PSYCHOSOCIAL TREATMENTS FOR POSTTRAUMATIC STRESS DISORDER: A Critical Review

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ABSTRACT

Posttraumatic stress disorder (PTSD) has been the subject of growing recognition since its inception in 1980. Owing in part to the relatively recent inclusion of PTSD in the psychiatric nomenclature, research is only beginning to address its treatment in methodologically rigorous studies. In this review, we discuss issues such as prevalence of trauma and of PTSD, and gold standards for treatment outcome research. We then critically review the extant literature on the treatment of PTSD. Finally, we include a discussion of issues specific to various trauma populations and factors that may influence treatment efficacy across types of trauma.

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INTRODUCTION

The concept of trauma-related emotional disturbance has existed for over a century, having names such as shell shock, war neurosis, and rape trauma syndrome. However, its official categorization in the diagnostic nomenclature as posttraumatic stress disorder (PTSD) is quite recent. It was first introduced in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-III)* (American Psychiatric Association 1980). Because of the recent recognition of PTSD as a formal disorder, critical issues such as predictors of failure to recover from a trauma and the development and evaluation of effective treatments have just begun to be addressed in research using rigorous methodology.

In this review, we first discuss the diagnostic criteria for PTSD and consider prevalence of chronic PTSD associated with various stressors. We then critically review the current treatment outcome literature, using a model of an ideal treatment outcome study for PTSD. Finally, after exploring issues specific to particular groups of trauma victims, we discuss factors that may influence differences in treatment efficacy across types of trauma.

DIAGNOSTIC CRITERIA OF PTSD

The *DSM-IV* diagnosis of PTSD includes six criteria. The first is the qualifying trauma. A traumatic event is defined as one in which: (a) the person experienced, witnessed, or was confronted with an event that involved actual or perceived threat to life or physical integrity; and (b) the person’s emotional response to this event included horror, helplessness, or intense fear.

Psychological symptoms of PTSD are categorized into three clusters: reexperiencing, avoidance/numbing, and increased arousal. The reexperiencing symptoms (e.g. nightmares, flashbacks) have been considered the hallmark of PTSD (e.g. Foa & Rothbaum 1992). The second cluster consists of symptoms of effortful avoidance (i.e. deliberately avoiding trauma-related stimuli) and
symptoms of emotional numbing (Foa et al. 1995b, Litz 1993); the latter are considered distinguishing features of PTSD. The third symptom cluster, increased arousal, includes symptoms such as difficulty sleeping, hypervigilance, and irritability.

PREVALENCE OF PTSD IN VARIOUS TRAUMA POPULATIONS

According to epidemiological data reported by Helzer et al. (1987), approximately 1–2% of the general US population meets criteria for PTSD, but it has been argued (e.g., Davidson et al. 1991; EB Foa & C Molnar, unpublished manuscript; Keane et al. 1994) that Helzer et al. underestimated the prevalence of the disorder. Retrospective epidemiological studies of specific trauma populations place the prevalence of PTSD at higher rates. For example, Resnick et al. (1993) found that of women victims of rape, 32% met criteria for lifetime and 12.4% for current PTSD. The National Vietnam Veterans Readjustment Study (NVVRS) (Kulka et al. 1988) found a lifetime PTSD prevalence rate of 30% in Vietnam veterans, with a current rate of 15%. Similarly high PTSD prevalence rates have been found in studies of natural disasters (e.g., Green 1993, McFarlane 1989, Shore et al. 1986) and motor vehicle accidents (e.g., Taylor & Koch 1995).

Given the high rates of both traumatic events and of resulting PTSD, combined with the ever growing population of those with PTSD because of the chronicity of the disorder, it is imperative to be able to identify immediately following a trauma those who are likely to develop chronic PTSD and to develop efficacious and cost-effective treatments for these individuals. This is especially warranted given that prospective studies of trauma victims typically reveal higher rates of PTSD (Foa 1995b, Rothbaum et al. 1992).

It may also be useful to conceptualize the reactions of victims to other highly stressful events, such as the death of a loved one following a lingering illness, as a PTSD-like syndrome. Researchers have found that after death of a partner, 50% of participants met PTSD symptom criteria at some point during the following two years, and 9% met criteria at each of four assessment points (Schut et al. 1991). Moreover, treatments developed for PTSD seem to help bereaved patients (e.g., Marmar et al. 1988). With this consideration in mind, studies of treatment outcome for symptoms following such events are also discussed.

MEASURES

A number of measures have been used in PTSD outcome studies, in both interview and self-report formats. These measures vary widely according to
symptoms assessed, time to administer, and psychometric properties, among other dimensions. Because the choice of measures is so important in evaluating treatment outcome studies, we review briefly the most commonly used instruments in PTSD research.

**Interviews**

The Structured Clinical Interview for DSM (SCID) (Spitzer et al. 1987) is probably the most widely used diagnostic interview measure (Weiss 1993), and it is generally considered the so-called gold standard against which other measures are compared. Although useful as an indicator of diagnostic status before and after treatment, the SCID cannot be used to determine symptom severity. Two other interviews, the PTSD Interview (PTSD-I) (Watson et al. 1991) and the Structured Interview for PTSD (SI-PTSD) (Davidson et al. 1989), have adequate psychometric properties but have not been validated with victims of a wide range of traumas. Two interviews are becoming quite widely used in PTSD treatment outcome studies. The Clinician-Administered PTSD Scale (CAPS) (Blake et al. 1990) permits a diagnosis and severity measure of PTSD, but its administration requires about 45–60 min. More importantly, its psychometric properties were determined exclusively in a veteran population. The second interview, the PTSD Symptom Scale Interview (PSS-I) (Foa et al. 1993), includes a combined frequency/severity rating of each of the 17 PTSD symptoms and thus yields both a diagnosis and a continuous severity rating. Unlike the CAPS, the PSS-I takes only about 15–20 min to administer, which saves valuable clinician time. The PSS-I is the only interview mentioned here that was studied with female assault victims, and it is currently being studied with victims of various other traumas as well. However, as a relatively new measure, the PSS-I has not yet been as widely used as the CAPS.

**Self-Report Measures**

The first measure of trauma-related symptoms was the Revised Impact of Events Scale (RIES) (Horowitz et al. 1979), a self-report measure that yields two factors: intrusion and avoidance. Although the RIES has demonstrated high test-retest reliability and internal consistency, it does not assess all PTSD symptoms and thus cannot indicate diagnostic status. A revised version of the RIES (DS Weiss & CR Marmar, unpublished manuscript) includes hyper-arousal items, but it has shown mixed results in reliability studies and still does not correspond fully to the DSM PTSD symptoms.

Two scales that have excellent psychometric properties, but that do not correspond fully to the DSM symptoms, are the Mississippi Scale (Keane et al. 1988) and the Penn Inventory (Hammarberg 1992). The former was originally developed for combat-related PTSD, but a civilian counterpart exists (Vreven
et al 1995). Because both the Penn Inventory and Mississippi Scale were validated with veteran populations, their validity in other trauma populations is not yet known.

The PTSD Symptom Scale–Self Report (PSS-SR) (Foa et al 1993) and its descendent, the PTSD Diagnostic Scale (PDS) (Foa 1995a), were developed as self-report instruments that would provide information about each of the 17 DSM-IV symptoms. Therefore, they yield both diagnostic and severity information. The PSS-SR demonstrated good reliability and validity in a sample of female assault victims. The PDS aims at assessing all DSM-IV criteria, and thus it includes information about the nature of the traumatic event and the level of functional interference. It was validated in a sample of victims of a wide range of traumas, and thus it can be confidently employed in outcome studies of various trauma populations. The PDS has demonstrated satisfactory test-retest reliability, internal consistency, and convergent and concurrent validity (Foa 1995a).

