all eligible studies were conducted in China, restricting the utility of conclusions in Western countries (30).

Three SRs (23,24,35) had specifically included patients with social anxiety. Mindfulness and acceptance-based treatment (23) was a viable option, but the level of evidence was limited due to the risk of bias. For social anxiety, limited evidence suggested that reductions in the use of safety behaviors or avoidance were related to a better CBT outcome (24). In addition, symptomatic decreases in social anxiety predicted reduced safety-behavior use over the course of treatment.

Two SRs (22,31) evaluated the benefit of exercise in reducing anxiety symptoms. Both studies indicated that the exercise practice was effective, regardless of the type and intensity of physical activity. However, exercise alone was less effective than standard antidepressant treatment (15). Although the effect of yoga on anxiety disorder was considered a safe intervention, the gathered evidence for its effects was inconclusive (32). Main critiques referred to the variety of diagnoses, heterogeneity of interventions, potential bias of low-quality studies, and lack of comparison to other treatments.

Regarding biological or pharmacological treatments, one meta-analysis (33) assessed transcranial magnetic stimulation in 40 participants with panic disorder. However, there was insufficient evidence to draw any solid conclusion about its efficacy because of the small sample size and significant methodological flaws. In addition to sampling issues (randomization and allocation concealment), the evidence in the 2 RCTs reviewed was of very low quality.

For pharmacological treatments, there was evidence of low-to-moderate quality for the use of selective serotonin reuptake inhibitors (SSRIs) for social anxiety (35). However, their tolerability seemed to be lower than placebo. The augmentation strategy did not appear to be beneficial in patients with treatment-resistant anxiety disorders, e.g.,

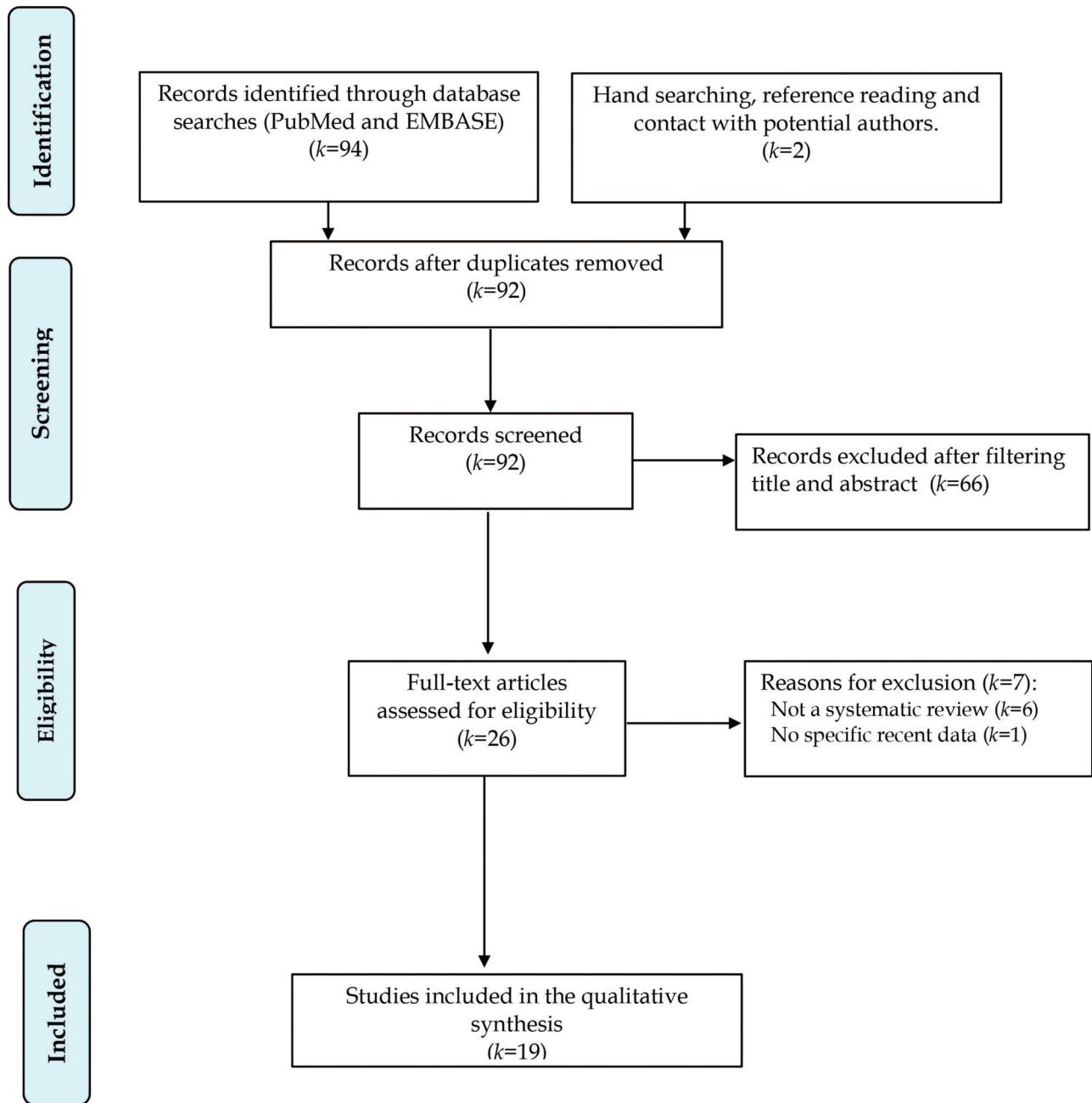


Figure 2 - Flow diagram according to PRISMA (www.prisma-statement.org) for identifying eligible articles (k =number of studies).

generalized anxiety, social anxiety, and panic disorder (34). In a comparison of the effects of second-generation antidepressants for obsessive-compulsive *vs.* generalized anxiety disorder, panic disorder, posttraumatic stress disorder, and social anxiety disorder (in over 15,000 participants), an SR (36) found that pharmacotherapy presented a smaller overall change score than placebo for those five categories of anxiety disorders. Finally, an SR of incipient trials of vortioxetine supported its use for anxiety (37), but more long-term placebo-controlled trials are warranted.

The SR on multimodal combined treatments reviewed 10 RCTs and compared the package of stepped care *versus* care-as-usual (38). The authors concluded that the stepped-care model of treatment of anxiety disorders appeared to be

superior than care-as-usual in terms of efficacy and cost-effectiveness. As a consequence, stepped care can reduce the burden on service providers and increase availability. In a comprehensive SR on multiple treatment modalities with over 37 thousand participants (15), the average pre-post effect sizes of medications were more effective than psychotherapies. In general, the effects of psychotherapies did not differ from placebo pills. Surprisingly, not only psychotherapy but also medications and, to a lesser extent, placebo conditions have shown similar enduring effects in the improvement of anxiety disorders (14). Nevertheless, long-lasting treatment effects observed in the follow-up period were superimposed in patients receiving different therapeutics at the same time.



Quality of evidence

Using the AMSTAR guideline, Table 2 presents the assessment of the quality of each individual SR. The overall confidence of each study was rated after evaluating critical and noncritical items of the AMSTAR. Several SRs ($k=6$) were rated as high quality (25,27,28,30,33,35); 3, as moderate (23,26,31); 7, as low (14,15,22,29,31,34,38); and 3, as critically low (24,36,37). All six reliable articles (AMSTAR high quality and ROBIS low risk of bias) were published in the Cochrane Database of Systematic Reviews and rigorously adhered to the guidelines of the Cochrane's Collaboration Tool to Assess Risk of Bias.

Most of the studies clearly described the planning phase of the SR, which included explicit research questions, selection criteria, data extraction and assessment of the risk of bias. Not all studies previously registered a protocol before performing the SR. Only 3 studies reported the source of funding of the included studies (25,30,35). During the data interpretation, the most frequent problems were no clear discussion of the individual bias of selected studies ($k=9$) and did not account for publication bias ($k=5$). Notably, the 3 SRs that did not subject the RCTs to a meta-analytical synthesis also presented several shortcomings that critically affected the quality of the articles (e.g., omission of excluded studies, nonevidence-based discussion of results, and no prior protocol registration).

The risk of bias was rated with the aid of ROBIS (Table 2), with 8 SRs having low risk (25-28,30,31,33,35); 8, uncertain risk (14,15,22,23,29,31,34,38); and 3, high risk (24,36,37). There was a rough agreement between the quality of an SR (AMSTAR) and the risk of bias (ROBIS). Unsurprisingly, while most high-to-moderate quality studies presented a low risk of bias, all three studies of critically low quality also presented a high risk of bias (24,36,37). In Supplementary Table 3, detailed ROBIS ratings for each retained study are shown.

■ DISCUSSION

The current overview summarized the evidence of the efficacy of emerging treatment options in the last 5 years for adult patients with an anxiety disorder. The conclusions of 19 relevant SRs were synthesized and combined, for a total of 87,773 participants distributed in 811 RCTs. There was great cross-study heterogeneity in terms of the research question, target disorder, type of intervention, methodology, number of included RCTs, sample size of participants, and measured outcomes. Most studies investigated the benefit of different forms of psychotherapy and physical activity. In terms of biological treatments, no great evidence of effectiveness was found for transcranial magnetic stimulation and pharmacological strategies (drug augmentation or novel agents).

Newer treatments for anxiety disorders are highly relevant because the majority of cases are underdetected and undertreated within health-care systems, even in economically developed countries (14). Most anxious patients worldwide do not receive standard treatment with combined psychotherapy and pharmacological agents in terms of adherence, frequency, and adequacy (6,9,11). Consequently, untreated patients with these disorders chronically endure these symptoms, which are associated with severe impairments and restrictions in role functioning and disabilities (6). The present overview of SRs presented a resynthesis of existing data to allow better choices among emerging

interventions for anxiety disorders. This rapid review of high-quality evidence can be of great clinical utility for decision-makers and public health administrators. Until more robust evidence is published, the initial enthusiasm for many proposed anti-anxiety alternatives has shrunk. Meanwhile, the evidence of many therapeutic alternatives should be watchfully disseminated to the community.

Interpretation and implications

From the present overview, there is convincing evidence that computer-delivered psychological treatment is helpful for the treatment of distressing anxiety of different intensities (25). However, the therapist-oriented CBT approach has yielded better results (25,28). Along similar lines, short-term psychodynamic psychotherapies have shown consistent gains, but larger studies with specific anxiety disorders are warranted (27). From a public health standpoint, computer-assisted treatment is not readily accessible in several non-developed countries, but this strategy can benefit those patients living in distant places or unwilling to start formal psychotherapy. Furthermore, sharing a single computer device and delivering brief psychotherapy are cost-effective for a community (40).

There is evidence of moderate-to-high quality suggesting that the online approach may be favorable and more efficacious than a wait list, informational pamphlets, or online discussion groups (25). Therefore, the self-help approach can be recommended as the first step in the treatment of mild anxiety disorders, but the short- and long-term effects of computer-delivered interventions and brief psychotherapies need to be fully established.

Although the SR of Morita therapy was of high quality and free of the risk of bias, its applicability is limited (30). All 7 RCTs of Morita therapy were conducted in Eastern countries, curbing its generalizability to Western populations (41).

Two promising high-quality SRs still required additional evidence of effectiveness with additional RCTs; pioneering transcranial magnetic stimulation (33) and the use of SSRIs in social anxiety (35) have shown insufficient evidence of efficacy. The SR of transcranial stimulation studies was conducted on 2 RCTs with 40 patients with panic disorder. Therefore, further trials with a larger sample are needed. The use of SSRIs in social anxiety has shown low-to-moderate evidence of efficacy and was less tolerable than placebo (35). These two strategies can be advised for specific anxiety disorders and those patients who presented partial response or refractoriness to standard treatment (35,42-45). In a further meta-analysis based on weekly outcome data (46), the treatment benefits of SSRIs and serotonin norepinephrine reuptake inhibitors (SNRIs) were shown for social anxiety. Higher doses of SSRIs, but not SNRIs, were associated with symptomatic improvement and treatment response. However, the potential risk of intolerance may surpass the benefit to the patients (46).

With an ever-growing list of psychotropic compounds showing apparent anxiolytic properties, current pharmacological options for treating clinical anxiety are broad and vast. Existing SRs (14,15) demonstrate that the magnitude of efficacy for most anxiolytic agents compared with placebo was superior. However, the likelihood of symptomatic remission after a pharmacological trial remains largely unknown. Progress in neuroscience and neurophysiology may unravel the pathways of therapeutic responsiveness.



Table 2 - Assessment of the quality and risk of bias of 19 selected systematic reviews of treatments for anxiety disorders, in accordance with the A MeASurement Tool to Assess systematic Reviews (AMSTAR 2.0) and Risk Of Bias In Systematic reviews (ROBIS).

Author	AMSTAR										ROBIS						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
PICO	Protocol	Study selection	Literature search	Selection in duplicate	Extraction in duplicate	Included studies	Excluded studies	Individual risk of bias	Funding of studies	Apropriate meta-analysis	Impact of risk of bias	Interpreting/ discussing results	Discussion of heterogeneity	Publication bias	Conflict of interest	Quality	Risk of bias
Nonbiological or psychological treatments																	
Mayo-Wilson, 2013 (25)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	High	
Jayakody, 2014 (22)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Low	
Arnberg, 2014 (26)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Uncertain	
Abbas, 2014 (27)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Low	
Norton, 2015 (23)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Uncertain	
Oltmans, 2015 (28)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Low	
Wu, 2015 (30)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Uncertain	
Newby, 2015 (29)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Low	
Piccirillo, 2016 (24)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Uncertain	
Stubbs, 2017 (31)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	High	
Cramer, 2018 (32)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Low	
Biological or pharmacological treatments																	
Li, 2014 (33)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Low	
Patterson, 2016 (34)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Uncertain	
Williams, 2017 (35)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Low	
Sugerman, 2017 (36)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	High	
Yee, 2018 (37)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Critical low	
Multimodal combined treatment comparisons																	
Bandelow, 2015 (15)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	High	
Ho, 2016 (38)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Uncertain	
Bandelow, 2018 (14)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Low	

Footnotes:

● Yes

● No

● Partial Yes

NA: not applicable - no meta-analysis.

RCT/NRCT: randomized controlled trials/nonrandomized controlled trials.



Thus, the generalizability of emerging treatments, e.g., transcranial stimulation and newer pharmacological strategies, is limited due to sampling issues, methodological flaws, and applicability in specific anxiety disorders. These potential interventions might not be available to all consumers, and therefore, larger and more pragmatic RCTs are needed to evaluate and maximize the benefits of available interventions (42-45).

Behavioral recommendations of regular exercise (22,31), mindfulness practice (23), and yoga (32) have also been shown to be beneficial for improving anxiety symptoms. However, these SRs were of low-to-moderate quality and vulnerable to the risk of bias. The universal campaign of healthy activities might be recommended as an adjunctive treatment to standard treatment and a cost-effective strategy in regions where there is a shortage of qualified therapists. Nonetheless, these practices were less effective when compared with antidepressant pharmacotherapy (15). Even without sufficient evidence of effectiveness, these nonstandard treatments seem to be safe, inexpensive and can be easily implemented with preventive purposes to community dwellers (47).

Although methodological questions remain before its broad implementation can be supported, the personalized therapist-guided CBT approach is the most recommended nonpharmacological treatment for anxiety (48). Similarly, while the practice of physical activities is safe and helpful, traditional antidepressant treatment presents better results (9,14). One unanswered question refers to the potential adverse effects of the nonsupervised use of computer-assisted therapies and exercise practice. These concerns need to be refined in future RCTs.

Among those patients receiving long-term treatments with partial response or refractoriness, it is possible that novel strategies can enhance and sustain the improvements in anxiety. Hence, there is a large amount of room for amendments to treatment plans (34-38), at least for specific and severe anxiety disorders. Future studies should include stratification of anxiety by severity status and persistence to characterize the dose-response relationship of interventions and the combined efficacy of psychotherapy and pharmacotherapy in treating anxiety disorders, in addition to rule out potential confounding factors that affect treatment effectiveness (49,50).

Some SRs were untrustworthy due to their low quality and serious biases. For example, the impact of safety behaviors in social anxiety remains unknown (24), as well as the reduced response to placebo and antidepressants in obsessive-compulsive disorders (36) and the benefit of vortioxetine for the treatment of anxiety disorders (37). In general, the most common shortcomings were the lack of a published protocol, unclear study selection, inadequate search strategy, lack of explicit inclusion and exclusion criteria, nonexhaustive assessment of bias, invalid interpretation, and no report of publication bias. Consequently, these topics require urgent clarification, using a more stringent methodology and longer follow-up to answer the proposed research question.

Limitations

The heterogeneous interventions reported in these SRs with diverse outcomes preclude conducting a quantitative meta-analytical synthesis as an umbrella review (17-19,39). However, the present systematic overview has assessed the

risk of bias of each individual SR, and it is secure to claim that most of the evidence reported herein was trustworthy.

The search for recent SRs on the treatment of anxiety disorders has identified main review articles, but some gray literature might have been missed. Although the studies in the Cochrane library were covered in PubMed and EMBASE, ongoing SRs must be finalized to draw solid conclusions. Along these lines, the Cochrane register and PROSPERO data were not scanned to detect other SRs. However, preliminary findings or unpublished SRs should not be integrated into the present overview. It is possibly that a selection bias of new treatment alternatives for specific anxiety disorders occurred at the time of the search. The potential omission of ongoing RCTs cannot be ruled out, but untrustworthy or partial evidence should not be taken as high-quality information.

A potential bias of overview studies is overlap in the retrieved articles or the use of the same primary study in multiple included SRs (51,52). In the present review, most of the treatment modalities were addressed by only one included SR, which probably reduced the probability of overlap across those studies. However, there were two interventions that were addressed by multiple studies: media-delivered psychotherapy and physical exercises. Five SRs examined media-delivered psychotherapy, with a total of 463 RCTs included in the reviews. It is possible that overlap occurred across these SRs, and subtle differences exist regarding the sample, scientific question, comparator, and inclusion of therapist. Therefore, we cannot rule out the possibility of overlapping articles, and the strength of the conclusion about media-delivered psychotherapy should be softened. In contrast, in the two existing SRs on physical exercises, we found 16.7% overlap across the included RCTs. In addition, the overall quality of the articles on physical exercise was low-to-moderate according to the AMSTAR analysis. This fact likely endorses the lower efficacy of physical exercises than standard care.

The covered period of five years may have not included all published studies before 2013. Nevertheless, these recent articles have offered updated coverage of previous studies conducted more than five years ago. Because our primary goal was to condense recent advances on the evidence-based therapeutics for anxiety, well-known modalities were outside the scope of the present review. Notwithstanding, two comprehensive meta-analyses conducted by Bandelow's group (14,15) provided a broad summary of existing evidence on treatments for anxiety disorders, as well as the comparative enduring effect of psychological treatments and efficacy of treatments.

Trials with negative results might remain unpublished, and practitioners continue advising off-label use without any evidence of effectiveness or benefit. This publication bias of the file drawer effect cannot be ruled out. Small study bias and excluded participants may have affected the scientific soundness of the conclusions. For example, repetitive transcranial stimulation still requires a larger sample (42-45), and Morita therapy should be investigated in Western countries and regions in different stages of development (41).

CONCLUSIONS

The present overview of recent treatment trends for anxiety disorders provides an account of the evolving directions to pursue, in terms of state-of-art scientific



development. Effective and older treatments should be enhanced with technological innovations such as computer-based CBT and supplemented by adjunctive physical activities. New biological or pharmacological treatment modalities for anxiety disorders still need further evidence of usefulness. Thus, all treatments for anxiety disorders with proven effectiveness should be continuously investigated to make them available to the community.

The worldwide burden of anxiety disorders is high. Therefore, obtaining access to reliable health-care services is a bonafide and essential need in a globalized world. However, direct-to-consumer universal access to emerging treatments for anxiety should be recommended only after demonstration of robust evidence of efficacy.

■ ACKNOWLEDGMENTS

V.I.M. has been awarded a scholarship for graduate students from the São Paulo Research Foundation (FAPESP #2017/15060-0). The National Council for Scientific and Technological Development (CNPq) supports L.H.A.

■ AUTHOR CONTRIBUTIONS

Mangolini VI and Wang YP contributed equally to the manuscript and were responsible for the study conception, data acquisition and extraction, and manuscript drafting. Andrade LH and Lotufo-Neto F have critically reviewed the discussion and conclusion. All of the authors approved the final version of the submitted manuscript.

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■ APPENDIX

Supplementary Table 1 - Search Strategies

SEARCH

DATABASE #1

PubMed

- Article types: Review
- Time period covered: Last 5 years
- Language: English, Portuguese and Spanish
- Age: Adults 19+
- Species: Humans

Search strategy:

anxiety disorders[Title/Abstract] AND treatment[Title/Abstract] AND (Review[ptyp] AND "2013/01/01"[PDAT] : "2018/12/31"[PDAT] AND "humans"[MeSH Terms] AND (English[lang] OR Portuguese[lang] OR Spanish[lang]) AND "adult" [MeSH Terms])

of articles retrieved: 72

DATABASE #2

EMBASE

- Article types: Review
- Time period covered: 2013-2018
- Language: English, Portuguese and Spanish
- Age: Adults
- Species: Humans

Search strategy:

'anxiety disorder':ab,ti AND 'treatment':ab,ti AND [review]/lim AND ([english]/lim OR [portuguese]/lim OR [spanish]/lim) AND [adult]/lim AND [humans]/lim AND [2013-2018]/py

of articles retrieved: 22



Supplementary Table 2 - List of excluded studies.

Author, Year	Reason for exclusion
Alladin A., 2014	Not a systematic review
Bluett E., 2014	Not a systematic review
Palm U., 2017	Not a systematic review
Spiegel S., 2014	Not a systematic review
Reinhold J., 2015	Not a systematic review
Shahar B., 2014	Not a systematic review
Gotink R., 2015	No specific recent data

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Supplementary Table 3 - Ratings of Phase 2 and Phase 3 of ROBIS (Risk Of Bias In Systematic review) in 19 selected systematic reviews on the treatment of anxiety disorders (2013-2018).

Author	Phase 2				Phase 3			ROBIS rating
	1. Study eligibility criteria	2. Identification and selection	3. Data collection and appraisal	4. Synthesis and findings	A. Interpretation of concerns (Phase 2 assessment)?	B. Relevance of identified studies?	C. Avoid emphasizing results?	
Nonbiological or psychological treatments								
Mayo-Wilson, 2013 (25)	Low	Low	Low	Low	Yes	Yes	Yes	Low risk
Jayakody, 2014 (22)	Low	Low	Low	Low	Yes	Probably Yes	Yes	Uncertain
Arnberg, 2014 (26)	Low	Low	Low	Low	Yes	Probably Yes	Yes	Low risk
Abbas, 2014 (27)	Low	Low	Low	Low	Yes	Probably Yes	Yes	Low risk
Norton, 2015 (23)	Low	Low	Low	Low	Yes	Yes	Yes	Uncertain
Oltmans, 2015 (28)	Low	Low	Low	Low	Yes	Yes	Yes	Low risk
Wu, 2015 (30)	Low	Low	Low	Low	Yes	Yes	Yes	Low risk
Newby, 2015 (29)	Low	Low	High	High	Unclear	No	Yes	Uncertain
Piccirillo, 2016 (24)	High	High	High	High	Probably Yes	Yes	Yes	High risk
Stubbs, 2017 (31)	Low	Low	Low	Low	Yes	Yes	Yes	Low risk
Cramer, 2018 (32)	Low	Low	High	High	Probably Yes	Yes	Yes	Uncertain
Biological or pharmacological treatments								
Li, 2014 (33)	Low	Low	Low	Low	Yes	Yes	Yes	Low risk
Patterson, 2016 (34)	Low	Low	Low	High	No	Probably Yes	Yes	Uncertain
Williams, 2017 (35)	Low	Low	High	High	Yes	Yes	Yes	Low risk
Sugerman, 2017 (36)	High	High	High	High	No	Probably Yes	Yes	High risk
Yee, 2018 (37)	High	High	High	High	No	Probably Yes	Yes	High risk
Multimodal combined treatment comparisons								
Bandelow, 2015 (15)	Low	Unclear	Low	Unclear	Unclear	Unclear	Yes	Uncertain
Ho, 2016 (38)	Low	Low	Low	High	No	Yes	Yes	Uncertain
Bandelow, 2018 (14)	Low	Unclear	Low	Unclear	No	Yes	Yes	Uncertain

The Effectiveness of Cognitive Behavioral Therapy (CBT) in Anxiety Management

Introduction

Anxiety disorders are among the most common mental health conditions, affecting millions of individuals worldwide. These disorders, which include Generalized Anxiety Disorder (GAD), social anxiety disorder, panic disorder, and specific phobias, are characterized by excessive worry, fear, and behavioral changes that can significantly impair daily functioning. While medication can be an effective treatment option, Cognitive Behavioral Therapy (CBT) has emerged as one of the most reliable and widely-used therapeutic interventions for managing anxiety.

