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Dissemination of Exposure Therapy in the Treatment of Posttraumatic Stress Disorder

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Since the introduction of posttraumatic stress disorder (PTSD) into the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III; *American Psychiatric Association, 1980), considerable research has demonstrated the efficacy of several cognitive–behavioral therapy (CBT) programs in the treatment of chronic PTSD. Among these efficacious treatments is exposure therapy. Despite all the evidence for the efficacy of exposure therapy and other CBT programs, few therapists are trained in these treatments and few patients receive them. In this article, the authors review extant evidence on the reasons that therapists do not use these treatments and recent research on the dissemination of efficacious treatments of PTSD.*

Posttraumatic stress disorder (PTSD) is a highly prevalent, often chronic and disabling psychiatric disorder that can develop following exposure to a traumatic event. Posttraumatic stress disorder is frequently comorbid with major depression, other anxiety disorders, and substance abuse disorders (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), and is associated with low quality of life (Zatzick et al., 1997). Given the preceding facts, it is heartening that pharmacological and psychosocial treatments can be helpful in the amelioration of PTSD and associated symptoms. Unfortunately, most PTSD patients do not receive treatments consistent with expert consensus guidelines. In this article, we discuss successes and challenges we have experienced in disseminating exposure therapy for PTSD.

COGNITIVE–BEHAVIORAL THERAPY

Since its introduction into the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (*DSM-III*; American Psychiatric Association [APA], 1980), numerous randomized controlled studies have evaluated several treatments for PTSD, most involving some form of cognitive–behavioral therapy (CBT). A recent meta-analysis of randomized treatment studies for PTSD (Bradley, Greene, Russ, Dutra, & Westen, 2005) identified 26 studies producing 44 treatment conditions, of which 37 were classified as some form of CBT (including eye movement desensitization and reprocessing [EMDR]), and 23 control conditions (waitlist or active controls such as supportive counseling and relaxation). The mean effect size based on

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pretreatment to posttreatment change across treatments was 1.43; 67% of treatment completers no longer met criteria for PTSD following treatment. By comparison, mean effect sizes for active controls and waitlist were 0.59 and 0.35, respectively; the corresponding results for loss of the PTSD diagnosis were 39% and 17%. The studies included a wide range of traumas such as combat, violent crime, various types of serious accidents, and abuse occurring in childhood. Thus, the evidence is quite compelling that CBT is helpful in the treatment of PTSD relative to waitlist and active control conditions.

Efficacious CBT programs include cognitive therapy, stress inoculation training (SIT), EMDR, exposure therapy (EX), and prolonged exposure therapy (PE), sometimes implemented individually and other times in combination (e.g., PE + SIT). The quantity and quality of data on the efficacy of CBT led the Expert Consensus Guidelines on the Treatment of PTSD (Foa, Davidson, et al., 1999) to conclude that "three psychotherapy techniques—exposure therapy, cognitive therapy, and anxiety management—are considered to be the most useful in the treatment of PTSD" (p. 15). Similarly, the CBT chapter from the ISTSS Practice Guidelines (Rothbaum, Meadows, Resick & Foy, 2000), "strongly recommend the use of some form of EX [exposure therapy] in the treatments of PTSD. . . " (p. 323). Although the remainder of this article will focus primarily on exposure therapy, many of the issues associated with dissemination of exposure therapy will likely be applicable to other empirically supported CBT programs.

EXPOSURE THERAPY

Exposure therapy is a general strategy for reducing unrealistic anxiety through confronting anxiety-provoking or avoided thoughts, situations, activities, and people that are not inherently harmful. Exposure therapy can be implemented through the use of imagination (imaginal exposure) or in real life (in vivo exposure). Prolonged exposure (PE) is a specific exposure therapy program that has been the subject of considerable research in the treatment of PTSD. It is comprised of four main components: (a) education about the nature of trauma and trauma reactions, including a clear rationale for the use of exposure therapy; (b) training in controlled breathing; (c) imaginal exposure to the memory of the traumatic event, both in therapy and as homework; and (d) in vivo exposure to trauma reminders, typically conducted as homework. At the end of each imaginal exposure session, the therapist spends 15–20 minutes discussing with patients their experiences during the imaginal exposure, with a focus on new information or insights the patient may have acquired resulting from the exercise. This phase of the session, called *processing,* is to help patients integrate new information and insights into their memory thereby promoting a more realistic perspective. Prolonged exposure usually involves 9 to 12 individual therapy sessions, each lasting about 90 minutes, administered once or twice weekly. Foa and Rothbaum (1998) provide a detailed description of the treatment. Marks, Lovell, Noshirvani, Livanou, and Thrasher (1998) developed a similar treatment protocol with the primary difference being that, in the Marks et al. protocol, exposure during the first five sessions is focused exclusively on imaginal exposure (in session and as homework), followed by five sessions focused therapist-assisted in vivo exposure plus in vivo homework exercises. In PE, imaginal and in vivo exposures are conducted simultaneously throughout treatment.