“GOLD STANDARDS” FOR TREATMENT OUTCOME STUDY

Methodology of outcome studies has advanced considerably over the years so that assessment and treatment strategies acceptable, or even common, in early studies are no longer considered sufficiently rigorous today. In this section we review some of the parameters of a methodologically sound outcome study.

1. Clearly Defined Target Symptoms

Major researchers now concur that, in the absence of psychiatric disturbances, the experiencing of a trauma does not constitute sufficient basis for receiving treatment. Significant trauma-related psychopathology, such as the presence of PTSD or other common reactions to trauma (e.g. depression), should be present to justify treatment. Whatever the target symptom or syndrome, it should be defined clearly so that appropriate measures can be employed to assess improvement.

In addition to ascertaining diagnostic status, it is also important to specify a threshold of symptom severity as an inclusion criterion for entering treatment. Including individuals with mild symptoms of PTSD may muddle treatment findings for two reasons. First, it is more difficult to detect improvement in such individuals. Second, they are likely to exhibit very mild symptoms following treatment simply because of their relatively low initial psychopathology. These two scenarios may lead to opposite biases, the first minimizing treatment efficacy and the second inflating its effects.

An issue related to target symptoms is the importance of delineating inclusion and exclusion criteria. Studies that accept, for example, all rape victims
with a PTSD diagnosis regardless of other psychopathology are likely to yield different results than studies that exclude patients with certain comorbid diagnoses. Delineation of inclusion and exclusion criteria can be of assistance in examining predictors of outcome as well. In addition, if a treatment is effective regardless of sample differences, it proves more robust and therefore more useful.

2. Reliable and Valid Measures

Once target symptoms have been identified and the population defined, measures with good psychometric properties should be employed (see above discussion on measures). For studies targeting a particular diagnosis, assessment should include instruments designed to yield diagnoses as well as instruments that assess symptom severity.

3. Use of Blind Evaluators

Early studies of treatment of trauma victims relied primarily on therapist and patient reports to evaluate treatment efficacy. This introduces expectancy and demand biases into the evaluation. The use of blind evaluators is a current requirement for a credible treatment outcome study. Two procedures are involved in keeping an evaluator blind. First, the evaluator should not be the same person conducting the treatment. Second, patients should be trained not to reveal their treatment condition during the evaluation. For example, patients who have flashbacks during trauma reliving practices required in exposure therapy should be trained to report only those that occur spontaneously.

4. Assessor Training

The reliability and validity of an assessment depends largely on the skill of the evaluator, and thus training of assessors is critical, and a minimum criterion should be specified. This includes demonstrating interrater reliability and calibrating assessment procedures during the study to prevent evaluator drift.

5. Manualized, Replicable, Specific Treatment Programs

It is also important that the treatment chosen is designed to address the target problem defined by inclusion criteria. For example, if PTSD is the disorder targeted for treatment, employing a treatment developed for depression, such as Beck’s Cognitive Therapy (Beck 1976), may not be appropriate despite the high prevalence of depression in patients with PTSD.

Detailed treatment manuals are justifiably a requirement for conducting treatment outcome research. They help to ensure consistent treatment delivery across patients and across therapists and afford replicability of the treatment to determine generalizability.
6. Unbiased Assignment to Treatment

Patients should be assigned randomly to treatment condition, or assigned via a stratified sampling approach. This helps to ensure that observed differences or similarities among treatments are due to the techniques employed rather than to extraneous factors. To separate the effects of treatment from therapists, each treatment should be delivered by at least two therapists, and patients should be randomly assigned to therapists within each condition.

7. Treatment Adherence

The final component of the “ideal” study is the use of treatment adherence ratings. These ratings inform about whether the treatments were carried out as planned, and whether components of one treatment condition drifted into another. This may be especially important when one treatment excludes a technique that is part of a competing treatment and the aim of the study is to evaluate the importance of that technique. A similar problem arises when a study compares treatments offering different rationales for similar techniques (such as the exposure component in behavioral and psychodynamic treatments). In these studies, the effect of the rationale provides the comparison of interest, and including bits of the competing rationale in both conditions effectively renders the two treatments identical.

Having outlined the components of an ideal treatment outcome study, we now review the treatment outcome literature with an eye toward comparisons with our ideal.

CRISIS INTERVENTION AND ACUTE POSTTRAUMA STRESS

The importance of immediate intervention following a trauma to prevent chronic posttrauma problems has often been emphasized (cf Bell 1995). Many such interventions follow the debriefing model proposed by Mitchell & Bray (1990), which includes seven phases conducted in small groups within three days of the traumatic event. The first phase consists of establishing the purpose of the debriefing and the ground rules, typically including emphasis on confidentiality and suspension of rank. Other phases include activities such as “recreating” the event by having all participants give their perspective on what occurred, discuss their thoughts at the time of the event (phase three), describe the worst part of the event for them (phase four), and discuss reactions to the event. The final phases include a teaching component, where common reactions to trauma are described by group leaders to normalize participants’ responses, and a wrap-up in which participants provide comments or closing
statements and may stay to meet informally with one another and the team leaders.

Interventions such as the one described here have been applied to survivors of a variety of traumatic situations. However, as noted by Raphael et al (1995), randomized well-controlled studies of such programs have not yet been conducted, and thus the efficacy of such interventions is still unknown. Raphael et al noted that the existing uncontrolled studies suggest that the debriefing had either no effect or a deleterious effect. The results notwithstanding, in each case the participants and/or the authors felt the debriefing was helpful and valuable.

Crisis intervention has also been employed in women’s centers and rape crisis clinics (e.g. Burgess & Holmstrom 1974). Kilpatrick (1984) studied a brief behavioral program for reducing postrape symptoms, but methodological flaws precluded interpretation of the findings. However, given the utility of behavioral interventions in the treatment of posttraumatic reactions, as described below, such methods might prove efficacious in acute posttrauma reactions as well. To address this issue, Foa et al (1995a) conducted a study of a brief prevention (BP) program for female assault survivors. BP included a number of techniques helpful in treating chronic PTSD, such as exposure, relaxation training, and cognitive restructuring. In this study, 10 patients participated in the BP program and were compared with 10 matched control participants who were repeatedly assessed in an assessment control (AC) condition. Participants were not randomly assigned because of the pilot nature of this study. Both programs were conducted over four weekly two-hour sessions, which began within one month of the assault. Patients were assessed via standardized interview and self-report measures, administered by blind evaluators. All patients met symptom criteria for PTSD, although because of the one-month duration criterion none could receive a diagnosis of PTSD at their entry into the study. Treatment was manualized, with supervision to ensure adherence.

Following the program, 7 of 10 women in the BP condition no longer met PTSD symptom criteria, compared with only one in the AC condition. Furthermore, the BP group showed a mean 72% reduction in severity of PTSD symptoms versus a mean 33% reduction in the AC group. Although the small sample size precludes drawing definitive conclusions about the efficacy of the BP, the results are encouraging.

In summary, there is no evidence to date that the commonly used crisis interventions are effective, but they have not yet been rigorously tested. With female assault victims, short-term behavioral interventions may help in preventing chronic posttrauma problems. One difference between the crisis intervention programs and the Foa et al (1995a) study is that the former are usually
instituted within days of the trauma, whereas the BP program in the latter study was instituted about two weeks posttrauma. Perhaps trauma victims are better able to benefit from interventions that aim at enhancing trauma processing if they are not begun immediately following the trauma, when victims may still be in a state of shock.