CBT focuses on identifying and modifying negative patterns of thought and behavior that contribute to anxiety. It helps individuals develop practical skills to cope with anxious thoughts and reduce avoidance behaviors. In this article, we explore how CBT works, its core components, and the evidence supporting its effectiveness in anxiety management.

Description

Understanding Cognitive Behavioral Therapy (CBT)

Cognitive behavioral therapy is a structured, goal-oriented therapeutic approach that was developed in the 1960's by Aaron Beck. It is based on the premise that negative patterns of thinking, or "cognitive distortions," contribute to emotional distress and maladaptive behaviors. By identifying these distortions and challenging them, individuals can change their emotional responses and behaviors, leading to improved mental health.

The therapy typically lasts for a limited number of sessions, making it a time-efficient and cost-effective intervention. CBT is highly structured, with sessions focusing on specific goals, exercises, and homework designed to reinforce the skills learned in therapy.

Exposure therapy

Avoidance is a common behavioral response to anxiety. Individuals with anxiety disorders often avoid situations, places, or people that trigger their anxiety. While avoidance temporarily reduces anxiety, it ultimately reinforces the fear, as the individual never has the opportunity to confront the feared situation and learn that it may not be as dangerous as they believe.

Exposure therapy, a key component of CBT, involves gradually confronting feared situations in a controlled and systematic way. Exposure helps individuals desensitize to the source of their anxiety and gain confidence in their ability to manage their anxious feelings.

Through repeated exposure, individuals learn that their feared outcomes are unlikely to occur, and even if they do, they are better equipped to cope with the situation.

Behavioral activation

In anxiety disorders, avoidance behaviors extend beyond specific situations to broader activities, leading individuals to withdraw from social, recreational, or work-related experiences. Over time, this avoidance can lead to a reduced quality of life and reinforce feelings of helplessness and depression.

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Received: 15-11-2024, Manuscript No. NPOA-24-148647; **Editor**

assigned: 19-11-2024, PreQC No. NPOA-24-148647 (PQ); **Reviewed:** 03-12-2024, QC No. NPOA-24-

148647; **Revised:** 13-12-2024, Manuscript No. NPOA-24-148647 (R); **Published:** 20-12-2024, DOI:

10.47532/npoa.2024.7(6).292-294

Behavioral activation aims to break this cycle by encouraging individuals to engage in meaningful and enjoyable activities, even when they don't feel motivated. By reintroducing pleasurable activities into their routine, individuals experience positive reinforcement, which can reduce feelings of anxiety and improve overall mood.

Relaxation techniques

CBT also incorporates relaxation techniques to help individuals manage the physiological symptoms of anxiety, such as muscle tension, rapid heartbeat, and shallow breathing. These techniques can be used during high-anxiety moments to help the individual calm down and regain control.

By combining these techniques with cognitive restructuring and exposure, CBT provides individuals with a holistic approach to managing both the mental and physical components of anxiety.

Effectiveness of CBT in treating different anxiety disorders

Research has consistently shown that CBT is highly effective for managing various forms of anxiety. Below are some key anxiety disorders and the effectiveness of CBT in treating them:

Generalized Anxiety Disorder (GAD)

GAD is characterized by excessive worry about a range of everyday issues, such as work, health, or finances. CBT for GAD focuses on cognitive restructuring to address the excessive and irrational worry, as well as behavioral interventions to reduce avoidance behaviors.

Studies have demonstrated that CBT leads to significant reductions in worry and anxiety symptoms for individuals with GAD. A meta-analysis of CBT for GAD found that the therapy is effective in both short-term symptom reduction and long-term maintenance of improvements.

Social Anxiety Disorder (SAD)

Social anxiety disorder involves an intense fear of social or performance situations where the individual may be scrutinized or judged by others. CBT for SAD focuses on challenging negative beliefs about social rejection or failure and using exposure therapy to confront feared social situations.

Research shows that CBT, especially when combined with social skills training, leads to

significant improvements in social anxiety. In many cases, individuals are able to reduce their avoidance of social situations and experience greater confidence in interpersonal interactions.

Panic disorder

Panic disorder is characterized by recurrent panic attacks, where individuals experience sudden episodes of intense fear and physical symptoms such as chest pain, dizziness, and shortness of breath. CBT for panic disorder includes cognitive restructuring to address catastrophic thinking and interoceptive exposure to reduce the fear of physical symptoms associated with panic attacks.

Studies have shown that CBT is one of the most effective treatments for panic disorder, with long-term success rates higher than medication alone. Individuals receiving CBT often report fewer panic attacks and reduced anxiety about experiencing future attacks.

Specific phobias

Phobias are characterized by an irrational and persistent fear of specific objects or situations, such as heights, flying, or animals. Exposure therapy is the primary CBT technique used to treat specific phobias, as it helps individuals confront and overcome their fears in a controlled and gradual way.

Research has consistently shown that CBT, particularly exposure therapy, is highly effective for treating specific phobias. Individuals often experience significant reductions in fear and avoidance behaviors after just a few sessions of exposure-based CBT.

Long-term benefits and relapse prevention

One of the key advantages of CBT over other treatments for anxiety is its long-term effectiveness. While medications may provide temporary relief from symptoms, CBT equips individuals with practical skills that they can use long after therapy ends. These skills help individuals identify and manage future stressors, preventing relapse into anxiety.

Studies show that individuals who complete CBT for anxiety disorders are less likely to experience symptom relapse than those who rely solely on medication. The focus on cognitive restructuring, behavioral change, and emotional regulation ensures that individuals can continue to apply the principles of CBT to maintain their mental health over time.

Conclusion

The genetics of Major Depressive Disorder (MDD) provide valuable insights into the etiology and potential treatment of this complex condition. Genetic markers, heritability estimates, family studies, twin studies, and gene-environment interactions all contribute to our understanding of the genetic underpinnings of MDD. Advances

in genetic research have the potential to improve diagnosis, personalize treatment, and inform prevention strategies. As research progresses, a more comprehensive understanding of the genetic and environmental factors contributing to MDD will likely emerge, offering hope for better outcomes for individuals affected by this debilitating disorder.



Treating Anxiety Disorders

**TREATING
ANXIETY
DISORDERS**

ABOUT ANXIETY DISORDERS

Anxiety is a normal part of living. It's a biological reaction—the body's way of telling us something isn't right. It keeps us from harm's way and prepares us to act quickly in the face of danger. However, for some people, anxiety is persistent, irrational, and overwhelming. It may interfere with daily activities and even make them impossible. This may be a sign of an anxiety disorder.

The term "anxiety disorders" describes this group of conditions:

- **generalized anxiety disorder (GAD):** persistent, excessive, and unrealistic worry about everyday things
- **obsessive-compulsive disorder (OCD):** unwanted and intrusive thoughts (obsessions) and ritualistic behaviors and routines (compulsions) conducted to ease anxiety
- **panic disorder:** spontaneous, seemingly out-of-the-blue panic or "anxiety" attacks and the preoccupation with the fear of a recurring attack
- **posttraumatic stress disorder (PTSD):** an anxiety disorder triggered by an extremely traumatic event in which grave physical harm occurred or was threatened or witnessed
- **social anxiety disorder (social phobia):** an intense fear of being scrutinized and negatively evaluated by others in social or performance situations
- **specific phobias:** seemingly excessive and unreasonable fears in the presence of or in anticipation of a specific object, place, or situation

More than 40 million adults in the United States over the age of 18 suffer from at least one anxiety disorder, and anxiety disorders are the most common mental health illness in children. Researchers are learning that anxiety disorders run in families, and that they have a biological basis, much like allergies or diabetes and other illnesses.

If you think you or a loved one might have an anxiety disorder, read this booklet about treatment. For more information about anxiety disorders, visit www.adaa.org.

ANXIETY DISORDERS ARE REAL, SERIOUS, AND TREATABLE

ANXIETY AND ANXIETY-RELATED DISORDERS

It's not uncommon for people with an anxiety disorder to suffer from numerous mental health disorders such as depression, bipolar disorder, alcohol abuse, and sleep disorders, as well as from irritable bowel syndrome, fibromyalgia, and other physical disorders.

Some people may have a primary disorder, which requires that it be treated first. For example, if someone with social anxiety disorder is depressed about the inability to socialize with friends and family, the anxiety disorder may be triggering the depression, and it would be addressed first. Or if a person with depression is unable to begin treatment for an anxiety disorder, which requires high motivation and energy, it may be necessary to treat the depression first.

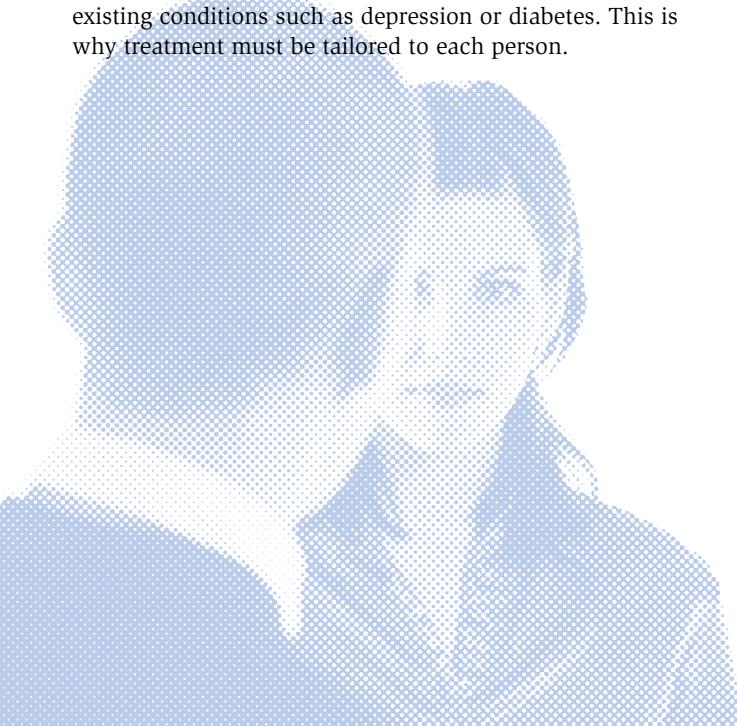
CHOOSING TREATMENT FOR ANXIETY DISORDERS

Safe and effective treatments are available. “*Which treatment is best?*” is the most commonly asked question. Here’s the answer:

Consult a doctor or therapist to get a proper diagnosis and to learn about treatment options, length of treatment, side effects, time commitment, and other health issues to help you decide on the best treatment approach for you.

Treatments may include medication or therapy; both types have been found effective. A combination of medication and therapy may also be effective. The decision about treatment is based on your needs and preferences and should be discussed with a professional who is familiar with your diagnosis and overall health.

Most people with an anxiety disorder can be helped with professional care. Success of treatment varies; some may respond to treatment after a few months, while others may need longer. Treatment may be complicated for those with more than one anxiety disorder or suffering from co-existing conditions such as depression or diabetes. This is why treatment must be tailored to each person.



TREATING CHILDREN AND TEENS

Children and teens have anxiety in their lives, and like adults, they can suffer from anxiety disorders. Starting school, moving, the loss of a parent or grandparent, and other stressful events can trigger the onset of an anxiety disorder, but an anxiety disorder does not necessarily stem from a major event. Taking your child to the doctor for anxiety is as important as visiting the doctor for an ear infection or broken arm.

TREATMENT PROVIDERS

Many kinds of health care professionals are trained to diagnose and treat anxiety disorders: physicians (including psychiatrists, internists, OB-GYNs, family practice), psychologists, social workers, behavioral health specialists, marriage and family therapists, nurses, nurse practitioners, and physician assistants. Clergy and school counselors may also be able to help. A layperson specialist, usually someone who has recovered from an anxiety disorder, may also provide assistance. The cost for services and reimbursement varies depending on the type of professional, individual health insurance, and state policies.

Find a therapist near you at www.adaa.org. Those listed are members of the Anxiety Disorders Association of America who specialize in anxiety disorders. Requirements for the practice of psychotherapy vary among states. Ask about a therapist’s training and credentials before beginning treatment.

Other places to contact to find a treatment provider:

- Health insurer
- Psychiatry department at a local medical school
- University psychology department
- Local hospital mental health clinics or staff psychiatrists
- State or local mental health agency or veterans administration (VA)
- Counseling services on a local college campus

CHECKLIST FOR CHOOSING TREATMENT

Consider the following questions and issues when deciding on a mental health professional and type of treatment.

- **Training and credentials.** Consider the training of the professional and inquire about experience or expertise with the disorder. If the professional is licensed in your state or a preferred provider for your health insurer, make sure he or she has the appropriate training and experience.
- **Experience.** Select professionals who have experience treating anxiety disorders. Ask about their basic approach to treatment.
- **Family involvement.** Find out the role family members play in treatment. Make sure you understand how loved ones are involved and are comfortable with it.
- **Type and format of treatment.** Make sure you understand the course of treatment, including length, procedures, frequency and duration of the sessions, and expected length of time any medication will be necessary.
- **Cost and insurance.** Know your health insurance coverage for mental health, and ask if your insurance is accepted. It's your responsibility to know your financial resources and any insurance requirements and limitations. Find out if the fee schedule is on a sliding scale based on income.
- **Comfort and confidence.** It is important to feel comfortable with a mental health professional. Having confidence in the person is essential for establishing a positive working relationship.
- **Communication.** Ask how the mental health professional will communicate with your family doctor.

TREATMENT OPTIONS

Most people who seek treatment experience significant improvement and an improved quality of life. It is important to work closely with a health care professional to determine the best option for you. In general, treatment can involve medications, talk therapy, exposure therapy, support groups, and self-help. Therapists will use one or a combination of these therapies.

Please note: New treatments—medications and therapies—for anxiety and anxiety-related disorders are being tested all the time. Check www.adaa.org for updated information.

THERAPY

Cognitive-behavioral therapy, or CBT, is a well-established, highly effective, and lasting treatment. It focuses on understanding and changing thinking and behavior patterns. Benefits are usually seen in 12 to 16 weeks, depending on the individual.

CBT typically involves reading about the problem, keeping records between appointments, and completing homework assignments in which the treatment procedures are practiced. Patients learn skills during therapy sessions, but they must practice repeatedly to see improvement. In this type of therapy the patient is actively involved in his or her own recovery, has a sense of control, and learns skills that are useful throughout life.

Exposure therapy, a form of CBT, is a process for reducing fear and anxiety responses. In therapy, a person is gradually exposed to a feared situation or object, learning to become less sensitive over time.

Although the first line of treatment for an anxiety disorder is often CBT, some people find that excessively high levels of anxiety make them unable to get the most out of such treatment. In this case, a combination of treatments, using CBT and medication may be recommended.

Acceptance and Commitment Therapy, or ACT, uses strategies of acceptance and mindfulness (living in the moment and experiencing things without judgment), along with commitment and behavior change, as a way to cope with unwanted thoughts, feelings, and sensations. ACT imparts skills to accept these experiences, place them in a different

context, develop greater clarity about personal values, and commit to needed behavior change.

Dialectical Behavioral Therapy, or DBT, integrates cognitive-behavioral techniques with concepts from Eastern meditation and combines acceptance and change. DBT involves individual and group therapy to learn mindfulness, as well as skills for interpersonal effectiveness, tolerating distress, and regulating emotions.

Interpersonal Therapy, or IPT, is a short-term supportive psychotherapy that addresses interpersonal issues in depression in adults, adolescents, and older adults. IPT usually involves 12 to 16 one-hour weekly sessions. The initial sessions are devoted to gathering information about the nature of a person's depression and interpersonal experience.

MEDICATION

Medication treatment of anxiety is generally safe and effective. Four major classes of medications are used to treat anxiety disorders: SSRI (selective serotonin reuptake inhibitor), SNRI (serotonin-norepinephrine reuptake inhibitor), tricyclic antidepressant, and benzodiazepine. For more information, visit www.adaa.org.

Any course of treatment should be individually tailored and altered as needed, and it often takes time and patience to find the drug that works best for you. Some medications are fast-acting and may be for short-term use, and others require several weeks to become effective. Ask your doctor to explain why a particular type of treatment is recommended, what other options are available, what you need to do to fully participate in your recovery, and any side effects you may experience. [See insert card for indications.]

General, common side effects may include headache, nausea, sleeplessness or drowsiness, weight gain, "flat" feeling, or reduced interest in sex. If you experience side effects or are uncomfortable with your medications, talk with your doctor. Do not stop taking prescription medication on your own. Side effects may worsen when you start and stop medications. **Discontinuation of medications should be done with the knowledge and assistance of your doctor.**

MEDICATION WARNING FOR CHILDREN

The U.S. Food and Drug Administration (FDA) issued a warning in October 2004 that antidepressant medications, including SSRIs, may increase suicidal thoughts and behavior in a small number of children and adolescents. The FDA does not prohibit the use of these medications, but it does alert patients and families to the risks, which must be balanced against clinical need.

In May 2007, the FDA proposed that makers of all antidepressant medications update their products' labeling to include warnings about increased risks of suicidal thinking and behavior in young adults ages 18 to 24 during initial treatment (generally the first one to two months). Find out more at the FDA website:

www.fda.gov/cder/drug/antidepressants

Discuss all concerns about antidepressants and other medications with your doctor.

DISCUSSING MEDICATIONS: WHAT YOU NEED TO KNOW

Use these guidelines to talk to your health care professional about medications:

- To avoid potentially dangerous drug interactions, let your doctor or therapist know all medications you are taking, including prescriptions and over-the-counter drugs, herbal or dietary supplements, and vitamins. *Make sure your family doctor knows you are taking medications for an anxiety disorder.*
- Ask these questions about a new prescription: How will the medication help me? What side effects might occur? Should I avoid any foods or beverages? Are drug interactions with other prescriptions a possibility?
- Learn when to take a new medication and how, such as on any empty stomach or with food, in the morning or evening, and how frequently.
- Find out how long it should take for the medication to start working and what you should expect when this happens.
- Ask for the prescribing physician's after-hours phone number in case you develop side effects.

- A good source of information about medications and over-the-counter products is your pharmacist, who should have information about all your prescriptions to advise you about possible drug interactions, side effects, and instructions for use.
- Ask how often you should see the doctor for a medication check-up.

DEEP BRAIN STIMULATION

The U.S. Food and Drug Administration (FDA) approved deep brain stimulation, or DBS, in 2009. This is a treatment option for people with severe obsessive-compulsive disorder (OCD) who have not responded to the existing conventional therapies.

A neurosurgeon surgically implants electrodes into a specific region of the brain and connects them to pulse generators, which are implanted just below the collarbone. The battery-powered pulse generator, also called an implantable neurostimulator, contains a microchip that regulates the stimulation.

COMPLEMENTARY AND ALTERNATIVE MEDICINE

There is an ever-growing body of scientific evidence about complementary and alternative medicine, or CAM, which is an approach to health care that exists outside conventional medicine practiced in the United States. CAM is increasing in interest as consumers and health care professionals search for additional ways to treat health disorders. These include mind-body medicine such as meditation; manipulative practices such as massage; energy therapies like qi gong; and naturopathic, homeopathic, and traditional Chinese medicine.

Complementary medicine is used along with conventional medicine. An example is aromatherapy—inhaling the scent of essential oils to promote health and well-being—to help lessen discomfort following surgery.

Alternative medicine is used in place of conventional medicine. An example is following a special diet to treat cancer instead of undergoing surgery, radiation, or chemotherapy recommended by a medical doctor.

Integrative medicine, which combines conventional and CAM treatments, has experienced evidence of effectiveness and safety.

Some CAM therapies are currently used to treat anxiety and anxiety disorders. Kava, a plant found in the South Pacific, has been shown to be safe and effective in treating anxiety and improving mood. There is growing evidence about the effectiveness of acupuncture and yoga in treating anxiety and anxiety-related disorders.

Before adding a CAM treatment, talk to your doctor or therapist. Like other treatments, CAM may not be right for you. Visit <http://nccam.nih.gov/health/whatiscam/> to learn about the great variety of CAM treatments.

EYE MOVEMENT DESENSITIZATION AND REPROCESSING (EMDR)

Under certain conditions eye movements appear to reduce the intensity of disturbing thoughts. A treatment known as eye movement desensitization and reprocessing, or EMDR, may have a direct effect on the way that the brain processes information. EMDR appears to be similar to what occurs naturally during dreaming or REM (rapid eye movement) sleep. Basically, it helps a person see disturbing material in a less distressing way. More evidence is needed to test the effectiveness of this treatment, but some evidence suggests it may be helpful for treating PTSD.

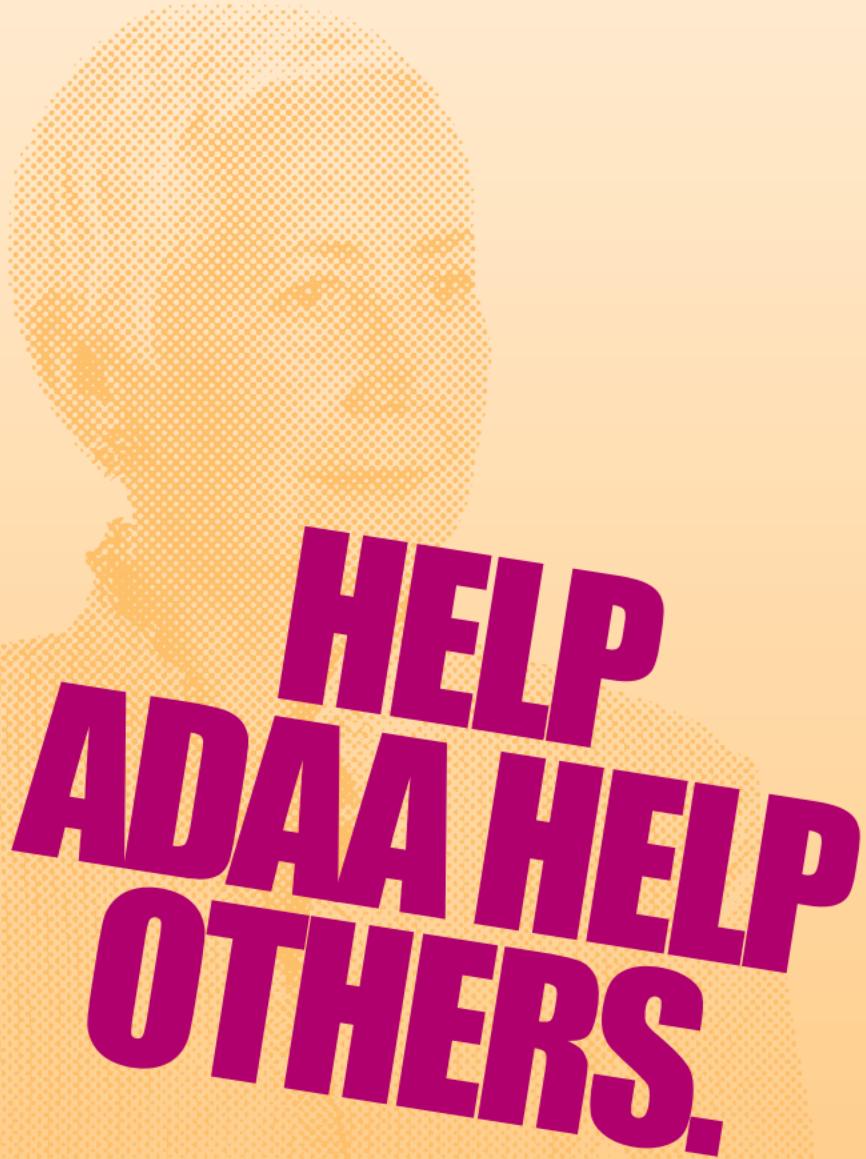
Find out more about EMDR, including its history and effectiveness at www.emdr.com.

