

Cognitive-Behavioral Therapy for Adults

Description

Several forms of cognitive-behavioral therapy (CBT) have been studied as treatments for chronic adult posttraumatic stress disorder (PTSD) resulting from a range of traumatic events. However, the amount and quality of supporting evidence varies substantially for different CBT programs. *Exposure therapy* refers to a series of procedures designed to help individuals confront thoughts and safe or low-risk stimuli that are feared or avoided. Applied to the treatment of PTSD, most exposure therapy programs include imaginal exposure to the trauma memory and *in vivo* exposure to reminders of the trauma or triggers for trauma-related fear and avoidance, although some CBT programs have been limited to one type of exposure. *Systematic desensitization* is procedurally distinct from other forms of exposure therapy in that it involves the explicit pairing of the trauma-related memories and reminders with muscle relaxation to inhibit the fear, whereas other exposure therapy programs do not routinely seek actively to inhibit fear during exposure exercises.

Stress inoculation training (SIT) is a multicomponent anxiety management treatment program that includes education, muscle relaxation training, breathing retraining, role playing, covert modeling, guided self-dialogue, and thought stopping. SIT programs may also include *assertion training* and exposure therapy components, although studies of SIT for chronic PTSD have typically left out one or both of these components because they were included in the comparison condition under investigation. Training in progressive *muscle relaxation* is both a part of SIT and a stand-alone comparison treatment. *Biofeedback* training, another approach to promote relaxation, uses

electrophysiological instruments to provide feedback about physiological states, thereby promoting deeper levels of relaxation. *Cognitive therapy* (CT), predicated on the idea that it is one's interpretation of an event rather than the event itself that determines emotional reactions, involves identifying erroneous or unhelpful cognitions, evaluating the evidence for and against these cognitions, and considering whether the cognitions are the result of cognitive biases or errors, in the service of developing more realistic or useful cognitions. In the treatment of PTSD, much of the focus of CT is on cognitions related to safety/danger, trust, and views of oneself.

Several CBT programs combine elements of one or more of the preceding treatments, most commonly combining some form of exposure therapy with components of SIT, CT, or both. For example, *cognitive processing therapy* (CPT) implements exposure to the trauma memory via writing a trauma narrative and repeatedly reading it, and is combined with CT focused on themes of safety, trust, power/control, esteem, and intimacy. Several other combination programs have varied the specific components that have been combined, and the manner in which they have been implemented. *Dialectical behavior therapy* (DBT) is a comprehensive treatment developed for the treatment of individuals with borderline personality disorder. An important aspect of DBT is skills training in affect regulation and interpersonal regulation. Some trauma survivors may have deficits in these skill areas that make it difficult for them to tolerate or benefit from trauma-focused interventions such as exposure therapy. Accordingly, such skills training has been proposed not as a treatment for PTSD per se, but as a preliminary intervention that may enhance at least some patients' (e.g., survivors of childhood abuse) ability to benefit from subsequent trauma-focused treatments such as exposure therapy. Most conventional CBT programs for PTSD are described in terms of techniques explicitly intended to reduce distress. *Acceptance and commitment therapy* (ACT), by contrast, assumes that much of human suffering is the result of attempts to control internal experiences, called "experiential avoidance." The solution, from this approach, is the *acceptance* of one's personal experiences and a *commitment* to live one's life in accordance with personal values, rather than the pursuit of experiential avoidance.

Recent innovations in treatments that have been the focus of empirical research include combined CBT programs that specifically target nightmares and use technology to assist in the delivery of treatment. Innovations in the use of technology to deliver treatment include the use of virtual reality technology and the administration of treatment via the Internet.

General Strength of the Evidence

Because the amount and quality of evidence varies for different CBT programs, strength of the evidence is summarized separately for each of the

CBT programs described earlier. The treatments are summarized in order of decreasing strength of supporting evidence.

