A Guide to the Literature on Psychotherapy for PTSD

Jessica L. Hamblen, PhD; Paula P. Schnurr, PhD; Anna Rosenberg, MA; and Afsoon Eftekhari, PhD

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CME EDUCATIONAL OBJECTIVES

1. Identify empirically supported treatments for posttraumatic stress disorder (PTSD).
2. Explain how methodological issues impact psychotherapy trials.
3. Describe PTSD treatments for which there is growing evidence.

ABOUT THE AUTHOR

Jessica L. Hamblen, PhD; and Paula P. Schnurr, PhD, are with the VA National Center for PTSD and Dartmouth Medical School. Anna Rosenberg, MA, is with the VA National Center for PTSD and Temple University, Philadelphia. Afsoon Eftekhari, PhD, is with the VA National Center for PTSD.

Address correspondence to: Jessica Hamblen, PhD, National Center for PTSD, VA Medical Center (116D), 215 North Main Street, White River Junction, VT 05009; or e-mail jessica.hamblen@dartmouth.edu.

Dr. Hamblen; Dr. Schnurr; Ms. Rosenberg; and Dr. Eftekhari have disclosed no relevant financial relationships.

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EDUCATIONAL OBJECTIVES OVERVIEW

Posttraumatic stress disorder (PTSD) results from traumatic experiences that overwhelm one's capacity to cope coupled with a propensity to develop the disorder. The harmonics from acute or chronic trauma disrupt and dysregulate multiple neuronal circuits with hyperreactivity to stimuli, hypervigilance, anxiety, insomnia, nightmares, persistent unwanted ruminations, and mood symptoms. Limited evidence exists for effective treatments, and multimodal pragmatic approaches may be reasonable until further treatments are developed.

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CME

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The field of posttraumatic stress disorder (PTSD) treatment has evolved to the point where there are good treatments available to reduce symptoms and associated problems. In this article, we provide information on psychotherapeutic approaches that have the best evidence and some that are still unproven, or at least insufficiently proven, in terms of the benefits they offer. We begin by describing the unique design aspects of psychotherapy trials that are crucial to understanding the evidence and then review the major practice guidelines and key treatment studies in the field. Next, we report on treatments for which there is growing support and briefly discuss advances in treatment delivery systems. We conclude with a section on clinical implications intended to help the practitioner answer questions of particular relevance. Our scope is limited to randomized controlled trials (except where noted) and to studies of outcome rather than process.

DESIGN CONSIDERATIONS

Drug trials and psychotherapy trials differ in many respects, such as the feasibility of blinding patients and providers to treatment assignment.[1] Perhaps the most significant difference is the absence of a psychotherapy placebo. Even control treatments, such as supportive counseling and relaxation, contain actual therapeutic elements.

It is essential to know the type of comparison group used in a study in order to interpret the study's findings.[1] Waitlist designs, typically used at the initial stages of research, provide information about whether the change in the treated group is due to treatment. Nonspecific comparison designs offer the next level of control. The comparison group receives treatment containing therapeutic elements that are common to good therapy; alternatively, patients may receive care as usual. These designs provide information about the specific advantages of the treatment under study, although they do not permit

inferences about the mechanism of action. The inferences that can be drawn from comparisons between active treatments depend on the similarities and differences between the treatments. For example, a comparison between a drug and psychotherapy simply indicates whether one treatment is better than the other, but not why. Systematically manipulating a treatment's active elements provides the most information about mechanism. In a dismantling design, a treatment is compared to variations in which one or some of the active elements are present. In an additive design, a combination of effective techniques is compared with the separate techniques. In a parametric design, the amount of the active element (eg, number of exposure sessions) is manipulated.

Both the type of design and how conditions are equated influence the size of the treatment effect.[1] Waitlist designs, which control only for threats to internal validity, yield the largest effects. Therefore, it is not possible to directly compare the effect size from a study that used a waitlist design with the effect size from a study that used a nonspecific design. Even nonspecific designs may have limited comparability because the effect sizes depend on the effectiveness of the comparison treatment and how well the comparison treatment was equated to the active treatment. As a rule, the more active the comparison group and the greater the control for nonspecific factors, the smaller the effect size will be.

EVIDENCE-BASED TREATMENTS

Several clinical practice guidelines offer recommendations for the treatment of PTSD. These guidelines come from different federal agencies, professional organizations, and countries.[2-6] The Institute of Medicine (IOM) also recently published a report evaluating the evidence on PTSD treatment.[7] The guidelines unanimously recommend cognitive behavioral therapies as the most effective treatment for PTSD. Most guidelines also recommend Eye Movement Desensitization and Reprocessing (EMDR) as well.