ADAA CAN HELP YOU

Suffering from an anxiety disorder can interfere with many aspects of your life. In addition, you may feel alone, embarrassed, or frightened.

ADAA can give you the resources to help you and your loved ones better understand your condition, connect you with a community of people who know what you are experiencing, and assist you in finding mental health professionals in your city who can help.

Visit the ADAA website at www.adaa.org and click on **Find a Therapist** to identify therapists who treat anxiety disorders in your area, as well as local support groups. Learn about the causes, symptoms, and best treatments for all of the disorders, and review questions to ask a therapist or doctor. ADAA provides resources to help you make the best decisions so that you can get on with your life.

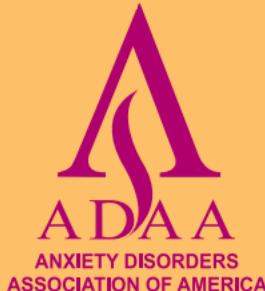


HELP ADAA HELP OTHERS.

You can make a difference by helping ADAA expand its efforts to reach those with anxiety disorders. Your contribution supports ADAA's efforts to increase awareness that anxiety disorders are real, serious, and treatable. ADAA relies on your donations to provide free educational information about anxiety disorders, help people find treatment, support research, and advocate for improved treatments and access to care.

Donate online at www.adaa.org, on the phone (240-485-1001), or by mail to ADAA, 8730 Georgia Ave., Silver Spring, MD 20910. All donations are tax-deductible.

The Anxiety Disorders Association of America (ADAA) is a national 501(c)(3) nonprofit organization whose mission is to promote the prevention, treatment, and cure of anxiety and anxiety-related disorders and to improve the lives of all people who suffer from them.



For more information:

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Treatment of anxiety disorders

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Anxiety disorders (generalized anxiety disorder, panic disorder/agoraphobia, social anxiety disorder, and others) are the most prevalent psychiatric disorders, and are associated with a high burden of illness. Anxiety disorders are often underrecognized and undertreated in primary care. Treatment is indicated when a patient shows marked distress or suffers from complications resulting from the disorder. The treatment recommendations given in this article are based on guidelines, meta-analyses, and systematic reviews of randomized controlled studies. Anxiety disorders should be treated with psychological therapy, pharmacotherapy, or a combination of both. Cognitive behavioral therapy can be regarded as the psychotherapy with the highest level of evidence. First-line drugs are the selective serotonin reuptake inhibitors and serotonin-norepinephrine reuptake inhibitors. Benzodiazepines are not recommended for routine use. Other treatment options include pregabalin, tricyclic antidepressants, buspirone, moclobemide, and others. After remission, medications should be continued for 6 to 12 months. When developing a treatment plan, efficacy, adverse effects, interactions, costs, and the preference of the patient should be considered.

Introduction

Anxiety disorders are the most prevalent psychiatric disorders and are associated with a high burden of illness.^{1–3} With a 12-month prevalence of 10.3%, specific (isolated) phobias are the most common anxiety disorders,⁴ although persons suffering from isolated phobias rarely seek treatment. Panic disorder with or without agoraphobia (PDA) is the next most common type with a prevalence of 6.0%, followed by social anxiety disorder (SAD, also called social phobia; 2.7%) and generalized anxiety disorder (GAD; 2.2%). Evidence is lacking on whether these disorders have become more frequent in recent decades.^{5,6} Women are 1.5 to two times more likely than men to receive a diagnosis of anxiety disorder.⁷

The age of onset for anxiety disorders differs among the disorders. Separation anxiety disorder and specific phobia start during childhood, with a median age of onset of 7 years, followed by SAD (13 years), agoraphobia without panic attacks (20 years), and panic disorder (24 years).⁸ GAD may start even later in life. Anxiety dis-

Keywords: drug treatment; generalized anxiety disorder; panic disorder; psychotherapy; social anxiety disorder; treatment

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ders tend to run a chronic course, with symptoms fluctuating in severity between periods of relapse and remission in GAD and PDA⁹ and a more chronic course in SAD. After the age of 50, a marked decrease in the prevalence of anxiety disorders has been observed in epidemiological studies.^{8,10-12} GAD is the only anxiety disorder that is still common in people aged 50 years or more.

The current conceptualization of the etiology of anxiety disorders includes an interaction of psychosocial factors, eg, childhood adversity, stress, or trauma, and a genetic vulnerability, which manifests in neurobiological and neuropsychological dysfunctions. The evidence for potential biomarkers for anxiety disorders in the fields of neuroimaging, genetics, neurochemistry, neurophysiology, and neurocognition has been summarized in two recent consensus papers.^{13,14} Despite comprehensive, high-quality neurobiological research in the field of anxiety disorders, these reviews indicate that specific biomarkers for anxiety disorders have yet to be identified. Thus, it is difficult to give recommendations for specific biomarkers (eg, genetic polymorphisms) that could help identify persons at risk for an anxiety disorder.

Obsessive-compulsive disorder (OCD) and post-traumatic stress disorder (PTSD) were formerly included in the anxiety disorders, but have now been placed in other chapters in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorder* (*DSM-5*). Therefore, OCD and PTSD are not discussed in this review.

Diagnosis

A short description of the anxiety disorders is given in *Table 1*. Anxiety disorders are often underdiagnosed in primary care.¹⁵

In *DSM-5*, the group of anxiety disorders has been expanded to include separation anxiety disorder, a diagnosis the previous *DSM* version reserved for children only.^{16,17} The change was based on the findings of epidemiological studies that revealed the unexpectedly high prevalence of the condition in adults.¹⁸ *DSM-5* also introduces selective mutism—the failure of children to speak in special social situations—and a new term called illness anxiety disorder, defined by excessive preoccupation and fear of having a serious medical illness. Illness anxiety disorder was formerly called hypochondriasis in *DSM-IV* and *Tenth Revision of the Interna-*

tional Statistical Classification of Diseases and Related Health Problems (*ICD-10*); in *DSM-5*, it is not classified under anxiety disorders but belongs to the Somatic Symptom and Related Disorders category. In the current *ICD-11* Beta Draft,¹⁹ hypochondriasis is placed in the group Obsessive-Compulsive or Related Disorders. It is characterized by catastrophic misinterpretation of bodily symptoms and is manifest as obsessive and excessive health-related behaviors. The fear of having a serious medical condition persists despite thorough medical evaluation and repeated reassurance that the patient does not suffer from the feared illness.

Mixed anxiety and depression is a category listed only in *ICD-10* and not in *DSM-5*. It is often diagnosed in primary care. Research on the treatment of this disorder is limited.²⁰ Adjustment disorder with mixed anxiety and depressed mood (F43.22) is a condition with similar symptomatology. It occurs as a reaction to stressful life events.

The differential diagnosis of anxiety disorders includes common mental disorders, such as other anxiety disorders, major depression, and somatic symptom disorders, as well as physical illnesses such as coronary heart or lung diseases, hyperthyroidism, and others.

Anxiety disorders often co-occur with other anxiety disorders, major depression, somatic symptom disorders, personality disorders, and substance abuse disorders.²¹ For example, major depression was found to be highly correlated with all anxiety disorders in a large European survey (eg, with GAD, the odds ratio was 33.7; with panic disorder, it was 29.4).²² Anxiety disorders were also strongly interrelated: GAD was highly associated with agoraphobia (25.7), panic disorder (20.3), and SAD (13.5).

To determine the severity of anxiety disorders and to monitor treatment progress, commonly used rating scales can be used, including the Hamilton Anxiety Scale (HAM-A)²³ for GAD, the Panic and Agoraphobia Scale (PAS)²⁴ for panic disorder/agoraphobia, and the Liebowitz Social Anxiety Scale (LSAS)²⁵ for SAD.

Treatment

Box 1 contains a case vignette of the treatment of a patient with GAD.

In clinical settings, most patients seeking help suffer from GAD, PDA, and SAD.⁷ Not all anxiety disorders have to be treated when symptoms are mild, transient,

and without associated impairment in social and occupational function. However, treatment is indicated when a patient shows marked distress or suffers from complications resulting from the disorder (eg, secondary depression, suicidal ideation, or alcohol abuse).

Anxiety disorders can be treated mostly on an outpatient basis. Indications for hospitalization include suicidality, unresponsiveness to standard treatments, or relevant comorbidity, eg, with major depression, personality disorders, or substance abuse.

The treatment recommendations in this article are based on guidelines for anxiety disorders.²⁶⁻²⁸ For such guidelines, a systematic literature search for randomized clinical trials was performed. Studies were analyzed by using internationally acknowledged quality assessment tools, and the recommendations were reviewed by expert panels.

Patients with different anxiety disorders show different degrees of health care utilization. For example, in the United States, 54.4% of patients with PDA, but only 27.3% of patients with specific phobias, contacted health care services in 1 year.²⁹ Whereas patients with PDA often fear that they suffer from a severe somatic

disorder, such as a myocardial infarction, and that they need immediate medical help, people with simple phobias often have the feeling that they can cope with the disorder or even think it is "normal" to have a fear of spiders or dogs.

There is evidence for substantial undertreatment of anxiety disorders. In a large European study, only 20.6% of participants with an anxiety disorder sought professional help. Of those participants who contacted health care services, 23.2% received no treatment at all, 19.6% received only psychological treatment, 30.8% received only drug treatment, and 26.5% were treated both with drugs and psychotherapy.³⁰ Likewise, a Dutch study in primary care found that only 27% of patients with anxiety disorders received guideline-orientated care.³¹

Patients should receive "psychoeducation" about their diagnosis, the possible etiology, and the mechanisms of action of the available treatment approaches. The treatment plan should include psychotherapy, pharmacotherapy, and other interventions, which should be chosen after careful consideration of individual factors, eg, the patient's preference, the patient's history with

Alice, a 48-year-old female dentist, presented to a psychiatrist with a 7-month history of anxiety symptoms, which included persistent feelings of restlessness, irritability, difficulty concentrating, sleep disturbance, fatigue, nausea, diarrhea, muscle cramps, and the sensation of having a lump in her throat. She was suffering from constant worry that her husband could become ill or might have an accident while driving to work. Her symptoms resulted in frequent absenteeism, which caused significant problems at work. Her medical history was unremarkable. The psychiatrist diagnosed her with generalized anxiety disorder, *DSM-5* F41.1. Four weeks previously, Alice had been prescribed the benzodiazepine diazepam by her general practitioner, and initially took it as prescribed. Although it helped with her anxiety, she felt that it made her feel dull and worried that it would interfere with her work as a dentist. She kept thinking that she would become addicted to the drug and stopped the intake.

The psychiatrist started treatment with the serotonin-norepinephrine reuptake inhibitor venlafaxine. Because the patient was sensitive to side effects, the drug was started with 37.5 mg/d for 3 days. Then, the dose was increased to 75 mg/d. She reported mild nausea and fatigue; however, it was not clear whether this was due to the medication or to the illness.

After another two weeks, these adverse effects resolved, and the dose was increased to 225 mg/d. The patient also received weekly sessions of cognitive behavioral therapy. Symptoms of GAD were resolved almost completely after 7 weeks. The psychiatrist advised Alice to continue on venlafaxine for at least 6 months. Then, the drug was slowly tapered, by reducing the dose to 150 mg/d for 1 month, then to 75 mg/d for another month. Then, after 2 weeks on 37.5 mg/d, the medication was stopped. The patient did not report relevant withdrawal symptoms and did not show reoccurrence of significant anxiety symptoms during a follow-up observation period of almost 1 year.

Box 1. Case vignette: generalized anxiety disorder.

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previous treatment attempts, illness severity, comorbidities such as personality disorders, suicidality, local availability of treatment methods, wait time for psychotherapy appointments, costs, and other factors.

Pharmacotherapy

Whereas many studies have shown the efficacy of medications for GAD, PDA, and SAD, there are very few studies on drug treatment for specific phobias, for ex-

ample, there is a small study suggesting the efficacy of paroxetine.³² *Table II* lists the available drugs and dose recommendations. However, not all drugs mentioned here are licensed for anxiety indications in all countries, and the reader should refer to local prescribing information. *Table III* lists drug side effects. For a detailed list of available randomized controlled studies, the reader should refer to guidelines published by Bandelow et al,^{27,33} which include a systematic evaluation of available studies.

Anxiety disorder		Description
ICD-10 classification	DSM-5 classification	
Panic Disorder F41.0	Panic Disorder 300.01 (F41.0)	Anxiety attacks of sudden onset, with physical manifestations of anxiety (eg, palpitations, sweating, tremor, dry mouth, dyspnea, feeling of choking; chest pain; abdominal discomfort; feeling of unreality, paresthesia, etc). Panic attacks can arise out of the blue; however, many patients start to avoid situations in which they fear that panic attacks might occur.
Agoraphobia F40.0 without Panic Disorder F40.00 with Panic Disorder F40.01	Agoraphobia 300.22 (F40.00)	Fear of places where it might be difficult or embarrassing to escape if a panic attack should occur (crowds, on public transport, or in closed spaces, eg, elevators). Fear of being alone is also common.
Generalized anxiety disorder F41.1	Generalized Anxiety Disorder 300.02 (F41.1)	Patients suffer from somatic anxiety symptoms (tremor, palpitations, dizziness, nausea, muscle tension, etc.) and from psychic symptoms, including concentrating, nervousness, insomnia, and constant worry, eg, that they (or a relative) might have an accident or become ill.
Social Phobia F40.1	Social Anxiety Disorder (Social Phobia) 300.23 (F40.10)	Patients are afraid of situations in which they are the center of attention and may be criticized—eg, public speaking, visits to authorities, conversations with superiors on the job, or with persons of the opposite sex. They are afraid of appearing clumsy, embarrassing themselves, or being judged negatively.
Specific (Isolated) Phobias F40.2	Specific Phobia 300.29	Phobias which are restricted to singular, circumscribed situations, often related to animals (eg, cats, spiders, or insects), or other natural phenomena (eg, blood, heights, deep water).
Mixed Anxiety and Depressive Disorder F41.2	-	Simultaneous presence of anxiety and depression, with neither predominating. However, neither component is sufficiently severe to justify a diagnosis of anxiety or depression in itself. If the diagnostic criteria for anxiety or depression (or both) are fulfilled, then the corresponding diagnosis should be made, rather than mixed anxiety and depressive disorder.
Separation Anxiety Disorder of Childhood (F93.0)	Separation Anxiety Disorder 309.21 (F93.0)	Inappropriate and excessive fear or anxiety concerning separation from those to whom the individual is attached. In ICD-10, the disorder can only be diagnosed in children.
Selective Mutism (F94.0)	Selective Mutism 312.23 (F94.0)	Consistent failure to speak in social situations in which there is an expectation to speak (eg, school) even though the individual speaks in other situations.

DSM-5, *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition; ICD-10, 10th revision of the *International Statistical Classification of Diseases and Related Health Problems*

Table I. Anxiety disorders: short description according to ICD-10 and DSM-5 classification.

Adapted from reference 107: World Health Organization. *ICD-10 Chapter V (F) Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines*. "Blue Book" *Clinical Descriptions and Diagnostic Guidelines*. Geneva, Switzerland: World Health Organization; 1991.

Selective serotonin reuptake inhibitors and selective serotonin norepinephrine reuptake inhibitors

Due to their positive benefit/risk balance, selective serotonin reuptake inhibitors (SSRIs) and selective serotonin norepinephrine reuptake inhibitors (SNRIs) are recommended as first-line drugs. Patients should be informed that the onset of the anxiolytic effect of these antidepressants has a latency of 2 to 4 weeks (in some

cases up to 6 weeks). During the first 2 weeks, adverse effects may be stronger. Initial jitteriness or an increase in anxiety symptoms may occur, which may reduce the patients' treatment compliance. Lowering the starting dose of the antidepressants may reduce these adverse effects. A review of studies in depressed patients suggested that SNRIs may be less well tolerated than the SSRIs.³⁴ However, according to clinical experience, tolerability may differ among patients, and it is also pos-

Medications						
	Drug	Efficacy shown in RCTs for			Daily dose	Adverse effects
		PDA	GAD	SAD		
SSRIs	Citalopram ¹	x		x	20–40 mg	Jitteriness, nausea, restlessness, headache, fatigue, increased or decreased appetite, weight gain, weight loss, tremor, sweating, QT _c prolongation, sexual dysfunction, diarrhea, constipation, and other side effects
	Escitalopram ²	x	x	x	10–20 mg	
	Fluoxetine	x				
	Fluvoxamine	x		x		
	Paroxetine	x	x	x	20–50 mg	
	Sertraline	x	x	x	50–150 mg	
SNRIs	Duloxetine		x		60–120 mg	Jitteriness, nausea, restlessness, headache, fatigue, increased or decreased appetite, weight gain, weight loss, tremor, sweating, sexual dysfunction, diarrhea, constipation, urination problems, and other side effects
	Venlafaxine	x	x	x	75–225 mg	
Tricyclic anti-depressant	Clomipramine	x			75–250 mg	Anticholinergic effects, somnolence, dizziness, cardiovascular side effects, weight gain, nausea, headache, sexual dysfunction, and other side effects
Calcium modulator	Pregabalin		x	x	150–600 mg	Dizziness, somnolence, dry mouth, edema, blurred vision, weight gain, constipation, euphoric mood, balance disorder, increased appetite, difficulty with concentration/attention, withdrawal symptoms after abrupt discontinuation, and other side effects
Azapropane	Buspirone		x		15–60 mg	Dizziness, nausea, headache, nervousness, light-headedness, excitement, insomnia, and other side effects
RIMA	Moclobemide			x	300–600 mg	Restlessness, insomnia, dry mouth, headache, dizziness, gastrointestinal symptoms, nausea, and other side effects

PDA, panic disorder/agoraphobia; GAD, generalized anxiety disorder; SAD, social anxiety disorder (also known as social phobia); RIMA, reversible monoamine oxidase A inhibitor; RCT, randomized controlled study; SNRI, selective serotonin norepinephrine reuptake inhibitors; SSRI, selective serotonin reuptake inhibitors.

¹Do not exceed recommended dose (possible QT_c interval prolongation). Maximal dose with diminished hepatic function, 30 mg/d; for older patients, 20 mg/d.

²Do not exceed recommended dose (possible QT_c interval prolongation). Maximal dose for persons over age 65, 10 mg/d.

Table II. Pharmacological treatment recommendations for anxiety disorders in adults. Not all drugs are licensed for these indications in all countries.

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sible that an individual patient may experience less adverse effects when switched from an SSRI to an SNRI.

Some SSRIs and SNRIs are inhibitors of cytochrome P450 enzymes and hence may interact with other psychopharmacological drugs and medications for medical illnesses.³⁵ After stopping treatment with an SSRI, withdrawal reactions may occur. However, these are much less frequent and severe than the withdrawal reactions observed after terminating benzodiazepine treatment. These adverse reactions may be more frequent with paroxetine than with sertraline or fluoxetine.³⁶

Pregabalin

Pregabalin is a calcium modulator, acting at the $\alpha_2\delta$ subunit of voltage-gated calcium channels. The drug has sedating properties. Sleep disorders, which are common in patients with anxiety disorders, may improve earlier with pregabalin than with the SSRIs or SNRIs. Onset of efficacy is earlier with pregabalin than with antidepressants. Pregabalin is not subject to hepatic metabolism and hence does not interact with inhibitors or inducers of cytochrome P450 enzymes. However, there have been concerns about the abuse of pregabalin in individuals suffering from substance abuse and also withdrawal syndromes after abrupt discontinuation.³⁷

Tricyclic antidepressants

The traditional tricyclic antidepressants (TCAs) imipramine and clomipramine are as effective as second-generation antidepressants in the treatment of anxiety disorders. In general, the frequency of adverse events is higher for TCAs than for SSRIs or SNRIs. Thus, these drugs should be tried first before TCAs are used. The dosage should be uptitrated slowly until dosage levels reach those used in the treatment of depression. TCAs should be used with caution in patients considered to be at risk of suicide, due to their potential fatal toxicity after overdose.³⁸

Buspirone

Buspirone, a 5-hydroxytryptamine receptor 1A (5-HT_{1A}) agonist, has been shown in some controlled studies to be effective in the treatment of GAD. However, not all studies have shown superiority to placebo and/or equivalence to standard drugs.

Benzodiazepines

The anxiolytic effects of benzodiazepines begin soon after oral or parenteral application. In contrast to antidepressants, benzodiazepines do not lead to initially increased jitteriness and insomnia. In the United States, 55% to 94% of patients with anxiety disorders are treated with benzodiazepines.³⁹ Likewise, European studies have shown a high rate of long-term benzodiazepine use.⁴⁰ However, benzodiazepine treatment may be associated with central nervous system (CNS) depression, resulting in fatigue, dizziness, increased reaction time, impaired driving skills, and other adverse effects. Cognitive functions may be impaired, mainly in elderly patients. After long-term treatment with benzodiazepines (eg, over 4 to 8 months), dependency may occur in some patients,⁴¹⁻⁴⁷ especially in patients predisposed for substance abuse.⁴⁸ Tolerance (resulting in a patient's constant desire to increase the dose) seems to be rare.⁴⁹ Thus, the risks and benefits should be carefully considered before treatment with benzodiazepine. Current guidelines do not recommend benzodiazepines as first-line treatments.⁵⁰ The recommendations to give preference to newer antidepressants are not based on direct comparison studies but rather on the known risks of benzodiazepines.⁵¹

In exceptional cases (eg, severe cardiac disease, contraindications for the standard drugs, suicidality, and other conditions), benzodiazepines can be used for a limited time period. However, patients with a history of benzodiazepine or other substance abuse should be excluded from treatment. Benzodiazepines may also be used in combination with SSRIs/SNRIs during the first weeks before the onset of efficacy of the antidepressants.⁵² Cognitive behavioral therapy (CBT) may facilitate benzodiazepine withdrawal.^{53,54}

In singular cases, acute panic attacks may require immediate drug treatment. In that case, lorazepam melting tablets at a dose of 1.0 to 2.5 mg may be given as needed (up to a dose no higher than 7.5 mg/d). It is usually sufficient to talk calmly with the patient and explain that the attack is not due to a life-threatening medical condition.

In contrast to SSRIs and SNRIs, benzodiazepines do not treat depression, which is a common comorbid condition in anxiety disorders.

Moclobemide

Moclobemide is a selective and reversible inhibitor of monoamine oxidase A. It is used in the treatment of SAD. Because not all studies have shown evidence for superiority to placebo, the drug is not recommended as first-line treatment.

Other drugs

Some other drugs have shown efficacy in anxiety disorders in randomized controlled studies but are not licensed for the treatment of these disorders in most countries. Medicolegal issues have to be considered whenever drugs that have not been approved for anxiety indications are prescribed off label.