PSYCHOSOCIAL TREATMENT FOR CHRONIC PTSD

Hypnotherapy

The use of hypnosis in the treatment of trauma-related distress can be traced at least to the time of Freud (for a review, see Spiegel 1989), who used the technique to encourage the abreaction and catharsis he felt were necessary to resolve conflict. Hypnosis has continued to be used in treating trauma victims, with a variety of theoretical underpinnings (Spiegel 1989).

A number of case reports (e.g. Jiranek 1993; Kingsbury 1988; Leung 1994; MacHovec 1983; Peebles 1989; Spiegel 1988, 1989), involving a wide range of traumas from the common to the idiosyncratic, have testified to the usefulness of hypnosis in treating PTSD. Most, however, lack methodological rigor and thus cannot provide a basis for assessing the efficacy of hypnosis for PTSD and related pathology. None specifies the symptoms targeted for treatment, other than noting that the patient underwent some type of trauma. In several of the reports (Jiranek 1993, Leung 1994, Peebles 1989), patients were said to have PTSD, but no information was provided about how the diagnosis was ascertained. Only two of the above reports (Leung 1994, MacHovec 1983) detailed how hypnotherapy was conducted, and none employed the controls suggested in our gold standard criteria.

In one controlled study (Brom et al 1989) of 112 trauma victims, hypnosis was compared with desensitization and psychodynamic psychotherapy versus a wait-list control group. Patients in this sample suffered from a variety of traumas, although the majority did not directly experience the trauma but, rather, had lost a loved one. All patients met symptom criteria for PTSD, although the assessment method was not explicitly described. Assessment included two pretreatment, but no posttreatment, interviews, thus precluding independent evaluations of outcome. Outcome was based solely on standardized self-report measures, introducing possible expectancy bias into all active treatment conditions.

Treatments were carried out by trained and supervised therapists, but adherence ratings were not obtained. Therapists provided the type of treatment in which they specialized, which thus increased their faith and competence in the treatment but introduced a possible confound of therapist effects that cannot be teased apart from treatment differences. Several other potential biases occurred: Patients in the wait-list condition received unspecified treatment out-
side the research setting, and number of sessions varied across treatments. In sum, the Brom et al study meets some of our gold standard criteria, such as random assignment and standardized measurements, and falls short in such areas as blind evaluation.

All three conditions produced superior improvement to the wait-list condition, but no differences across the three treatments were observed. Psychodynamic therapy decreased avoidance more than intrusion symptoms, and desensitization and hypnosis revealed the reverse pattern. Inspection of the means indicated improvement on the RIES was 29% for psychodynamic therapy, 34% for hypnotherapy, and 41% for desensitization. Noting the limitations discussed earlier, this study suggests that hypnotherapy, as well as desensitization and psychodynamic therapy, may somewhat alleviate posttrauma suffering.

Psychodynamic Treatments

In an attempt to account for posttrauma reactions, psychodynamic theorists (e.g., Horowitz 1976) emphasize concepts such as denial, abreaction, catharsis, and stages of recovery from trauma in developing treatment for posttrauma difficulties. Although deriving from a different theoretical viewpoint, such treatments include components similar to those seen in the cognitive-behavioral treatments discussed below. For example, Horowitz’s concept of “dosing” of the traumatic experience and of “encouraging expression” are quite similar to exposure techniques.

Other psychodynamic theorists focus largely on group process (e.g., Yalom 1995). Although the psychodynamic therapies were derived from interesting theories of trauma and its sequelae, they have not been widely tested in controlled outcome studies, and those studies that exist have suffered from numerous methodological difficulties. Nevertheless, several studies have suggested that psychodynamic treatments may be useful in the treatment of PTSD.

In a study with survivors of the Beverly Hills Supper Club fire, Lindy et al (1983) examined the use of brief psychodynamic therapy. Survivors, defined as those who were present at the scene, rescue workers, relatives of the deceased, and those who identified the bodies, were assessed for trauma-related diagnoses using DSM-III criteria, although the method of assessment was not described. Of the 30 participants in this study, only 9 met criteria for PTSD. The others received various trauma-related diagnoses (e.g., adjustment disorder), and two participants did not have trauma-related diagnoses.

Three measures were used to assess treatment outcome: a self-report symptom checklist (SCL-90-R) (Derogatis 1983), a therapist-rated target symptoms measure, and an independent global rating of impairment severity. Treatment was manualized and therapists trained and regularly supervised. Although no control groups or random assignment were used, survivors who did not request
psychotherapy but agreed to participate in the research study served as an untreated comparison group. Patients revealed only subclinical symptoms two years after the trauma. The nontreated comparison group failed to improve at the same rate.

Because this study hardly meets any of our standard criteria, the results are uninterpretable. At best they may suggest the usefulness of the psychodynamic treatment employed here with trauma victims who do not evidence significant trauma-related pathology.

Roth et al (1988) treated 13 female sexual assault victims in group therapy based on Horowitz’s model of responses to trauma. The only inclusion criterion was having been raped. There was a control condition, but participants were not randomly assigned to these two groups. Owing to high attrition, only 7 women were included in the final analyses. The majority of women in the therapy group were also in ongoing individual counseling before beginning the group, and others began such counseling during the group therapy, which added additional variance in the experimental condition. Among other problems in design, blind evaluations were not used, and the IES was not used as originally validated.

Due to the attrition of control participants, noted above, only a subset of analyses included comparisons with the control group. Of these, the majority did not show differences between the two groups, and one showed a greater decrease in symptoms (the Intrusions subscale of the IES) in the control group relative to the therapy group. This absence of group differences may have been due to the small sample and thus lack of sufficient power to detect differences. Results over a longer period generally showed greater improvement in the therapy participants. Although these results appear promising, they cannot be attributed to treatment only, because of the methodological problems discussed above and because, due to attrition in the control group, data for this group were available for only the first few months.

As discussed in the previous section on hypnotherapy, Brom et al (1989) conducted a controlled study of Horowitz’s brief psychodynamic therapy, comparing this treatment with hypnosis, desensitization, and a wait-list control group. Although the authors found no differences among the three active treatment conditions, inspection of the means on the IES suggested that psychodynamic therapy in this study yielded inferior outcome compared with desensitization (29% vs 41% mean pre-post reduction).

In a study of psychodynamic treatment for conjugal bereavement, Marmar et al (1988) randomly assigned 61 women to 12 weekly sessions either of brief dynamic therapy or of a mutual help group treatment led by a nonclinician. Although death of a husband does not necessarily meet the trauma criterion, many of the women in this study reported symptoms of PTSD. *DSM-III*
diagnoses were derived by two of the authors on the basis of clinical records and were broken down as follows: adjustment disorder, 29 patients; PTSD, 17; major depressive disorder (MDD), 10; PTSD and MDD, 5. Although no inclusion criteria were noted other than seeking treatment for bereavement, a number of exclusion criteria were delineated. Follow-up evaluations were conducted by independent evaluators using an unstandardized semi-structured interview and several standardized self-report measures. Treatment was manualized for the mutual help group condition but not for the dynamic treatment condition, which was based upon the Horowitz (1976) model of brief dynamic therapy for stress response syndromes. No measures of adherence to treatment were noted.

Results indicated that on both interview and self-report ratings of PTSD symptoms, patients in both conditions improved slightly, but there were no differences between groups. On one of many measures, the total score of the SCL-90, the dynamic therapy condition showed greater reduction in symptoms at follow-up. However, the group treatment evidenced a much higher attrition rate than did the dynamic condition, which rendered these results ambiguous. Analyses of just those patients who had participated in at least two thirds of the treatment sessions, however, did not change the results.