In some cases there are minor disagreements, typically due to methodological issues in the selection and coding of treatments. For example, although the IOM reported that there was only sufficient evidence for exposure-based treatment, the lack of support for cognitive approaches may have stemmed from the classification of cognitive treatments that include some exposure components as exposure treatments. Consequently, treatments such as Cognitive Processing

Therapy (CPT),[8] were coded as exposure therapies, which resulted in an insufficient number of studies of cognitive therapies necessary to meet the highest standard.

Cognitive behavioral treatments typically include a number of components, including psychoeducation, anxiety management, exposure, and cognitive restructuring. Exposure and cognitive restructuring are thought to be the most effective components. The greatest number of studies has been conducted on exposure-based treatments. All exposure-based treatments involve having survivors repeatedly re-experience their traumatic event. For example, Prolonged Exposure (PE)[9] includes both imaginal exposure and in vivo exposure to safe situations that have been avoided because they elicit traumatic reminders.

There is strong evidence for exposure therapy.[10-15] Of these various approaches, PE has received the most attention. For example, in one recent study, Schnurr and colleagues[14] conducted a multisite, randomized controlled trial of PE for treating female veterans and active-duty personnel with PTSD. Women who received PE experienced greater reduction of PTSD symptoms relative to women who received present-centered therapy and were less likely to meet PTSD diagnostic criteria. In a trial with sexual assault survivors, PE was more effective than the combination of PE plus stress inoculation training (SIT), SIT alone, or a waitlist control.[11] In another, PE alone and PE plus cognitive restructuring (CR) reduced PTSD and depression relative to a waitlist control in intention-to-treat and completer samples.[12] In both studies, the combined treatments were no more effective than PE alone. One possible explanation is that the effect of equating treatments reduced the necessary dose of PE. A better design to answer the question of whether PE can be enhanced would be to deliver a full dose of PE and then see if additional sessions of SIT or CR improved outcomes.

Cognitive interventions also are widely supported in treatment guidelines.[13,16-18] Cognitive Processing Therapy,[19] one of the most well-researched cognitive approaches, has a primary focus on challenging and modifying maladaptive beliefs related to the trauma, but also includes a written exposure component.

Some investigators have added a novel component to an effective treatment as a way to further optimize the treatment.

Monson and colleagues[20] randomized veterans with chronic military-related PTSD to CPT or a waitlist. Intention-to-treat analyses revealed significant improvements in PTSD and comorbid symptoms in the CPT condition compared with the waitlist condition. After treatment, 40% of the CPT group no longer met criteria for PTSD. In a head-to-head comparison, CPT and PE were equally effective in treating PTSD and depression in female sexual assault survivors.[8]

Once CPT was shown to be effective, Resick and colleagues[21] conducted a dismantling study to determine the relative utility of the full protocol compared with its components: cognitive therapy and written exposure. Intention-to-treat and completer analyses indicated significant improvement in PTSD and depression for participants in all three treatments. To compensate for the high power necessary to detect small differences between active treatments, Resick et al used a longitudinal method to examine trajectories of change. The cognitive therapy alone resulted in faster improvement than the written exposure, with the effects of CPT falling in-between.[21]

Ehlers and Clark have developed a cognitive therapy for PTSD that involves three goals: modifying excessively negative appraisals, correcting autobiographical memory disturbances, and removing problematic behavioral and cognitive strategies.[22] Whereas CPT and cognitive therapy share many key elements, such as identifying maladaptive cognitions and producing a written account of the trauma, other elements of cognitive therapy are unique, such as performing actions that are incompatible with the memory or engaging in behavioral experiments. Two randomized controlled trials have compared cognitive therapy to a waitlist, both with positive results.[16,17]

Some investigators have added a novel component to an effective treatment as a way to further optimize the treatment.[23-28] Three groups of investigators compared an enhanced treatment to a waitlist control group. Cloitre and colleagues[24] combined PE with skills training in affect and interpersonal regulation; Falsetti and colleagues[25] developed Multiple Channel Exposure Therapy, a combination of PE, CPT, and interoceptive exposure for panic; and Lindauer and colleagues[28] developed Brief Eclectic Therapy, a combination of psychodynamic and cognitive behavioral therapy. These studies showed that the combined treatment was effective, but not whether the additional component was necessary. Although this may not have been the investigators' goal, a combined treatment should be compared to the standard treatment if the intention is to see if the added component enhances the standard treatment. For example, Glynn and col-

leagues[26] compared exposure therapy alone with exposure therapy followed by behavioral family therapy, and Arntz and colleagues[23] compared imaginal exposure alone with imaginal exposure plus imagery rescripting. In both studies the combined treatment did not result in a greater reduction of PTSD severity, which suggests that the novel component was not necessary. However, exposure therapy is an effective treatment and the samples were small, so statistical power may have been too low to compare the treatments adequately.

