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Psychotherapy for panic disorder with or without agoraphobia in adults

AUTHOR: [Michelle Craske, PhD](#)**SECTION EDITOR:** [Murray B Stein, MD, MPH](#)**DEPUTY EDITOR:** [Michael Friedman, MD](#)

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INTRODUCTION

Panic disorder and agoraphobia are chronic psychiatric disorders characterized by recurrent panic attacks, at least some of which are unexpected, accompanied either by anxiety about having future attacks or about the implications of attacks (eg, undiscovered medical illness, possible sudden death or insanity), or by a change in behavior due to attacks (eg, avoidance of certain situations, recurrent requests for medical tests) [1].

While up to a third of the population will have a panic attack in their lifetime, only about 10 percent of this group (about 3 percent of the population) will go on to develop panic disorder [2]. Clinical trials have found that both pharmacologic and psychotherapeutic approaches are efficacious for panic disorder. With the revision of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), agoraphobia is diagnosed independently of panic disorder [1]. Agoraphobia frequently but not always accompanies panic disorder.

This topic addresses psychotherapy for panic disorder and agoraphobia in adults. Our approach to selecting treatments for panic disorder with or without agoraphobia are addressed separately. Pharmacotherapy for panic disorder with or without agoraphobia are also addressed separately. The epidemiology, pathogenesis, clinical manifestations, course, and diagnosis of panic disorder are also addressed separately. The epidemiology, pathogenesis,

clinical manifestations, course, and diagnosis of agoraphobia are also addressed separately. (See ["Management of panic disorder with or without agoraphobia in adults"](#) and ["Panic disorder in adults: Epidemiology, clinical manifestations, and diagnosis"](#) and ["Agoraphobia in adults: Epidemiology, pathogenesis, clinical manifestations, course, and diagnosis"](#).)

APPROACH TO TREATMENT

Our approach to selecting among treatments for panic disorder, including the use of pharmacotherapy and psychotherapy, is discussed separately. (See ["Management of panic disorder with or without agoraphobia in adults"](#).)

COGNITIVE-BEHAVIORAL THERAPY

Among psychosocial treatments for panic disorder, cognitive-behavioral therapy (CBT) is most extensively supported by clinical trials. (See ["Response to CBT"](#) below.)

Theoretical foundation — Cognitive and behavioral theories generally conceptualize panic disorder as an acquired fear of bodily sensations, particularly sensations associated with autonomic arousal, in individuals with certain psychological and biological predispositions for the disorder [3-6].

Panic attacks — From an evolutionary standpoint, fear is a natural and adaptive response to threatening stimuli. However, an initial panic attack is often unjustified, or lacks an identifiable trigger, and hence represents a “false alarm” [5,7]. After the occurrence of an unexpected panic attack, individual vulnerabilities such as neuroticism (or, emotionality) and anxiety sensitivity (or, beliefs that anxiety is harmful) seem to play a role in determining whether or not an individual then develops anxiety about further panic attacks [8-11]. This anxiety typically becomes acutely focused on somatic sensations associated with panic attacks. As an example, individuals with panic disorder/agoraphobia are particularly likely to become anxious during procedures that elicit sensations similar to those experienced during panic attacks, such as spinning in a circle, hyperventilating, and inhalations of carbon dioxide [12-14]. These individuals also fear signals that reflect heightened bodily arousal when given false physiological feedback [15,16] and over-attend to heartbeat stimuli [17].

Potential reasons for a patient’s acute focus upon bodily sensations include:

- Interoceptive conditioning, or conditioned fear of internal cues such as elevated heart rate, due to their association with intense fear/distress [18]. Low level somatic sensations

become conditional stimuli such that early somatic symptoms of the anxious response elicit significant bursts of panic [19]. Extensive research supports the robustness of interoceptive conditioning [20,21] and the independence of interoceptive conditioned responses from conscious awareness of triggering cues [22]. Hence, slight changes in somatic state that are not consciously recognized may elicit “out of the blue” panic attacks [7,19].

- Catastrophic appraisals of the bodily sensations as signs of imminent death, loss of control, or going crazy [3]. Persons with panic disorder/agoraphobia endorse strong beliefs that bodily sensations associated with panic attacks cause physical or mental harm [23], selectively over-attend to words that represent physical and mental threat (such as “disease” and “insane” [24]) and show particularly rapid processing of panic-related words [25].

