Psychosocial Treatment of Posttraumatic Stress Disorder

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This article reviews empirically validated psychosocial treatments for posttraumatic stress disorder (PTSD) and considers factors associated with successful therapy outcome. Most of the treatments whose efficacy was studied empirically fall within the broad category of cognitive-behavioral therapy. These include exposure therapy, anxiety management programs, and cognitive therapy. These therapy modalities have been developed to modify conditioned fear and erroneous cognitions that are thought to underlie PTSD. Exposure therapy has the most empirical support because it was found to be effective across different populations of trauma victims with PTSD. Combinations of therapies have also been used, and the value of these is discussed. In addition, this article presents recent evidence about the efficacy of eye movement and desensitization reprocessing. A growing body of evidence supports the use of psychosocial treatments for PTSD, but not all patients benefit. Future research should develop programs that increase the motivation of patients to take advantage of these efficacious treatments.
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Posttraumatic stress disorder (PTSD) is a prevalent psychiatric condition. Retrospective epidemiologic studies have found war veterans from Vietnam and female victims of rape to have lifetime PTSD prevalences of 30% and 32%, respectively.[1,2] Therefore, it is essential to develop effective and efficacious therapies for PTSD.

In 1980, when PTSD was first introduced into DSM-III as an anxiety disorder, cognitive-behavioral therapy program studies evaluating the efficacy of cognitive behavior programs had begun. The conceptualization of PTSD within the conditioning theory of phobic fears has led experts to employ exposure therapy procedures that have been previously successful with phobias.[3] The recognition that those with PTSD exhibit symptoms of generalized anxiety disorder has led other experts to employ anxiety management programs for PTSD (e.g., stress inoculation training).[4] The conceptualization of PTSD within emotional processing theory has emphasized the important role of erroneous cognitions in the maintenance of PTSD.[5–7] Specifically, Foa and Rothbaum[8] suggested that (1) patients with PTSD perceive the world to be a dangerous place and (2) patients with PTSD view themselves as extremely incompetent. They further posited that all therapies for PTSD are effective to the extent that they produce change in the erroneous cognitions. Accordingly, Foa and Rothbaum[8] modified the treatment programs that they had developed for PTSD to target those cognitions directly and indirectly. Similar ideas have been developed by other experts and have led to the development of cognitive therapy programs for PTSD.[9,10]

The vast majority of treatment outcome studies for PTSD have focused on cognitive-behavioral therapy programs. These programs include variants of exposure therapy, anxiety management, and cognitive therapy. Combinations of these interventions have also been investigated.[11,12] However, most studies have evaluated single programs, comparing them with one another and with untreated wait-list controls. More recently, eye movement and desensitization reprocessing therapy has been employed for the treatment of PTSD, and a number of studies have explored its efficacy.[13,14] In the present article, psychosocial treatments for PTSD that have gained empirical support are discussed, and results from selected, well-controlled studies from each therapy type are described in more detail.

COGNITIVE-BEHAVIORAL THERAPY

Exposure Therapy

The idea that trauma therapy should include some form of exposure to the traumatic event has a long history in psychology and psychiatry (e.g., Fenichel[15]). In its modern form, this idea is reflected in exposure therapy, which was

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developed to target the mechanisms thought to underlie persistent pathologic anxiety such as phobias and has more recently been applied to PTSD. Exposure therapy comprises a set of techniques designed to help patients confront their feared objects, situations, memories, and images. Programs of exposure therapy vary in duration of exposure (short versus prolonged), the number of low-level anxiety situations that precede the introduction of the most feared situation, and the arousal level experienced (low versus high). With PTSD, exposure programs typically consist of imaginal exposure, i.e., repeated emotional recounting of the traumatic memory, and in vivo exposure, i.e., repeated in vivo confrontation with trauma-related situations and objects that evoke unrealistic anxiety.