In addition to cognitive behavioral therapies, EMDR is recommended in some practice guidelines. In EMDR patients engage in imaginal exposure to a trauma while simultaneously performing saccadic eye movements. There is good evidence that EMDR is more effective relative to waitlist and nonspecific comparison conditions.[29-31] Two well-controlled studies compared EMDR to PE. One study found equivalent results,[30] while the other found PE to be superior.[31] However, although studies support the effectiveness of EMDR, additional research has raised questions about the mechanism of action. There is growing evidence that the theorized eye movements are an unnecessary component,[32] which suggests that the mechanism for action might be the exposure component.

In general, the treatments reviewed above work not only for the symptoms of PTSD but also for related conditions. Improvements in depression, anxiety and functioning are often seen following cognitive behavioral interventions[8,12,16,24] and EMDR.[30,31]

TREATMENTS FOR WHICH MORE EVIDENCE IS NEEDED

Other treatments in addition to cognitive behavioral therapy and EMDR *may* be effective; however, at this time we do not have enough evidence to indicate that they are effective. Group treatments are appealing to practitioners because they provide an efficient means of delivering treatment, normalize individuals' experiences, and create a supportive environment during challenging aspects of therapy, such as exposure.[33] Results of the few randomized controlled trials of group therapy have been mixed.[33-37] One well-designed study using a combined group and individual CPT format found that the combined group had greater symptom reduction relative to a minimal-attention waitlist condition.[34] Only one study compared group therapy to a robust control group and statistically controlled for the clustering effects of a group intervention, which tends to exaggerate a treatment effect if not controlled.[36] Three-hundred-and sixty Vietnam veterans were randomly assigned to a cognitive behaviorally based treatment, trauma-focused group therapy, or a present-centered group treatment, designed to control for the nonspecific benefits of psychotherapy. Both groups had a modest decrease in PTSD symptoms, but contrary to expectations, CBT was not more effective than present-centered therapy.[36]

There are very few studies of other traditional treatments. In one, investigators found that psychodynamic therapy, hypnotherapy, and trauma desensitization were more effective than a waitlist control group.[41] In the other, investigators found that Rogerian supportive therapy was less effective in treating symptoms of PTSD and anxiety than cognitive behavioral therapy.[42]

Acceptance and Commitment Therapy (ACT), which is considered a third-wave behavioral therapy, focuses on reducing experiential avoidance and engagement with maladaptive thoughts and encourages clients to approach activities consistent with their personal values. Several case studies have documented support for ACT in the treatment of PTSD.[38,39] However, no trials of ACT for PTSD have been published to date. There is also interest in alternative medicine treatments. One trial showed that acupuncture was as effective as group cognitive behavioral treatment, and both were more effective than the waitlist condition.[40]

ADVANCES IN TREATMENT DELIVERY

New technologies are being used to facilitate the delivery of effective treatments. Virtual reality therapy utilizes computer-generated simulation during exposure in order to enhance activation of trauma memories and related emotions. This may be particularly helpful for patients who have difficulty visualizing or emotionally engaging with the trauma memory. Results of a small trial suggest virtual reality may reduce PTSD symptoms,[43] but no trial has yet to compare virtual reality with imaginal or in vivo exposure.

The internet offers another technological means of enhancing treatment accessibility. These treatments typically involve having a patient access therapeutic material online while receiving assignments and feedback from a therapist via computer. This mode of treatment is thought to be particularly useful for patients living in remote areas, patients with limited mobility, and those who fear stigma around seeking treatment. Results of several trials indicate that this modality is feasible, acceptable to patients, and effective for PTSD.[44-46]

Videoconferencing is an alternative technological strategy for enhancing treatment accessibility. Treatment is delivered via live video camera. The patient does not need to be in the same room as the therapist but can still see the therapist and communicate as in traditional, in-room, face-to-face therapy. Like therapist-assisted internet therapy, this form of treatment delivery may be particularly helpful for those who may not otherwise come in for treatment. Results of one study suggest that veterans with PTSD tolerate and respond to telehealth interventions in a manner similar to their response to traditional, in-person treatments.[47]