Interoceptive conditioning and catastrophic appraisals lead the individual to become anxious in response to low level bodily sensations. The resultant anxious autonomic arousal intensifies the sensations and creates a reciprocating cycle of fear and sensation that builds into a panic attack. The perception of panic attacks as being “out of the blue” generates even further anxiety in the long term [26]. The perceived uncontrollability of bodily sensations is likely to generate further anxiety [27]. Anxiety, in turn, increases one’s vigilance to sensations that have become cues for panic. Thus, a maintaining cycle of panic and anxiety develops. (See [“Panic disorder in adults: Epidemiology, clinical manifestations, and diagnosis”](#).)

Avoidance behaviors — Avoidance behaviors, such as agoraphobia, are believed to maintain catastrophic beliefs about bodily sensations and interrupt natural extinction of conditioned fear of bodily sensations. Examples of avoidance include safety behaviors such as holding onto objects or persons due to fears of fainting, sitting and remaining still due to fears of heart attack, and moving slowly or searching for an escape due to fears of acting foolish [28]. Avoidance also includes refusal to enter, or premature escape from, situations from which escape might be difficult or help unavailable in the event of panic-related sensations (such as driving, being far from home, and closed-in places). (See [“Agoraphobia in adults: Epidemiology, pathogenesis, clinical manifestations, course, and diagnosis”](#), section on ‘Clinical manifestations’.)

Indications — Individuals for whom CBT works best are generally highly motivated and value a problem-solving approach. CBT requires that the patient learns the skills of self-observation and of becoming a personal scientist, learns cognitive and behavioral coping skills, and learns to repeatedly practice the skills in anxiety-provoking contexts outside of the therapy setting [29].

Chronic life stress, or episodic stressful events, can interfere with CBT for panic disorder/agoraphobia. Relationship problems, job stress, financial hardship, and medical problems are examples of stressful situations that can both exacerbate panic symptoms and make it difficult for patients to engage in therapy [30]. In these situations, medication may be an option.

Exposure, a behavioral intervention, may be contraindicated for persons with psychosis and other thought disorders or dementias, especially when behavioral avoidance of certain situations is adaptive for them. Since intensive exposure typically evokes high levels of anxiety at some point, it is generally not recommended when there are complicating medical conditions that make high levels of autonomic arousal potentially harmful (eg, certain arrhythmias or severe asthma). In some cases, a much more graduated exposure approach with ongoing monitoring of medical status may be an option.

CBT as a general approach is heavily aligned with European and North American values of an individual's capacity for change, open self-disclosure, independence, autonomy, and rational thinking [31]. Such values often are at odds with values of harmony, family, and spirituality that are deeply embedded in Asian, Latino, Arabic, African-American, and other cultures. Yet evidence suggests that CBT is effective with Latino and African-American groups, and it is not clear whether cultural adaptation of the therapy (eg, greater involvement of family members) significantly improves the outcomes [32].

Assessment — An in-depth, semi-structured or fully structured interview is the first step in establishing diagnostic features and the profile of symptomatic and behavioral responses in preparation for psychotherapy. One example is the Anxiety Disorders Interview Schedule – Fifth Edition (ADIS-5) [33-35]. Data on the frequency, intensity, and duration of panic attacks, as well as details on avoidance behavior, are embedded within the ADIS-5. Such information is particularly helpful for tailoring treatment. (See "[Panic disorder in adults: Epidemiology, clinical manifestations, and diagnosis](#)", section on 'Assessment'.)

Several standardized self-report inventories provide useful information for treatment planning and are sensitive markers of therapeutic change:

- Anxiety Sensitivity Index, a trait measure of negative beliefs about bodily sensations [36].
- The Body Sensations and Agoraphobia Cognitions questionnaires provides more specific information about which particular bodily sensations are feared the most and what specific misappraisals occur most often [37].

- The Mobility Inventory lists agoraphobic situations that are rated in terms of degree of avoidance, when alone and when accompanied [38]. This instrument is very useful for establishing the situations to be targeted for exposure therapy.
- The Albany Panic and Phobia questionnaire assesses fear and avoidance of activities that produce feared bodily sensations, as well as more typical agoraphobia and social situations [39].