Agomelatine

The antidepressant agomelatine—which acts as an agonist for melatonin MT₁ and MT₂ receptors and as an antagonist for serotonin 5-HT_{2C} receptors—was shown to be effective in four studies in GAD.⁵⁵⁻⁵⁸ However, the drug is only licensed for the treatment of major depression, not for GAD. With agomelatine, discontinuation symptoms^{59,60} and sexual dysfunction⁶¹ are less likely than with SSRI or SNRI antidepressants. Elevations of hepatic enzymes occur in around 1% of treated patients.⁶²

Quetiapine

The atypical antipsychotic quetiapine was shown to be effective in a number of studies in GAD. It is usually prescribed in the treatment of schizophrenic psychoses in dosages between 150 and 800 mg/d. For the treatment of anxiety, lower doses (50 to 300 mg/day) are required. However, probably due to adverse effects such as the metabolic syndrome, the drug was not licensed for anxiety disorders in most countries. In general, typical adverse events, such as sedation or weight gain, were less frequent in patients receiving lower doses.^{63,64} Quetiapine can only be used off-label in treatment-refractory patients. The onset of efficacy is earlier than with antidepressants.

Vortioxetine

A new antidepressant, vortioxetine, was investigated in several controlled studies in GAD. However, according

to a meta-analysis, significant improvement for vortioxetine could not be demonstrated compared with placebo.⁶⁵

Phytotherapy

Some controlled studies have shown the efficacy of an orally taken lavender oil preparation in GAD and mixed anxiety/depression.⁶⁶⁻⁶⁹ It has yet to be established whether lavender oil is as effective as standard treatments. The comparison studies only used low doses of the comparators, eg, 20 mg paroxetine per day⁶⁶ or one tablet of lorazepam 0.5 mg per day,⁶⁹ which may have led to insufficient efficacy of the comparison drugs.

Studies with Kava-kava (*Piper methysticum*) showed inconsistent results,⁷⁰⁻⁷² and the extract was withdrawn from the market in some countries due to hepatotoxicity in some preparations. Valerian extract was not effective in placebo-controlled studies in anxious patients.^{70,73} Also, St John's wort was not effective in SAD.⁷⁴

Some other phytotherapeutics have been investigated in individuals with anxiety conditions. Due to the low quality of these studies, the evidence for the investigated products is not sufficient (for a review, see Sarris et al⁷⁵). Standardization may be an issue in herbal preparations. For example, it was shown that different preparations of St. John's wort exhibited large differences in the content of the putatively effective ingredients.⁷⁶

Relative efficacy of drugs

In a meta-analysis of all available drug studies in anxiety disorders,⁷⁷ the pre-post effect sizes of the different drugs were determined. We simply looked at the absolute difference in anxiety scale scores before and after treatment, without regard to the relative efficacy compared with placebo. This approach makes it possible to include hundreds of studies in comparisons of differential efficacy of all available drugs and not only the few direct head-to-head comparisons. From the patients' point of view, the improvement in anxiety symptoms as measured by the change from baseline to end point is more relevant than the difference from a control group.

The available medications for anxiety disorders showed considerably large differences in pre-post effect sizes. For example, the improvement achieved with

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the most efficacious drug (quetiapine; Cohen's $d=3.39$) was almost three times higher than what was accomplished with the drug with the weakest efficacy (buspirone; $d=1.35$). Quetiapine, however, is not licensed for the treatment of any anxiety disorder in most countries. Among the drugs showing high effect sizes and that are licensed for anxiety disorders and recommended by guidelines were the SSRIs escitalopram ($d=2.75$) and paroxetine ($d=2.42$), and the SNRIs venlafaxine ($d=2.32$) and pregabalin (2.30). Also, some benzodiazepines, eg, diazepam ($d=2.46$) and lorazepam (2.44), showed high effect sizes. However, these drugs are not recommended for routine treatment.

General treatment principles

Patients must be informed about possible adverse effects, interactions, safety warnings, and contraindications, as indicated in the current summary of product characteristics. If patients are educated about the possibility that some early side effects might later decrease in intensity, compliance may improve. Patients with anxiety disorders are often hesitant to take psychotropic drugs because they are afraid of adverse effects. In particular, patients with PDA may easily discontinue antidepressants because of initial jitteriness and nervousness.

Doses for drug treatments are shown in *Table II*. In around 75% of the cases, doses in the lower part of the therapeutic range are sufficient. In patients with severe hepatic impairment, a dosage adjustment or use of medications that are cleared primarily by the kidney (eg, pregabalin) may be required.

For all drugs recommended in this article, relapse-prevention studies in at least one anxiety disorder have been conducted in patients who have responded to previous open treatment with a certain drug and were then randomized to placebo or ongoing blind treatment with the same drug for periods of between 6 and 18 months. All of these studies showed a significant advantage for staying on active medication when compared with switching to placebo. Based on the findings from these relapse prevention studies and clinical experiences, drug treatment should be continued for 12 months or more after remission has occurred. Given the chronic course of anxiety disorders, it is regrettable that there are almost no controlled studies that investigate treatment periods over 12 months. To avoid withdrawal syn-

dromes, the dose should be slowly tapered off over a period of 2 weeks at treatment termination.

It is a common opinion that patients treated with drugs show immediate relapse after stopping medication, whereas gains of psychological therapies are maintained for months or years after treatment termination. This would offer psychological therapies considerable advantage over drug treatment. However, in naturalistic studies following up anxiety patients, substantial relapse rates were also found years after CBT treatment. For example, in an analysis of eight randomized controlled trials on CBT for anxiety disorders, 48% of patients were still symptomatic after 2 to 14 years of follow-up.⁷⁸ On the other hand, in relapse prevention studies in which treatment responders to open drug treatment for 8 to 12 weeks were re-randomized to long-term treatment (24 to 52 months) with the same drug or to placebo, only around 40% of patients randomized to placebo relapsed.⁷⁹⁻⁸³

Drug-drug interactions

When treating anxiety disorders with medications, drug interactions have to be monitored.³⁵ SSRIs, such as fluoxetine, fluvoxamine, and paroxetine, are particularly liable to be involved in pharmacokinetic interactions, such as enzyme inhibition in the cytochrome P450 system. Additive CNS depression may occur when drugs with sedating properties are combined, eg, TCAs, benzodiazepines, or pregabalin, resulting in unwanted sedation, drowsiness, or increased reaction time. Additive effects at the neurotransmitter level can occur when medications are combined that have antagonistic effects on the same receptors, eg, two drugs with anticholinergic effects.

Unresponsiveness to standard treatments

Before considering a patient to be treatment unresponsive, it should be ascertained that the diagnosis was correct, adherence to the treatment plan was sufficient, the dose prescribed had covered the full range, and there had been a trial period of adequate duration. When patients report previous treatment failures, it often turns out that a drug was only prescribed in the lowest dose or was stopped within the first 2 weeks due to side effects that occurred in the initial phase before the patient could experience improvement.

Concurrent drugs may interfere with efficacy, eg, metabolic inhibitors or enhancers. Psychosocial factors may affect response, and comorbid personality or substance abuse disorders are especially likely to complicate anxiety disorders. When initial treatment fails, the physician has to decide when to change the treatment plan. There have been few systematic trials of treatment-refractory patients with anxiety disorders. If after treatment at what is considered an adequate dose for 4 to 6 weeks a patient shows no response, the medication should be changed. One analysis showed that the chance of responding beyond the fourth week was 20% or less if no effect had occurred by the second week of treatment,⁸⁴ suggesting an even earlier switching of drugs. Although “switching studies” are lacking, many treatment-refractory patients are reported to respond when a different class of antidepressant is tried (eg, change from one

SSRI to another SSRI, or to an SNRI, or vice versa). If partial response is seen after this period, there is still a chance that the patient will respond after another 4 to 6 weeks of therapy with increased dosages. For some antidepressants, the studies on a potential dose-response relationship are inconclusive, perhaps due to the lack of statistical power for showing a difference between lower and higher doses. According to clinical experience, however, a trial with a higher dose in patients with insufficient response is warranted.

Elderly patients may take longer to show a response. *Table III* contains options in case of drug inefficacy or intolerance. In patients who are unresponsive to psychotropic drugs, the addition of CBT is generally recommended.⁸⁵

A combination of antidepressants and benzodiazepines is sometimes used in treatment-refractory cases.

Switch from one standard drug to another	- Switch from one SSRI to another - Switch from an SSRI to an SNRI, or vice versa - Switch to a TCA - Switch to pregabalin (only in GAD)
Switch to nonstandard drugs	
Switch to a drug that is approved for other anxiety disorders	- Switch to moclobemide, opipramol, or hydroxyzine - Switch to a benzodiazepine (only when clinically justified)
Switch to a drug that is not approved for the anxiety disorder in question but has been found effective in RCTs	PDA - Mirtazapine, quetiapine, phenelzine GAD - Quetiapine; agomelatine; in refractory cases, addition of risperidone or olanzapine to treatment with an antidepressant SAD - Mirtazapine, gabapentin, pregabalin, olanzapine
Switch to a drug (or drug combination) that has been found effective in open studies	PDA - Combined SSRI and TCA, olanzapine monotherapy, combined SSRI and olanzapine or a TCA, addition of pindolol to an SSRI, combined valproate and clonazepam. - In refractory cases, open studies have documented efficacy of olanzapine and of the addition of fluoxetine to a TCA, of a TCA to fluoxetine, and of olanzapine to an SSRI. GAD - Ziprasidone SAD - Levetiracetam, topiramate, tranylcypromine; in refractory cases, addition of buspirone to an SSRI
Switch to a drug (or drug combination) that has been reported to be effective in case reports	PDA - The addition of lithium to clomipramine and the combination of valproate and clonazepam have been reported to be effective in refractory cases

GAD, generalized anxiety disorder; PDA, panic disorder with agoraphobia; RCT, randomized controlled trial; SAD, social anxiety disorder (also known as social phobia); SNRI, selective serotonin norepinephrine reuptake inhibitors; SSRI, selective serotonin reuptake inhibitors; TCA, tricyclic antidepressant.

*Medicolegal issues should be considered whenever drugs that have not been approved for the treatment of a certain anxiety disorder are given off label.

Table III. Stepwise plan for drug treatment if the initial standard drug treatment was ineffective or was poorly tolerated.*

Modified from reference 33: Bandelow B, Zohar J, Hollander E, et al. World Federation of Societies of Biological Psychiatry (WFSB) guidelines for the pharmacological treatment of anxiety, obsessive-compulsive and post-traumatic stress disorders – first revision. *World J Biol Psychiatry*. 2008;9(4):248-312.

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When all standard treatments have failed, the off-label use of drugs may be considered, for example, drugs licensed for another anxiety disorder or that are not licensed but have shown efficacy in clinical studies. Such drugs include quetiapine and agomelatine.

Treatment of GAD in older patients

With the exception of GAD, anxiety disorders are less common in patients over 65 years of age. Therefore, only a few studies for the treatment of GAD have been performed with older patients. Controlled studies have shown the efficacy of duloxetine, venlafaxine, pregabalin, and quetiapine in patients over 65 years old.²⁷ In the elderly, an increased sensitivity to drug side effects and interactions must be considered, including anticholinergic effects, risk of orthostatic hypotension and cardiovascular events, risk of falling, and paradoxical reactions to benzodiazepines.

In the elderly, effect sizes for CBT tend to be somewhat smaller than those found in mixed-age populations.⁸⁶ A meta-analysis of studies with older adults with GAD showed superiority of CBT to waitlist or “treatment-as-usual” conditions but not to active controls (eg, psychological or pill placebos).⁸⁷

Treating children and adolescents

Whereas specific phobias, SAD, and separation anxiety disorder are common in younger people, PDA and GAD are relatively rare. There are some randomized, placebo-controlled studies of pharmacotherapy for anxiety disorders in children and adolescents showing efficacy of sertraline, fluoxetine, and duloxetine in young patients with GAD, of venlafaxine and paroxetine in SAD, and of sertraline, fluvoxamine, and fluoxetine in mixed samples, including patients with separation anxiety disorder, GAD, and SAD.⁸⁸ However, little is known about the value of long-term treatment.⁸⁹ The combination of CBT and sertraline was found to be more effective than both treatment modalities alone.⁹⁰

There had been concerns about increased risk for suicidal ideation (not suicides) in children and adolescents treated for major depression with SSRIs (escitalopram, citalopram, paroxetine, and sertraline), mirtazapine, and venlafaxine.⁹¹ According to a meta-analysis, the risk:benefit ratio in the treatment of depressed children and adolescents seemed to be most favorable with

fluoxetine.⁹² Although suicidal ideation is less common in anxiety disorders than in major depression, the risks of pharmacological treatment have to be weighed carefully against the risks of nontreatment. It was reported that antidepressant prescriptions for children and adolescents decreased substantially after European and US regulatory agencies issued warnings about a possible suicide risk with antidepressant use in pediatric patients in 2003/2004⁹³ and that these decreases were associated with increases in suicide rates in children and adolescents (although a causal relationship is not proven).⁹⁴

For children and youths with separation anxiety disorder, several treatment studies exist.⁹⁵ However, no controlled studies on the treatment of adults with this disorder could be traced.

There is also a paucity of treatment studies for children with selective mutism. Small studies have shown that psychotherapeutic approaches were at least better than waitlist controls.^{96,97} One review indicated that only two very small placebo-controlled drug studies showed efficacy of the SSRIs fluoxetine and sertraline.⁹⁸

Pregnancy and breastfeeding

For pregnant women, the risk of an untreated anxiety disorder must be weighed against the risk of damage to the unborn child as a result of treatment. A large study suggested no substantial increase in the risk of cardiac malformations attributable to antidepressant use during the first trimester.⁹⁹ However, antidepressants have been associated with increased risk of spontaneous abortions, stillbirths, early deliveries, respiratory distress, and endocrine and metabolic dysfunctions.¹⁰⁰ Nevertheless, the current evidence suggests that the use of many antidepressants, especially the SSRIs, is favorable compared with exposing the mother to the risks of untreated depression or anxiety disorders.¹⁰¹

Likewise, a careful assessment of the risk/benefit balance has to be done when a mother is breastfeeding. In such cases, CBT should be considered as an alternative to medication treatment.

Psychotherapy

All patients with anxiety disorders require supportive talks and attention to the emotional problems that are associated with the anxiety disorder. Psychoeducation includes information about the physiology of the

bodily symptoms of anxiety reactions and the rationale of available treatment possibilities. Many patients may require formal psychological treatment interventions, which are mostly done on an outpatient basis.

The treatment of anxiety disorders by CBT is described in more detail in the article by Borza in this issue of *Dialogues in Clinical Neuroscience* (p 203). The efficacy of CBT for all anxiety disorders has been shown in a large number of controlled studies. If avoidance of feared situations is a relevant factor in phobic disorders, exposure techniques should be included in the treatment schedule, in which patients are confronted with their feared situations.

In comparison with CBT, the evidence for psychodynamic therapy is weaker.⁵⁰ Controlled studies with psychodynamic therapy were markedly fewer in number, and of lower quality, than those with CBT, and some comparison studies have shown superiority of CBT.

For specific phobias, there are only studies with behavioral therapy, which should be performed as exposure treatment. In the available treatment studies, it was shown that only a few sessions (eg, one to five) were necessary for effective treatment of specific phobias.

In recent years, many studies have investigated psychological therapies that are performed via the Internet, usually involving minimal or no contact with a therapist. However, at present, evidence is lacking that these treatments are as effective as individual CBT with face-to-face contact.⁷⁷ Internet therapies may be an option for regions in which psychotherapy is not widely available or to bridge the waiting period before a “real” therapy is scheduled to begin. They are also less expensive than face-to-face psychotherapies. However, important issues have to be solved, including reimbursement by health insurance systems, data protection, the problem of “remote diagnosis” without direct contact, assessment of suicidality, and medicolegal aspects. Treatments with a “virtual reality” setting (eg, Gilroy et al¹⁰²) may be a promising new approach for specific phobias.

Combining psychotherapy and medication

Both psychotherapy and pharmacotherapy have been shown to be more effective than control groups. However, whereas drugs are mostly compared with placebo controls, the evidence for psychotherapy in anxiety disorders is mainly based on comparisons with a “wait-

list,” a control method that was used in 70% to 75% of the studies in adults and children.^{77,103,104} Because pill placebos have higher effect sizes than waitlist controls, the effect size differences between active and control conditions cannot be compared between psychotherapy and medication studies. Therefore, our research group conducted a large meta-analysis of all available controlled short-term studies for anxiety disorders and compared the pre-post effect size differences (before and after treatment) between medications and psychotherapies.⁷⁷ In this meta-analysis, which was based on studies with around 35 000 patients, medications were associated with a significantly higher average pre-post effect size (Cohen’s $d=2.02$) than psychotherapies ($d=1.22$; $P<0.0001$). It was also found that patients included in psychotherapy studies were less severely ill than those recruited for medication trials.

Moreover, it was shown that the average pre-post effect sizes for pill placebos were of similar strength to the gains achieved with psychotherapies. This surprising finding cannot be explained by heterogeneity, publication bias, or by allegiance effects. However, this does not mean that psychotherapy is not helpful, as the average effect size obtained with psychotherapies is still strong—it only means that a placebo pill is a very powerful treatment, at least for the first weeks or months of treatment. Nevertheless, patients should be informed about the relative efficacy of the treatment options they are offered.

The meta-analysis also showed that combinations of psychotherapy and pharmacotherapy had a relatively high effect size ($d=2.12$). However, only a few combination studies were available for this comparison, and some of these have not been conducted with the most powerful drugs.

Other treatment options

Exercise (eg, aerobic training, such as jogging 5 km three times a week) has been studied in PDA. However, it was found that exercise was less effective than clomipramine¹⁰⁵ and no more effective than a control condition, relaxation.¹⁰⁶ Thus, exercise can only be recommended as adjunctive treatment to standard treatments.

Hypnosis, autogenic training, and biofeedback or complementary medicine methods such as acupuncture, osteopathy, or homeopathy are often recommended for the treatment of clinical anxiety. However, controlled

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studies fulfilling at least basic methodological standards are lacking.

Although controlled studies on the usefulness of self-help groups are lacking, patients should be encouraged to participate if appropriate.

Conclusions

GAD and other anxiety disorders are the most prevalent mental disorders. A large amount of data available

from randomized controlled trials permits the formulation of robust evidence-based recommendations for the treatment of GAD, PDA, and SAD. In most cases, drug treatment and CBT may substantially improve quality of life in GAD patients. □

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Tratamiento de los trastornos de ansiedad

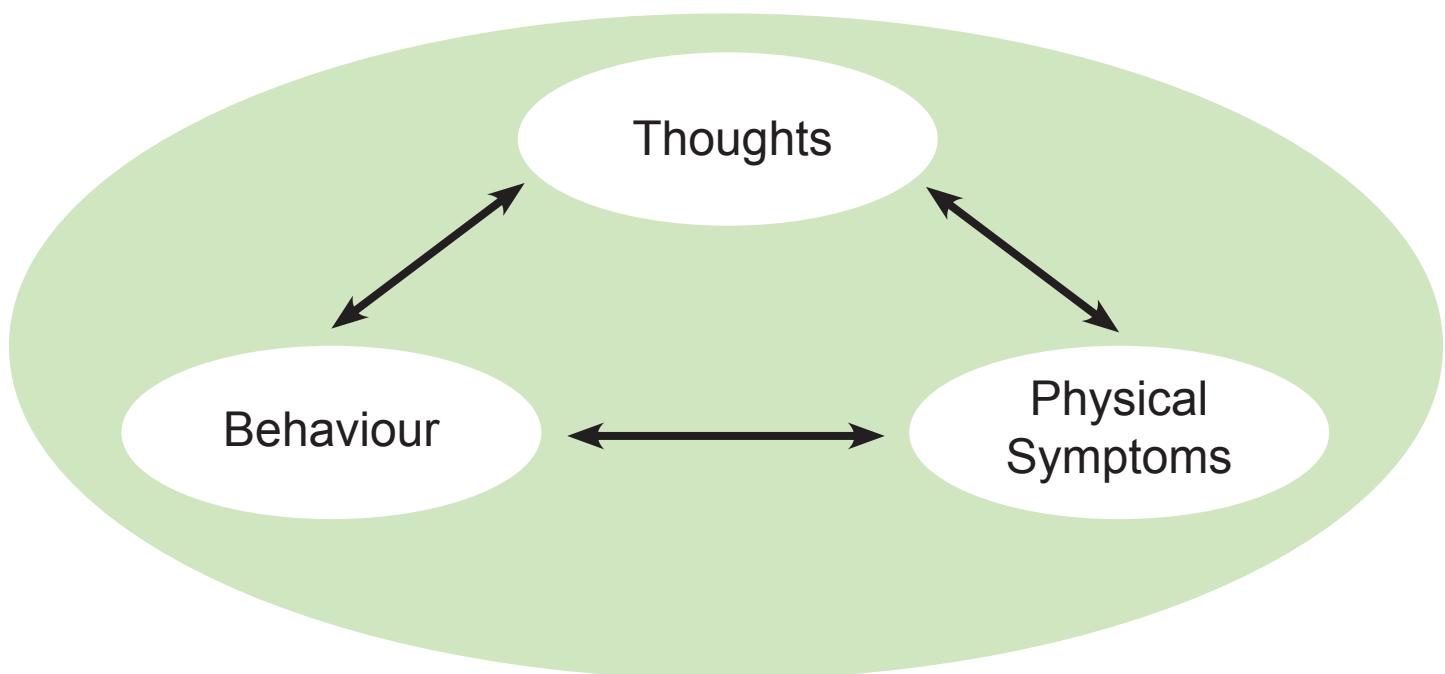
Los trastornos de ansiedad (trastorno de ansiedad generalizada, trastorno de pánico/agorafobia, trastorno de ansiedad social y otros) son los trastornos psiquiátricos más prevalentes y están asociados con una alta carga de enfermedad. En la atención primaria los trastornos de ansiedad tienen a menudo un bajo reconocimiento y son subtratados. La terapia se indica cuando un paciente muestra un marcado distrés causado por el trastorno o sufre por complicaciones debidas a él. Las recomendaciones terapéuticas que se entregan en este artículo están basadas en guías clínicas, estudios de meta-análisis, revisiones sistemáticas y estudios controlados randomizados. Los trastornos de ansiedad deben ser tratados con terapia psicológica, farmacoterapia y/o una combinación de ambas. La terapia cognitivo conductual puede ser considerada la psicoterapia con el mayor nivel de evidencia. Los fármacos de primera línea son los inhibidores selectivos de la recaptura de serotonina y los inhibidores de la recaptura de serotonina/noradrenalina. No se recomiendan las benzodiacepinas para un empleo rutinario. Otras opciones terapéuticas incluyen pregabalina, antidepresivos tricíclicos, buspirona, moclobemide y otros. Después de la remisión, los medicamentos deben continuarse por unos 6 a 12 meses. Cuando se desarrolla un plan terapéutico se debe considerar la eficacia, los efectos adversos, las interacciones, los costos y la preferencia del paciente.

Traitement des troubles anxieux

Les troubles anxieux (anxiété généralisée, trouble panique/agoraphobie, anxiété sociale et autres) sont les troubles psychiatriques les plus prévalents et ils s'associent à une morbidité importante. Les troubles anxieux sont souvent peu reconnus et peu traités en soins primaires. Le traitement est indiqué quand ces troubles causent une détresse manifeste chez le patient ou lorsqu'il souffre de complications. Les conseils de traitement donnés dans cet article sont basés sur des recommandations, des métaanalyses et des revues systématiques d'études contrôlées randomisées. Les troubles anxieux doivent être soignés par un traitement psychologique, une pharmacothérapie, ou une association des deux. Le traitement cognitivo-comportemental est considéré comme la psychothérapie ayant niveau de preuve le plus élevé. Les inhibiteurs sélectifs de la recapture de la sérotonine et les inhibiteurs de la recapture de la sérotonine et de la noradrénaline sont les médicaments de première ligne. Les benzodiazépines ne sont pas recommandées en routine. La prégabaline, les antidépresseurs tricycliques, la buspirone, le moclobémide et d'autres sont d'autres traitements possibles. Les médicaments doivent être poursuivis 6 à 12 mois après la rémission. Lors de l'élaboration d'un plan de traitement, il faut tenir compte de l'efficacité, des effets indésirables, du coût et de la préférence du patient.