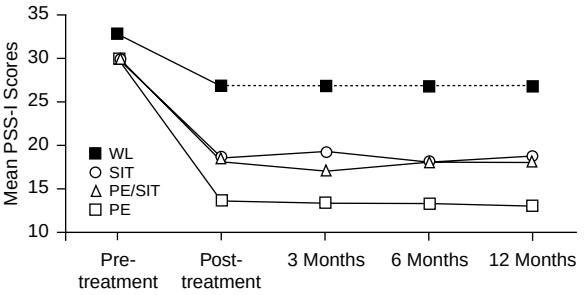
Several studies have investigated the effects of exposure therapy in veterans from the Vietnam War with PTSD.[13] These studies indicate that exposure therapy is effective in reducing PTSD symptoms in this population, but therapeutic effects were modest.[16]

Exposure therapy in rape victims with PTSD was first introduced by Foa and colleagues in 1984. Since then, they have conducted a series of controlled studies examining the efficacy of exposure therapy in female victims of sexual and nonsexual assault with chronic PTSD.[12,17] In the first study with rape victims,[17] prolonged exposure therapy was compared with stress inoculation training, supportive counseling, and an untreated wait-list control in female assault victims with PTSD (N = 45). Following 5 weeks of therapy (9 twice-weekly sessions), both prolonged exposure and stress inoculation training were more effective than supportive counseling, but because of the small number of subjects included in the study, the differences between the treatments did not reach significance on all measures. However, follow-up at 3 months indicated superior improvement with prolonged exposure therapy compared with stress inoculation training.

In a second study,[12] prolonged exposure therapy, stress inoculation training, and a combination of the 2 (exposure therapy plus stress inoculation training) were compared with an untreated wait-list control in female assault victims with PTSD (N = 79). Following a 5-week therapy (9 twice-weekly sessions), all 3 active treatments reduced severity of PTSD symptoms, but did not differ significantly from each other on PTSD measures. However, the exposure group showed superiority on measures of depression and anxiety. Unexpectedly, combined treatment did not perform any better than exposure therapy or stress inoculation training alone (Figure 1). Foa and colleagues[12] suggested that the combination of prolonged exposure with stress inoculation training could have placed considerable demands on the patients. Such demands may have compromised any therapeutic enhancement of the combined therapy.

To explore combination therapy further, Foa and colleagues have embarked on a third study (E.B.F., E. Hembree, N. Feeny, unpublished data) in which they examine the effects of exposure augmented by cognitive restructuring, a component of cognitive therapy that focuses on teaching patients to replace negative, dysfunctional thoughts and beliefs with rational, realistic ones. The combined treatment was compared with exposure therapy and with a wait-list control group. The core treatment program comprised 9 weekly sessions. The availability of therapy extension was also included in the study. Patients who failed to reach 70% improvement of PTSD symptoms following the initial course of treatment were given 3 additional sessions of therapy. Interim results from female victims of sexual and nonsexual assault with PTSD (N = 74) suggest that the 2 programs are very effective, yielding a significantly greater reduction in PTSD symptoms than seen in the wait-list control group. However, prolonged exposure therapy was more efficient when delivered alone than when combined with cognitive restructuring. More than half (52%) of the group that received prolonged exposure did not require an extension of therapy, whereas 86% of patients in the combined therapy group did require extra therapy sessions.

Figure 1. Mean Posttraumatic Stress Disorder Symptom Scale-Interview (PSS-I) Score at Pretreatment, Posttreatment, and Follow-Up Visits[a]



[a]Reprinted from Foa et al., with permission.[12] Abbreviations: PE = prolonged exposure, SIT = stress inoculation training, PE/SIT = combination of prolonged exposure and stress inoculation training, WL = wait-list control (no follow-up data available).

Anxiety Management Programs

Anxiety management programs emerged from the view that pathologic anxiety stems from a deficit in skills required to cope with anxiety. These programs provide patients with management skills to help them reduce anxiety when it occurs. Anxiety management programs include relaxation training, controlled breathing, positive imagery, cognitive restructuring, and distraction techniques. One of the most commonly used anxiety management programs for PTSD is stress inoculation training,[18] adapted by Veronen and Kilpatrick[19] to reduce rape-related fear and anxiety. Two uncontrolled studies have examined the efficacy of stress inoculation training in female rape victims.[4,20] Although these studies provided encouraging re-

sults, the absence of a control group prevented definitive conclusions.