Behavioral avoidance tests, in which patients are asked to complete as many or as much as they can of a series of anxiety provoking tasks, are particularly useful ways to gauge treatment progress. Tasks may involve exercises that induce panic-like symptoms, such as spinning in a circle, running in place, or hyperventilating [40]. For agoraphobia, a behavioral test typically involves attempts at three to five situations that the patient identified before treatment as being from somewhat to extremely difficult (eg, driving two exits on a freeway, waiting in a bank line). Data from behavioral tests provide objective information that often differs from retrospective judgments as reported in self-report scales. Anxiety levels are rated at regular intervals throughout the behavioral tests, and actual distance or length of time is measured.

CBT objectives and techniques — The symptomatic and behavioral foci of cognitive-behavioral therapy (CBT) are:

- Panic attacks.
- Anxiety about panic attacks and related physical sensations.
- Avoidance of sensations, including activities that induce sensations (eg, exercise), and of situations in which panic attacks and related sensations are anticipated (eg, agoraphobia situations).

The central focus is teaching patients a set of cognitive and somatic coping skills to effectively manage their anxiety as they conduct repeated exposure to feared situations and sensations. More specifically, patients are taught to become personal observers of their panic, anxiety, and avoidance. They learn to implement skills of cognitive restructuring to replace catastrophic appraisals with more evidence-based and coping oriented appraisals, and skills of breathing retraining or relaxation to control dysregulated physiology. Next, patients are encouraged to apply the cognitive and somatic skills during exposure to feared bodily sensations and situations. Through repeated exposure, patients learn that panic-related sensations are not harmful, that panic and anxiety can be managed or tolerated, and that they are able to accomplish tasks that were previously avoided.

CBT techniques

Education — Treatment begins with education about the nature of panic disorder/agoraphobia, the causes of panic and anxiety, and the way in which panic and anxiety are perpetuated by feedback loops among physical, cognitive and behavioral response systems. Specific descriptions of the psychophysiology of the fight-flight response are provided, as well as an explanation of the adaptive value of the various physiological changes that occur during panic and anxiety. The purpose of this education is to correct the common myths and misconceptions about panic symptoms (ie, beliefs about going crazy, dying or losing control) that contribute to panic and anxiety.

Self-monitoring — Self-monitoring is introduced in the first treatment session and is continued throughout the entire treatment. Ongoing self-monitoring functions in two ways: it provides ongoing assessment of change in panic, anxiety, and avoidance; and acts as a therapeutic tool to encourage objective self-awareness and increase accuracy in self-observation. Patients are asked to keep at least two types of self-monitoring records:

- A panic attack record, to be completed as soon as possible after each panic attack; this record provides a description of cues, maximal distress, and symptoms, thoughts and behaviors.
- A daily mood record, completed at the end of each day, to record overall or average levels of anxiety or depression. Patients may additionally keep a daily record of daily activities or situations avoided.

Breathing retraining — Breathing retraining is a commonly used somatic coping skill [41]. It is supported by evidence of respiratory abnormalities in panic disorder/agoraphobia possibly due to hypersensitive medullary CO₂ detectors, resulting in hypocapnia (ie, lower than normal levels of PCO₂) [42].

Traditional breathing retraining involves slow, abdominal breathing exercises. However, its value has been questioned in terms of the degree to which it actually corrects hypocapnic breathing [43].

Capnometry-assisted respiratory training (CART) [44,45], in contrast to traditional breathing retraining, uses immediate feedback of end-tidal PCO₂ to teach patients how to raise their subnormal levels of PCO₂ (hyperventilation) and thereby gain control over dysfunctional respiratory patterns and associated panic symptoms (eg, shortness of breath, dizziness). CART has been shown to improve panic disorder/agoraphobia symptoms [45] in part through

reducing hypocapnic breathing [46], although another study showed equivalent effects using immediate feedback of end-tidal PCO₂ to either reduce or to increase CO₂ levels [47].

Muscle relaxation — Another somatic coping skill is progressive muscle relaxation, in which patients are trained over a number of weeks in 16-muscle groups, 8-muscle groups, 4-muscle groups and finally cue-control relaxation, at which point relaxation is used as a coping skill for practicing exposure to items from a hierarchy of anxiety provoking tasks.