Efficacy of Exposure Therapy

Several excellent reviews of the efficacy of CBT for PTSD already exist, including the ISTSS Practice Guidelines (Foa, Keane, & Friedman, 2000), a recent meta-analysis (Bradley et al., 2005), and narrative reviews (e.g., Harvey, Bryant, & Tarrier, 2003). Here we highlight methodologically rigorous studies comparing exposure therapy (the combination of imaginal plus in vivo exposure, without the addition of significant elements of either stress inoculation training or formal cognitive therapy) with other treatments and, typically, some other control condition (i.e., supportive counseling, relaxation, or waitlist/minimal attention).

Table 1 presents within-group effect sizes for six studies that reported means and standard deviations from a reliable and valid interviewer measure of PTSD symptom severity

Table 1. Efficacy of Exposure Therapy in the Treatment of Posttraumatic Stress Disorder (PTSD): Within Group Effect Sizes (Sample Sizes)

Study	PE/ET	Other CBT	Relaxation/ supportive counseling	Waitlist/ minimal attention
Foa et al. (1991)	1.21 ($n = 10$)	SIT: 2.46 ($n = 14$)	0.92 ($n = 11$)	0.82 ($n = 10$)
Foa et al. (1999)	2.04 ($n = 23$)	SIT: 1.87 ($n = 19$) PE/SIT: 1.99 ($n = 22$)	—	0.82 ($n = 15$)
Foa et al. (2005)	3.33 ($n = 52$)	PE/CR: 2.37 ($n = 44$)	—	0.85 ($n = 25$)
Marks et al. (1998)	1.02 ($n = 20$)	CR: 1.57 ($n = 18$) ET/CR: 1.12 ($n = 19$)	0.93 ($n = 20$)	—
Paunovic & Ost (2001)	2.67 ($n = 9$)	PE/CR: 1.85 ($n = 7$)	—	—
Resick et al. (2002)	2.38 ($n = 40$)	CPT: 3.10 ($n = 41$)	—	0.01 ($n = 40$)
Weighted *M*	2.41 ($n = 154$)	SIT: 2.12 ($n = 33$) PE/ET + SIT or CR: 1.98 ($n = 92$) CR + CPT: 2.63 ($n = 59$) Overall: 2.22 ($n = 184$)	0.93 ($n = 31$)	0.47 ($n = 90$)

Note. PE = prolonged exposure, ET = exposure therapy, both protocols combine imaginal and in vivo exposure. SIT = stress inoculation training, CR = cognitive restructuring, CPT = cognitive processing therapy. The outcome measure was either the PTSD Symptom Scale Interview (studies by Foa et al.) or the Clinician Administered PTSD Scale (all others). Within-group effect sizes were computed according to the formula $ES = (M_{pre} - M_{post})/SD_{pooled}$, where $SD_{pooled} = SQRT([SD^2_{pre} + SD^2_{post}]/2)$.

(either the PTSD Symptom Scale-Interview [PSS-I]; Foa, Riggs, Dancu, & Rothbaum, 1993) or the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995). Exposure therapy consistently yielded effect sizes greater than 1, with a mean effect size of 2.41, compared with mean effect sizes of 0.93 and 0.47 for active controls and waitlist/minimal attention, respectively. The mean effect size for exposure therapy was similar to that for other cognitive–behavioral treatments (2.22), and none of the individual studies directly comparing exposure therapy with another form of CBT found significant differences between them on the primary PTSD outcome measure. Moreover, studies directly examining combination treatments (e.g., exposure therapy alone vs. exposure therapy plus SIT or cognitive restructuring [CR]) failed to find superiority for the combination treatments (mean effect size of 1.98).

The above conclusions are further supported by two additional methodologically rigorous studies directly comparing exposure therapy with EMDR and a third control condition, but the reports did not include the statistics required to compute effect sizes for their main PTSD outcome measure (the CAPS in both instances). Taylor et al. (2003) modified the Marks et al. (1998) exposure therapy protocol, providing patients with a total of eight

therapy sessions (four sessions devoted to imaginal and four sessions to in vivo exposure) and compared it with eight sessions of EMDR or relaxation. Significant improvement was obtained for all groups and exposure therapy was found superior to relaxation, but EMDR did not differ from either relaxation or exposure therapy. Rothbaum, Astin, and Marsteller (2005) compared nine sessions of PE with EMDR or waitlist. Compared to waitlist, both treatments produced significant improvement on PTSD. A composite measure of good end-state functioning (≥50% reduction in CAPS severity plus low levels of depression and general anxiety) found no differences between PE and EMDR immediately after treatment (70% vs. 50% achieving good end-state functioning, respectively). At 6-month follow-up, however, significantly more patients receiving PE (78%) met criteria for good end-state than EMDR (35%).