The first controlled study to examine the efficacy of stress inoculation therapy in rape victims was undertaken by Resick and colleagues.[21] The study compared stress inoculation training with supportive counseling, assertion training, and an untreated wait-list control. Study treatment was conducted in groups. Each of the 3 treatment groups showed more improvement than the untreated wait-list control group included in the study, but the treatments did not differ from one another statistically, and their effects were modest. When stress inoculation therapy was conducted in individual sessions in the studies of Foa et al.,[12,17] a greater reduction in PTSD symptoms was found than in group therapy by Resick et al.[21]

Cognitive Therapy

Cognitive therapy postulates that certain dysfunctional thinking patterns produce pathologic emotions that culminate in the manifestation of psychiatric disorders, including PTSD. Such thinking patterns typically lead the person to feel anxious, depressed, angry, or ashamed in situations where such emotions are inappropriate or unwarranted. The dysfunctional cognitions and the resultant emotions provoke irrational behavior such as the avoidance of safe situations and quarreling unnecessarily with others. Cognitive therapy teaches the patients to identify their dysfunctional cognitions, challenge them, and replace them with functional, realistic beliefs.

One kind of cognitive therapy is cognitive processing therapy, devised by Resick and Schnicke[9] for rape victims with PTSD. The goal of cognitive processing therapy is to correct specific maladaptive cognitions with focus on 5 issues thought to be associated with rape victims: safety, trust, power, esteem, and intimacy. The program also includes an exposure component, an instruction to write down a detailed account of the traumatic memory and read it back to the therapist. In an ongoing study of rape victims with PTSD, Resick and colleagues[22] are comparing 9 sessions of exposure therapy with 12 sessions of cognitive processing therapy in rape victims with chronic PTSD. Preliminary results (N = 49) suggest that both treatments appear to be highly effective in ameliorating PTSD. However, it should be noted that the superiority of exposure therapy lies in the ease with which therapists can be trained to deliver it. Cognitive processing therapy, like all cognitive therapy programs, requires the therapist to undertake extensive training and places considerable intellectual demands on the patients. In contrast, exposure therapy is a relatively easy treatment to master, and instructions to patients are relatively straightforward.

Marks et al.[11] compared 10 weekly sessions of prolonged exposure (imaginal and live) or cognitive restructuring, alone and in combination, with a relaxation control in victims of mixed traumas with PTSD (N = 87). Exposure therapy and cognitive restructuring, singly or combined, improved symptoms of PTSD markedly, but the 2 therapies were no more effective when combined. At 6-month follow-up, the group that received exposure therapy alone seemed to maintain its gains better than the group that received cognitive therapy alone; however, all 3 active therapies were superior to relaxation therapy.

Tarrier et al.[23] compared imaginal exposure with cognitive therapy in victims of mixed traumas with PTSD (N = 72). Both therapies produced significant but modest improvements in PTSD symptoms, although no significant differences existed between the treatments at any symptom assessment. Patients who did not benefit from treatment showed a greater tendency to miss treatment sessions, rated therapy as less credible, and were rated as less motivated by the therapist. It was concluded that either exposure or a challenge to cognition could result in PTSD symptom reduction, although neither produced complete improvement. It is important to note that the effects of both therapies in this study were much lower than those found in previous studies on exposure therapy and cognitive therapy.[11,12,22]

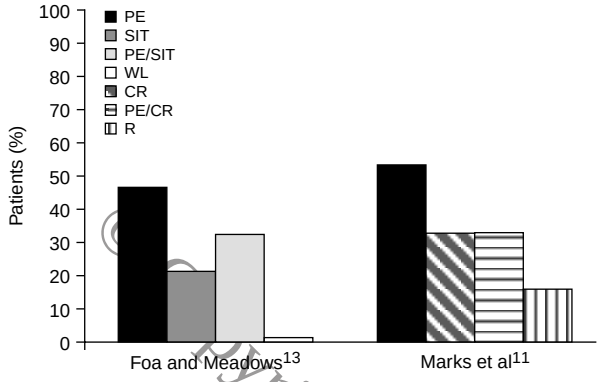
Combination Therapy

The studies previously discussed have demonstrated that therapy which combines single programs does not confer additional therapeutic benefit over individual therapies alone.[12] Various factors may be responsible for the unexpected lack of superiority of combined programs. Combination therapy tends to be delivered in the same number and length of sessions as single programs, such as with prolonged exposure or stress inoculation training.[12] Therefore, patients who received combination therapy did not receive as much exposure as the prolonged exposure only group or as much stress inoculation as the stress inoculation training only group.[12] Similarly, in the study by Marks et al.,[11] combining exposure therapy with cognitive restructuring yielded no clear enhancement. When results from this study are compared with the findings of Foa and Meadows,[13] a clear pattern is noted. In both studies, exposure therapy alone yielded a greater percentage of patients who achieved good end-state functioning compared with combination therapy (Figure 2).