Cognitive restructuring — Detailed self-monitoring of emotions and associated cognitions is used to identify specific beliefs, appraisals and assumptions. Relevant cognitions are categorized into types of errors, such as overestimations of risk of negative events, or catastrophizing of meaning of events. In labeling the type of cognitive distortion, the patient is encouraged to use an empirical approach to examine the validity of thoughts by considering all of the available evidence. Therapists use Socratic questioning to help patients make guided discoveries and question their anxious thoughts. Alternative hypotheses are generated that are more evidence-based. This approach is used to challenge surface level appraisals (such as “my heart is racing dangerously too fast”) and core beliefs or schemata (such as “I am too weak to withstand distress”) and develop more evidence-based appraisals and beliefs.

Exposure — In vivo exposure involves repeated and systematic, real-life exposure to agoraphobic situations. It is intended to eventually reduce fear and avoidance of the situations through extinction of conditioned anxiety and correction of catastrophic misappraisals. Most often, in vivo exposure is conducted in a graduated manner, proceeding from the least to the most anxiety-provoking situations on an avoidance hierarchy, although there is some evidence to suggest that intensive or ungraduated exposure may also be effective [48].

Critical to in vivo exposure is lessening the patient’s reliance on safety signals and safety behaviors. Common safety signals or behaviors can include the presence of other people, empty or full medication bottles, seeking reassurance, or checking for exits. Reliance on safety signals and safety behaviors attenuate distress in the short term but may maintain excessive anxiety in the long term. They are replaced by effective use of cognitive restructuring and somatic coping skills, with care to ensure that the coping skills themselves do not become alternative safety behaviors. In vivo exposure can be conducted with therapist guidance, followed by self-directed exposures between sessions (to enhance generalization of learning and to limit the therapist’s role as a safety signal).

In interoceptive exposure, the goal is to deliberately induce feared physical sensations a sufficient number of times and for long enough each time so that misappraisals about the sensations are disconfirmed and conditioned anxiety responding is extinguished. A standard list

of exercises, such as hyperventilating and spinning, are used to establish a hierarchy of interoceptive exposures. Patients are encouraged to endure the sensations beyond the point at which they are first noticed, because early termination interferes with new learning. Interoceptive exposure usually is first conducted in-session with therapist guidance, followed by self-directed practice between sessions. Interoceptive exposure extends to routine activities that inherently induce somatic sensations (eg, caffeine consumption, exercise programs). Eventually, in vivo exposure is combined with interoceptive exposure, by deliberately inducing feared sensations in feared situations.

Relapse prevention — A final step of CBT is relapse prevention, in which patients are informed that despite their progress, recurrences of panic, anxiety or avoidance behavior are likely to occur in the future. They are encouraged to view such recurrences as lapses rather than failure, and to reapply their coping skills and reinstitute their practice of interoceptive and in vivo exposure.

Response to CBT

Efficacy — In a meta-analysis of five randomized placebo controlled trials of 328 patients with panic disorder/agoraphobia, CBT has been found to be efficacious in comparison with a pill placebo or psychological control condition (odds ratio = 2.10, 95% CI 1.13-3.90) [49]. Other systematic reviews and meta-analyses have come to similar conclusions [50-53]. CBT has a large overall within-group effect size for symptom reduction from pre to posttreatment [50] and a substantial between-group effect size (eg, effect size = 0.64) in comparison with waitlist control groups [51,54,55] and somewhat smaller between-group effect size (ie, effect size = 0.39, 95% CI 0.12-0.65) in comparison with placebo control groups [49].

Clinical trials have generally shown CBT's effects to be sustained over time, with little decrease in gains at 6- to 12-month follow-up assessments [50,51], although relapse can occur [56]. A review of meta-analyses for CBT across disorders concluded that evidence for maintenance of treatment gains was particularly strong for panic disorder, where the rate of relapse was almost half the rate of relapse following pharmacotherapy [57]. Continuing improvement after acute treatment is facilitated by involvement of significant others in every aspect of treatment for agoraphobia [58]. Booster sessions have been shown to enhance long-term outcomes [59,60].