Do Therapists Utilize Exposure Therapy When Treating PTSD?

Becker, Zayfert, and Anderson (2004) surveyed two groups of psychologists to determine the extent to which therapists were trained in and used imaginal exposure for chronic PTSD. Additionally, for therapists not using imaginal exposure, Becker et al. investigated reasons for not doing so. The main sample comprised 207 psychologists working predominately in private practice. The other sample comprised 29 members of the Association for Advancement of Behavior Therapy's Disaster and Trauma Special Interest Group (SIG), working predominately in medical centers and universities. The majority of therapists in both samples had at least modest experience treating PTSD (minimum of 11 such patients), and a substantial percentage of therapists had extensive experience treating PTSD (50+ patients).

Whereas a minority of therapists in the main sample had training in imaginal exposure (28%) for PTSD, most of the SIG sample had such training (93%). Interestingly, fewer respondents had training in exposure therapy for other anxiety disorders (12% in the main sample and 45% among SIG members), suggesting that lack of training in exposure therapy is a general deficiency in professional education and not limited to PTSD. Given the low rate of exposure therapy training in the main sample, it is not surprising that few of them (<20%) ever utilized it. Both training in exposure therapy and experience in treating PTSD were associated with greater use of exposure therapy. For example, only 3 (2%) of psychologists in the main sample without training in imaginal exposure therapy for PTSD had ever used it, compared to 54% of those with training and 62% of the SIG sample. Indeed, inadequate training was the most commonly endorsed reason for not using exposure therapy. Regarding experience in treating PTSD, fewer trained therapists in the main sample with less experience (treated ≤ 25 PTSD patients) had used imaginal exposure (36%) than more experienced trained therapists (68%) and SIG members (66%). However, therapists with training and experience, only about half of them used imaginal exposure in the majority of PTSD cases. Thus, many therapists with training and experience did not routinely use exposure therapy. Why?

Two additional common reasons for therapists' reluctance to use exposure therapy were: (a) a preference for individualized over manualized treatment, and (b) concerns that patients will decompensate. Thus, if dissemination efforts are to increase the number of therapists utilizing exposure therapy in the treatment of PTSD, clinicians' concerns about using manualized treatments, a factor that is also likely to limit clinicians' use of other empirically supported treatments, and concerns about the safety of treatment, which may be more specific to exposure therapy must be addressed.

Tolerability and Safety

Concern about the tolerability and safety of exposure therapy has been expressed since its inception. For example, Wolpe (1958), who developed systematic desensitization, was concerned that evoking too much anxiety during treatment could instead result in sensitization of the patient. Accordingly, his procedures were designed to minimize anxious arousal. Concern over sensitization continued with

the development of more intense exposure therapy procedures, such as imaginal and in vivo flooding, despite evidence these procedures were helpful in reducing anxiety with conditions for which systematic desensitization had limited efficacy, such as obsessive–compulsive disorder and agoraphobia (Barlow, 2002).

Although fears about the safety of exposure therapy have generally been allayed in the treatment of most anxiety disorders, the concern persists for PTSD. However, recent attempts to evaluate these concerns have generally disconfirmed them. One concern is that patients may drop out of exposure therapy before they can benefit from it. Hembree et al. (2003) conducted a meta-analysis of dropout rates from 25 studies of various CBT programs and control conditions for PTSD. The overall dropout rate from 26 control conditions (predominately waitlist, supportive counseling, and relaxation) was significantly lower (11.4%) than from 12 exposure therapy alone conditions (20.5%), 9 SIT or cognitive therapy conditions (22.1%), and 12 exposure therapy plus SIT or cognitive therapy conditions (26.9%). Dropout from eight EMDR studies (18.9%) did not differ from controls or other treatments. Thus, although dropout was higher in active treatment than in control conditions, except for EMDR, dropout from exposure therapy alone was no different than other active treatments, including EMDR.

A second concern is that exposure therapy may exacerbate PTSD symptoms. Two citations used to support this concern are a case series described by Pitman et al. (1991) and a randomized study by Tarrier et al. (1999). Pitman et al. (1991) described six cases taken from a larger study (Pitman et al., 1996) of imaginal exposure therapy with veterans. Although each of the cases showed some form of symptom worsening (e.g., exacerbation of PTSD or depressive symptoms, relapse of a preexisting condition such as alcohol abuse), the study from which the cases came did not include any comparison condition. Thus, it is unclear what the rate of worsening would have been with no treatment at all.