Cognitive Behavioural Therapy (CBT) Skills Workbook

Learn more about depression, low mood, anxiety, worry, stress or panic and how CBT can help you



Hertfordshire Wellbeing Services

The organisations within this pack are not currently recommended by this service and are for information only. This booklet is copyrighted by Hertfordshire Partnership University NHS Foundation Trust ©

Sometimes it is common to experience thoughts of very low mood or suicide. If you feel that your mood has deteriorated, and you are unable to manage how you are feeling, please contact the Mental Health Helpline on (01438) 843322, see your GP for an urgent appointment, call 111 or attend your nearest A&E. You can also call the Samaritans on 116 123.

Please be reassured by contacting the above services you will be able to talk through how you feel and what your options for support are.

Samaritans website: www.samaritans.org

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Introduction

The Wellbeing Service offers support for people who are experiencing difficulties with depression, low mood, anxiety, worry, stress or panic. This workbook has been designed to be used whilst attending one of our Cognitive Behavioural Therapy (CBT) Skills workshops or with support from your Psychological Wellbeing Practitioner (PWP).

Low mood, anxiety, worry, stress and panic can affect many people at different times in their lives. It may be a one-off occurrence or may reoccur on several occasions. It can be a very frightening, unbearable and lonely experience. It can feel as if it will never get any better. It may have taken some time to realise that you are struggling with your mood.

The aim of this workbook is to introduce you to a number of tools that will help you build up your own ‘toolkit’ to help manage your current symptoms of depression or anxiety and maintain progress towards long-term recovery. The tools covered in this workbook are based on the principles of evidence based Cognitive Behavioural Therapy.

CBT looks at how your thoughts, physical feelings, emotions and behaviours are all interlinked and have an impact on each other. CBT uses practical strategies to help you make changes which are more positive and realistic. It is very important for you to put these strategies into practice as the more you put in, the more you get out of CBT.

You will notice as you read through the workbook that there are a number of exercises for you to complete. Try and work through these activities spending more time on those that seem more useful to you and your current problems. Speak with your PWP if you experience any difficulties with the techniques.

Tool 1: Understanding Depression

What is depression or low mood?

Depression is a distressing experience. Physical symptoms of low mood can affect the way that we think, what we do and how we feel. This can then spiral into a vicious cycle, making it harder to cope, to do the things that we used to do, our thinking continues to be negative or unhelpful. This then reinforces how low we feel physically and mentally.

Our thoughts can be very negative when we're depressed. We can be unkind and critical of ourselves. We might overgeneralise or catastrophize, we might jump to conclusions, we might think that we know what other people are thinking (mind reading). We can find it very difficult to see anything positive in our situation, only the bad. We might even think that our feelings are indeed facts. We can feel quite hopeless about the future.

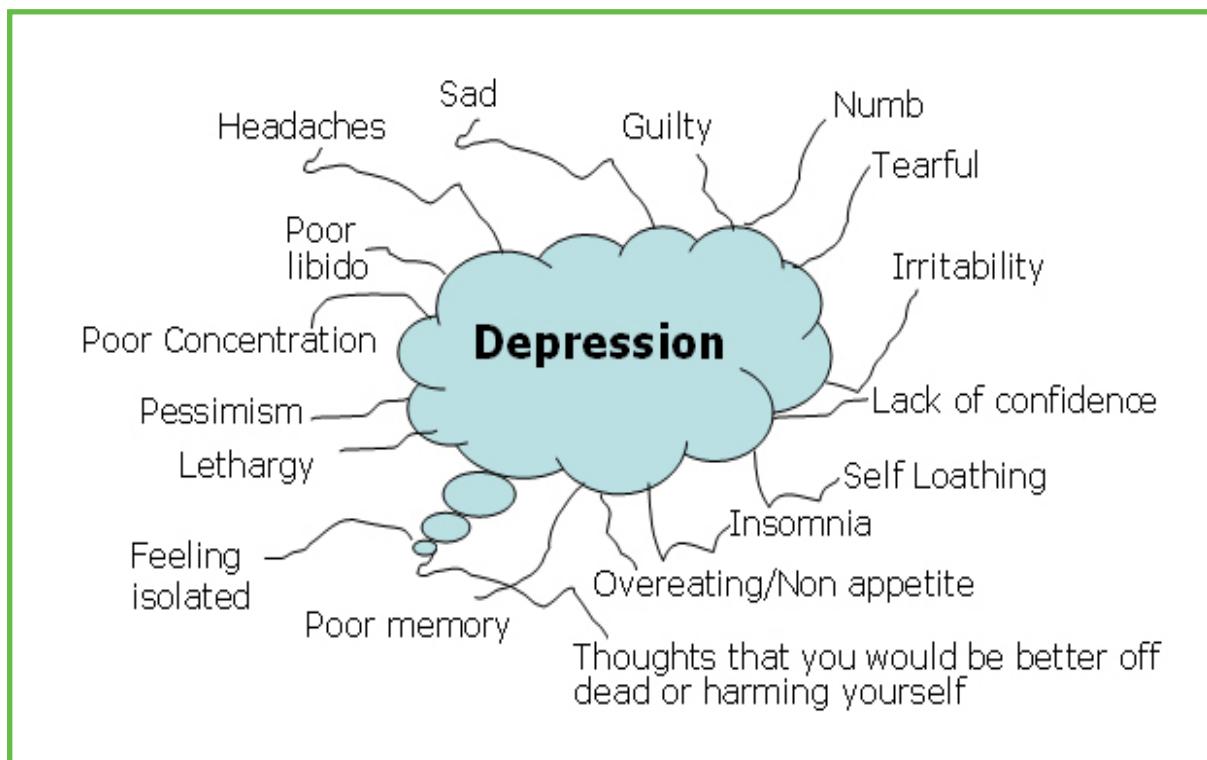
Research has shown that the main causes for low mood can be linked to genetics, biology, early difficult experiences in life, ongoing stress or life events. Different factors contribute to people's depression but the symptoms are very common to all. It is thought that a combination of low serotonin (a chemical within the brain), inactivity and unhelpful thoughts all lead to depression. Some say it is the body's way of saying we need to do something about this.

We tend to default to negative thinking when we are depressed. We may think that other people do not like us. We may withdraw from work or social activities. In the short term is easier to cope with not seeing people or going out. On top of that we may have difficulties sleeping, or eating well. We may feel guilty if we are irritable or grumpy towards our friends and family or if we overeat. Thoughts such as 'what's the point' may make it difficult to motivate ourselves to get up and dressed.

When experiencing depression we can also have thoughts about harming ourselves or others. We can think that life is not worth living, wishing that we did not wake up or may have fleeting thoughts about harming or killing ourselves. These kinds of thoughts are a quite common symptom of depression and it can be frightening. If these thoughts become unmanageable and you feel suicidal please see your GP urgently, call 111, call the Mental Health helpline on 01438 843322, or attend your nearest A&E. Contacting these services will enable you to receive the more immediate support needed to help you overcome this.

Your GP may have prescribed you antidepressants to help you feel better by reducing some of the symptoms of depression. Talk to your GP or PWP if you have any questions about how to manage your medication. By using the CBT techniques within this booklet we hope to help you make those life changes to enable recovery.

What is low mood?



Activity

Take a look at the lists below for some symptoms of low mood.

How does low mood affect you?

Thoughts	Emotions
<input type="checkbox"/> "I'm a failure"	<input type="checkbox"/> Depressed
<input type="checkbox"/> "People think I'm stupid"	<input type="checkbox"/> Sad
<input type="checkbox"/> "Nobody likes me"	<input type="checkbox"/> Lethargic
<input type="checkbox"/> "There's no point, I won't enjoy it"	<input type="checkbox"/> Irritable
<input type="checkbox"/> "I might as well not be here"	<input type="checkbox"/> Suicidal
Physical symptoms	Behaviours
<input type="checkbox"/> Difficulties sleeping	<input type="checkbox"/> Social withdrawal
<input type="checkbox"/> Poor appetite or over eating	<input type="checkbox"/> Increased smoking or drinking
<input type="checkbox"/> Tearful	<input type="checkbox"/> Decrease in activities
<input type="checkbox"/> Loss of sex drive	<input type="checkbox"/> Sleeping during the day

Tool 1: Understanding Anxiety

What is anxiety?

Anxiety is a range of normal though unpleasant emotions. We can feel worried, nervous, uneasy, or we can feel extreme fear, panic or terror. Appropriate levels of anxiety are actually a helpful survival mechanism. Anxiety is designed to alert us to a situation that we need to respond to, if we do not respond there are usually negative consequences, we could be in danger or under threat.

These situations might include feeling anxious about an exam or presentation at work, for which we can respond to by preparing and practicing for. Anxiety also can be more sudden and acute in some circumstances such as when we are about to cross the road and we hear the beeping of a car before we step out. Our response is to jump out of the way to safety.

These examples highlight how anxiety provides the driving force behind motivation and keeps us safe from harmful situations. In this way anxiety is similar to physical pain. Pain keeps us safe from harm by telling us to remove our hand from a hot flame. Anxiety keeps us safe by ensuring we appropriately respond to dangerous, difficult or threatening situations. If we did not experience physical pain or anxiety how safe would we be?

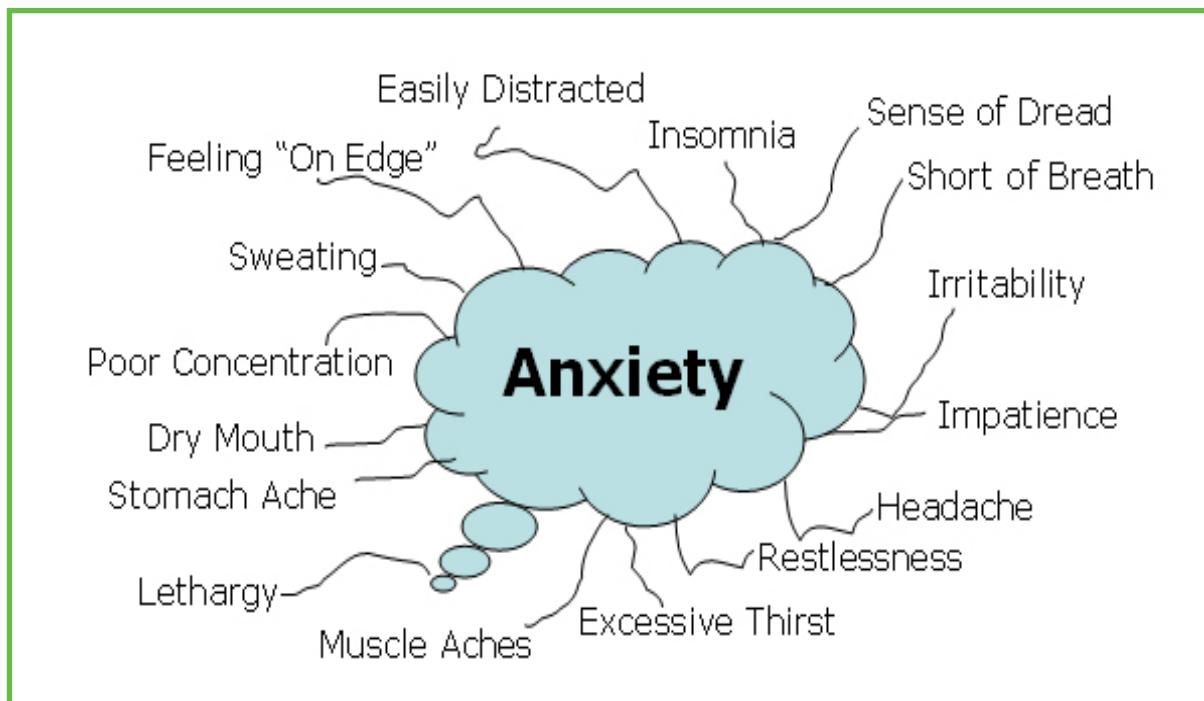
The fight or flight response

The biological process that underpins anxiety is called ‘the fight or flight response’. This response comes from the time our prehistoric ancestors when we relied heavily on our ability to fight or run away to survive (when confronted with a dangerous animal for example). In today’s world we rely on anxiety less for these reasons, there aren’t many sabre tooth tigers wandering around Hemel Hempstead or St Albans, but the response still remains.

The fight or flight response is triggered when we perceive danger and the body prepares by releasing a chemical called adrenaline. See the table below for how adrenaline affects us.

Physical symptoms of anxiety	Reasons why we experience this
Dizziness, breathlessness, tightness in chest	Breathing gets quicker, so more oxygen can reach muscles
Heart pounding, palpitations,	Heart beats faster, blood pressure up to pump blood to the muscles
Visual disturbance	Vision sharpens
Muscle tension, wobbly legs, shaky	Muscles ready for action
Sweating more	To maintain effective body temperature,
Tingling or numbness, pins and needles	Calcium discharged
Feeling sick, dry mouth, butterflies in stomach, feelings of choking	Blood is diverted to major muscles so digestive and saliva production is reduced.
Unable to concentrate,	As mind focuses on threat – alert to danger, filters out other non-threat factors
Feeling like you need to go to the toilet	Sphincter muscles tighten – close the opening of our bladder and bowels

What is anxiety?



Activity

Take a look at the lists below for some symptoms of anxiety.

How does anxiety affect you?

Thoughts		Emotions	
Physical symptoms		Behaviours	
<input type="checkbox"/>	"Something awful is going to happen"	<input type="checkbox"/>	Anxious
<input type="checkbox"/>	"I will not be able to cope"	<input type="checkbox"/>	Scared
<input type="checkbox"/>	"What if I don't do it right"	<input type="checkbox"/>	Nervous
<input type="checkbox"/>	"What will people think of me"	<input type="checkbox"/>	Irritable
<input type="checkbox"/>	"I need to escape"	<input type="checkbox"/>	Depressed
<input type="checkbox"/>	Faster heart beat	<input type="checkbox"/>	Avoiding situations
<input type="checkbox"/>	Physical tension	<input type="checkbox"/>	Increased smoking or drinking
<input type="checkbox"/>	Dizziness	<input type="checkbox"/>	Arguing
<input type="checkbox"/>	Hot and sweaty	<input type="checkbox"/>	Talking or doing things faster
<input type="checkbox"/>	Tunnel vision	<input type="checkbox"/>	Under or over eating

Tool 1: Understanding Panic

What is panic?

Panic attacks are an extreme form of anxiety. It is not harmful but it is incredibly unpleasant, usually as they are unexpected. Many people have been so terrified by having a panic attack that they call an ambulance as they have felt and feared that they were 'losing control', 'having a heart attack', 'going to suffocate' or 'going to die'. Panic attack can be even more frightening if you have a long-term health condition such as asthma or COPD.

We often recognise panic as a problem when we are having recurrent attacks and are concerned about any further attacks. For others panic can seem to occur 'out of the blue'. We can also have night time panics which affect our sleep. We may also avoid certain situations where we feel the panic attacks occur, such as busy places.

Physical symptoms include an accelerated, sometimes doubled, heart rate, shortness of breath, sweating, and nausea. These symptoms usually peak within 5 to 10 minutes (as our bodies cannot maintain these symptoms for very long). However this feels prolonged, and it can be a repetitive cycle occurring many times during the day or night. We are exhausted afterwards as our bodies recover.

We overestimate the physical symptoms of the anxiety we are experiencing in that moment and feel that it can harm us and is extremely dangerous. We call this **catastrophic misinterpretation**. The vicious cycle of panic can then spiral as we focus on symptoms and our thoughts become more distressed, we feel as though we cannot cope and our worse fears will happen.

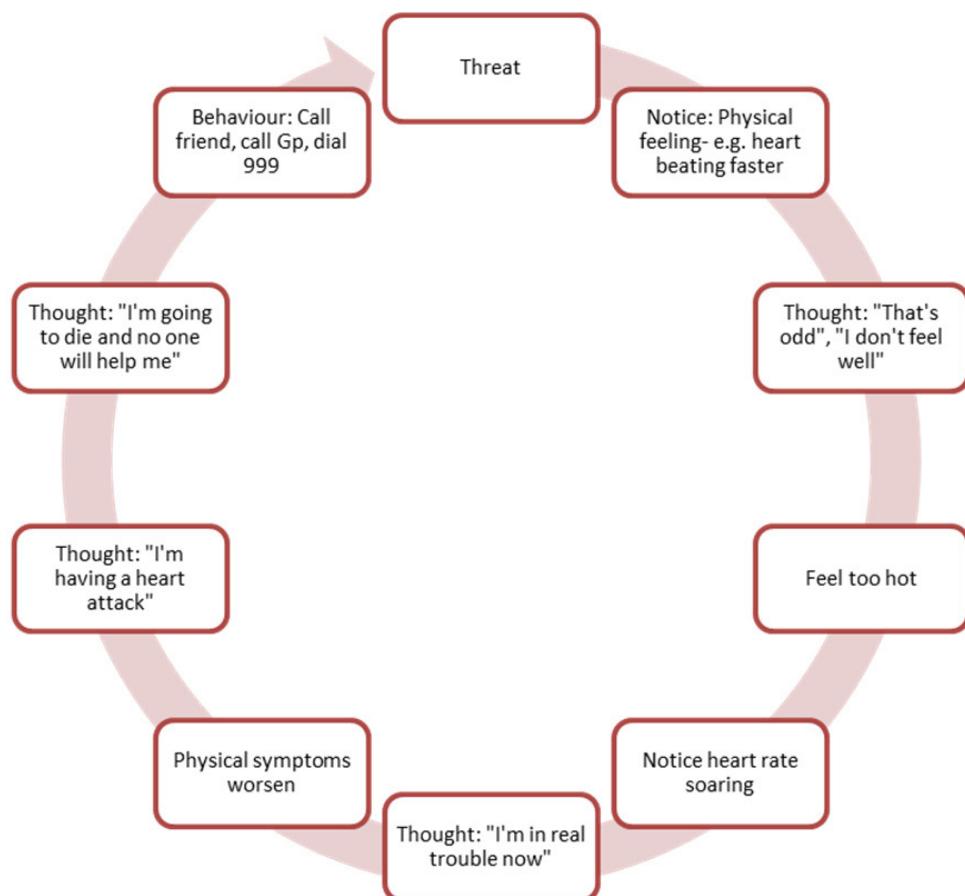
See below for some common symptoms and fears when experiencing panic.

Physical symptoms of panic or extreme anxiety	Possible catastrophic misinterpretation or fear
Dizziness, breathlessness	I'm going to faint
Heart pounding, palpitations, tightness in chest	I'm having a heart attack
Visual disturbance	I'm losing it, I'm going blind, I have brain tumour
Wobbly legs	I'm going to faint
Tingling or numbness	I'm having a stroke or I have a brain tumour.

Feeling sick, dry mouth, butterflies in stomach	I'm going to be sick
Unable to concentrate	I'm losing it
Feeling like you need to go to the toilet	I'm going to have an accident, lose control of my bowels and bladder
Shortness of breath, trembling	I'm going to suffocate, I can't breathe

This type of anxiety can also cause us to become more hypervigilant, which can lead to further misinterpretation of bodily symptoms and cause further anxiety, and panic.

The Vicious Cycle of Panic:



We may also find ourselves engaging in ‘safety seeking behaviours’. These are usually short-term solutions which artificially reduce anxiety and continue to maintain the problem and can lead to continued avoidance.

These behaviours also mean that we do not give ourselves an opportunity to see we would be able to cope without them.

Some safety seeking behaviours include: Carrying a water bottle, a paper bag, medication, taking someone with you, having headphones on listening to music all the time.

Some people have been told to carry a paper bag or when feeling anxious concentrate on breathing, this is not helpful when learning to overcome panic.

How does panic affect you?

Thoughts	Emotions
<input type="checkbox"/> "Something awful is going to happen"	<input type="checkbox"/> Anxious
<input type="checkbox"/> "I will not be able to cope"	<input type="checkbox"/> Scared
<input type="checkbox"/> "What if I don't do it right"	<input type="checkbox"/> Nervous
<input type="checkbox"/> "What will people think of me"	<input type="checkbox"/> Irritable
<input type="checkbox"/> "I need to escape"	<input type="checkbox"/> Depressed
Physical symptoms	Behaviours
<input type="checkbox"/> Racing heart beat	<input type="checkbox"/> Avoiding situations
<input type="checkbox"/> Feeling sick and dizzy	<input type="checkbox"/> Needing to escape
<input type="checkbox"/> Short of breath	<input type="checkbox"/> Carrying medicine, bottled water, a paper bag, with us
<input type="checkbox"/> Hot and sweaty	<input type="checkbox"/> Not wanting to sleep
<input type="checkbox"/> Urgently needing to the toilet	<input type="checkbox"/> Drinking more alcohol

Tool 1: Understanding Worry

What is Worry?

We all experience worry from time to time. This can sometimes be helpful for us as it can help us to get a job done, for example, worrying about an interview can help us to prepare for the interview (this is referred to as productive worry). However, sometimes our worry can “take over” and stop us from getting things done (this is referred to as unproductive worry). We may also notice that our worries “jump around” and so we worry about lots of things, including minor concerns. This may mean that we rarely solve our worries but keep moving onto our next worry. It is quite exhausting.

Worry can be unhelpful for us when we worry about things that are:

- **Uncertain** – Nothing in life is certain. So if we search for something that is certain we will have to keep searching or accept that we will not find it.

An example of this can be when trying to be certain that we will be healthy. We may continuously worry about our health and check our body to make sure we are ok.

- **Unpredictable** – We do not know what will happen in the future. Worrying about this can stop us from enjoying the present.

An example of this can be worrying about our family's safety.

- **Uncontrollable** – We cannot always control the situation and the people around us. Worrying about this can also stop us from experiencing the present.

An example of this can be worrying about how someone will react to you at work/pub/home; this may stop you from doing a particular activity.

When our worry jumps around and when we are worrying about something that is uncertain, unpredictable, and/or uncontrollable we may then notice feelings of anxiety. When this happens, it is common that we experience worry about worrying. When we have been worrying for a long time, this may also lead us to feel less confident and may reduce our self-esteem, affect our sleep and have an impact on our jobs, relationships and health.

We also experience: tension headaches, irritability, fatigue, difficulty concentrating, muscle aches, and sleep problems. We can then start worrying about our health, the health and wellbeing of our friends and family, this is then very tiring, affects our sleep and makes us tearful and sad. This is the vicious cycle of worry.

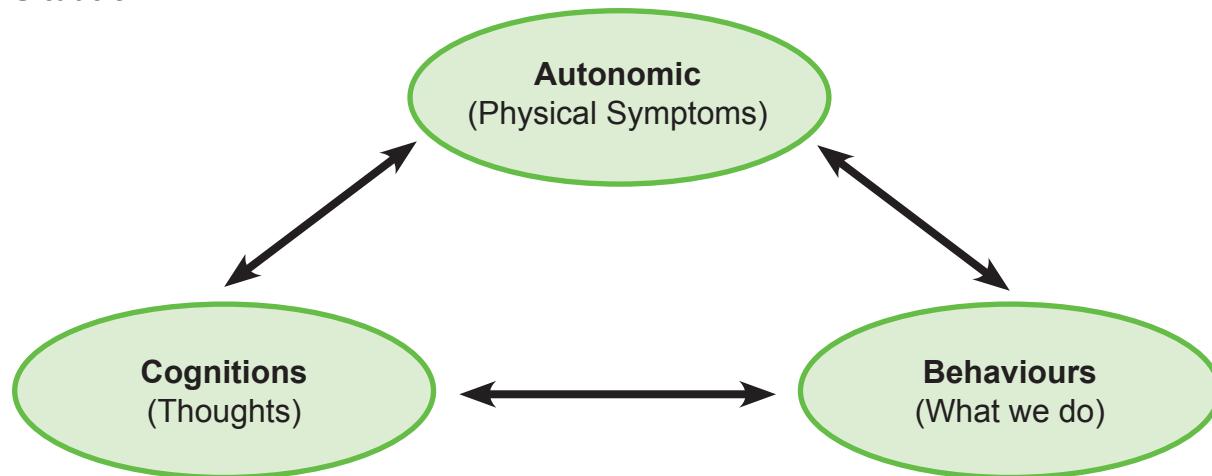
Please continue to work through the workbook as we will build on the knowledge you have learnt. By practicing some of the techniques in your own time as well as in session, you will overcome the difficulties that you are presently experiencing.