Exposure Therapy

There is strong support for the efficacy of individual exposure therapy administered to a range of trauma populations (men and women; survivors of military trauma, physical and sexual assault, childhood sexual abuse, motor vehicle accidents, political violence) from 22 randomized Agency for Health Care Policy and Research (AHCPR) Level A studies and eight nonrandomized Level B studies. The evidence is particularly strong for the combination of imaginal plus *in vivo* exposure (11 Level A studies, four Level B studies). These studies consistently yielded positive results; patients treated with exposure therapy demonstrated significant improvement, and in randomized trials, exposure therapy was superior to various control conditions (wait list, relaxation, and supportive counseling).

Other variations of exposure therapy include imaginal exposure alone (nine Level A studies, two Level B studies) and *in vivo* exposure alone (two Level A studies, one Level B study). One Level A study that utilized a crossover design found that imaginal and *in vivo* exposure produced similar outcomes, although *in vivo* exposure was superior to imaginal exposure in reducing behavior avoidance. With one exception, an older randomized study of imaginal exposure with male Vietnam veterans, that did not directly assess PTSD symptoms, these studies all yielded significant improvement from pre- to post-treatment. In addition, the randomized studies yielded superior improvement compared to wait-list and supportive counseling comparison groups. Three of the Level A studies of imaginal exposure utilized a program called narrative exposure therapy (reconstruction of traumatic experiences in relation to the biography of the survivor), which has been implemented successfully with survivors of political violence. For example, one study was conducted with Sudanese refugees living in an Ugandan refugee settlement. Two additional studies, both with male veterans (one Level A, the other Level B), administered exposure therapy in group settings. The Level A study found similar, small but statistically significant, reductions in PTSD severity for both exposure and present-centered group therapies. The Level B study did not find any significant change in PTSD severity for either exposure therapy or skills building treatment utilizing SIT methods that targeted anxiety, stress, and anger.

In summary, the evidence from many well-controlled studies across and a wide range of trauma survivors is very compelling. Individually administered exposure therapy is effective. In fact, no other specific CBT program has such strong evidence for its efficacy. The evidence is strongest for the combination of imaginal plus *in vivo* exposure, although imaginal exposure alone was also found to be efficacious in a number of studies. Thus, individually administered exposure therapy receives an AHCPR Level A rating.

By contrast, there is very little support for efficacy of group-administered exposure therapy.

Cognitive Processing Therapy

There is consistent support for CPT from five studies (three Level A studies, one Level B study, and one Level C study). Two studies found CPT to be more effective than wait list among female rape survivors; one of the studies received a Level A rating. The two remaining Level A studies found CPT to be more effective than wait list among female survivors of sexual abuse in childhood and among (predominantly) male veterans in which the index trauma was related to combat in 78% of the cases, with noncombat physical and sexual assaults comprising the rest. The study that received a Level C rating utilized archival data from a service-based organization to test the applicability of CPT to a U.S. population of refugees from Afghanistan and Bosnia–Herzegovina. Although based on significantly fewer studies than results for exposure therapy, CPT receives an AHCPH Level A rating.

Stress Inoculation Training

Support for the efficacy of SIT is mixed but generally supportive, particularly among female sexual assault victims. Four studies of individually administered SIT that targeted PTSD symptoms (two Level A studies, two Level B studies) of female sexual assault victims found significant reductions from pre- to posttreatment, and the two randomized studies found it to be more effective than wait list and supportive counseling. Among veterans, researchers in one Level A study reported in a footnote that in addition to the exposure therapy and wait-list control conditions, the original design of the study included stress inoculation group training, but the data were not reported because only five subjects completed the treatment. A second (Level B) study that provided SIT to veterans in a group format did not find any significant improvement on PTSD severity. A third study with veterans, utilizing SIT that targeted anger, found a greater reduction on anger and reexperiencing than that which was found with use of routine clinical care. The strength of the two controlled studies of PTSD among female sexual assault victims earned SIT a Level A rating with this population. Evidence for the efficacy of SIT among veterans is limited and mixed.

Cognitive Therapy

CT was found to be effective in reducing posttrauma symptoms and received support from two controlled studies of civilian traumas, both of which were rated Level A.

Systematic Desensitization

The efficacy of systematic desensitization for PTSD has been evaluated in six studies (two Level A studies, three Level B studies, and one Level C study). All but one of these studies suffered from serious methodological problems. The one well-conducted, Level A study of systematic desensitization was superior to wait list but did not differ from hypnotherapy or psychodynamic treatment, neither of which has strong independent support from other RCTs. Thus, systematic desensitization has not received strong support from well-controlled studies and receives a Level B– or C+ rating.