CLINICAL IMPLICATIONS

A common concern among clinicians is how the empirical findings reported here (and in practice guidelines) should inform their decisions about the treatments they are delivering to specific patients. Are patients in research studies less complex and simpler to treat than patients seen in clinical practice? In fact, most of the treatments reviewed were evaluated in samples of patients with many of the additional problems encountered in practice. For example, in the Resick et al study,[8] 86% of the sample were multiply traumatized, 41% had been sexually abused as children, and 31% were on psychotropic medications. Similarly, in addition to including PTSD cases who were multiply traumatized with numerous comorbid conditions, Schnurr et al[14] designed their study to enhance practical relevance by including a clinically relevant comparison group, diverse clinical centers, and non-expert therapists. In another study, Mueser et al showed that cognitive behavioral therapy was more effective than usual care for treating PTSD in people with severe mental illness, including borderline personality disorder and psychotic disorders.[18] Thus, cognitive behavioral therapy is effective in diverse clinical populations and not just "clean" cases of PTSD.

A related question is whether particular treatments are more effective for some types of clients than for others. Although many clinicians hold strong opinions, there is little evidence on whether certain individuals are better or worse candidates for certain treatments. The best way to answer this question is through a randomized control trial comparing two active treatments and examining the interaction between treatment and selected participant characteristics. For example, Schnurr et al[14] compared women treated with exposure therapy with those who received present centered therapy. They found that neither a history of military sexual trauma nor use of medication prior to initiating treatment differentially affected treatment response. Although the literature on treatment matching is limited, safety concerns caution against initiating treatment with patients who are acutely suicidal. Overall, there is no support for the commonly held belief that some patients are too fragile to tolerate trauma focused interventions.

There is great interest in how to maximize the treatments we know to be effective.

Therapists also may be concerned that some types of treatment result in greater dropout than others. In fact, the average dropout rate from PTSD treatments is 21.1%,[48] which is comparable to rates for other disorders.[49,50] Additionally, there are no differences in the dropout rates between exposure therapy, cognitive therapy, stress inoculation training, and EMDR.[51]

An open question is how far a treatment can be modified before it loses its effectiveness. Levitt and colleagues[52] trained therapists in a manualized cognitive behavioral treatment for PTSD but allowed them to use it flexibly. When left to their own clinical judgment, therapists added an average of two protocol sessions and one non-protocol session to the 16-session treatment. The effects were comparable to the effects in a randomized controlled trial of the same intervention.[24] Therefore, at least in this one case, flexible use of a manualized protocol resulted in good outcomes.

There is great interest in how to maximize the treatments we know to be effective. D-Cycloserine (DCS) may be one way to improve outcomes with exposure-based therapies. DCS is an NMDA receptor agonist thought to enhance extinction effects.[53] Randomized controlled trials have demonstrated that DCS improves outcomes of exposure-based treatments in patients with anxiety disorders such as specific phobia, social phobia, and obsessive compulsive disorder.[53] Studies are underway in PTSD populations.

A related question is what to do with non-responders. Should the therapist continue on with more sessions or switch to another modality? There is some research on the effects of combining medication and psychotherapy to treat patients who fail to respond to treatment adequately. Rothbaum et al[54] found that PE improved outcomes in partial responders to an SSRI. In contrast, Simon et al[55] found that an SSRI did not improve outcomes in partial responders to PE.

SUMMARY

There are a number of effective treatments for PTSD. A substantial and methodologically rigorous literature supports cognitive behavioral interventions such as PE and CPT. Fewer well-controlled studies support EMDR, but evidence is growing.[30] Future studies will need to address whether EMDR is a distinct treatment or a form of cognitive behavioral therapy.

In general, these treatments work not only on the symptoms of PTSD but also on comorbid conditions and result in improved functioning. The majority of the evidence is based on comparisons between an active treatment and a waitlist control condition, although a growing number of

studies have demonstrated that many of these treatments are effective relative to a non-specific intervention. Additive interventions combining two effective treatments such as PE and CR do not seem to be more effective than the single treatments alone.[11,12] However, most comparisons between active treatments have been based on relatively small samples and may not have had adequate power to detect differences between active treatments. Resick et al's dismantling study,[21] which utilized a novel longitudinal statistical approach, is a notable exception.

It is anticipated that much more will be known regarding effective treatments for PTSD in the near future. A number of novel approaches and delivery mechanisms show promise. New theoretical models are under investigation, and significant attention is now focused on identifying more efficient and acceptable delivery systems that will increase the likelihood that trauma survivors will access therapy. Investigators are also working to identify mechanisms of action. More research is needed to address the potential benefits of combining and/or sequencing medications and psychotherapy. But the picture has never looked better for trauma survivors with PTSD. There are effective psychotherapies to treat their symptoms and improve their quality of life.

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