The findings from this study suggest that both brief dynamic therapy and peer-led mutual help groups may be slightly effective in treating symptoms arising from conjugal bereavement. Because no results were reported on differences in treatment response across diagnostic groups, this study cannot speak to the issue of treatment efficacy for PTSD.

Preliminary results from another psychodynamically oriented treatment offer more promise. Using a quasi-experimental design, Scarvalone et al (1995) compared interpersonal process group therapy (IPGT) with a naturally occurring wait-list control in a sample of 43 female childhood sexual abuse survivors. History of abuse was the only specified inclusion criterion, reminiscent of the early studies on rape victims where victimization itself was taken as indication for treatment. Exclusion criteria included both psychopathology variables (i.e. psychosis, suicidality) and history variables (i.e. adulthood assault). Diagnoses were made via the SCID, with additional information obtained through the Child Maltreatment Interview Schedule (Briere & Runtz 1990). At posttreatment, only some of the patients were assessed by independent evaluators. Self-report measures included several psychometrically sound instruments that assessed PTSD symptoms, depression, and other associated features. Treatment was conducted by clinicians trained to use the IPGT protocol developed for this study, which was based on the treatment guidelines established by Courtois (1988) and Yalom (1995), and were supervised regularly by the senior clinician.
Results indicated that IPGT patients improved on a number of measures. At posttreatment, only 39% of the IPGT group versus 83% of the control group met criteria for PTSD. On some measures (e.g. self-report measure of intrusion) the IPGT group showed greater symptom reduction than did the control group, whereas on others (e.g. depression, dissociation) both groups evidenced symptom reduction. Because of the lack of blind evaluators, the extent to which expectancy for improvement was responsible for these positive findings cannot be ascertained.

In summary, early studies of psychodynamic psychotherapy were inflicted with methodological flaws, including lack of controls, lack of adequate assessment of outcome, and vaguely described treatments. More recent studies, however, have employed more rigorous standards. With more studies using such standards, we will be able to evaluate the efficacy of these therapies for the amelioration of PTSD.

**Cognitive-Behavioral Treatments**

The most studied psychosocial treatments for PTSD are the cognitive-behavioral interventions. These include a variety of treatment programs, including exposure procedures, cognitive restructuring procedures, anxiety management programs, and their combinations.

**EXPOSURE PROCEDURES** Exposure treatments, all involving the common feature of having patients confront their fears, vary on the dimensions of exposure medium (imaginal vs in vivo), exposure length (short vs long), and arousal level during exposure (low vs high). Systematic desensitization (SD), for example, is at the extreme of imaginal, brief, and minimally arousing exposure, and in vivo at the other extreme on each dimension. (For more details, see Foa et al 1989.)

**Systematic desensitization** Some of the earliest studies of behavioral treatments for PTSD adopted the systematic desensitization (SD) technique pioneered by Wolpe (1958) (e.g. Frank et al 1988, Schindler 1980, Wolff 1977). This technique pairs imaginal exposure to feared stimuli with relaxation in a graded, hierarchical fashion. Although participants in these studies showed improvement in posttrauma symptoms, methodological problems plagued each of these studies, rendering the results inconclusive. An exception was the Brom et al (1989) study described above. In this study, patients in the desensitization condition showed a mean improvement of 41% on the IES, which was higher than the other treatments examined, although the difference did not reach statistical significance.

In most of the SD studies, neither standardized measurements of PTSD nor blind independent evaluations were used; nor were manualized treatment protocols and adherence ratings reported. In addition, some of the patients in-
cluded were recent assault victims, at least some of whom would be expected to recover naturally via the passage of time alone (Foa et al. 1995a), which thus inflated treatment effects.

**Prolonged imaginal and in vivo exposure** Following promising results from a number of uncontrolled studies (e.g., Johnson et al. 1982, Keane & Kaloupek 1982, Schindler 1980), several controlled studies have suggested that imaginal and in vivo exposure are effective for PTSD. As with the SD studies, participants in these studies were primarily veterans and assault victims, although exposure treatments are increasingly being used with other populations as well.

Both imaginal and in vivo exposure treatments emerged from conditioning theory that invoked the concepts of classical and operant conditioning for acquisition of fear, and the concept of extinction (or habituation) for fear reduction. In more recent conceptualizations of mechanisms underlying exposure therapy, Foa & Kozak (1986) invoked the concept of emotional processing to explain fear reduction during exposure. This conceptualization draws from Lang’s bioinformation theory of emotion (Lang 1979) in which fear is viewed as a cognitive structure that includes representations of stimuli, responses, and their meaning. It also adopts Rescorla’s (1988) conception of conditioning as a change in meaning. Specifically, Foa & Kozak suggested that exposure corrects erroneous associations (i.e., deconditioning) and evaluations. This process of correction, which is the essence of emotional processing, requires the activation of the fear structure via introduction of feared stimuli, and the presentation of corrective information that is incompatible with the pathological elements of the fear structure. Thus, exposure promotes symptom reduction by allowing patients to realize that contrary to their mistaken ideas: (a) being in objectively safe situations that remind one of the trauma is not dangerous; (b) remembering the trauma is not equivalent to experiencing it again; (c) anxiety does not remain indefinitely in the presence of feared situations or memories, but rather it decreases even without avoidance or escape; and (d) experiencing anxiety/PTSD symptoms does not lead to loss of control (Foa & Jaycox 1996).

Several controlled studies evaluated the efficacy of exposure therapy relative to other treatments or to a wait-list condition. Other studies have examined either the efficacy of a given exposure program itself or compared the efficacy of specific exposure procedures. Cooper & Clum (1989) studied imaginal flooding (IF) as an adjunct to standard psychosocial and pharmacological treatment in veterans with combat-related PTSD. In this study, 26 veterans who met PTSD criteria via two independent diagnostic evaluations and who did not meet exclusion criteria such as psychosis or prisoner-of-war history were invited to participate. Sixteen participants completed treatment (two of whom were excluded from analyses because of continuing treatment beyond
the allotted sessions). In addition to diagnostic interviews, other measures included self-monitoring of reexperiencing and of sleep, symptom questionnaires, and a behavioral avoidance test (BAT). Although no blind evaluations were conducted, the BAT does provide some objective measure of improvement. Patients were randomly assigned to either Standard Treatment (ST) or ST plus imaginal flooding (IF). Groups were counterbalanced on medication and race, and yoking was used to match the experimental and the control groups on time between assessments. The IF treatment adjunct was flexible regarding number and timing of sessions (between 6 and 14 sessions, up to 9 of which included flooding), but otherwise was fairly well standardized. The ST consisted of individual and group treatments that were also described well. There was no description of treatment adherence ratings.

Results of this study indicated that the addition of IF to ST led to increased improvement of some symptoms such as nightmares (96% reduction in IF vs 15% in ST) and anxiety during the BAT (33% reduction in IF and 18% increase in ST). Again, while none of these measures were conducted by an independent evaluator, these results do suggest that adding an exposure component to standard VA hospital outpatient treatment leads to greater reduction in PTSD and associated symptoms.

Keane et al (1989) studied implosive therapy, or flooding, for Vietnam veterans. In this study, 24 patients were randomly assigned either to a 14–16 session treatment program or to a wait-list control group. Patients underwent a multimethod assessment, and PTSD diagnosis was confirmed by trained clinicians during a consensus meeting based on the above assessment. Treatment included relaxation training, practice in nontraumatic imagery, and flooding (imaginal exposure) to the traumatic memories.