Tarrier et al. (1999) examined the relative rates of numerical symptom worsening, an increase from pretreatment to posttreatment of at least 1 point, on the CAPS following treatment with either imaginal exposure or cognitive therapy. Despite comparable overall improvement in the two conditions across multiple outcome measures, 9% of patients receiving cognitive therapy displayed numerical worsening compared to 31% in exposure therapy. Interpretation of this finding is limited by three considerations. First, an increase of one point on the CAPS is within the measurement error of the instrument (Devilly & Foa, 2001). Thus, without information about the magnitude of the posttreatment increase, it is not clear whether these patients actually got worse or failed to improve. Second, as with Pitman et al. (1991), Tarrier et al. (1999) did not have a waitlist or similar control condition. Thus, it is not clear how their finding compares to the natural course of the disorder.

Third, neither the high rate of numerical worsening seen in Tarrier et al.'s (1999) exposure therapy condition, nor the differential rates of numerical symptom worsening between treatments have been replicated. Taylor et al. (2003, described above) evaluated rates of numerical symptom worsening following exposure therapy, EMDR, and relaxation. Out of 45 treatment completers, one patient showed numerical symptom worsening on the CAPS, and that patient received relaxation. Unpublished analyses of numerical symptom worsening among completers from studies by Foa, Dancu, et al. (1999) and Foa et al. (2005), Resick et al. (2002), and Rothbaum et al. (2005) also found low rates of PTSD numerical worsening following PE (<10%); they were not different from other treatments (SIT, PE/SIT, PE/CR, CPT and EMDR) and were significantly lower than rates of symptoms worsening following no treatment controls. Cloitre et al. (2002) investigated the efficacy of a treatment sequentially combining skills training in affect and interpersonal regulation, based on principles of dialectical behavior therapy (Linehan, 1993), with imaginal exposure to trauma memories to treat PTSD among survivors of childhood abuse. Approximately 5% of patients receiving the combined treatment showed numerical symptom worsening compared to 25% in a waitlist condition. Thus, the preponderance of evidence suggests treatment reduces the likelihood of symptom worsening and the rates of numerical symptom worsening are not

any higher after exposure therapy than they are after other treatments.

Foa, Zoellner, Feeny, Hembree, and Alvarez-Conrad (2002) evaluated whether reliable symptom worsening, an increase larger than the standard error of the difference between two measurement occasions (cf. Devilly & Foa, 2001), was associated with initiation of imaginal exposure, increased dropouts, or worse outcome. Utilizing data from the Foa et al. (2005) study comparing PE with PE/CR, Foa et al. (2002) examined reliable symptom increases in self-reported PTSD severity occurring between Sessions 2 and 4. Patients assigned to the PE condition began imaginal exposure during Session 3, whereas patients assigned to PE/CR began imaginal exposure in Session 4. Instead, Session 3 introduced cognitive restructuring. This design feature permitted comparison of patients showing symptom worsening between Sessions 2 and 4 among patients randomly assigned to either begin imaginal exposure or begin cognitive restructuring. A minority of patients displayed reliable PTSD symptom worsening between Sessions 2 and 4, although a greater percentage of cases showing reliable PTSD worsening occurred following initiation of imaginal exposure (85.7%) than cognitive restructuring (14.3%). Importantly, symptom worsening was not associated with either poorer treatment outcome or increased dropout rates. Thus, the increase in PTSD symptoms was temporary.

Summary and Discussion

Although exposure therapy has been found efficacious in the treatment of PTSD in several well-controlled studies, clinicians who treat PTSD rarely use it. This is not unique to PTSD, as clinicians rarely use exposure therapy in the treatment of other anxiety disorders (Freiheit, Vye, Swan, & Cady, 2004), despite the fact that exposure is a central component of efficacious CBT programs for all of the anxiety disorders (Barlow, 2002). Indeed, therapists are more likely to utilize psychodynamic methods to treat anxiety disorders than CBT methods (Goisman, Warshaw, & Keller, 1999).

The Becker et al. (2004) survey suggests that inadequate training is probably the single largest factor associated with failure to use imaginal exposure for PTSD. Although the survey does not provide information about which treatments are being used instead, it is unlikely that clinicians are using another empirically supported treatment for PTSD, such as SIT or cognitive therapy, for three reasons. First, we are not aware of any evidence on the actual implementation of CBT for PTSD other than the data presented on use of imaginal exposure. Second, another common reason for not using imaginal exposure was therapists' preference against using manualized treatments, which should similarly affect use of SIT and cognitive therapy. Third, Goisman et al.'s (1999) findings indicate that treatment approaches with little empirical support for the treatment of anxiety disorders in general are more widely used than CBT, despite considerable research supporting the latter. There is no reason to believe that treatment for PTSD would be any different.