Tool 2: The ABC A Cognitive Behavioural Therapy Based Approach

What is CBT?

Cognitive Behavioural Therapy (CBT) can help people look at the different situations that they find themselves in, and to understand their thoughts, physical sensations and behaviours. The idea is that our thoughts, physical symptoms and behaviour can all influence one another and therefore contribute in maintaining unhelpful moods such as low mood and anxiety. Take a look at the diagram below.

Situation



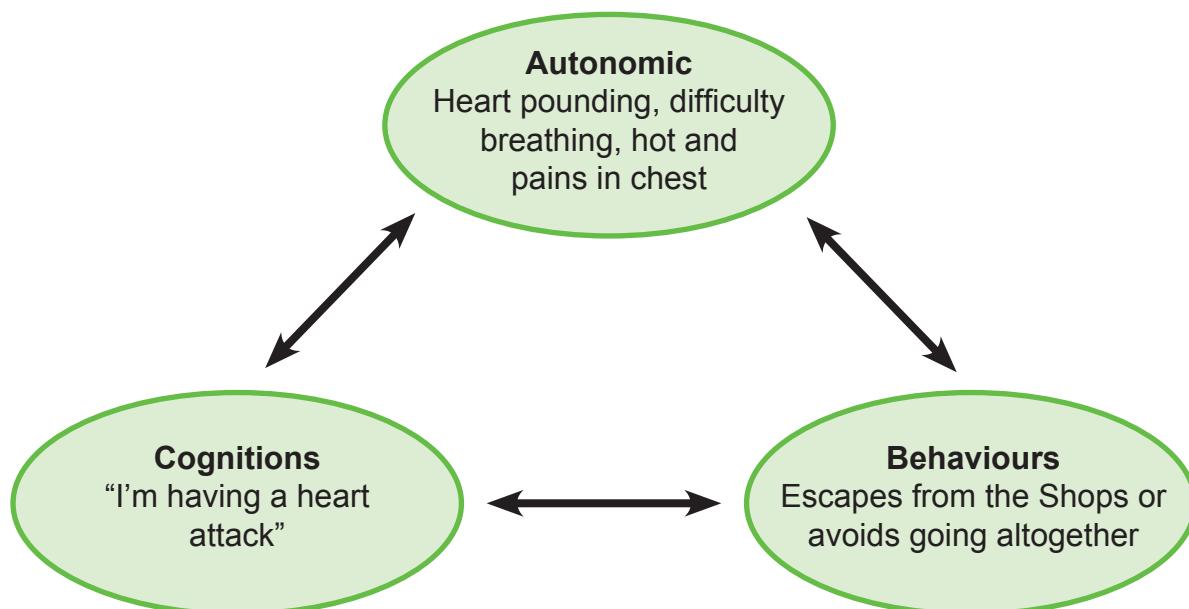
CBT emphasises that it is not necessarily the situation that causes the emotional distress that an individual experiences, but rather it is the individual's interpretation or view of that situation that leads to this. CBT works by learning how to challenge negative thoughts and learning how to change unhelpful behaviours.

When feeling low or anxious, it is common to have Negative Automatic Thoughts (NATs). These are unhelpful thoughts that pop into our minds without any effort. With anxiety, NATs are often about overestimating threat and underestimating an individual's ability to cope, which can maintain anxiety. Sometimes people find coping mechanisms which help them deal with the situation. This may involve avoiding the situation, or doing something differently to help control their anxiety. Although this may lower their anxiety in the short term, it can actually maintain and reinforce it in the long term. Breaking this vicious cycle may cause an increase in anxiety to begin with but ultimately help reduce it.

The example below is of Lynda, who experiences anxiety when going to the shops. She notices her heart pounding, breathing difficulties and feeling hot. She thinks “I’m having a heart attack,” which further contributes to her physical symptoms. As a result, she is now avoiding going to the shops, or escaping from them as quickly as she can. This can cause Lynda to feel even more anxious when next faced with this situation and will also strengthen her unhelpful thoughts. Her thoughts, physical symptoms and behaviours are all influenced by each other.

Lynda's ABC

Situation: Going to the shops

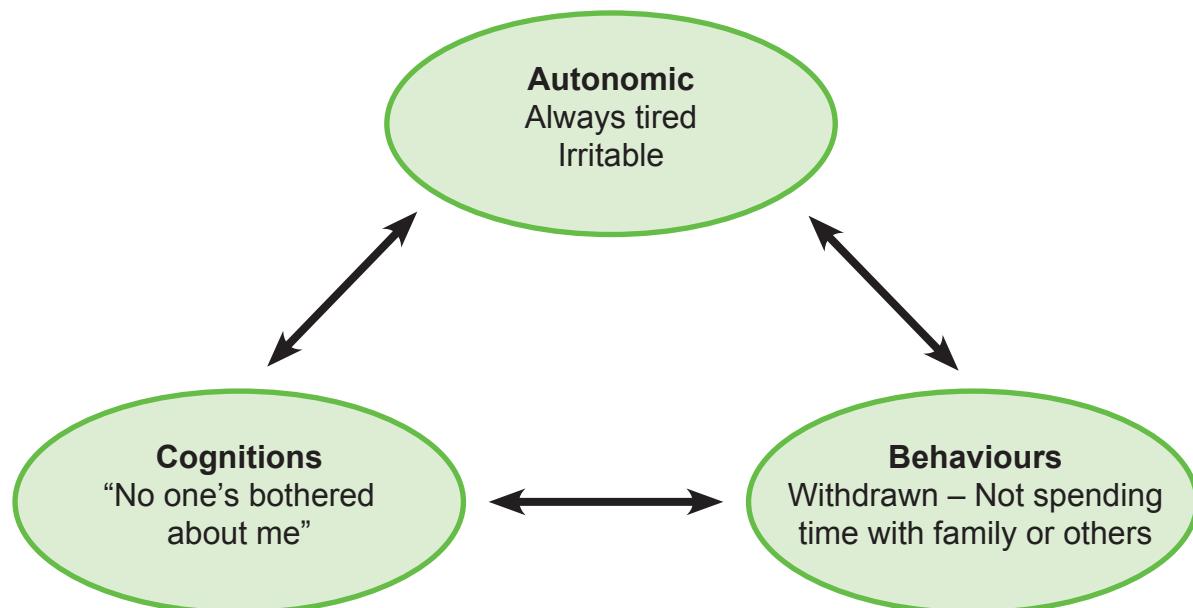


With low mood, people tend to think about themselves, the world and the future in a very negative way. For example, someone may think “I am useless” and “It is pointless trying, as there is no point”. The lower a person feels, the more NATs they will have. Naturally, the more NATs, the lower a person will feel. This forms a vicious circle that needs to be broken.

Look at the example below of Mike. Mike has been having problems at work and over the last few months has been feeling very low. As a result, Mike has been withdrawn and not spending as much time with others, especially his family. He recently received a phone call from his mum, who Mike thought was not being sympathetic. This left Mike thinking ‘No-one cares about me’. Again, notice how his thoughts, behaviours and physical sensations are all influenced by each other.

Mike's ABC

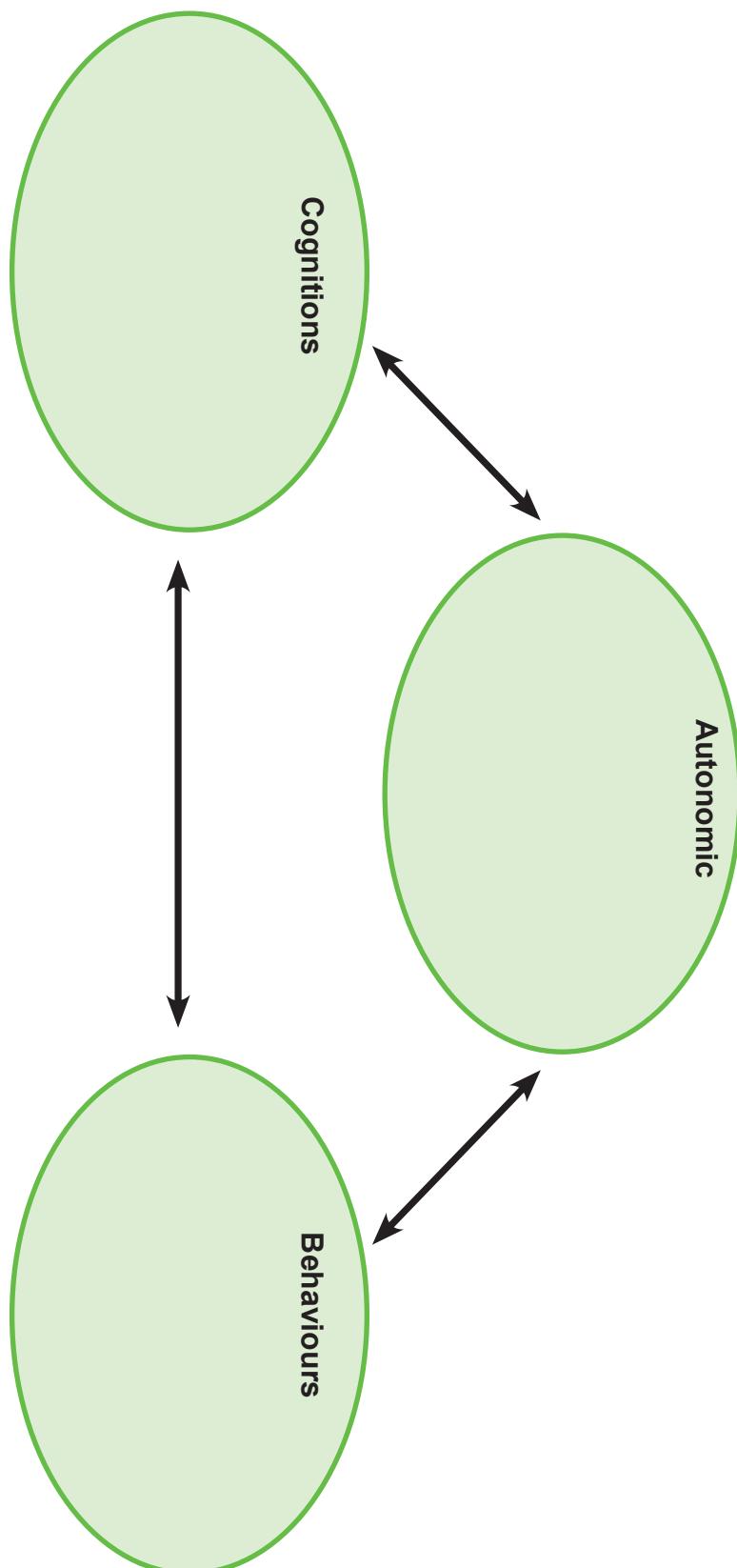
Situation: Received a call from mum



My ABC

Can you think of particular situations where you have felt anxious or low? What was the situation? What were you thinking? What did you notice in your body? How did you behave in the situation? Can you fill in your own vicious circle?

Situation
Where? When? Who with? What?



Tool 3: Setting a Goal

In order for any self-help to be effective, it is important to set some SMART goals. They are important as they help us monitor our progress which helps further motivate and energize. They are also a reminder of what you are working towards which means you are more likely to stay on track.



Specific
Measurable
Achievable
Relevant
Time Limited

Self-Help is like a Road Map

Imagine you're planning a journey and you are looking for directions. Is it possible to get directions to a destination that you do not know yet?

In the same way if you do not have any goals, how do we know what techniques to use to help you reach your goals?

Self-help goals can be either short term, medium term or long term. Long term goals may take years to achieve whereas short term goals may be achievable in a matter of weeks. When thinking of self-help goals, it may be a good idea to start breaking down the steps in order to create some short or medium term goals.

Once you have created your goals, you start your journey towards recovery. It can be useful getting help deciding on the destination and which route you are taking. Once the journey has started, it's up to you to practice working through the new techniques learnt to reach your destination.

Let's look at some examples of SMART goals:

*Whilst I am looking for a job, I would like to call 3 prospective employers each week and ask them about any vacancies.
I would like to be able to do this within the next 3 weeks.*

I would like to meet a friend for a drink 2 times a week and spend 30 minutes with them. I would like to achieve this within the next 3 months.

I would like to learn how to better control my worrying so that I do not always jump to negative conclusions. Instead of worrying about things all day, I would like to allocate 20 minutes a day to worry. Throughout the day I will write down all my worries then refocus and worry about them at the allocated time. I would like to achieve this by the end of the month.

Let's look at some examples of goals which are NOT SMART:

I would like to feel less anxious.

I would like to stop avoiding things.

I would like to do the things I used to do.

Activity

Start by identify your goals and triggers.

- Triggers refer to the situations that normally cause you any anxiety or low mood.
 - By identifying what you are unhappy with now (triggers) you can identify what needs to change for you to feel better (Goals).

Triggers

Creating Goals

- What do you hope to gain or achieve?
 - What will be different for you?
 - What can you do to make those changes happen?

Take some time thinking about your individual goals and write these below. Remember to make these goals as SMART as possible.

SMART Goals:

Specific **M**easurable **A**chievable **R**elevant **T**ime Limited

Goals

Common obstacles that people may face:

- 1.** Worries about getting things 'right' may lead to people not attempting or completing these tasks.
- 2.** Feeling low or unmotivated may make it seem more difficult to do the work.
- 3.** Feeling demoralised when improvement is not immediate can sometimes lead to people dropping out of treatment without giving it enough of a chance.
- 4.** Being very busy and not prioritising the content and techniques contained in this book.

Overcoming Obstacles

What do you think could prevent you from being able to achieve these goals?
(*Potential problems*)

What could you do to ensure that these obstacles do not prevent you from regularly achieving your goals?
(*Solutions*)

By identifying potential problems and ways to overcome them it can be easier to deal with if they occur.

Potential problem	Solutions
I only know how I would like to feel different	Think about what you might do differently if you felt like that
It's too soon to do that	Break it down into smaller steps
There is too much that needs to change	Pick one thing, focus on that first
I still can't set a SMART goal	Get help from a friend, family member or your case manager

Review

Taking time to review goals at regular periods can help determine how helpful they are and if they are producing results.

Things to consider:

- Are you managing to meet your goals?
- Do the goals need to be adjusted if they aren't regularly completed?
- Are your goals helping in the ways you thought they would?
- Are there other potential problems and solutions you need to consider?
- Have your problems or triggers changed?

For example:

- 1.** Remember that there is not one 'correct' way to complete tasks.
- 2.** Remind yourself that improvement can be gradual, which is normal and to be expected.
- 3.** Prioritise time to practice the techniques and complete tasks so that you can get as much benefit as possible.
- 4.** Discuss any concerns with a qualified professional if you are receiving help and support from one.

Tool 4: Lifestyle Changes

Healthy Eating

Everyone should aim to have a healthy and balanced diet. There are many advantages to healthy eating, including a reduced risk of obesity, heart disease and diabetes.

Many of us consume more calories than we need to. If we are consuming more calories than we burn we are likely to put on weight. The amount of calories we need to consume depends on how active we are.

The average adult male needs around 2,500 calories per day and the average adult female needs around 2,000 per day.

In order to have a balanced diet it's important to eat a wide variety of foods so that you are receiving all the nutrients you need. Check out below, some tips which can help you achieve a healthy, balanced diet.

Don't skip Breakfast

It is often stated that breakfast is the most important meal of the day, and it's understandable why! Eating breakfast can help with weight control and is an important part of a balanced diet. Wholemeal cereal is often recommended (with sliced fruit) as a nutritious start to the day.

Five portions of Fruit and Vegetables

At least five portions of fruit and vegetables are recommended each day. Things such as unsweetened fruit juice and vegetables cooked into meals also count. Consider having fruit in the morning with your breakfast or some fruit for a healthier snack option.

Eat more fish

Try to have two portions of fish (such as cod, haddock or tinned tuna) a week. Fish contains proteins, vitamins and minerals which are helpful in maintaining a healthy diet. Oily fish (such as salmon, mackerel, sardines and fresh tuna) have omega-3 fats which can help to prevent heart disease, so try to include this at least once a week.

Include starchy foods

Foods such as potatoes, pasta, bread, rice and cereals should make up around one third of your diet. Try to incorporate this into your main meal if you can. Also try to choose wholegrain options when available, as these contain fibre which can help you to feel full for longer.

Reduce fat and sugar intake

Try not to eat foods that are too high in saturated fats. These types of fats can increase the risk of heart disease. Where possible use vegetable oil or reduced-fat spread rather than butter or lard. Also try to have lean cuts of meat, and cut off any visible fat where possible.

Where possible, instead of saturated fats, eat food such as oily fish and avocados which contain unsaturated fats.

Try to reduce sugar intake. Watch out for drinks which are high in sugar (including alcoholic drinks) as these can often be contributing to weight gain.

Whilst there are naturally found sugars in foods such as fruit and milk, it's helpful to limit foods such as cakes, pastries, fizzy drinks and biscuits which have added sugars. Check packaging to make sure that you limit these types of foods as much as possible.

Reduce salt intake

Too much salt can raise blood pressure, so make sure that you don't add too much salt to your food. Make sure to check food labels, as salt is already in a lot of food we regularly consume. Some foods such as bacon, cheese and salty fish are more obviously high in salt. However many are not as aware that foods such as breakfast cereals, condiments, soup and bread that contain varying levels of salt also.

When checking labels if there is more than 1.5g of salt per 100g, this means it is high in salt. Try not to have over 6g of salt each day.

Be active

Regular physical activity can be helpful in trying to lose, or maintain healthy weight. You can achieve regular activity through regular exercise, or utilising other ways of incorporating regular activity. This includes making sure that if you find yourself sedentary for long periods of the day, try making sure you are active when possible. This could be using the stairs instead of taking the lift, or parking your car further away than usual and walking to your destination.

Around 30 minutes of exercise five days a week is often recommended, so get this in when you can. You can ready further information on being active and exercising later on in the workbook.

Make sure to drink plenty of fluids

Try to drink around 1.2 litres of water, milk or fruit juice each day. Where possible, avoid fizzy drinks that are high in sugar. Make sure to increase fluid intake during warmer periods of weather or when undertaking physical exercise.

Tool 4: Lifestyle Changes

Exercise

Increasing physical activity has a number of health benefits. Not only can it help to lose, or maintain a healthy weight, but it can also help to reduce the risk of heart disease, stroke and type-2 diabetes.

Being healthy and increasing our health levels can be achieved by introducing or increasing levels of physical activity and muscle-strengthening activity.

The Department of Health recommends 150 minutes (2 hours and 30 minutes) of moderate-intensity activity each week, or alternatively, 75 minutes of vigorously intensity activity.

Examples of Moderate-intensity activities include:

Fast walking	Hiking
Cycling	Skateboarding
Volleyball	Basketball

These types of activities will increase your heart rate, breathing and make you feel hotter. The 150 minutes can be broken up into 30 minutes of activity 5 days a week.

Examples of vigorous-intensity activities include:

Jogging or running	Swimming fast
Sports such as football, tennis or rugby	Football
Fast cycling (or cycling around hills)	Tennis
Aerobics and gymnastics	Martial arts

These types of vigorous activity will leave you breathing hard and fast. Your heart rate will have increased and you may find it difficult to say more than a few words without catching your breath.

Examples of muscle-strengthening activities:

Lifting weights	Push-ups and sit-ups
Yoga	Heavy gardening

Muscle-strengthening activities are in repetitions and sets. One push-up counts as a repetition and 8-12 of these are recommended to complete a set. Try to do 2-3 sets if possible. Muscle-strengthening activities are most beneficial if completed to the point where you struggle to complete another repetition.

Tool 4: Lifestyle Changes

Getting a Better Night Sleep

Here are some tips for how you can improve your sleep

- Don't go to bed unless you are sleepy. Read a book, listen to soft music or browse through a magazine. Find something relaxing, but not stimulating.
- Watching TV or using electronic devices (tablets, computers or mobile phones) is best avoided at bed time. Not only can the light they emit delay the onset of sleep, but it can also be too stimulating.
- If you're not asleep after 15 minutes then get out of bed. Find something else to do which will make you feel more relaxed. Once you feel sleepy again, go back to bed.
- Begin a routine that helps you relax each night before bed. This could be a warm bath, getting into your pyjamas or reading away from your bedroom.
- Go to bed and get up at the same time. This helps the body to recognise a routine for sleep. Do this on weekends and holidays.
- Avoid taking naps. If you must take a nap, try to limit this (less than half an hour). Otherwise this reduces our need for sleep when it comes to our evening routine.
- Keep a regular schedule. Regular times for meals, medications, chores and other activities help to keep the inner body clock running smoothly.
- Only use your bedroom for sleep and sex. Don't read, write, eat, watch TV, or use any electronic devices in bed.
- Try to limit caffeine as much as possible and at least 4 hours before bedtime (this includes tea, coffee and even chocolate).
- Do not have a cigarette or any other source of nicotine before bed as this is a stimulant.
- Do not use alcohol to help with sleep problems. A common myth is that alcohol helps you to sleep, but in fact it actually has a detrimental impact. Whilst it might help us get to sleep initially, it often disrupts sleep later in the night.
- Don't go to bed hungry, but don't eat a big meal near bedtime either
- Sleeping pills are a short-term solution only. They're not usually prescribed for long-term use due to side effects. If you are considering stopping the use of sleep medication, consult your GP first.

- Have a pen and paper or worry diary next to the bed. You can then write down anything making you feel anxious, so it can be dealt with the next day.
- Make sure your bedroom is dark, quiet, cool and that your mattress is comfy.
- Avoid having clocks on display

“Get up if you can’t sleep”

- If you are in bed for 15 minutes and can't get to sleep, then get up and do something quiet in a different room. Choose an activity that's not too stimulating and also make sure the lights are low.
- During this time avoid any activities which might be too stimulating. Try not to use any electronic devices such as smartphones, tablets, computers or TV.
- Do this until you feel sleepy, then go back to bed.
- Repeat this cycle until you fall asleep in bed. This helps us to associate our bed with sleep.

Tool 5 - Increasing Activity Levels for Low Mood

Behavioural Activation

Low mood can affect people in different ways. It leads us to think more negatively, can affect us physically and even reduce our typical behaviours.

When we're feeling low or depressed, any type of activity seems more difficult to do, so it's common for people to become less active and stop doing some of the things they would normally do. We may find ourselves stop going out with friends, withdraw from family, put off housework and reduce engagement at work. Even activities that we usually enjoy can become a chore and these pleasurable activities are often the first we stop doing. Tasks that are important, or more difficult to accomplish like applying for a job, can become even harder to accomplish.

By putting off these activities we get relief from not having to do them, and this relief negatively reinforces this unhelpful behaviour, as it encourages us to continue avoiding and reducing activities, maintaining our low mood.

Avoiding these types of activities may seem helpful in the short-term, as we experience relief from not having to complete them. However, this avoidance means we may miss out on the positive experiences that may have occurred from doing the activity, such as seeing our friends, doing something we enjoy, getting something important completed or spending time with loved ones. This can also have a secondary impact on other areas of our life, such as increased work absences, reduced productivity, or not getting something important completed on time.

By not doing the activities that may have bought us pleasure or a sense of achievement, we miss out on possible **positive reinforcement** of these activities, leading to further reduction in helpful activities.

Therefore, what is maintaining low mood is a circle of reduced activity. The technique of Behavioural Activation focuses on increasing the reinforcement of helpful behaviours and reducing the effects of unhelpful behaviours. Behavioural Activation aims to break this vicious circle by slowly integrating structured activities that will encourage us to continue to incorporate helpful behaviours in the future. It works by scheduling different types of activities and making sure that we follow the plan and not our mood so that we complete the activities, thus breaking the circle which can maintain low mood. Let's look at these types of activities:

Routine Activities: These are regular types of activities we do often or every day, such as, waking up, general hygiene, cleaning the house, cooking etc.