EYE MOVEMENT AND DESENSITIZATION REPROCESSING

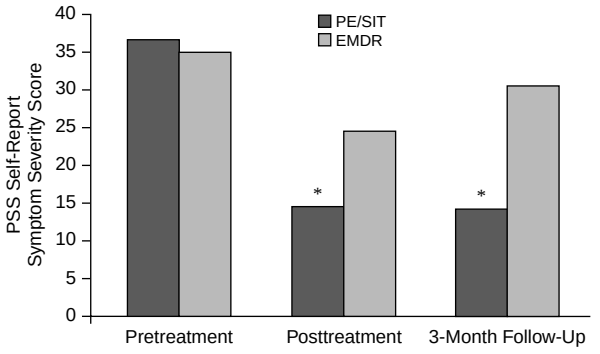
Eye movement and desensitization reprocessing (EMDR) is a relatively new therapy for PTSD and consists of a form of exposure accompanied by saccadic eye movements.[24] In EMDR, the therapist asks the patient to visualize images about the trauma while inducing eye movements by asking the patient to track rapid side-to-side movement of the therapist's finger. A cognitive therapy component is also included in which patients are asked to

Figure 2. Percentage of Patients Achieving Good End-State Functioning[a,b]



[a]Abbreviations: CR = cognitive restructuring, PE/CR = combination of prolonged exposure and cognitive restructuring, R = relaxation control.
[b]Good end-state functioning = ≥ 50% improved PTSD and score < 7 on the Beck Depression Inventory.

Figure 3. The Effects of Prolonged Exposure/Stress Inoculation Training and Eye Movement and Desensitization Reprocessing (EMDR) on Posttraumatic Stress Disorder: Patient Self-Reported Symptom Severity[a]



[a]Data from Devilly and Spence.[26]
*p < .05.

replace negative thoughts with positive ones. Several studies have been conducted to evaluate efficacy of EMDR and the role of eye movement, although most have not been well controlled (for review see Foa and Meadows[13]).

The most well-controlled study of EMDR was conducted by Rothbaum[25] in female rape victims with PTSD (N = 18). In this study, Rothbaum compared the efficacy of EMDR with an untreated wait-list control. Patients who received EMDR (4 once-weekly therapy sessions) showed a significant improvement in PTSD symptoms compared with the wait-list control group. This result is comparable with those from studies using cognitive-behavioral therapies to treat PTSD in a similar population (e.g., Foa et al.[12]). The problem with this study is that all patients were treated by the author, thus confounding therapist and therapy effects.

The only study comparing EMDR with a well-established cognitive-behavioral therapy for PTSD was conducted by Devilly and Spence[26] in victims of mixed civilian traumas with PTSD (N = 23). The study compared EMDR with a combination of prolonged exposure and stress inoculation training modified from the Foa et al. study.[12] The combination of exposure therapy and stress inoculation training was found to be significantly more effective at reducing PTSD symptom severity immediately following therapy than EMDR; this superiority became more pronounced at the 3-month follow-up (Figure 3).

Since the only unique ingredient in EMDR is eye movement, several studies have examined the influence of eye movement on the efficacy of EMDR.[27–29] Using a crossover design, Pitman et al.[28] investigated the importance of eye movement in EMDR. Male Vietnam War combat veterans with PTSD were randomly assigned to receive EMDR therapy with or without the eye movement component. The groups did not differ significantly in their efficacy, and both showed modest effects. Thus, the results from the study suggest that eye movement is not an important component of EMDR. This conclusion is congruent with the results of other studies that examined this issue. Thus, factors other than eye movements are suggested to be responsible for the therapeutic effect of EMDR.