Efficacy data from research settings have been complemented by effectiveness data from real world, primary care settings. A randomized trial of 232 primary care patients with panic disorder/agoraphobia compared usual care with an intervention consisting of CBT delivered by novice therapists who received CBT training, algorithm-based pharmacotherapy provided by primary care physicians with guidance from a psychiatrist, and care coordination [61]. The

intervention resulted in higher rates of response (46 versus 27 percent) and remission (20 versus 12 percent), respectively, than usual care. Treatment effects appeared primarily due to CBT [62]. The Coordinated Anxiety Learning and Management effectiveness trial showed similarly favorable results for panic disorder/agoraphobia in primary care settings compared with treatment as usual [63,64]. Brief CBT, comprised of one session or seven sessions, was effective for panic disorder patients receiving emergency care [65].

Although CBT can be effective for many patients, a substantial number experience inadequate results. One study estimated that 30 percent of patients continue to function poorly at follow-up following CBT and only 48 percent had minimal or no symptoms of panic, anxiety and avoidance [56]. Of patients who start CBT for panic disorder/agoraphobia, the mean drop-out rate is 19 percent in clinical trials with a range of 0 to 54 percent [51].

A number of clinical trials indicate that self-guided or minimal therapist contact CBT for panic disorder/agoraphobia, by workbook [66] and by internet are efficacious relative to waitlist controls [67-69].

Predictors of outcome — Despite relatively high rates of comorbidity between panic disorder/agoraphobia and other anxiety or mood disorders, most comorbidities do not appear to reduce the effectiveness of CBT for panic disorder/agoraphobia [52,70,71]. The evidence for an impact of comorbid depression on CBT's effectiveness for panic disorder/agoraphobia is mixed [52,71-74]. (See "[Panic disorder in adults: Epidemiology, clinical manifestations, and diagnosis](#)", section on 'Epidemiology'.)

Comorbid personality disorders are sometimes associated with poorer response than usual to CBT [75,76]. A relatively high co-occurrence has been found between the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) panic disorder with agoraphobia and avoidant, dependent, and histrionic personality disorders [77]. Closer examination, however, reveals that comorbid patients start and end at a higher level of severity, but that their rate of decrease in panic disorder/agoraphobia symptoms is similar to those without comorbidity, suggesting that the presence of a comorbid personality disorder may warrant a longer CBT regimen than is typical [78-80]. (See '[Frequency and duration of treatment](#)' below.)

Medical comorbidity, such as cardiac arrhythmias or asthma, may slow improvement rates. Potential complications include discriminating anxiety symptomatology from disease symptomatology, increases in actual medical risk, and the stress of physical diseases. However, the effect of medical comorbidity upon CBT outcome has not been assessed to date, and attempts to modify CBT to address medical comorbidity are only just emerging [81]. (See "[Panic](#)

disorder in adults: Epidemiology, clinical manifestations, and diagnosis", section on 'Medical disorders'.)

Attrition from CBT is predicted by lower education and socioeconomic status [82,83]. Low education/income may reflect less discretionary time to engage in activities such as weekly treatment. Another predictor of attrition was attribution of the disorder to specific life stressors [82], perhaps because such individuals saw the offered treatment as irrelevant.

Patient compliance with CBT homework assignments is positively correlated with treatment outcomes across disorders [84] and in panic disorder/agoraphobia specifically [85].

Frequency and duration of treatment — Most studies of CBT for panic disorder/agoraphobia involve 10 to 20 weekly treatment sessions, conducted either one-on-one or in small groups, for 60 to 120 minutes per session. Positive results have been reported with as few as one session [65], four sessions [86], six sessions [61,87], and seven sessions [65], and with intensive treatment over two days [88]. However, one study reported greater improvement with more sessions attended out of a total of six full therapy sessions and six follow-up booster phone calls [59].

Therapy time for the patient is more extensive than the time spent in-session with therapists. CBT treatment sessions are accompanied by homework assignments, usually daily, to be conducted between sessions. (See '[Predictors of outcome](#)' above.)

OTHER PSYCHOTHERAPIES

Remote CBT and internet-delivered exposure therapy — Remote cognitive-behavioral therapy (CBT) and internet-delivered exposure therapy have been found to be effective in the treatment of panic disorder. The effectiveness of these treatments for panic disorder may have important implications for their broader availability and will ultimately lessen the barriers to accessing treatment.