Many of our gold standard criteria were met in this study. PTSD symptoms were the treatment targets, adequately assessed in several ways. Concomitant symptoms such as depression and general anxiety were also assessed via psychometrically sound self-report instruments. Patients were randomly assigned to treatment versus wait list, and treatment content and process were manualized. Using our framework, the major pitfall of the Keane et al study was the lack of blind evaluators. Treatment appeared to reduce fear (40% reduction in the flooding group vs 33% increase in controls) and depression (39% and 0% reduction, respectively) as well as some PTSD symptoms (35% reduction for reexperiencing symptoms but leaving the numbing/avoidance symptoms unaffected). However, it cannot be determined conclusively whether this improvement represented a true treatment effect or was due to therapist and patient expectancies. Another omission in this study, albeit a less significant one, is the lack of adherence ratings. Finally, patients in the wait-list group continued to receive other treatments during the waiting time, which
was variable in duration. Despite these limitations, the Keane et al study does support the use of imaginal exposure in treating at least the reexperiencing of symptoms of PTSD.

In another test of exposure treatment in veterans with PTSD, Boudewyns and colleagues (Boudewyns & Hyer 1990, Boudewyns et al 1990) published two reports on studies conducted with Vietnam veterans in a special inpatient unit of a VA hospital. Patients who were participating in a large ongoing study were randomly assigned for this study to either direct therapeutic exposure (DTE) or a control condition of traditional individual counseling. DTE consisted of 10–12 50-min sessions of implosive therapy (either imaginal or in vivo) over a 10-week period. Both groups also participated in the standard inpatient milieu program in the special PTSD unit at the hospital.

A number of the gold standard criteria outlined earlier were again met in this study. For example, inclusion and exclusion were clearly delineated, as were the target symptoms (total PTSD severity and physiological arousal in response to trauma-related stimuli), and diagnosis was determined by structured interviews conducted by trained evaluators. Although no minimum threshold of symptom severity was required, all patients in the study were also participating in an inpatient program at the time and thus were likely to have had severe psychopathology. Manualized treatment was conducted by trained therapists.

However, the Boudewyns et al (1990) study did not meet several of our other criteria. There was no indication of treatment adherence ratings, which is particularly problematic given the design of this study. Whereas the treatment condition was clearly defined, as just noted, the control condition appears very flexible, and therapists were not given specific instructions regarding what to include in these sessions. Although therapists were instructed not to use specific behavioral or cognitive techniques, it is possible that some control patients received informally some components of the DTE. Another drawback is that all patients were participating in the standard milieu program of the special PTSD unit, and these activities included elements of DTE as well, introducing an additional confound. No blind assessments were conducted. In one of the Boudewyns reports (Boudewyns et al 1990), results were determined by comparing “successes” with “failures” based on responses to a self-report measure, the Vets Adjustment Scale administered at three months posttreatment. The other report (Boudewyns & Hyer 1990) compared groups on a number of measures of physiological and self-report instruments, also conducted at least three months posttreatment.

Both studies found that DTE evidenced some superiority over the control condition on self-reported psychological functioning, although not on physiological responding. The positive outcome thus may have reflected expectancy
effects of patients, rather than specific efficacy of DTE. Moreover, improve-
ment was defined by change on general measures of psychological functioning
rather than on a specific measure of PTSD, the targeted syndrome. Thus the
efficacy of DTE for PTSD cannot be ascertained from these reports.

In another comparison of exposure with other treatments, Foa et al. (1991)
randomly assigned women victims of sexual or nonsexual assault to one of
three treatment conditions: prolonged exposure (PE) (including both imaginal
and in vivo exposure), stress inoculation training (SIT), or supportive counsel-
ing. These were compared with a wait-list control condition. Treatment targets
were symptoms of PTSD, and a PTSD diagnosis was required, although there
was no minimum threshold of symptom severity. Symptoms were assessed at pre-
and posttreatment and at follow-up evaluations using psychometrically
sound interviews and self-report measures, with the interviews conducted by
trained clinicians who were blind to treatment condition. All treatments in-
cluded nine 90-min sessions conducted over five weeks following detailed
manuals. The same therapists conducted all three treatments to avoid therapist
confound, and they were supervised throughout the study. Thus, with the
exception of the absence of a required minimum severity threshold and details
about ongoing interrater reliability assessments, this study fulfills all our gold
standard criteria.

Immediately following treatment, both SIT and PE patients improved on all
three clusters of PTSD symptoms. Patients receiving supportive counseling or
wait list improved on the arousal symptoms of PTSD but not on the avoidance
or reexperiencing symptoms. At follow-up, PE appeared the most successful
on all measures of psychopathology. In addition, 55% of women in the PE
treatment no longer met the diagnosis of PTSD, relative to 50% for SIT and
45% for supportive counseling.

A second study compared PE, SIT, the combination of SIT and PE, and a
wait-list control group. This study was similar to the previous Foa et al. (1991)
study with regard to meeting our gold standard criteria. All three active treat-
ments showed significant improvement in PTSD symptoms and depressive
symptoms at posttest, and the wait list did not improve. These treatment effects
were maintained at six-month follow-up. An examination of patients who
achieved good end-state functioning (defined by criterion scores on PTSD
symptoms and measures of depression and anxiety) showed that 21% of pa-
tients in SIT, 46% of patients in PE, and 32% of patients in SIT/PE achieved
this goal at posttreatment (Foa 1995a). At six-month follow-up, 75% of pa-
tients in PE, 68% of patients in SIT, and 50% of patients in SIT/PE lost the
PTSD diagnosis, whereas all wait-list patients retained the diagnosis. The
differences between the three active treatment groups were not statistically
significant.
Two additional studies also provided support for the efficacy of exposure treatment for PTSD, in samples heterogeneous with regard to their traumas. Richards et al (1994) treated 14 patients either with four sessions of imaginal exposure followed by four sessions of in vivo exposure or with in vivo followed by imaginal exposure. This study included a number of standardized self-report measures as well as several process measures such as Subjective Units of Distress (SUDS) ratings during exposure practices. Treatment protocols were clearly defined, although no measures of treatment adherence were reported, and the target of PTSD symptoms and general health and functioning were adequately measured, with all patients meeting PTSD criteria at pretreatment. Overall, patients in both treatment conditions improved considerably. The authors noted that the symptom reduction of 65–80% in this study is much higher than that of most treatment studies for other anxiety disorders. In addition, at posttreatment and at one-year follow-up, no patients met criteria for PTSD. The only notable difference between the two exposure types was in the area of phobic avoidance, on which in vivo exposure appeared to be more effective regardless of the order in which it was presented.

While the Richards et al study does not include a control group with which to compare the exposure conditions, nor blind evaluations with which to judge outcome, it does further support the use of exposure and provides information about the separate effects of the two exposure modalities, imaginal and in vivo.

Thompson et al (1995) conducted an open trial of eight weekly sessions of imaginal and in vivo exposure treatment with 23 patients who had experienced various traumas. Patients met DSM-III-R criteria for PTSD based on the CAPS as well as a minimum threshold of symptom severity on several measures. Although the study was well designed in many respects, no blind evaluation was conducted, and there was no control group. Patients improved significantly on a variety of measures at posttreatment, with reductions of 42% on the IES, 61% on a measure of general health (General Health Questionnaire), 38% on a general symptom checklist (SCL-90), and 35% on the CAPS. However, the influence of expectancy effects, along with other threats to validity such as history and maturation, cannot be ruled out.

The results from the studies reviewed above consistently support the efficacy of imaginal and in vivo exposure for the treatment of PTSD. There was some suggestion that the efficacy of these treatments is stronger in nonveteran populations than in veterans. Possible explanations for these differences are discussed below.