Pleasurable Activities: These are the types of activities which we get enjoyment from, including hobbies, spending time with friends or family, going for walks, playing sport, going to the cinema etc.

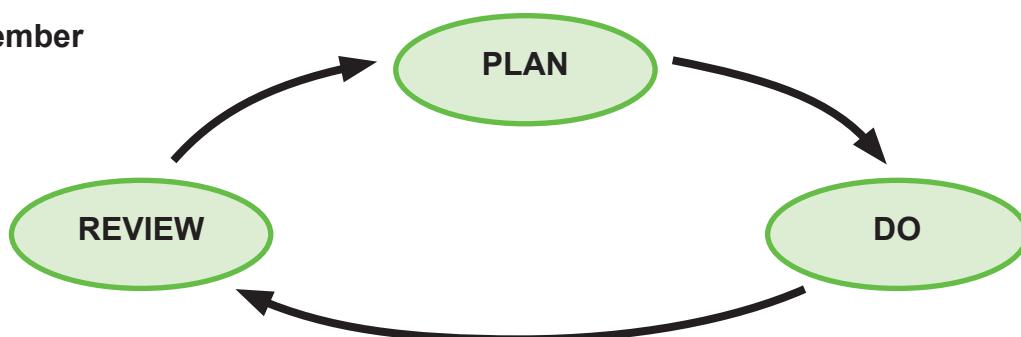
Necessary Activities: These are the types of activities that are often time limited, and if not carried out might lead to adverse consequences, such as paying bills, completing an important form, arranging car insurance etc.

There is some overlap between these routine, necessary and pleasurable activities. Please try not to spend too much time trying to decide which category the task falls under, as long as it is included. The aim is to create a balanced increase in activities.

5 steps of Behavioural Activation

1. Create a list of Routine, Necessary and Pleasurable activities – things you would like to be doing, things you may have stopped doing since you felt low
2. Create a hierarchy of the list you just made in step one – slot each activity in either easy, medium, or difficult in the hierarchy. Make sure you include each type of activity – routine, necessary and pleasurable
3. Schedule the activities using a blank activity diary – put in a mixture of activities. Start with the easiest activities first. Small and regular activities can be best to start with and then you can build in other activities over time. Use SMART goals to make your activities detailed, for instance, to go for a ten minute walk with the dog every morning around 10 a.m.
4. Do them! - do the activity. Remember, follow the plan and not the mood.
5. Review the week – review what activities you managed to include during the week. How did completing these activities impact your mood? What other activities could you schedule in for the next week? If it was difficult to complete some activities, think about why this was the case; were they too difficult? What could you do next time? Break them down? Could you get a friend or partner to help you?

Remember



List Activities

Now have a go at filling in the following forms to start to work through the 5 steps of Behavioural Activation.

Remember that it may be quite difficult at first to increase your activity levels and there's no such thing as failure. Every 'failed' task is actually an opportunity to learn from mistakes in order to improve the next time.

Step 1 - Activities List

Routine

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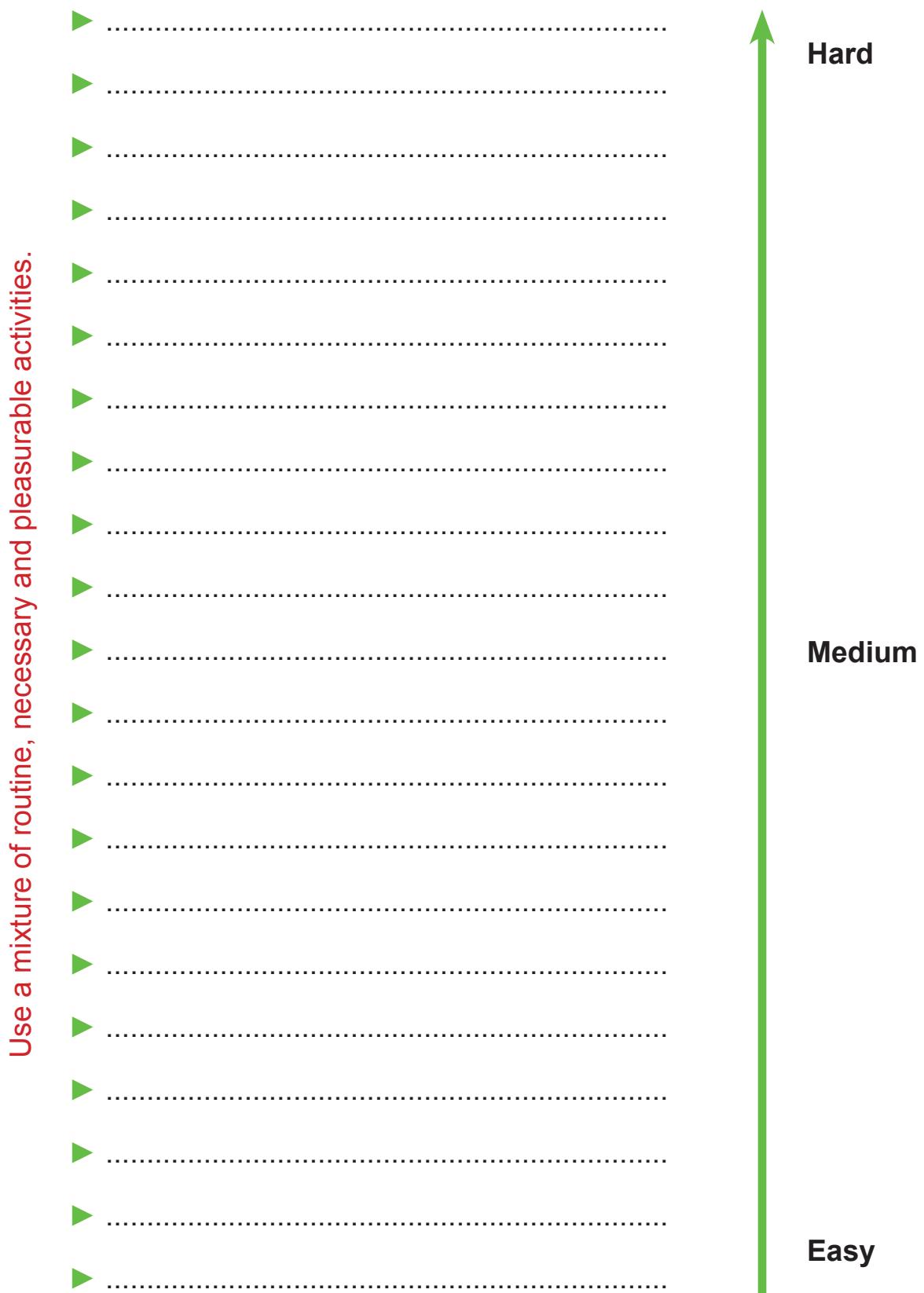
Pleasurable

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Necessary

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Step 2 - Activities Hierarchy



Step 3

Activity Diary for week commencing: _____

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Morning	What Where When Who						
Afternoon	What Where When Who						
Evening	What Where When Who						

Step 4 – Complete the Activities. Make sure to follow the plan and not the mood! Do the activities you have scheduled even if you don't feel like doing them.

Step 5 – Review the Week

Write down what activities you completed and what you learnt

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Ask yourself the following questions:

What impact did increased activity have on your mood?

Were any activities more helpful in making you feel better?

What will you include in next week's activity schedule? (You may want to add some new more difficult activities, or you may want to increase some of the existing activities)

Final Behavioural Activation Notes

Do not wait until you feel like completing an activity. When we're feeling low it may take quite some time before we feel encouraged to do an activity, especially one which is quite burdensome. As a result, the behavioural activation technique encourages us to do the activity even if we do not feel like doing it.

It may take some time for the effects of the behavioural activation technique to become apparent. This can be difficult, as the effects of relief received from reduced activity are more immediate. However, bear in mind the increase of unhelpful behaviours can have a secondary impact on our lives which can reduce our mood further.

With continued use of the behavioural activation technique, you should see an improvement in your mood. Make sure to **plan, do and review** your activities and continue to use the technique for as long as you need.

How will behavioural activation help me?

Planning and sticking to activities will increase my motivation to do more and break the vicious cycle of depression.

Barriers or blocks and possible solutions

Barriers or Blocks	Solutions
I don't feel motivated	Go with the plan not the mood
I didn't enjoy it	Keep going, the enjoyment will come back
Everything seems to difficult	Start small and build up
I just can't do it	Use support
I didn't do something I'd planned	Re-schedule, don't be hard on yourself

Tool 6: Facing Your Fears

Graded Exposure

It makes sense for us to avoid the situations we fear as our anxiety quickly reduces. Whilst this may be helpful in the short-term, by avoiding situations that we are anxious about the level of anxiety will remain or increase around that situation. As we continue avoiding these types of situations, it makes it even harder for us to face these situations in the long-term.

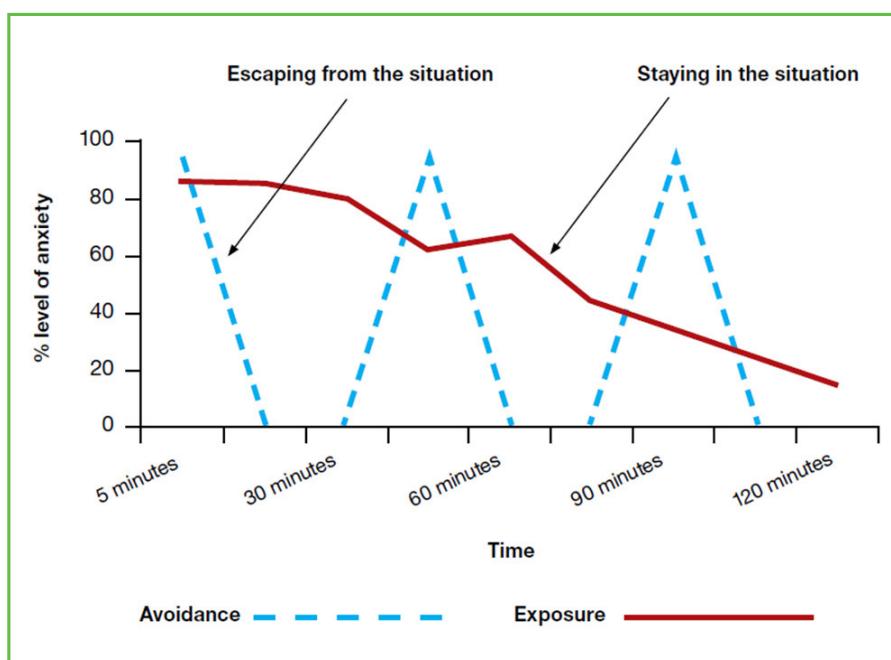
There are two elements involved in anxiety; we overestimate the threat (for instance going on a rollercoaster, feeling dizzy and you think, 'I will faint.') The other component to anxiety is that we underestimate our ability to cope with the threat (for example, 'it will be awful and I won't be able to cope').

Our bodies have over learnt to keep monitoring and scanning for potential threats or triggers. These can be external, for example seeing a spider, and internal, noticing our heart beating faster. Whenever the body recognises a threat the fight or flight response is activated, and our body becomes physically prepared to respond to this threat.

As a result, we need to help the body learn that the stimulus is not such a threat, by helping to cancel out when it's not needed. The CBT technique we use is **Graded Exposure**. We will teach our bodies to overcome our fear by becoming habituated to the trigger or threat. For example when we get into a cold swimming pool on a hot day our bodies eventually adjust and it feels warmer even though the water temperature is the same. So we become habituated to the temperature of the pool if we stay in there for long enough.

Graded Exposure helps to break this cycle of avoidance in manageable steps. By gradually, repeatedly, over time exposing you to these fearful situations without avoiding or escaping from them, or staying in the situation with our safety seeking behaviours.

Look at this graph (right) which helps to demonstrate this;



The graph shows that by avoiding or escaping the situation, anxiety levels drop considerably. However, the next time the individual is put in the same situation, anxiety returns at the same level and will continue to do so if they continue to escape and avoid the situation. However, we can see that through using Graded Exposure, the anxiety will eventually reduce.

There are a few rules that come with the Graded Exposure technique.

Exposure: The Four Rules

For Graded Exposure to be effective it needs to be graded, prolonged, repeated and done without distraction.

Graded

Overcoming a fear is best achieved by gradually confronting the fear. The steps must go from the least anxiety provoking to the most. You need to gradually confront the feared stimuli. This might be starting with situations that may create less fear than others, or objects which would create less anxiety. It may include starting off by imagining a scenario, looking at a photograph or watching videos rather than going into the situation at the early stages.

Prolonged

In order for Exposure to be effective, it must be prolonged. This means that each time we allow ourselves the time needed in order to experience the anxiety levels reducing naturally. This means staying in the situation for as long as it takes for the anxiety to reduce by at least half. For example, if someone stated that their levels of anxiety at the start of the exercise were 60% then they would need to stay in the situation until the anxiety reduced to at least 30%.

Repeated

In order to maintain progress, further exposure is needed. An exposure task should be repeated around four to five times a week if possible for maximum benefit. Each step will need to be repeated before moving on to the next step on the hierarchy.

Without distraction

When doing exposure it is important that people can experience some anxiety to see that it will reduce naturally. Therefore, it is important that people do not do other things, or distract themselves with safety behaviors. This is also so your body learns it can cope without them.

How will graded exposure help me?

To gradually face situations that you are currently avoiding due to feelings of anxiety or fear.

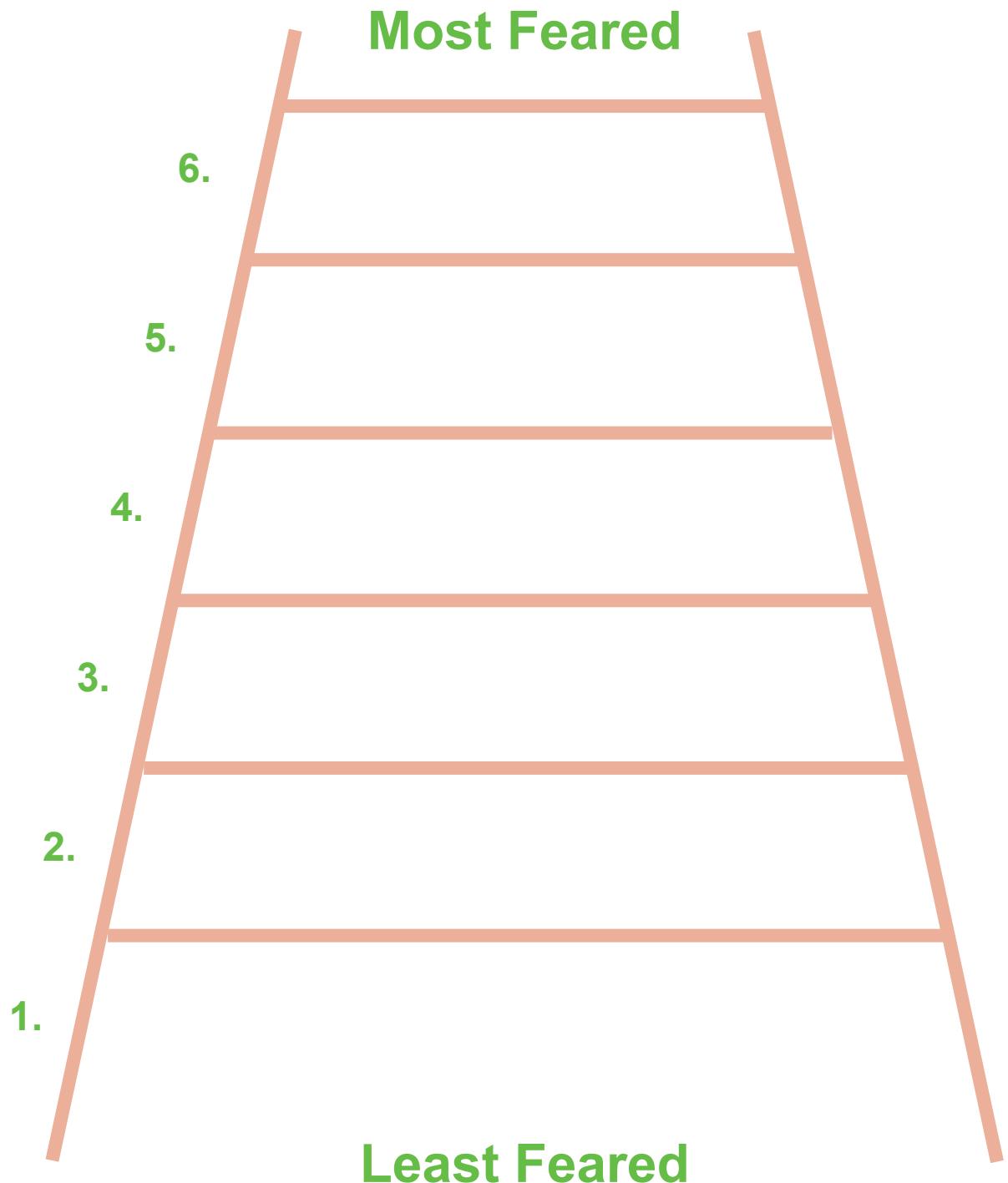
Barriers or blocks and possible solutions

Barriers or Blocks	Solutions
I'm too anxious	Make your step easier
I couldn't stay in the situation	Make the step easier or use support for the first time
I didn't feel anxious at all	Is the step too easy? Are you using distraction techniques?
I'm too busy	Is this the right time

Here is an example with Lynda.



If you are finding that you have a phobia of an object or activity or are avoiding something, then complete your own anxiety ladder:



Steps for Exposure

- Step 1:** Make a list of the objects or situations which cause you anxiety.
- Step 2:** Rank this list in order of difficulty from the least anxiety provoking to the most
- Step 3:** Use this list to create your graded ladder for exposure.
- Step 4:** Use your exposure diary to record your progress.

Start with the first step, and make sure that it's not too difficult.

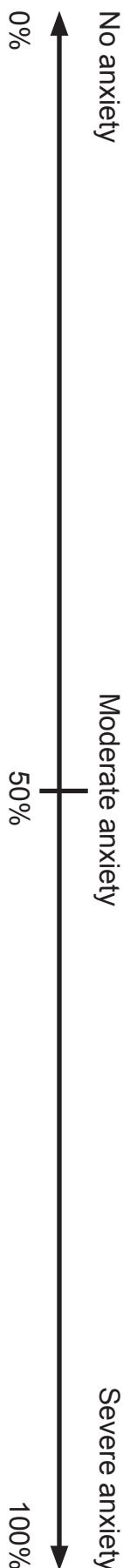
Each time you face a situation you will need to stay in it until your anxiety levels have reduced by at least half of what they were originally.

You will repeat each step at least four or five times in the same week if possible. Once you are able to better cope in each of these situations, or your anxiety before the exercise has reduced, you can move on to the next step on your anxiety ladder.

Remember expose without using distraction, relaxation or breathing exercises so you can feel the anxiety peak and reduce. We call these 'safety behaviours'.

When completing any exposure tasks, it may be helpful to keep an anxiety diary. This can allow you to rate your levels of anxiety before, during and after your exposure exercise. You can also make notes or write down any of your thoughts at the time. Please use the blank anxiety diary on the next page.

Anxiety Diary



Tool 7: Containing Worry

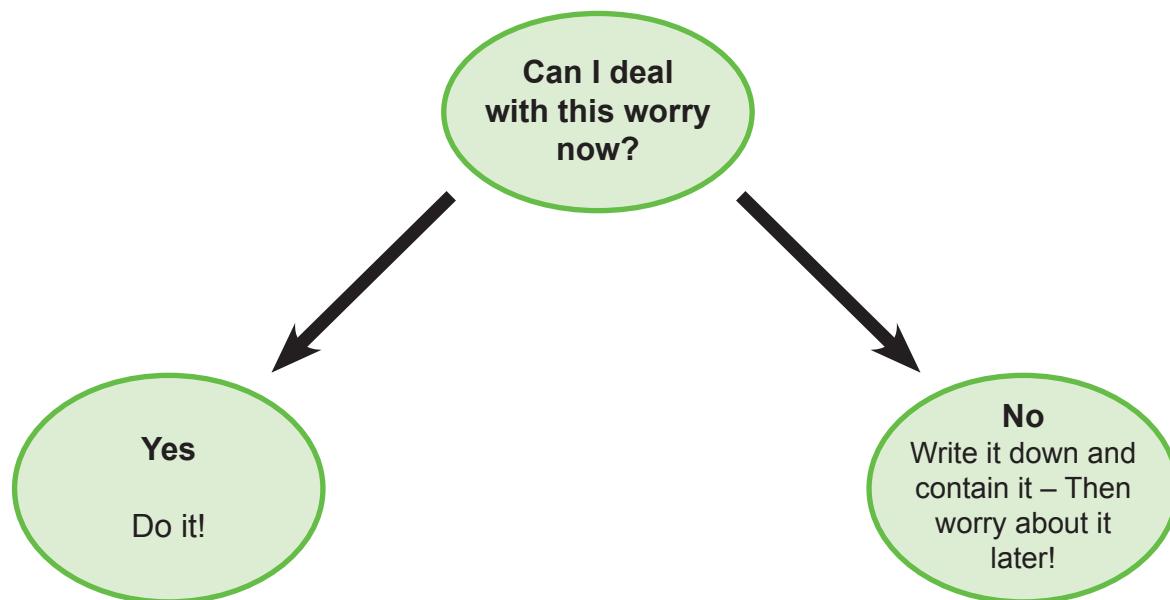
Although a certain amount of worrying is normal, sometimes it can feel like our worry is becoming unmanageable. Containing Worry is about allowing yourself to worry as much as you like, but only at a specific time of the day that you will choose yourself. By following these steps you should notice an improvement in the amount of time you spend worrying and feeling more in control of your worry.

The first thing we need to look at with worry is uncertainty. It is often these types of worries we need to contain. If we find ourselves focusing on worries where the outcome is uncertain, we will soon find ourselves feeling overwhelmed, that things are out of control and this can have an impact on our lives. These worries can usually start with “what if...?”

On the other hand, some of the things we might find ourselves worrying about are the types of things we could deal with in the ‘here and now’. These are the types of things we should try to deal with there and then.

As a result, when looking at worries, we’re looking at either hypothetical worries, which are based on uncertainty, or practical worries which we can deal with in the here and now.

So when you have a worry, write it down and ask yourself the following;



So, we've written the worry down, but what do we do now? Well follow these simple steps to try to contain your worry.

Step One: Make an appointment to contain your worry

Plan a short time for yourself to worry in (i.e. 8pm) and for how long for (i.e. 20 minutes).

This time will vary, and perhaps be longer at the beginning, reducing the more you practice the technique.

During this time you will not do anything else aside from worrying!

Don't do this just before bed, or in the bedroom. Try and find a place where you can worry and where you will not be disturbed.

Try not to be distracted, make sure others are aware not to disturb you.

Step Two: Write down your worries

When worrying outside your planned worry appointment, write down your hypothetical worries in a worry diary.

If it's a practical worry, you can deal with it there and then, or plan a suitable time to deal with this

Until you get used to identifying the difference between a hypothetical and a practical worry, use this worry diary to distinguish the two.

When a worry occurs write these worries down knowing you can worry about it as much as you want during the scheduled worry appointment.

Step Three: Refocusing on the Present

Once you have written down your worry, refocus on the present moment. Focus on what is going on around you and tune your attention onto it. It is harder to worry when you are really focused in the moment. Perhaps consider your five senses and focus on those.

It may be focusing on the smell of the cooking, taste of the food you're eating, the sound of the rain, the touch of a steering wheel and sight of a car in front of you.

This is not about distracting ourselves; it's about bringing us back into the present moment.

If the same worry comes back, or new ones enter your mind, write them all down knowing that you can worry about them as much as you want during your worry appointment. Writing down the activity that you are going to focus on using the worry diary also helps you to ensure you refocus.