Another barrier to therapists' use of exposure therapy is concern about patients getting worse because of treatment. Whereas this concern may be more specific to exposure therapy than lack of training and negative attitudes towards manualized treatment, there is little research support for it. The preponderance of evidence from relevant controlled studies indicates that exposure therapy is both safe and efficacious. A related concern is that exposure therapy is not well tolerated, resulting in high dropout rates. Although dropout from CBT is higher than from control conditions, dropout from exposure therapy is not higher than dropout from other cognitive behavioral treatments, even those designed to minimize distress such as SIT. Moreover, reviews of the treatment dropout literature (e.g., Baekeland & Lundwall, 1978; Garfield, 1986; Wierzbicki & Pakarik, 1993) estimate dropouts from clinical services to range from 30% to 60%. Thus, it is important to acknowledge that although dropout is a real barrier to patients receiving adequate care, this is true across treatments and disorder, and not unique to exposure therapy for PTSD.

The implications of the preceding discussion are that lack of access to effective treatment for PTSD is a major

public health problem. Moreover, dissemination methods need to address the technical aspects of administering the treatments along with negative attitudes about manualized treatment and misinformation about the relative safety and tolerability of treatments. Next, we provide a summary of recently published and ongoing research related to the dissemination of CBT, and particularly PE, for PTSD.

DISSEMINATION OF PROLONGED EXPOSURE

PE and PE/CR: Outcome at Academic and Community Clinics

As previously described, Foa et al. (2005) compared PE with PE/CR and waitlist. A unique feature of that study was that it included parallel recruitment and treatment of female assault victims at two treatment sites. Some patients were recruited through the Center for the Treatment and Study of Anxiety—a university-based research and treatment clinic specializing in the anxiety disorders—where patients were treated by clinical psychology doctoral-level clinicians with considerable experience delivering CBT. Other patients were recruited and treated by masters'-level clinicians with degrees in social work or counseling psychology working at a large community-based rape treatment center, Women Organized Against Rape. Prior to the community therapists' involvement in the research study, they had experience working with sexual assault survivors but not with CBT. Instead, standard clinical practice at the rape treatment center was present-focused individual and group supportive counseling designed to help sexual assault victims cope with their symptoms and their daily-life stressors.

Training community therapists to implement the study treatments involved initial training in PE by Edna Foa and other members of the Center for the Treatment and Study of Anxiety; initial training in CR by David M. Clark of Oxford University, assisted by members of the Center; and weekly supervision for the duration of the study by an expert from the Center. Initial PE training consisted of an intensive 5-day workshop utilizing didactic instruction, watching videotapes of experienced therapists administering the treatment, and role-playing specific treatment procedures. The initial CR training consisted of a second 5-day workshop utilizing training procedures similar to those implemented for PE. Weekly supervision involved discussion of ongoing cases and viewing portions of videotaped therapy sessions. In addition, two-day booster workshops directed by Dr. Foa were conducted every 6 months for the first 2 years of the study in which community and academic therapists presented cases and reviewed videotapes of therapy sessions. Treatment adherence ratings indicated that both academic and community therapists were competent in delivering the treatments (see Foa et al., 2005 for details). As noted previously, both treatments were highly effective in reducing PTSD severity compared to little change in the waitlist condition, and PE/CR was not more effective than PE. Importantly, as depicted Figure 1 (which collapses data

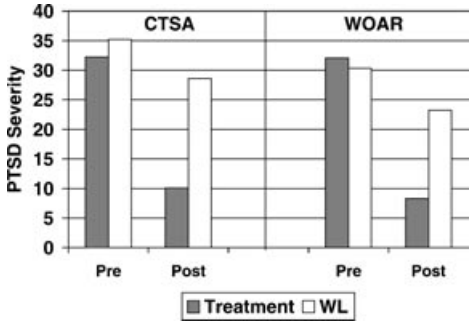

Figure 1. Treatment outcome on the PTSD Symptom Scale-Interview (PSS-I) for treatment completers at the Center for the Treatment and Study of Anxiety (CTSA) and Women Organized Against Rape (WOAR). Treatment comprised prolonged exposure alone (PE) or combined with cognitive restructuring (PE/CR). As there were no significant differences between the two treatments, results were combined to form a single treatment condition. The comparison condition was waitlist (WL). The outcome measure was the PTSD Symptom Scale Interview. Data from "Randomized Trial of Prolonged Exposure for PTSD With and Without Cognitive Restructuring: Outcome at Academic and Community Clinics," by E. B. Foa, E. A. Hembree, S. P. Cahill, S. A. Rauch, D. S. Riggs, N. C. Feeny, et al., 2005, *Journal of Consulting and Clinical Psychology*, 73, 953–964, Table 3, Foa et al. (2005), p. 960, copyright 2005 American Psychological Associan, adapted with permission.

across PE and PE/CR, yielding a comparison of treatment vs. waitlist), treatment outcome was comparable across the academic and community settings.