Eye Movement Desensitization and Reprocessing A new technique, Eye Movement Desensitization and Reprocessing (EMDR) (Shapiro 1995), is a form of exposure (desensitization) accompanied by saccadic eye movements. EMDR consists of a patient focusing on a disturbing image or memory (including related
emotions and cognitions) while the therapist waves a finger across the patient’s visual field with the patient tracking the finger. After each sequence, patients indicate their SUDS level and their degree of belief in a positive cognition [Validity of Cognition (VOC)].

EMDR has been the focus of considerable controversy for a number of reasons, including claims by its originator about its remarkable success in only a single session (Shapiro 1989). For a review of this controversy, see Tolin et al. 1996. A number of case studies have reported positive findings (for a comprehensive review, see Lohr et al. 1996). These reports suffer from the lack of control typical of most case reports, as well as from the use of inappropriate statistical analyses and lack of standardized measures or blind evaluations.

Several studies have compared EMDR either with alternative treatments or with variations of the technique for PTSD in either controlled or semicon- trolled designs. Shapiro (1989) randomly assigned trauma victims to either one session of EMDR or an exposure control condition (i.e. EMDR without the eye movements). This study did not meet most of our gold standard criteria; it lacked inclusion and exclusion criteria, diagnostic assessment, standardized measures or blind evaluations, clearly defined target of treatment, and ratings of treatment adherence. Although results showed that EMDR patients reported lower SUDS ratings after the one session of EMDR than did the exposure control patients, the relationship of this finding to PTSD improvement is unknown.

Boudewyns et al. (1993) compared two 90-min EMDR sessions to an exposure control (EC)—EMDR without the eye movements—as an adjunct to standard milieu treatment for veterans with PTSD. A third group of patients were treated with standard milieu treatment alone. The target of treatment was PTSD, which was assessed via CAPS as well as by standardized self-report measures and physiological data. Patients were randomly assigned to the three conditions, which were delineated clearly. Several adequate measures were used for initial inclusion, but blind evaluations of outcome were not conducted.

SUDS ratings to traumatic stimuli were lower in the EMDR group, and therapists rated more patients as responders in the EMDR vs EC group. However, the three groups did not differ on standardized self-report measures, CAPS, or physiological responses; none improved. These negative results, even for the exposure condition, contrast with the proven efficacy of exposure treatments discussed above. As noted by Boudewyns et al., these negative results may be due to an insufficient number of sessions or to the difficulties in treating service-connected veterans.

Jensen (1994) randomly assigned 74 veterans with PTSD to either three sessions of EMDR conducted within 10 days or to a control condition of
standard VA services. Patients were assessed through structured interview, standardized self-report measures, the SUDS ratings, and the VOC measure said to be integral to EMDR. Treatment was manualized, with measures taken to ensure therapist training and adherence to treatment procedures. On the PTSD severity measure, the groups did not differ from one another; neither improved. Despite the negative outcome, SUDS ratings decreased in the EMDR group and not in controls.

To examine the role of specific components of EMDR, Renfrey & Spates (1994) treated 23 trauma victims with standard EMDR or one of two variations: an EMDR analog in which eye movements were induced by a flashing light rather than a waving finger [automated eye movement (AEM)], and an analog in which a light blinked only in the center of the visual field [visual attention (VA)]. Assessment included standardized PTSD and related measures, SUDS ratings, and physiological data. Blind evaluations were not conducted. After treatment, only five of the patients met criteria for PTSD, but these were not confined to any one treatment condition. No analyses were reported on the standardized PTSD measures. Groups did not differ on physiological measures, SUDS, or the VOC.

Using a sample of 36 victims of heterogenous traumas, Vaughan et al (1994) conducted a more rigorous test of EMDR. They compared the procedure with Imagery Habituation Training (IHT), which involves repeated presentation of traumatic stimuli in the form of an oral scenario, and Applied Muscle Relaxation Training (AMT) (Ost 1987), an anxiety management procedure. Treatments consisted of three to five sessions conducted over two to three weeks. Assessment included several standardized measures, including two independent interviews. Patients were randomly assigned to treatment conditions. The authors concluded that all three groups were equally improved on the independent assessors’ rating of PTSD.

Silver et al (1995) compared standard milieu treatment with milieu treatment plus EMDR, biofeedback, or group relaxation training in a sample of 100 veterans with PTSD. No standardized measures were used, and it is not clear how the diagnosis of PTSD was derived. Patients were not randomly assigned to treatment conditions, and no blind evaluations were conducted. EMDR led to greater reduction of symptoms relative to the control and the biofeedback groups in five of eight areas assessed by a measure of general symptoms. However, the nature of the measures was obscure and the study had many methodological flaws. Thus, these results cannot be interpreted.

Wilson et al (1995) compared EMDR to a delayed-treatment condition in a mixed sample of “traumatized” individuals (only 30% of the target events met the DSM-IV definition of a trauma), about half of whom were said to have PTSD. Outcome was assessed via self-report measures. Independent stand-
ardized evaluations could not be analyzed because changes in the instrument rendered it invalid at posttreatment. Treatment was manualized, with considerable measures taken to ensure adherence. Patients were randomly assigned to the two conditions after meeting specific exclusion criteria. Therefore, this study meets some of our gold standard criteria. However, because neither a PTSD diagnosis nor a minimum threshold of PTSD symptoms was required, how much patients suffered from trauma-related symptoms is unclear.

Overall, patients in the EMDR group reported decreases in presenting complaints and in anxiety, and increases in positive cognitions at posttreatment, whereas the wait-list group reported no improvement. Because the results are based solely on self-report data, they may reflect effects of patients’ expectancy for improvement rather than effects of EMDR. Moreover, the generalizability of these results to individuals with PTSD is unknown.

A well-controlled study on the efficacy of EMDR was conducted by Rothbaum (1995), who randomly assigned 21 female victims of rape to either EMDR or a wait-list control group. Measures consisted of standardized self-report and interview instruments, with the interviews conducted by a blind evaluator. Treatment consisted of four weekly sessions conducted by a well-trained clinician, and treatment adherence was monitored and deemed acceptable by an independent evaluator designated by EMDR’s originator. EMDR led to improvement on PTSD symptoms on both interview (57% reduction in symptom severity) and RIES (74% reduction), and gains were maintained at a three-month follow-up. Thus, this study suggests that a brief course of EMDR can effectively reduce symptoms of PTSD.

In another methodologically sound study, Pitman et al (1996) compared EMDR with and without the eye movement component in a crossover design with 17 male veterans diagnosed with PTSD. Patients met specific inclusion and exclusion criteria and were randomly assigned to the two conditions. Measures included standardized self-report and independent interviews. Treatment was manualized and provided by therapists who completed advanced training in seminars developed by the originator of EMDR. Adherence to treatment was rated to be adequate by an independent assessor.

Both treatments effected modest improvement in symptoms as measured by the RIES, but not on the independent assessment. Contrary to expectations, on the RIES, there was slightly more improvement in the eyes-fixed condition than in EMDR. Thus, this study suggests that the eye movements, which constitute the primary component of EMDR other than exposure and nonspecific factors, do not explain the outcome.

In summary, the picture emerging from the studies reviewed here is mixed. Many studies failed to demonstrate efficacy of EMDR. Some found improvement, but methodological flaws rendered most though not all of these findings
uninterpretable. The test of the efficacy of this much-discussed treatment awaits adequately controlled studies.