Assertion Training

The only Level B study that evaluated the efficacy of assertion training found that assertion training did not differ from comparison conditions. Thus, assertion training has not received strong support in the treatment of PTSD.

Relaxation and Biofeedback

No studies have directly examined the efficacy of relaxation by comparing it with a wait list. However, relaxation has served as a comparison group against which other treatments have been compared. With regard to CBT, three Level A studies have found relaxation to be less efficacious than exposure therapy, CT, and their combination. There is only one Level A study of biofeedback for PTSD in which either biofeedback or eye movement desensitization and reprocessing (EMDR) was added to treatment as usual (TAU). Biofeedback was not supported because the addition of EMDR was superior to TAU (see Chapter 11, this volume, for review and guidelines regarding EMDR), but the addition of biofeedback was not. Thus, neither relaxation training nor biofeedback has received support as treatments for PTSD.

Dialectical Behavior Therapy and Acceptance and Commitment Therapy

Three studies (two Level A studies, one Level B study) evaluated the sequential application of skills training followed by trauma-focused treatment (imaginal exposure in two studies, trauma-focused writing in one study). Significant improvement from pre- to posttreatment was observed in all three studies, and treatment in the Level A studies was superior to wait list. The only study that evaluated the effects of the skills training component on PTSD found minimal change that did not differ from wait list. Furthermore, the design of the study did not permit the determination of whether skills training facilitated subsequent treatment with imaginal exposure because the study did not compare the combined treatment with imaginal

exposure alone. In support of the underlying model that preliminary skills training may enhance subsequent trauma-focused treatment, one study found that therapeutic alliance and negative mood regulation skills during the skills training portion of treatment predicted PTSD improvement during the imaginal exposure portion of treatment. To date, no published studies have evaluated ACT as a treatment for PTSD. Thus, neither DBT nor ACT has received support as an effective treatment for PTSD.

Combination Treatment and Comparisons among Treatments

Numerous individually administered CBT programs targeting PTSD, that have combined elements of exposure therapy, SIT, and CT, have been studied in 25 Level A and 13 Level B studies across a range of trauma populations. All of these studies have found significant improvement from pre- to posttreatment, and the randomized studies have consistently found CBT to be superior to comparison conditions (wait list, supportive counseling, TAU). Imagery rehearsal therapy is a somewhat unique treatment, in that it uses a combination of imaginal exposure and CT plus instruction in sleep hygiene specifically to target nightmares and sleep problems. Unlike more conventional exposure therapy, imaginal exposure is to the content of the nightmare rather than the trauma memory, and rescripting involves intentionally altering the nightmare content in some fashion. Three studies (two Level A studies, one Level B study) have found significant reductions in PTSD severity from pre- to posttreatment, and the two randomized studies found greater improvement than that in the wait list. Unlike more conventional exposure therapy, imagery rehearsal therapy has been successfully administered in groups.

Nine Level A studies have directly compared one CBT program with a different program (e.g., exposure therapy vs. SIT) or have compared a combined treatment program with one or more of the constituent treatments (e.g., exposure therapy alone vs. exposure therapy combined with CT). Six additional Level A studies have compared some form of exposure therapy (alone or in combination with SIT or CT) with EMDR. All of these studies have found significant improvement for the CBT programs (including EMDR), with little evidence of superiority for one program over another, and they have found that the combined treatments are generally not more efficacious than the component treatments.

Collectively, these studies indicate that CBT programs including one or more components of exposure therapy, SIT, and CT are broadly effective. However, with the exception of intense exposure therapy (imaginal plus *in vivo* exposure), few specific treatment programs have been evaluated in more than three Level A studies, and most have been studied with a limited range of trauma populations (e.g., CT has not been studied in veterans).

Medication and CBT

One small, Level A pilot study directly compared exposure therapy plus SIT with paroxetine, one of two medications with U.S. Food and Drug Administration (FDA) indications for PTSD. Although the study did not include a placebo condition, significant improvement was obtained from pre- to post-treatment for both treatments, with no difference between them. Four Level A studies have found that adding CBT to ongoing medication management for medication partial responders results in greater improvement than medication continuation alone.