- **Remote CBT** – In a meta-analysis of 21 randomized and nonrandomized studies including over 1600 individuals with panic disorder, each form of remote CBT produced large effect sizes on measures of panic symptoms from pretreatment to posttreatment over a follow-up of up to 24 months (internet-delivered [$g = 1.1$, 95% CI 0.9-1.3], videoconferencing [$g = 1.4$, 95% CI 0.85-1.95], bibliotherapy-delivered [$g = 1.51$, 95% CI 0.95-2.06]) [89]. Additionally, remote methods were found to have a similar effect to face-to-face treatment with CBT on measures of panic disorder symptoms ($g = 0.02$, 95% CI 0.95-2.06).

- **Internet-delivered exposure therapy** – In one trial, 69 patients were randomly assigned internet-delivered exposure therapy or internet-delivered (remote) CBT [90]. Participants in both treatment groups showed significant reduction in severity of panic, agoraphobia, depressive symptoms, and functional impairment at treatment end and at three- and six-month follow-up.

Psychodynamic therapy — Results from one well-designed randomized trial suggest that brief psychodynamic therapy may be effective for panic disorder and agoraphobia. The trial compared a manualized, panic-focused psychodynamic therapy with an applied relaxation control condition in 49 patients with panic disorder [91,92]. Both interventions were delivered twice weekly for 12 weeks. The psychodynamic therapy resulted in a greater rate of symptom response than the relaxation therapy (73 versus 39 percent). A secondary outcome, psychosocial functioning, showed a similar result. In a clinical trial comparing psychodynamic therapy, CBT, and applied relaxation, psychodynamic therapy was found to be effective for panic disorder, although differences occurred across the two sites in which therapy was tested, which complicates interpretation of the findings [93].

Other studies of psychodynamic therapy have had significant limitations: small size, nonrandom assignment, lack of an inactive control group, or studied psychodynamic therapy only in combination with another intervention:

- A nonrandomized trial of 46 patients with panic disorder compared psychodynamic therapy with systematic desensitization (ie, imaginal exposure to feared situations combined with relaxation training). Both groups experienced a reduction in agoraphobia fear; neither intervention showed an advantage over the other [94].
- A trial of 35 patients with a mean seven-year history of agoraphobia found that the combination of behavioral therapy and psychodynamic therapy was more effective for reducing symptoms of agoraphobia than a waitlist control [95].
- In a trial of 20 patients with agoraphobia treated with [clomipramine](#), patients were randomly assigned to 15 weekly sessions of psychodynamic therapy or to continued medication alone. Patients receiving psychotherapy were less likely to experience a relapse [96].
- A trial of 19 inpatients with agoraphobia found that psychodynamic therapy and an integrated behavioral and psychodynamic therapy were both associated with significant improvements. However, the integrated therapy was more effective than psychodynamic therapy at 12-month follow-up [97]. This study was limited by a lack of manualization (and therefore replicability) of the therapies and lack of independent outcome assessment.

Interpersonal psychotherapy — Interpersonal therapy (IPT) addresses interpersonal difficulties that lead to psychological problems. A trial of 91 patients with panic disorder and agoraphobia randomized patients to receive IPT or CBT [54]. Patients receiving CBT experienced superior outcomes compared with patients receiving IPT on panic attack frequency, a behavioral test of agoraphobic avoidance, and agoraphobic complaints. IPT was not superior to CBT on any outcome.

Acceptance-based approaches — Another psychotherapy approach that is gaining interest emphasizes “acceptance” [98]. This approach involves:

- Detecting and challenging experiential avoidance and encouraging awareness of moment to moment experience. Rather than attempting to change internal states (eg, catastrophic misappraisals and bodily sensations), acceptance involves nonjudgmental observing of those states.
- Defusion techniques (such as mindfulness) are used so that patients learn to observe and accept rather than seek to change their internal states. Mindfulness involves observation of moment to moment experience. Defusion techniques contrast with cognitive restructuring and somatic coping skills of CBT, which aim to directly change catastrophic thinking and bodily states.

Another element is flexible and open exposure to previously avoided events. This element of acceptance-based approaches is somewhat consistent with exposure therapy in CBT, although in CBT, exposure is accompanied by cognitive and somatic coping skills whereas in acceptance, exposure is encouraged without the use of coping skills.