Table 1. Meta-Analysis of Psychotherapies and Pharmacologic Treatments[a]

Condition	Trials (No.)	Dropout Rate (%)	Effect Size	
			Self-Report	Observer
Psychotherapies	27	14.0	1.17	1.51
Medication	19	31.9	0.69	1.05
Controls	15	16.6	0.43	0.81

[a]Data from Van Etten and Taylor.[30]

META-ANALYSIS OF PTSD STUDIES

Van Etten and Taylor[30] conducted a meta-analysis of PTSD studies of pharmacologic and psychosocial therapies (Table 1). The analysis involved 61 treatment-outcome trials (from 39 studies) with a variety of different study designs including both double-blind and open-label type.

The most effective psychosocial therapies, cognitive-behavioral therapy and EMDR, appeared to be more effective than some drug therapies, notably carbamazepine (1 study) and selective serotonin reuptake inhibitors (4 studies: fluoxetine [2 studies], fluvoxamine [1 study], and sertraline [1 study]). Patients were twice as likely to discontinue medication as psychotherapy (31.9% vs. 14.0%, respectively) (Table 1). Self-reported effect sizes were similar for both cognitive-behavioral therapy and EMDR (1.27 vs. 1.24, respectively), but the effect size from an independent evaluator was larger for cognitive-behavioral

therapy than EMDR (1.89 vs. 0.69, respectively). Although follow-up results were not obtained for most studies, data available indicated that positive treatment effects for cognitive-behavioral therapy and EMDR were maintained at the 15-week follow-up. When interpreting these results, it is important to keep in mind that the methodology of the cognitive-behavioral and medication studies is superior to that of the EMDR studies and that less rigorous studies tend to yield inflated outcome.

FACTORS ASSOCIATED WITH SUCCESSFUL THERAPY OUTCOME

Factors associated with good therapy outcome rates include patient perception of therapy as credible, high patient motivation, high and regular attendance of therapy sessions, and the absence of ongoing environmental stress. Patients who stay with PTSD therapy experience good outcomes. However, these patients tend to be young, motivated, and in a relationship with a higher income and lower initial severity of PTSD. Conversely, patients who do not comply with a therapy regimen (about 30%–40%) fare worse than expected.[11,22,30] It seems then that the very patients who need the therapy most drop out and fail to take full advantage of it. Thus, there is a great need to develop psychosocial interventions for PTSD that include procedures aimed at improving motivation and compliance. Flexibility in scheduling therapy appointments may contribute toward this end. Special consideration should be given to PTSD patients who typically suffer from a lack of trust as a result of their traumas. The implementation of a caring and compassionate approach may reduce the number of patients dropping out from therapy and increase their motivation to comply with treatment.

CONCLUSIONS

To date, cognitive-behavioral therapy for PTSD has gained empirical support from multiple well-controlled studies with a variety of trauma victims, including war veterans, female victims of assault, and mixed trauma populations. Of the existing treatment programs, exposure therapy has the most empirical support for its high efficacy and efficiency in different populations of trauma victims with PTSD. A substantial minority of patients, however, fail to show sufficient gains. Stress inoculation training has also proved to be effective, although it has not been widely studied. Cognitive therapy is promising, especially for rape victims, but the results with other populations are more equivocal. More controlled studies are needed before the efficacy of cognitive therapy with different victim populations can be ascertained. Interestingly, studies show that augmentation of exposure therapy with stress inoculation training or cognitive restructuring does not confer additional therapeutic benefit compared with exposure therapy alone. Several studies have been conducted to examine the efficacy of EMDR, but only a few of them were well controlled. Only one study compared EMDR with a well-established cognitive behavioral program and found the latter to be more effective and more durable. Also, it appears that the eye movement component of EMDR is not related to the efficacy of the treatment. To determine the benefit of other therapies for PTSD, further well-controlled studies are required; these need to include control groups, large sample sizes, and more comparative treatments. No studies have examined the relative efficacy of medication and cognitive-behavioral therapy and whether combination of the 2 will augment the efficacy of each. Finally, it is important to note that successful PTSD treatment does not lie with the method of therapy alone; for treatment to be maximally beneficial, therapists should promote patients' trust and cooperation so that they regularly attend therapy sessions for the duration of therapy and comply with treatment assignment.

Drug names: carbamazepine (Tegretol and others), fluoxetine (Prozac), fluvoxamine (Luvox), sertraline (Zoloft).

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