Use of Technology in Administering CBT

One Level A study and one Level B study have investigated the use of virtual reality technology to administer exposure therapy. Both studies found reductions in PTSD severity from pre- to posttreatment, and the randomized study found that virtual reality exposure therapy was superior to wait list. No study has compared virtual reality exposure therapy with more traditionally delivered CBT. Five studies (four Level A studies, one Level B study) have evaluated combined CBT programs administered via the Internet, although one of these studies included some in-person contact with a study therapist. All studies found significant improvement from pre- to posttreatment, and the Level A studies found CBT to be superior to wait list (three studies) or supportive counseling similarly administered via the Internet (one study). No studies have evaluated the efficacy of CBT administered via the Internet with the same treatment delivered in person.

Course of Treatment

CBT programs for PTSD are generally short-term, averaging approximately 8–12 individual therapy sessions. A small number of studies have demonstrated significant improvement with as few as one to four sessions of CBT. Sessions typically last between 60 and 90 minutes, are administered once or twice weekly, and involve patients' completion of homework between sessions. One difference between research studies and standard clinical practice is that studies need to specify ahead of time the number of sessions to be offered, independent of patients' individual needs. However, some patients may require longer treatment than others to obtain optimal benefits, such as patients with significant comorbidities or those whose clinical picture is complicated by chronic pain problems. In such cases, common clinical practice is to extend treatment as long as there are signs of progress. Consistent with the clinical practice of extending treatment based on the patient's response to treatment, one study of exposure therapy (alone and in combination with

CT) found that patients who did not achieve an excellent outcome by Session 8 substantially benefited from just a few additional sessions.

Recommendations

Based on the evidence summarized here, we recommend the following:

1. CBT that comprises exposure therapy (imaginal and *in vivo* exposure), CT, SIT, or one of the many combination programs that incorporate some form of exposure with formal CT (e.g., CPT) or SIT is recommended as a first-line treatment for chronic PTSD.

2. RLX, biofeedback, and assertiveness training cannot be recommended as primary treatments for PTSD, although they may be useful as ancillary interventions for specific problems in certain patients with PTSD.

3. Skills training in affect and interpersonal regulation, based on DBT, prior to implementing trauma-focused interventions, such as imaginal exposure, may be useful for individuals who have difficulty tolerating trauma-focused interventions. However, due to insufficient evidence, *routine* application of skills training prior to trauma-focused treatment is not recommended *at this time*.

4. Due to the current lack of evidence on the efficacy of ACT, we cannot recommend it as a first-line treatment for PTSD, although acceptance-based strategies, some of which are incorporated into DBT, may be useful ancillary interventions for some individuals.

5. With the exception of imagery rehearsal targeting nightmares, CBT for PTSD should be administered in one-on-one therapy sessions. However, given the limited evidence for this treatment relative to other CBT programs to date, imagery rehearsal therapy is not recommended as a first-line treatment for PTSD. It may be most useful as an ancillary treatment, if residual sleep problems remain after a course of other CBT.

6. CBT is intended to be a short-term treatment, and 8–12 sessions lasting 60–120 minutes, administered once or twice weekly, may be used as a general guideline for planning the duration of treatment. However, some patients may be responsive to fewer sessions, while others with more complex cases may require a somewhat longer course of treatment. Accordingly, it is recommended that treatment not be arbitrarily terminated based on the number of sessions. Rather, treatment duration should be determined by a combination of the patient's progress and current symptom status: If the patient has shown improvement but continues to experience significant PTSD, continued treatment is likely to result in further benefit.

7. Recent technological advances show promise in making treatment easier to implement and more readily available. For example, virtual reality technology may make it easier to implement certain kinds of exposure exercises that would otherwise be difficult to implement *in vivo* (e.g., riding in a

military helicopter for Vietnam veterans), and use of the Internet can make access to CBT available in underserved communities. However, practical considerations limit the utility of these treatments at this time. Virtual reality technology is currently still relatively expensive, few therapists have access to it, and treatment programs are available for only a limited number of traumas. In addition, use of the Internet to deliver treatment allows a therapist to treat someone he or she has never seen in person and who may very well be receiving that treatment in a different state or even country. This raises ethical and legal issues that need to be worked out prior to making strong recommendations for the routine use of this service delivery mechanism.