ANXIETY MANAGEMENT PROGRAMS Anxiety management treatments (AMT) (e.g. Suinn 1974) take the view that pathological anxiety stems from skills deficits and that AMT provide patients with a repertoire of strategies to handle anxiety. Strategies include relaxation training, positive self-statements, breathing retraining, biofeedback, social skills training, and distraction techniques. Unlike exposure therapy (Foa & Kozak 1986) and cognitive therapy (Beck et al 1985), which are designed to correct the mechanisms underlying pathological anxiety, AMT aim to provide ways to manage anxiety when it occurs. Foa et al (1995a) noted that one of the most commonly used anxiety management treatments for PTSD is stress inoculation training (SIT). This program, originally developed by Meichenbaum (1975) for anxious individuals, incorporates a number of educational and skills components such as relaxation, thought stopping, and guided self-dialog. Although other anxiety management techniques have been suggested for use with trauma victims, for example biofeedback (e.g. Blanchard & Abel 1976, Hickling et al 1986), we focus in this section on SIT because it was more widely studied with trauma victims.

The efficacy of SIT with female rape victims was examined in two uncontrolled studies (Kilpatrick et al 1982, Veronen & Kilpatrick 1982) with encouraging results. These studies did not include the controls called for in our gold standards but are among the first attempts to systematically evaluate treatment efficacy in rape victims and are notable for their pioneering efforts. In the Kilpatrick et al (1982) study, patients were allowed to choose among three treatments offered: SIT, SD, and a peer counseling condition. No patients chose the SD treatment; 70% chose SIT and 30% chose peer counseling. One goal of the study was to assess which treatments rape victims preferred.

Both these reports focused on postrape sequelae of fear, intrusions, and avoidance, rather than on the full syndrome of PTSD, which was quite new at that time. Standardized measures were used to assess some PTSD symptoms (i.e. the IES) and general fear and anxiety rather than the entire range of the PTSD symptoms. In addition, personalized target fears and situations were developed collaboratively by the patient and therapist, and ratings of these targets served as outcome measures. Inclusion criteria included the presence of fear, anxiety, and avoidance related to the rape, although no minimum threshold for this distress was noted. Women with other conditions that might interfere with treatment were excluded. The SIT treatment was spelled out in considerable detail and was delivered by peer counselors (as opposed to professional clinicians) who had experience in counseling rape victims and who received specific training in SIT.
The Veronen & Kilpatrick (1982) study suggested that SIT was effective in reducing rape-related fear and anxiety, and avoidance, general tension, and depressions. Most of these gains were maintained at three-month follow-up. Although the lack of a control group precludes definitive conclusions about the efficacy of SIT in this study, it suggests that SIT can effectively reduce rape-related psychopathology.

The first controlled study examining the efficacy of SIT in ameliorating postrape psychological problems was conducted by Resick et al (1988). Rape victims were assigned to four conditions: SIT, assertion training, supportive psychotherapy, and a naturally occurring wait list. Assignment to treatment condition was determined upon openings in the next available treatment. This study uses a quasi-experimental design, which is less than ideal relative to the criteria outlined earlier but still useful relative to the uncontrolled studies that assessed SIT alone. Target symptoms were rather vague, and the specific psychological difficulties required to enter the study were not detailed. Inclusion criteria were described only as having been raped at least three months before study participation, absence of incest history, absence of severe competing psychopathology, and problems with rape-related fear and anxiety. Several self-report measures were included, incorporating a range of psychometric adequacy, including the RIES. A structured interview, not explicitly described, was also used at the initial evaluation.

At posttreatment, all three treatments produced improvement in fear and anxiety, whereas patients on the wait list did not show such improvement. Improvement was modest, the best occurring on the RIES: SIT produced 27% reduction compared with an increase of 14% in the wait-list controls. Because of the problems in the study design, it is difficult to draw strong conclusions about these data.

Other studies examining the efficacy of SIT, in comparison and in combination with other treatments and control groups, were reviewed in detail in the previous section, and thus they are summarized only briefly here. In a study of female assault victims, Foa et al (1991) found that in comparison with wait-list controls, SIT and PE patients improved on all three clusters of PTSD symptoms. At follow-up, however, PE appeared to show a somewhat superior outcome. On independent assessment of total PTSD severity, PE evidenced 60% mean reduction vs 49% for SIT and 36% for supportive counseling. A second study (Foa 1995b) compared PE, SIT, the combination of SIT and PE, and a wait-list control group. At posttreatment, mean PTSD severity as judged by an independent evaluation was decreased by 66% in PE and 52% in SIT. At follow-up (mean of 10 months), PE showed a mean of 66% reduction and SIT showed a mean of 48% reduction.
In summary, the available studies support the efficacy of SIT in the treatment of PTSD. However, all these studies were conducted with female assault victims; therefore, the efficacy of SIT for other trauma populations is still unknown. Compared with PE, there are only two well-controlled studies on SIT, both from the same research group. Thus, a firm conclusion about the efficacy of SIT awaits further studies by other groups.

COMBINED TREATMENT PROGRAMS Because of positive results seen in the PE and SIT studies, it would seem that combining such approaches might enhance the treatment benefit by providing ways to manage stress and anxiety while confronting the feared memories and cues. Two such programs have been studied in women with assault-related PTSD.

The first of these studies (Foa 1995b) has been discussed in previous sections, but we mention it again briefly. Although it was hypothesized that the combination therapy would be superior to either SIT or PE alone, all three groups produced similar improvement on overall PTSD severity. At both posttreatment and at follow-up, the combined treatment produced a mean reduction of 53% in PTSD symptom severity. Because the combined treatment was delivered in the same number and length of sessions, patients in this condition did not receive as much imaginal exposure as the PE group, nor as much SIT as the SIT group. This might explain the failure of the combined approach to outperform the single procedure treatments.

The second combined treatment approach, Cognitive Processing Therapy (CPT), was developed by Resick & Schnicke (1992b). Drawing from cognitive and information processing models, CPT was designed specifically for rape victims. CPT includes exposure and cognitive components, but these differ somewhat from those described in previous sections. In CPT, exposure consists of describing the rape in writing and then reading this account. Cognitive restructuring was based on the procedure in cognitive therapies for other disorders. Earlier accounts of cognitive therapy for rape victims also used a variation of Beck’s cognitive therapy (e.g. Frank et al 1988). What distinguishes CPT from traditional cognitive therapy is the focus on five primary themes identified a priori in CPT. These themes include safety, trust, power, esteem, and intimacy, which are believed by McCann & Pearlman (1990) to comprise the core difficulties in female rape victims.

In a quasi-experimental study, Resick & Schnicke (1992a) treated 19 rape victims with group CPT and compared their results with a naturally occurring wait-list control group. The focus of treatment was PTSD. Patients were assessed with the SCID and a number of standardized self-report measures, including the SCL-90-R, PSS-SR, and RIES. However, because of changes in measures over the duration of the study, not all participants completed the
same assessment. Thus, the authors report comparison findings only on the
SCL-90-R, the one measure completed by all patients.

Treatment itself was conducted by clinicians trained in this manualized
approach and supervised by the originator of the therapy. No information was
provided about adherence to protocol. Posttreatment and follow-up assess-
ments were sometimes, but not always, conducted by blind evaluators. Be-
cause the blind and nonblind ratings did not differ significantly from one
another, Resick & Schnicke (1992a) asserted that the assessments on the
whole were not biased.

Overall, women who received CPT improved significantly compared with
those in the wait-list group. On the SCL-90-R PTSD scale, the mean symptom
reduction for CPT was 40% vs 1.5% for the wait-list controls. Thus, despite
the methodological problems described above, the results suggest that CPT
may be an effective treatment for PTSD in rape victims. Since CPT was not
compared with other treatments, nor dismantled, it is unclear which compo-
nents were active, and whether these components act differently within CPT
than they do on their own.