The collaboration between the Center for the Treatment and Study of Anxiety and Women Organized Against Rape has continued with another research project that includes a second community-based treatment site, the Joseph J. Peter's Institute (Philadelphia, PA). Two studies are actively being conducted, headed by Elizabeth Hembree in collaboration with Edna Foa. In the first study, the supervision by experts from the Center for the Treatment and Study of Anxiety has been replaced by internal supervision by one of Women Organized Against Rape's own senior clinical staff members who worked on the previous study. Thus, one aim is to evaluate the extent to which Women Organized Against Rape therapists can maintain adherence to and efficacy of the PE protocol on their own, with expert consultation decreased to approximately every 6 to 8 weeks. The second study is designed to examine whether the initial success at Women Organized Against Rape can be replicated at the Joseph J. Peters Institute, and if so to again replace intensive Center supervision with internal supervision and evaluate whether therapists maintain their level of treatment adherence and clinical outcomes under more naturalistic conditions.

Other Examples of Disseminating CBT to Community Clinicians

A training model similar to the one described for the initial study with Women Organized Against Rape was utilized in a large-scale Department of Veterans Affairs study headed by Paula Schnurr and Matthew Friedman. Therapists were recruited from 12 Veterans Affairs clinics across the United States. Training and supervision of therapists in PE was again conducted by Edna Foa and a team from the Center for the Treatment and Study of Anxiety in Philadelphia. However, supervision could not be done face-to-face, as in the other studies with community therapists. Instead, therapists sent videotapes of the therapy sessions to their supervisors via Federal Express. The supervisors reviewed the tapes and held a supervision call with the therapist prior to the patient's next scheduled session.

Gillespie, Duffy, Hackmann, and Clark (2002) reported an open trial of a multicomponent cognitive therapy protocol based on Ehlers and Clark's (2000) model of PTSD, another efficacious treatment for PTSD. Study patients were survivors of a terrorist bombing in Northern Ireland. Five community therapists from varied backgrounds (psychiatry, nursing, and social work) with no prior expertise in treating trauma received an initial intensive training course in the cognitive therapy protocol followed by ongoing supervision by a local CBT expert (Gillespie), supplemented by consultation via teleconferencing technology with Dr. Clark. Treatment was quite effective and comparable to the outcome obtained in a randomized trial by the developers of the treatment (Ehlers et al., 2003).

Developing Local Expertise: Training the Trainers

Foa et al. (2005) and Gillespie et al. (2002) illustrate that community-based therapists can implement CBT for PTSD when provided intensive training and ongoing expert supervision. Experience with the Schnurr and Friedman VA study further suggests long-distance supervision is possible using videotapes of therapy sessions and express package-delivery services. However, this general method of dissemination is time intensive and limited by the availability of experts to provide extended supervision. Moreover, community agencies often have high rates of therapist turnover, thereby requiring additional training to maintain a pool of adequately trained therapists.

An alternative model that may overcome some of the difficulties with the intensive training of therapists' model already described is to increase the number of centers with local expertise to assist in the training and supervision of new therapists. A typical scenario following this training the trainers' model looks something like the following. Prolonged Exposure experts first provide an intensive training workshop for a group of therapists interested in the treatment program. Next, a subgroup of the newly trained therapists is identified to become future trainers and

supervisors. This subgroup of future trainers–supervisors then receives weekly supervision by a PE expert for a series of training cases. The group of future trainers–supervisors then participates in a second intense training lasting approximately 2 weeks to review and practice all PE components, watch videotapes of PE sessions, and participate in supervision. After completing the preceding training, this group of trainers–supervisors begins to provide supervision to other therapists that have themselves undergone basic training in PE and assist with conducting future PE workshops. Although the new group of trainers–supervisors may continue to consult with the original PE experts, the level of involvement of the original PE experts is substantially less.

Development of this training the trainers' model has grown primarily out of work in Israel headed up by Edna Foa, assisted by other members of the Center for the Treatment and Study of Anxiety, and in collaboration with several individuals and agencies in Israel among them, Nitsa Nacash. Since beginning this project in July of 2002, numerous therapists in Israel have participated in initial 4-day PE training workshops, a group of supervisors have been trained, and several supervision groups have formed. Therapists in these supervision groups have been collecting outcome data for patients treated with PE in the context of several as yet unpublished open trials and one randomized controlled trial. Preliminary results are extremely encouraging, suggesting that training the trainers provides a more efficient model to disseminate PE while maintaining high-quality treatment and a commitment to evaluating treatment outcome.