Summary

The evidence in support of the effectiveness of individually administered CBT for the treatment of PTSD in adults is now quite compelling: Numerous CBT programs have been shown to work in well-controlled studies meeting high methodological standards. Considering both the quantity and quality of evidence supporting each treatment, the evidence in favor of exposure therapy is the most convincing, as it has 22 RCTs to support its use across a wide range of traumatized populations. Across studies, exposure therapy has been implemented in numerous ways, including imaginal exposure, *in vivo* exposure, and writing about the trauma. The most frequent—and therefore, the most supported—method of implementing exposure is the combination of imaginal exposure to the trauma memory plus *in vivo* exposure to feared and avoided but low-risk people, places, situations and activities. In fact, no other CBT modality has received as much support as exposure therapy.

The next-best-supported CBT program is CPT, which has received support in three RCTs of survivors of sexual assault, including childhood sexual abuse, and military-related traumas. SIT and CT have both received support from two RCTs each. Numerous, additional well-controlled, randomized studies support the use of combination CBT programs, most of which have utilized some form of exposure therapy plus elements of other CBT programs, such as SIT, CT, or skills training in affect and interpersonal regulation based on principles of DBT. Direct comparisons between different CBT programs (e.g., exposure therapy vs. CT) have generally found comparable outcomes across different treatments. Similarly, studies that have compared combined treatment programs with the constituent programs (e.g., exposure therapy plus SIT vs. exposure therapy alone) have found comparable outcomes for the individual treatments and the combination treatments.

Treatments that did not receive support as stand-alone therapies for PTSD were RLX, biofeedback, assertiveness training, DBT, and ACT. The limited research on RLX and biofeedback indicates that they are less efficacious than other CBT programs, and the single study of assertiveness training found that it is no more efficacious than supportive counseling. There

are insufficient data at this time to evaluate the efficacy of ACT for PTSD or related symptoms.

It has been proposed that skills training in affect and interpersonal regulation, based on DBT, prior to implementing trauma-focused interventions, such as imaginal exposure, may be useful for individuals who have difficulty tolerating trauma-focused interventions and who have associated features of PTSD, such as impaired affect regulation, dissociative symptoms, interpersonal problems, and personality changes that may arise from chronic trauma (e.g., survivors of childhood abuse or domestic violence, and prisoners of war or refugees). The studies that have evaluated the administration of skills training followed by trauma-focused CBT have found this combination to be efficacious for PTSD symptoms, as well as for problems such as emotion regulation, dissociative experiencing, and interpersonal dysfunction. Given the evidence to date, it is unknown to what extent the first-line treatments, DBT-based interventions, or their combinations may be successful in reducing associated features of PTSD often seen in chronically traumatized populations.

In general, CBT for PTSD has been administered as a one-on-one therapy, and group exposure therapy has not been found to be particularly effective. A notable exception to this is the use of imagery rehearsal therapy to target nightmares, which has been implemented successfully in a group therapy setting. Two recent technological innovations that received empirical support are the use of virtual reality technology to implement exposure therapy and the delivery of CBT via the Internet. In particular, use of the Internet to deliver treatment has the potential to provide CBT to people in locations where it would not otherwise be available.

Suggested Readings

- Cloitre, M., Cohen, L. R., & Koenen, K. C. (2006). *Treating survivors of childhood abuse: Psychotherapy for the interrupted life*. New York: Guilford Press.
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- Follette, V. M., & Ruzek, J. I. (2006). *Cognitive-behavioral therapies for trauma* (2nd ed.). New York: Guilford Press.
- Resick, P. A., & Schnicke, M. K. (1993). *Cognitive processing therapy for rape victims: A treatment manual*. Newbury Park, CA: Sage.
- Schauer, M., Neuner, F., & Elbert, T. (2005). *Narrative exposure therapy: A short-term intervention for traumatic stress disorder after war, terror or torture*. Göttingen, Germany: Hogrefe & Huber.
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