Repeat this process for any other worries that occur. If you find yourself slipping, make sure to remind yourself you will worry about these later on at the time you've designated and get back to focusing on your current activity.

Regular practice of worry time really helps you to manage your worries during the day.

Step Four: Scheduled appointment – Now Worry!

During the appointment you have allotted yourself, you can worry as much as you like about the worries you've written down.

Choose one you would like to start with and work from there.

You may find that these worries are no longer as strong as they initially seemed.

The urgency of the worries may have reduced.

We often find the worries are not as important or applicable as when they first occurred. You can spend time reflecting on worries that are no longer an issue but this is not compulsory.

You may find that you can happily reduce your worry time as you become more practiced at the technique

Make sure you only worry about the worries you have wrote down that day in the worry diary. Any new worries will need to be written down and included in the next day's worry appointment.

At the end of your appointment, you stop your worry. Some people like to throw away their worry list for that day, each day starting with a fresh worry diary.

This technique takes practice and repetition. The more we practice this, the more our worries will reduce and this will help us to manage our worry better.

Continued practice of this technique may help you to find that you worry less outside of your designated worry appointment and feeling more able to manage your worries. If so, great!

How will containing worry help me?

To waste less time worrying about things you have no control over.

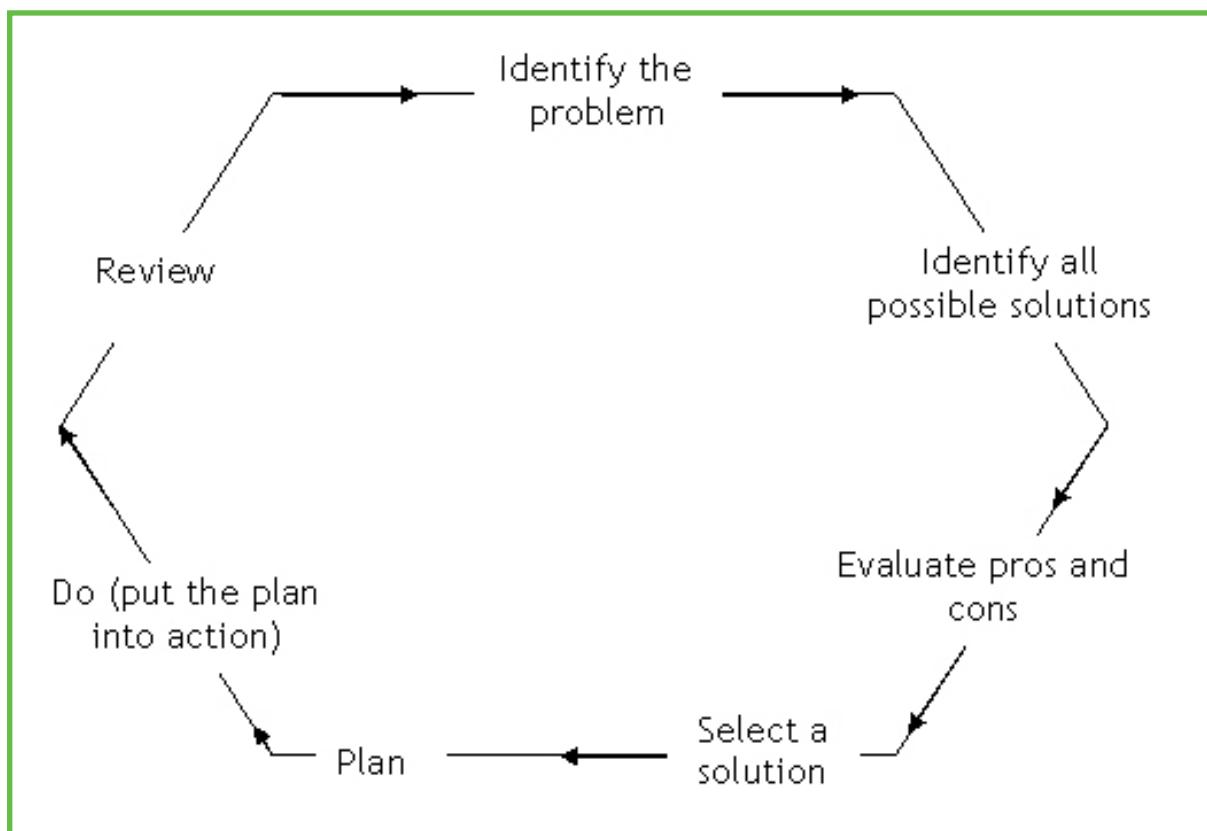
Barriers or blocks and possible solutions

Barriers or Blocks	Solutions
I don't know if it's a hypothetical or practical worry	Use the chart. Really consider if there is anything you can do about it right now
I can't refocus	It takes time, keep practicing. Use your senses
I'm worrying what if I worry.	Use the technique, this is a hypothetical worry.
I can't stop worrying at the end of worry time	Plan in an activity after worry time so you have something to refocus on.

Worry Diary

Tool 8: Problem Solving

Although people who experience low mood or anxiety may worry about lots of things in general, sometimes what they are worrying about is a current, realistic worry and there may actually be a need to deal with this problem in a practical way. A problem solving approach can be used to help identify the problem and then try to find a way to manage it.



The following 7 steps can be used to solve a current problem:

1. Identify the problem
2. Identify all possible solutions
3. Evaluate pros and cons
4. Select a solution
5. Plan
6. Do (put the plan into action)
7. Review

Top Tip

It is essential to write down your problem solving rather than just doing it in your head!

Problem Solving in Action

Imran was offered a job interview for next Thursday at 4pm but he was due to pick up his son from nursery at the same time. He started worrying about this and became anxious. He decided to try and use a problem solving approach to help with his situation.

- 1. Identify the problem** – I have to be in two different places at the same time. I need to pick up my son and also attend a job interview.
- 2. Identify all possible solutions** –
 - I could ask my wife to pick up our son
 - I could ask if any of my friends are free
 - I could call the employer and ask if the interview time could be changed
- 3. Evaluate pros and cons** –
 - I could ask my wife to pick up our son – My wife might get angry, but she might be free and available.
 - I could ask if any of my friends are free – More chance of someone being free, but they might feel compelled to say yes.
 - I could call the employer and ask if the interview time could be changed – It might be possible to change the interview time but I don't think it looks good to the prospective employer
- 4. Select a solution** – After thinking about the pros and cons, Imran ranked his solutions in the following order:
 - I could ask my wife to pick up our son
 - I could ask if any of my friends are free
 - I could call the employer and ask if the interview time could be changed
- 5. Plan** – I can ask her when she comes home from work, after she has had something to eat.
- 6. Do (put the plan into action)** – Imran asked his wife if she could pick up their son next week.
- 7. Review** – Unfortunately Imran's wife was not free to pick their son next week. She said that she may have been able to if she had been given more notice. Imran learnt that he may have to give people more notice in future. He decided to go to his next solution and called a few friends to see if they were free. One of them was and agreed to pick up his son. Imran attended the job interview but unfortunately did not get the job. However using this tool he feels he can cope if this situation arises again.

Activity

If you have a problem you would like to work through, try and complete the following worksheet to help you simplify and manage it:

Problem Solving Worksheet

Identify the problem

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Identify all possible solutions (use additional sheets if necessary)

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Evaluate pros and cons (use additional sheets if necessary)

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Select a solution

Plan (write down the steps you will take to apply your chosen solution – use additional sheets if necessary)

Do (put the plan into action) – make a note of when you did it, note the date, time and place

Review (write down how the plan went)

Tool 9: Cognitive Restructuring

Thought Challenging

Learning how to manage negative thoughts can help to manage your anxiety and low mood. When people are feeling low or anxious, their thoughts can often be extreme or unrealistic. Cognitive Behavioural Therapy (CBT) calls these types of thoughts **Negative Automatic Thoughts** or 'NATs'.

These NATs are the types of thoughts that would upset anyone. Although some people understand that their negative thoughts may not be true, it can be very difficult for people with anxiety or low mood to do this and they often take their negative thoughts as fact. Therefore, this type of unhelpful thinking can continue to maintain our low mood or anxiety.

How can challenging thoughts help me?

The idea of this technique is not to just look at the positive side of things but to look at thoughts in a more balanced and realistic way.

More balanced thoughts will improve your mood and enable you to function better, which will result in enjoying your life again.

Initially you will need to write things down and follow the steps but through practice you can use this technique at the time of a difficult experience and hopefully improve your mood in the moment.

How this technique works

Our thoughts are often based on our personal opinion and experiences and not necessarily grounded in fact. There is also a negative bias to our thoughts when we are low or anxious. This can lead to us jumping to conclusions or thinking the worst about situations without any evidence for these thoughts being true.

When challenging negative thoughts, we need to practice collecting evidence to see how accurate the thoughts really are. Factual evidence is much stronger than opinion as there isn't any element of doubt.

The idea is that we work with the thought which causes the most emotional distress, and identify to see how much truth there is to this thought. We then create a new alternative thought which is based on the evidence.

What is the difference between a thought and an emotion?

Thoughts are usually a sentence or statement, about something or someone. An emotion is one word which describes how we feel.

Examples of ***thoughts*** include:

“Nobody likes me”

“Everything always goes wrong for me”

“If I am late for work, I will lose my job”

“They think I’m stupid”

Examples of ***emotions*** include: angry, happy, anxious, depressed, etc.

There are 3 Steps in Cognitive Restructuring:

Step 1: Catching Thoughts

Step 2: Looking for the Evidence

Step 3: Finding an Evidence Based/Alternative Thought

Step One: Catching Thoughts

Start by identifying a situation that has caused you to experience a strong negative emotion.

- First write details about that situation. It might not be the situation that caused the negative thoughts or emotions but by writing down details it will help you remember better what was going on.
 - Then write down all the different emotions and thoughts you were experiencing. For each emotion rate how strongly you felt it, 0 (barely felt it) to 100% (very strongly experienced it). For each thought rate how much you believe it, 0 (don't believe it at all) to 100% (very strongly believe it).
 - Next try and identify the “hot thought” in the situation. This thought is often rated the highest and most likely to be the cause of the negative emotion. It will have a rating of 60% or higher and match the negative emotion.

Catching negative thoughts can be difficult as it is often something that we are not used to doing. For that reason, you might need to practice this first stage a few times.

In order to help you catch your thoughts, ask yourself the following sorts of questions:

What were you doing?

What were you telling yourself?

Who were you with?

What does it say about you if it's true?

Where were you?

What is the worst thing that went through your mind?

Some points to bear in mind when you are trying to catch your NATs:

- They are short and specific
- They occur extremely quickly after the event
- They can occur as words or images
- They seem reasonable at the time
- They do not arise from careful thought or in a logical series of steps

Step Two: Looking for the Evidence

After catching your NATs, the next stage is to challenge the 'Hot Thought'.

- Write down the evidence for and against the hot thought

You are looking just for facts not opinions.

Think of this a little like being a prosecution and defence counsel in a court hearing. Evidence will be given from both sides to find the truth.

To help you when you are looking for evidence, you might want to ask questions such as:

- If my friend or someone else was having this type of thought, what would I say to them?
- If I wasn't anxious or low, how would I look at the situation?
- Is there any other way of looking at the situation?
- What is certain about this situation?
- If I believe this thought to be 80% true, what is the 20% that suggests I don't believe the thought to be completely true?
- Are there any similar previous experiences, which I can learn from?

Court Case Drama

Imagine you are a judge in a court case. The defendant is on trial for shop lifting. He seems very convincing stating his innocence that “I didn’t do it”. The prosecution has CCTV footage of the defendant stealing an item of clothing from the shop.

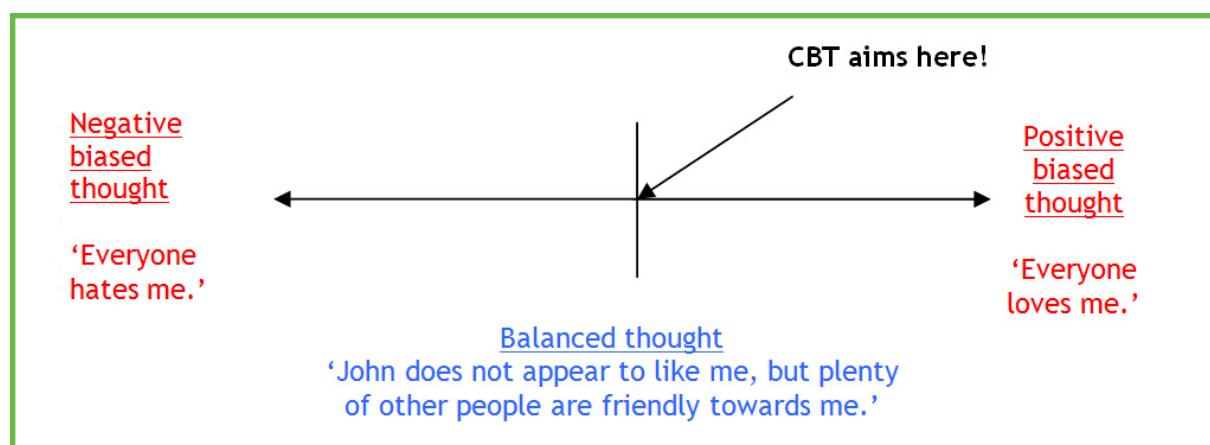
What evidence do you think the judge will use to make their decision, and what do you think the outcome will be?

Thought challenging is also like being the judge in your own court case. The defendant is your negative automatic thought, for example “everyone hates me”. When presenting the evidence that supports this, how reliable and robust is it? “Everyone hates me, I just know it” is that good, strong enough evidence? Consider all the evidence and create your own verdict by using an evidence based alternative thought.

Step Three: Finding an Evidence Based/Alternative Thought

Finally you need to create a new alternative thought, based on the evidence created at Stage 2.

This is not about creating a positive thought, rather it is about creating a more balanced thought which takes into consider both sides of the evidence.



- To create an evidence based thought write a sentence to summarise the “evidence for” and another sentence to summarise the “evidence against” the hot thought. You can use words such as ‘or’, ‘and’ or ‘but’ to link the evidence together to create the revised (balanced) thought.
i.e. - I failed this one job interview but I have got several jobs in the past I have gone for.

- Rate belief in the new revised (balanced) thought
- Re-rate the original emotions in light of revised (balanced) thought

The aim of this technique is to reduce the strength of the negative emotion. The more you practice it the more automatic it becomes and you should be able to use it in the moment.

Summary of the technique

Step One:

Identify a specific situation when you felt a certain negative emotional state (e.g. anxiety, depression).

Label the emotion (e.g. depressed, anxious, low, sad).

Rate the intensity of the emotion – 0-100%.

Identify the NATs that were running through your mind at the time.

Rate your belief in the thoughts (when you were in the situation) 0-100%.

Identify your ‘hot thought’. The only thought we will challenge - the one which causes the most emotional distress for you, normally with a belief rating of 60% or more.

Step Two:

Identify evidence (facts) for the ‘hot’ thought.

Identify evidence (facts) against the ‘hot’ thought.

Stage Three:

Once the evidence for and against has been collected, reconsider your thought in light of the evidence.

Use the facts gathered in stage 3 and combine them with ‘and’, ‘or’, ‘but’ to come up with a more revised, balanced thought.

Rate belief in the new revised (balanced) thought.

Re-rate the emotion in light of revised (balanced) thought.

How will thought challenging help me?

To recognise and put into perspective our negative automatic thoughts (NATs) in order to modify our thinking and reduce the intensity of our emotions.

Barriers or blocks and possible solutions

Barriers or Blocks	Solutions
I have too many negative thoughts	Use thoughts from one specific situation
My hot thought isn't that emotive	Identify a 'hotter' thought
I can't come up with a revised thought	Recognise enough evidence for and against the hot thought
I don't feel any different	Make sure your balanced thought is believable
I'm too emotional to find a revised (balanced) thought	Write down your NATs as soon as possible

Example of cognitive restructuring steps in full

Situation	Emotion	Automatic thoughts (images)	Evidence for	Evidence against	Alternative thought	Rate Emotion again
Who with? What doing? Where?	What did you feel? (one word) How intense? (0-100%)	What is going through my mind? What is the worst thing that can happen? What does it mean about me if it is true?		Am I jumping to any conclusions that are not justified by the evidence?		(0-100%)
Lying in bed, not wanting to get up and start the day. I didn't get the job I went to an interview for last week. It was my dream job and I worked hard preparing for days before hand.	Low 100% Angry 70%	I am no good. 60% I should give up now I'll never find a job I enjoy. 65% My family are disappointed in me. My friends think I am a joke. 75% There is no point applying for jobs as I won't get them. 90% (hot thought)	I did not get the job last week. They gave me feedback of things I hadn't done well I got chosen for an interview in the first place	They gave me feedback that pointed out ways I had impressed them. I have got jobs in the past I have really wanted.	I failed this one job interview but I have got several jobs in the past I have gone for. That means I have to carry on applying for jobs and use interview feedback to improve.	Low 50% Angry 10%

Situation	Emotion	Automatic thoughts (images)	Evidence for	Evidence against	Alternative thought	Rate Emotion again
Who with? What doing? Where?	What did you feel? (one word) How intense? (0-100%)	What is going through my mind? What is the worst thing that can happen? What does it mean about me if it is true?		Am I jumping to any conclusions that are not justified by the evidence?		

Tool 10: Create your own Wellbeing Blueprint

From time to time we may find ourselves going back to our old habits. For any change to be realistic, it takes time and effort to practice and develop our new skills. In order to prevent future relapse, it is a good idea to create a plan which can help you identify the situations which may cause difficulties in future, as well as thinking about how we can best manage these situations.

Please complete the following questions which will help create your own relapse prevention plan:

My Wellbeing Blueprint

What have you found most helpful about the toolkit?

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How will you continue to build on what you have learned?

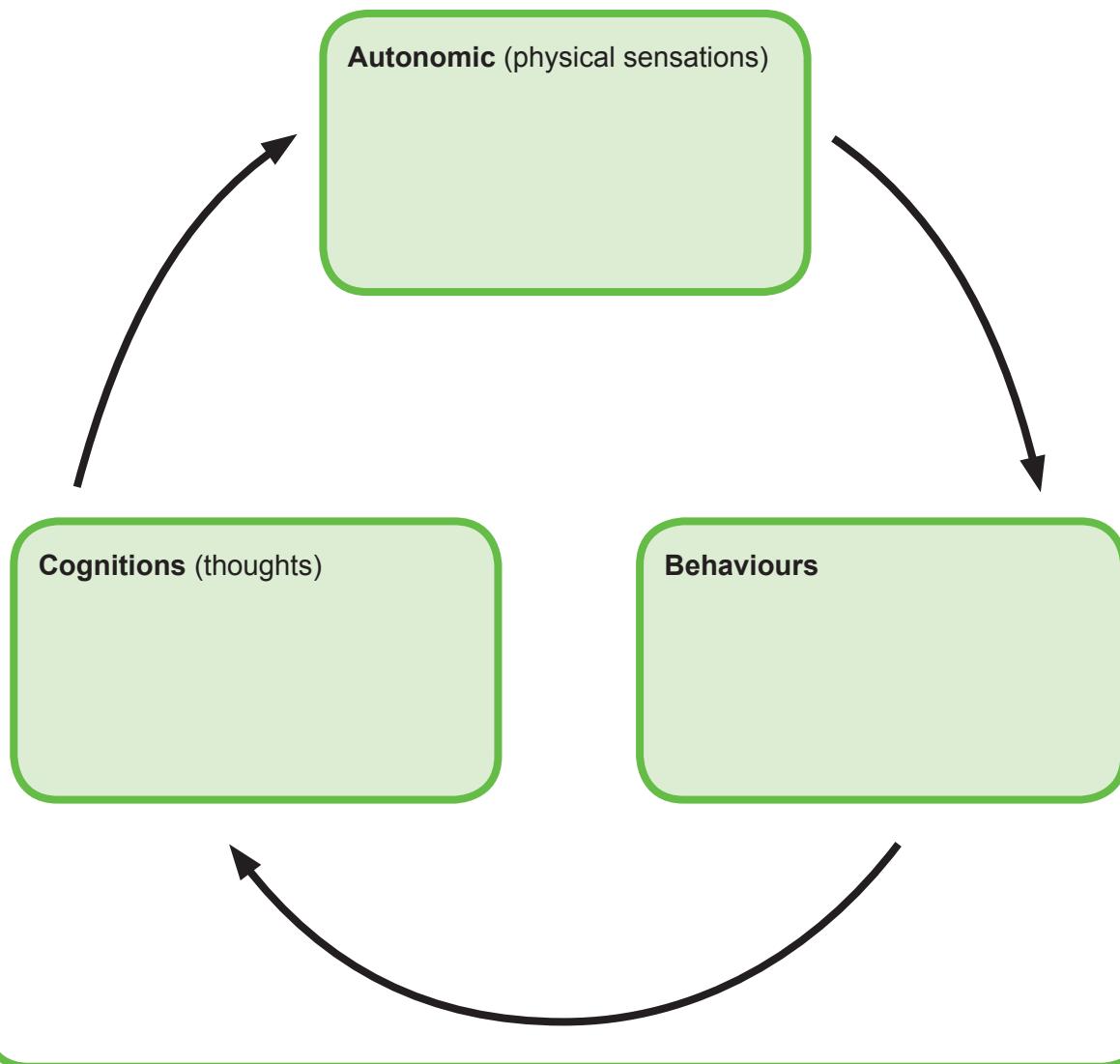
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What are your goals for one year's time?

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How will you recognise your problems getting worse?

Situation:



How will you maintain your wellbeing if you notice the problems getting worse?

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What are your most unhelpful thoughts?

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What are the alternatives to these?

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What can you do daily, weekly and monthly to help your wellbeing?

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Who can you contact for support?

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Thank you. Please keep this blueprint somewhere easy to refer to.

Next Steps

We hope you have found this booklet helpful. Hopefully you will have learned some useful tools in order to help you manage the difficulties you are experiencing. Don't forget that you will need to keep practicing these techniques in order to notice a difference.

However, if after using this booklet independently and you feel that you need some extra help in managing your mood, you can ask your GP to refer you to our service, or you can even make a self-referral. The number for all our referrals is given below:

Single Point of Access (SPA) – to self refer or be used by professionals:

Tel:

0300 777 0707

Online:

www.hpft.nhs.uk/wellbeing-service

Please note that we are not a crisis service. If you need help urgently, please contact your GP or NHS 111 or the Hertfordshire Mental Health Helpline 01438 843322.

Further Reading

Anger: *Overcoming Anger and Irritability: A self-help guide using cognitive behavioural therapy* - by Davies William (2000)

Anxiety: *Feel the Fear and do it anyway* - by Susan Jeffers (2007)
Overcoming Anxiety - by Helen Kennedy (2009)
Overcoming Anxiety - by Chris Williams (2003)
The Worry Cure - by Robert Leahy (2006)

Health Anxiety: *Introduction to Coping with Health Anxiety* - by Charles Young (2007)

Self-Esteem: *Overcoming Low Self-Esteem: a Self Help Guide Using Cognitive Behavioural Therapy* - by Melanie Fennel (1999)

Depression: *Feeling good handbook* - by David Burns (1999)
Overcoming Depression: a Self Help Guide Using Cognitive Behavioural Techniques - by Paul Gilbert (2007)

OCD: *Overcoming Obsessive Compulsive Disorder: a Self Help Guide Using Cognitive Behavioural Techniques* - by David Veale (2009)

Phobias: *Introduction to Coping with Phobias* - by Brenda Hogan (2007)

Pain: *Overcoming Chronic Pain: A self help guide using cognitive behavioural techniques* - by Frances Cole (2005)

Panic: *Overcoming Panic & Agoraphobia: A self help guide using cognitive behavioural techniques* - by Derrick Silove (2009)

Social Anxiety: *Overcoming Social Anxiety and Shyness* - by Gillian Butler (1999)

PTSD: *Overcoming Traumatic Stress: a self help guide using cognitive behavioural techniques* - by Claudia Herbert (2008)

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