Disseminating Prolonged Exposure in the Wake of 9/11

The attacks of September 11, 2001, and the sudden and dramatic increase in PTSD in the New York community shocked the mental health community out of complacency in many ways. Hundreds of calls to the New York State Psychiatric Institute (New York, NY) from mental health clinicians asking for specialized training overwhelmed the surge capacity of the New York community to handle post-disaster mental health problems (Marshall, Amsel, Neria, & Suh, in press). This brought a major challenge to the field: What is the most efficient, effective way to train large numbers of practitioners to acquire a new set of skills to treat disaster-related disorders?

In the absence of an established model, Marshall and colleagues developed a training model drawing from research in the field of Decision Science as well as from new training methods and concepts (Gollwitzer, 1999) currently under study by Peter Jensen. The first decision made was to focus efforts on the dissemination of psychosocial treatments rather than pharmacologic treatments. The pharmaceutical industry had already been promoting FDA-approved medications for PTSD for several years, whereas there had been no similar large-scale efforts for psychosocial treatments. Additionally, pilot work suggested that CBT could produce additional gains in some patients already treated with medications (Marshall, Carcamo, Blanco, & Liebowitz, 2003). The limiting factor in disseminating evidence-based psychosocial treatments for PTSD was the availability of expert clinicians who could devote themselves to training over an extended period. Moreover, the tradition of didactic training followed by months of supervision was not deemed feasible to rapidly train a large number of clinicians. For example, the effective dissemination approach described above requires an existing infrastructure, sufficient funding, and expertise that could not be mobilized quickly enough after 9/11.

The second decision involved determining which of several empirically supported treatments to utilize. Based on an existing collaboration among Drs. Marshall, Foa, and her colleagues, PE was selected. However, it seemed unrealistic to expect that clinicians without prior CBT experience would adopt manualized treatments as a complete package. Rather, it was hypothesized that trainings would be considerably more effective if focused on imparting one or two basic skills. It was then expected the clinicians would adapt the new skills to their specific patient needs and capacities for engaging in treatment (Marshall & Suh, 2003).

The final decisions involved designing the curricula and selecting instructional methods. It was already known that traditional continuing medical education (CME) training, based on passive learning and didactic presentations, are

ineffective at imparting new skills (Davis, Thomson, Oxman, & Haynes, 1995). Moreover, training models must be developed for specific communities of trainees. The specific PE training was developed from the following assumptions: (a) Trainees would be licensed clinicians with some clinical experience; (b) trainees were likely to have psychodynamic training and orientations; (c) trainees would have, or would likely have, patients with 9/11-related PTSD, or at least be attending the trainings because of concerns about 9/11. The training objectives were to convince trainees that trauma-focused therapy could be effective, impart two basic skills to clinicians that are the core of PE (imaginal and in vivo exposure), and motivate clinicians to incorporate these skills into their PTSD treatment approach. Having used PE successfully for several years prior to 9/11, Marshall and colleagues also understood that clinicians must master the rationale for PE and successfully prepare patients for the exposure experiences through psychoeducation and active support. However, if clinicians lack the skill and confidence to conduct exposures, common sense suggested that therapists would not embark upon motivating patients to engage in the treatment.

This decision science model lends itself to systematic study. Drawing on research that distinguishes CBT from psychodynamic approaches (reviewed by Blagys & Hilsenroth 2002), 10 components to the PE protocol were identified (Amsel, Neria, & Suh, Marshall, in press), which may usefully be divided into three clusters (See Table 2): (a) interventions common to many types of psychotherapy, (b) interventions common to cognitive- behavioral therapy in general, and (c) distinctive interventions that are at the core of PE. Prior to each workshop, therapists rated the 10 PE components in terms of how favorably they viewed the component (Favorable attitude, rated −5 to +5) and how able they felt to implement each component (Self-efficacy, rated −5 to +5). A discrepancy between a favorable rating, on the one hand, and self-efficacy on the other (i.e., favorability–self-efficacy) is termed the *implementation gap*. A relatively high implementation gap on a particular component identifies a skill that is seen as desirable in practice, but which cannot be implemented due to a lack of skill on the part of the therapist.

Table 2 also summarizes results from a pilot study (Amsel, Neria, Suh, & Marshall, 2005) examining the first wave of trainings. Participants were predominately White (81%), and were women (81%) with degrees in social work (57%) and psychology (18%) with an average of 17 years in practice. This is a reasonable representation of the demographics of mental health providers in the community. There was little or no implementation gap for providing patients with psychoeducation about the nature of trauma reactions and PTSD, with therapists giving both high favorability and self-efficacy ratings. Thus, psychoeducation serves as a comparison variable in assessing all other skill components. Compared to psychoeducation, all other treatment components except breathing retraining had significantly lower ratings of favorability, self-efficacy, or both. Significant implementation gaps were obtained for cognitive restructuring, formal assessment, and assigning homework, along with imaginal and in vivo exposure. Over the course of subsequent training, greater focus was placed on the two exposure components of PE, gradually incorporating more and more emphasis on presenting, demonstrating, and role-playing exercises for these skills.