Although there are some similarities between an acceptance approach and a CBT approach [99], acceptance does not involve any form of cognitive restructuring (ie, identifying, challenging and replacing negative thinking with more realistic thinking), or any attempt to change or correct somatic dysregulation (eg, breathing retraining). Acceptance approaches are part of Acceptance and Commitment Therapy [100] and Mindfulness Based Stress Reduction (MBSR) [101].

Empirical evidence for the efficacy of acceptance approaches is limited, requiring further research:

- An uncontrolled clinical trial of 22 patients with an anxiety disorder, 14 with panic disorder, treated with MBSR psychotherapy experienced a reduction in panic attacks, which was maintained at a three-year follow-up [102,103].

- A randomized clinical trial compared acceptance and commitment therapy (ACT) with CBT in 128 patients with mixed anxiety disorders, 53 of which had a principal diagnosis of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) panic disorder and agoraphobia. Patients assigned to receive CBT and ACT improved similarly in the full cohort in clinical severity, anxiety sensitivity, and other outcomes from pre- to posttreatment. The absence of an inactive control group limits conclusions that can be drawn about efficacy of ACT.
- A randomized clinical trial compared MBSR with CBT in 102 patients with mixed anxiety disorders, 31 of which had a principal diagnosis of DSM-IV panic disorder and agoraphobia [104]. No differences were seen between the two groups on most clinical outcomes.
- A clinical trial of 43 patients with panic disorder and/or agoraphobia who had not responded to previous treatment (mean number of sessions = 42.2) randomly assigned patients at a 3:1 ratio to receive ACT (eight twice-weekly sessions) or to a waiting list control [105]. At the end of treatment, patients assigned to receive ACT had greater improvement in symptoms compared with the control group. Medium-to-large effect sizes were maintained at six-month follow-up.

SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "[Society guideline links: Anxiety and anxiety disorders in adults](#)".)

INFORMATION FOR PATIENTS

UpToDate offers two types of patient education materials, "The Basics" and "Beyond the Basics." The Basics patient education pieces are written in plain language, at the 5th to 6th grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10th to 12th grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a

variety of subjects by searching on “patient info” and the keyword(s) of interest.)

- Basics topics (see "[Patient education: Panic disorder \(The Basics\)](#)")

SUMMARY AND RECOMMENDATIONS

- Our approach to selecting among treatments for panic disorder, including the use of pharmacotherapy and psychotherapy, is discussed separately. (See "[Management of panic disorder with or without agoraphobia in adults](#)".)
- Cognitive and behavioral theories underlying cognitive-behavioral therapy (CBT) generally conceptualize panic disorder as an acquired fear of bodily sensations, particularly sensations associated with autonomic arousal, in individuals with certain psychological and biological predispositions for the disorder. (See '[Theoretical foundation](#)' above.)
- CBT has been found to be efficacious for panic disorder and agoraphobia in multiple clinical trials. CBT is believed to work best with patients who are highly motivated and value a problem-solving approach. CBT requires that the patient be self-observant, learn cognitive and behavioral coping skills, and repeatedly practice the skills in anxiety-provoking contexts outside of the therapy setting. (See '[Cognitive-behavioral therapy](#)' above.)
- Despite relatively high rates of comorbidity between panic disorder/agoraphobia and other anxiety or mood disorders, most comorbidities do not appear to reduce the effectiveness of CBT for panic disorder/agoraphobia. A comorbid personality disorder may warrant a longer CBT regimen than is typical. Patient compliance with CBT homework assignments is positively correlated with treatment outcomes. (See '[Predictors of outcome](#)' above.)
- Specific techniques comprising CBT typically include education, self-monitoring, breathing retraining, muscle relaxation, cognitive restructuring, exposure, and relapse prevention. (See '[CBT techniques](#)' above.)
- CBT is typically provided panic disorder/agoraphobia over 10 to 20 weekly treatment sessions, conducted either one-on-one or in small groups, for 60 to 120 minutes per session. CBT's effects appear to be sustained over time, with little decrease in gains at 6- to 12-month follow-up. Booster sessions have been shown to enhance long-term outcomes. (See '[Response to CBT](#)' above and '[Frequency and duration of treatment](#)' above.)

- Brief psychodynamic therapy may be effective for panic disorder and agoraphobia. Research on acceptance based approaches is promising but requires further, larger clinical trials. (See '[Psychodynamic therapy](#)' above.)

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