In an updated report of this study, Resick & Schnicke (1992b) examined a
larger sample of 54 female rape victims. Patients in this study included the
sample reported upon in the previous study plus additional patients. Initially,
96% of the patients met criteria for PTSD. Following CPT, about 88% lost
their diagnosis. Decrease in depressive symptoms was noted as well.

A modified version of Foa et al’s (1995a) SIT/PE program was adopted by
EB Blanchard & EJ Hickling (personal communication) to treat 10 motor
vehicle accident (MVA) victims. The modification consisted of the addition of
pleasurable activity scheduling and discussion of existential issues. The study
was intended to provide pilot data for a future controlled study and therefore
did not include a comparison group, random assignment, or blind evaluations.
It did, however, include thorough assessments conducted with psychometri-
cally sound instruments and a detailed and replicable treatment program. Like
Thompson et al (1995), the Blanchard & Hickling study used a minimum
threshold of PTSD symptom severity. This advantage is negated somewhat by
the inclusion of patients with subsyndromal PTSD (i.e. those who did not meet
full symptom criteria for the diagnosis) because the threshold of CAPS score
required for entrance was rather low. These preliminary data suggest that the
9–12 sessions of combined treatment reduced PTSD symptoms by 68% on the
CAPS. Thus, treatment was effective in reducing symptoms of PTSD in MVA
victims, but it is unclear which aspect of treatment is most active.

In summary, the studies to date have not supported the use of combination
treatments over PE or SIT alone. However, taking into account the possible
explanations for these findings noted above (i.e. the reduced time allotted to
each treatment component in multicomponent programs), Foa and her colleagues are testing a simplified version of their PE/SIT treatment, comparing PE alone with a treatment that combines PE with cognitive restructuring (PE/CR). In addition, Resick and her colleagues are comparing PE and CPT to a wait-list control condition. It remains to be seen which programs will improve on the quite satisfactory, but far from perfect, outcomes of SIT and PE.

SUMMARY AND CONCLUSIONS

We have offered a critical review of the literature concerning treatment outcome for PTSD. We have done so by first delineating a set of methodological standards that need to be employed in outcome studies to allow results to reflect the effects of the treatment under study rather than extraneous or nonspecific factors. Our list of standards is by no means exhaustive. The statistics employed and the sample size are also important considerations in evaluating outcome studies. And yet, even with the limited standards we have outlined, it is readily apparent that research on the efficacy of psychosocial treatments for PTSD has only recently begun to approach these standards. This is somewhat to be expected, given that PTSD has only recently entered the DSM and thus captured the attention of clinical researchers. However, enough research has accumulated to allow at least some preliminary conclusions about efficacy of treatment for PTSD.

Overall, cognitive-behavioral treatments enjoy the greatest number of controlled outcome studies, and have been the most rigorously tested. These studies converge to demonstrate that both prolonged exposure procedures and stress inoculation training are effective in reducing symptoms of PTSD. CPT has shown promising initial findings, but it awaits the results of more rigorously controlled studies before its efficacy can be determined. Resick and her colleagues are currently conducting such a study, but the efficacy of this treatment needs to be investigated in other settings as well. The vast majority of the studies examining EMDR are inundated with methodological flaws, and the results are mixed. The efficacy of this treatment cannot yet be estimated.

Contrary to clinical intuition, there is no evidence indicating the superiority of programs that combine different cognitive behavioral techniques. Perhaps the combination programs that have been examined have not been the most suitable and shortchanged the individual components by limited time allotted for each. In addition, SIT includes several techniques, some of which (e.g. thought stopping) are not effective with other anxiety disorders such as obsessive-compulsive disorder (Stern & Marks 1973). Although it will be prohibitive to dismantle all the components of SIT, one of SIT’s components, cognitive restructuring, is a promising candidate for enhancing the efficacy of pro-
longed exposure. Such a combination has been found to be superior to either component alone for other anxiety disorders (Butler et al 1991, Mattick et al 1989). As mentioned above, a study to test this hypothesis is being conducted by Foa and her colleagues.

Given the state of the art where SIT alone and PE alone perform as well as combined programs, PE might be considered the treatment of choice for PTSD. PE enjoys more studies attesting to its efficacy in a variety of trauma populations than SIT and CPT. In addition, PE is fairly simple to implement and therefore can be more readily disseminated to clinicians who practice at outside specialty centers. SIT and CPT include more components and more complex techniques and thus require more training. However, note that PE might not be suitable for all trauma victims, and that in some cases the technique might need to be modified to be effective. For a review of such indications, see Jaycox & Foa (1996). In particular, PTSD sufferers whose traumatic memories are about being perpetrators rather than victims may not benefit from PE and perhaps will even deteriorate from such treatment (Pitman et al 1991).

Nonbehavioral treatments have not been the subject of well-controlled studies to the extent that cognitive-behavioral treatments have. However, this is not to say that they cannot prove effective as well. Hopefully, the recently emerging literature on these treatments may clarify their efficacy for treating PTSD.

CONSIDERATIONS FOR SPECIFIC TRAUMA POPULATIONS

Veterans

A number of issues arise in the treatment of veterans. One of the most obvious is that almost all veterans studies are conducted through the VA system, which includes significant secondary gains for its patients to remain ill. In addition, many veterans may never enter studies that are based in military systems, as those with more resources have access to private treatment.

A clear difference between veterans and most other trauma survivors is the level of perpetration as well as victimization exhibited by the patient. Although guilt and shame are common reactions among many trauma survivors (e.g. rape victims frequently blame themselves for not having done more to deter the rapist, or for “allowing” the penetration), the triggers for guilt and shame in veterans are frequently quite rational. Thus, while challenging the guilt associated with being raped is clearly appropriate, the veteran who killed innocent civilians might rightly resist attempts to challenge the justification for his guilt. F Weathers (personal communication) noted alternative strategies for dealing with such issues, including exploring ways of making reparations and bearing witness, such as volunteer work with veterans’ families. Kubany
(1994) also addresses the issue of guilt in combat-related PTSD and has developed a model of different guilt types that are associated with different errors in logic. He suggests that cognitive therapy can be used to address these logical errors and thus ameliorate such combat-related guilt.

Sexual Assault Victims

Unlike veterans who have returned to peace zones, assault victims must face the reality that their traumas could reoccur without warning. Issues of daily safety thus become very important in treating assault victims, and therapists might need to specifically train some patients in discriminating safe from unsafe situations. In exposure therapy, therapists have the opportunity to discover areas of possible poor risk recognition as the patient recounts her story, and they may use such examples in training patients to recognize potential danger early on. Another related issue arises in developing in vivo exposure exercises. To do this, the therapist and patient generate a list of situations the patient avoids, with assignments to confront these situations. However, in some cases, a woman might be fearful of situations that remind her of the trauma but that are in fact unsafe (such as walking alone at night in deserted areas). Such situations should obviously not be included in exposure practices, and training focusing on delineating PTSD-related avoidance versus realistic precautions is particularly salient in this population.

Childhood Abuse Victims

One of the essential features of PTSD is that the symptoms represent a change from pretrauma functioning. In childhood abuse victims, such a change might not be possible to ascertain: Many such children have never known a life without trauma. The therapist must, in this case, make inferences about the degree to which these symptoms represent PTSD before implementing treatments designed to alleviate PTSD. An additional complication is that in child-abuse victims, the trauma and subsequent recovery overlap with normal developmental processes, which further complicates the picture. Adjunct techniques, such as education about “normal” interpersonal interactions, might prove helpful in such cases.

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