A second aspect of the study was to investigate clinicians' perceptions of the utility of each of three training modalities (lectures, role-plays, and demonstrations) in conveying information across seven educational goals (conveying theoretical principles and procedural details of the treatment, challenging therapists' beliefs, changing therapists' initial reservations or objections, overcoming barriers to implementing PE, fostering development of treatment skills, and motivating therapists to changes in their practice). A −5 to +5 scale was again used, this time to rate how much each training modality influenced each goal. Although mean ratings for all three teaching modalities were positive across all goals, demonstrations were rated as significantly more helpful than lectures across all seven educational goals, and significantly more helpful than role-plays across five goals (all but motivating therapists to change their practices and overcoming barriers). Lectures were rated as significantly more helpful in conveying theoretical principles than role-plays, but role-plays were rated as significantly more helpful for overcoming barriers to implementing PE.

Table 2. Components of Prolonged Exposure Therapy

Cluster	Component
Common to many forms of psychotherapy	Psychoeducation
Common to many CBT programs	Breathing training
	Use of structured instruments [a,b]
	Use of treatment manual[a,b]
	SUDS awareness[b]
	Cognitive restructuring[a,b,c]
	Assessment[b,c]
	Homework assignment[a,b,c]
Distinctive exposure therapy elements	Imaginal exposure[a,b,c]
	In vivo exposure[a,b,c]

Note. CBT = Cognitive–behavior therapy; SUDS = Subjective units of distress.
[a]Attitude significantly less favorable than psychoeducation. [b]Self-efficacy significantly lower than psychoeducation. [c]Implementation gap (favorable attitude score–self-efficacy score) significantly greater than psychoeducation.

The above results have important implications for the development of effective dissemination programs. First, these results illustrate the need to address both attitudes and technical knowledge about specific PE procedures. It would seem particularly important to address attitudes about the use of structured assessments and manualized treatments (Amsel et al., 2005; Becker et al., 2004). Despite the trainers' best efforts, clinicians still had misgivings about using manualized treatment. This goal may need to be abandoned or extensively revised in future dissemination work. Second, and consistent with previous research (Davis et al., 1995), clinicians found CME-style lectures to be the least useful training technique for imparting new skills. Instead, clinicians consistently rated demonstrations by experts, one of the least used training methods, to be the most influential. Even in the cases of theoretical principles and technical details, demonstrations were rated as more influential than lectures and role-plays. Thus, effective dissemination would likely benefit from the development of a training curricula and corresponding training materials that increase their use of demonstrations and decrease their reliance on lectures, particularly for achieving education goals beyond conveying general principles of treatment or presenting the finer details of a technique.

SUMMARY AND CONCLUSIONS

Substantial progress has been made in developing efficacious PTSD treatments. However, we as researchers, clinicians, and people of good will, cannot be satisfied with our accomplishments to date. Efficacious treatments are of limited value if the majority of patients who could benefit from these treatments do not have access to them. Accordingly, our field needs to invest the same degree of energy, creativity, and other resources that have paid off in the development of these efficacious treatments into their effective dissemination, so that clinicians who treat PTSD are fully able and willing to use them. The research discussed above shows effective dissemination can be accomplished, although at present, the dissemination models that have been found to be effective are labor intensive. Accordingly, dissemination that requires intensive training followed by ongoing supervision will be limited by the availability of experts to do the training and the extended supervision. An alternative training the trainer model designed to create a larger pool of experts who can participate in the initial training and ongoing supervision of therapists, although still more intensive than the traditional weekend workshop, appears promising. Future research needs to address

the relative merits of these different dissemination models and, hopefully, will result in the development of new and more efficient models for dissemination that, for example, may take advantage of advances in communication technology.

Research has also identified barriers to effective dissemination. Specifically, trainers need to pay attention not only to conveying information about treatment techniques and the results of efficacy studies, but also the need to address negative attitudes towards the use of evidence-based treatments, particularly the use of treatment manuals, and correct false beliefs about safety, tolerability, and relevance of evidence-based interventions in the treatment of real patients. Additionally, we need to use training methods that help clinicians develop both their skills in using evidence-based treatments and their confidence, or self-efficacy, so that they will be motivated to use them. In particular, expert demonstration of the new techniques is perceived to be a highly influential way to achieve these educational goals. Our goal, as Amsel et al. (2005) have noted, should be to develop training methods "that are as efficacious in changing clinician behavior as our therapies are in changing patient behavior" (p. 645).

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