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## Eye Movement Desensitization and Reprocessing (EMDR) in the Treatment of Posttraumatic Stress Disorder: Dismantling the Cognitive Component

Karen Cusack

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EYE MOVEMENT DESENSITIZATION AND REPROCESSING (EMDR)  
IN THE TREATMENT OF POSTTRAUMATIC STRESS DISORDER:  
DISMANTLING THE COGNITIVE COMPONENT

by

Karen Cusack

A Thesis  
Submitted to the  
Faculty of The Graduate College  
in partial fulfillment of the  
requirements for the  
Degree of Master of Arts  
Department of Psychology

Western Michigan University  
Kalamazoo, Michigan  
August 1997

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EYE MOVEMENT DESENSITIZATION AND REPROCESSING (EMDR)  
IN THE TREATMENT OF POSTTRAUMATIC STRESS DISORDER:  
DISMANTLING THE COGNITIVE COMPONENT

Karen Cusack, M.A.

Western Michigan University, 1997

Twenty-three individuals meeting diagnostic criteria for post traumatic stress disorder were randomly assigned to either a standard EMDR treatment group or a modified treatment group that omitted the cognitive reprocessing component of EMDR. All subjects were assessed on a variety of pretest posttest measures including the SCL-90-R, the Impact of Events, the Structured Interview for PTSD, SUDS, and Validity of Cognitions (VoC). Results of repeated measures ANOVAs indicate a significant decrease across all pre to post measures, with these results being maintained at a 1 month follow-up. With the exception of SUDs and SCL-90-R anxiety scores, there were no differences between groups on any measure. The results support the hypothesis that the cognitive reprocessing component of EMDR is not essential to treatment outcome.

## TABLE OF CONTENTS

LIST OF TABLES .....	iv
LIST OF FIGURES .....	v
INTRODUCTION .....	1
Problem Statement .....	17
METHOD .....	19
Participants .....	19
Experimental Design .....	20
Setting .....	20
Dependent Variables .....	20
Measures .....	21
Treatment Integrity .....	24
Procedure .....	24
RESULTS .....	27
Preliminary Analysis .....	27
Drop-outs vs. Completers .....	27
Treatment Conditions .....	27
Primary Analyses .....	28
Supplementary Analyses .....	39
Effect Size Analysis .....	40

## Table of Contents---continued

DISCUSSION .....	43
Evaluation of the Primary Hypotheses .....	43
Comparisons With Previous Research .....	44
Strengths of the Present Study .....	46
Limitations .....	47
Conclusions .....	48
APPENDICES	
A. Structured Interview for Post Traumatic Stress Disorder (SI-PTSD) .....	50
B. Symptom Checklist-90-R (SCL-90-R) .....	63
C. Impact of Events Scale (IES) .....	65
D. Drug Abuse Screening Test (DAST) .....	67
E. Personality Screener .....	69
F. Modified Behavioral Assessment of Speech Anxiety (BASA) .....	71
G. Treatment Integrity Checklist .....	73
H. Informed Consent .....	75
I. EMDR Protocol .....	80
J. EMD Protocol .....	84
K. Daily Stress Checklist .....	88
L. HSIRB Approval Forms .....	90
BIBLIOGRAPHY .....	94

## LIST OF TABLES

1. Comparison of Mean Scores of Treatment Completers vs. Dropouts . . . . .	28
2. Types of Traumatic Events by Group . . . . .	29
3. Means, Standard Deviations, and Effect Sizes on Outcome Measures . . . . .	30

## LIST OF FIGURES

1. Mean SCL-90-R Anxiety Subscale Scores . . . . .	32
2. Mean SCL-90-R Depression Subscale Scores . . . . .	33
3. Mean SCL-90-R Global Severity Index Scores . . . . .	34
4. Mean SCL-90-R Positive Symptom Distress Index . . . . .	34
5. Mean Impact of Events Intrusion Subscale . . . . .	35
6. Mean Impact of Events Avoidance Subscale . . . . .	36
7. Mean SI-PTSD Total Scores . . . . .	37
8. Mean SUDs Scores Across Assessment Phase . . . . .	38
9. Mean BASA Scores . . . . .	38
10. Mean Proportion of Symptoms on Daily Checklists by Phase . . . . .	40
11. Percentage of Subjects Meeting Diagnostic Criteria . . . . .	42



## INTRODUCTION

It has long been recognized that exposure to traumatic events can produce psychological consequences. Even as far back as World War I the term "shell shock" was used to describe the reaction of the soldiers to the stresses of war. It was not until 1980, however, that these symptoms were grouped into the diagnostic category of Post-traumatic Stress Disorder (PTSD) (American Psychiatric Association, 1980).

Recent national epidemiological studies have estimated the prevalence of PTSD in the general population from between one to two percent (Helzer, Robins, & McEvoy, 1987; Kulka, et al., 1988). A study that examined the prevalence of PTSD among crime victims found that 27.8% of crime victims in a South Carolina sample met DSM criteria for PTSD (Kilpatrick, Saunders, McMullan, Best, Vernonen, & Resnick, 1989). The study also reported that 57.1% of completed rape victims had developed PTSD.

Although several predisposing factors have been noted in the development of PTSD, such as alcoholism, dysthymia, and family history of a psychiatric disorder, the single strongest predictor of developing PTSD is the duration and intensity of the stressor (Choy & Bosset, 1992). Of those who do develop the disorder following a traumatic event, as many as 80% of these individuals have at least one co-morbid diagnosis (Freidman, 1996). Commonly, other anxiety disorders, depression, substance abuse or personality disorders accompany PTSD. Clearly, this disorder represents a significant problem and warrants increased research and attention from the psychological community.

Solomon, Gerrity, & Muff (1992) reviewed the efficacy of treatments for PTSD, including pharmacotherapy, behavioral treatments, cognitive-behavioral treatments, psychodynamic therapy, and hypnotherapy. Overall, pharmacotherapy was successful at alleviating symptoms of intrusion, but had no effect on avoidance symptoms. Side effects and contraindications were also noted. The behavioral treatments (systematic desensitization and flooding) each produced improvement in the intrusive symptom cluster; however, serious complications resulting from flooding were noted including exacerbation of depression, relapse of alcoholism, and precipitation of panic disorder. One form of cognitive-behavior therapy, Stress Inoculation Training (SIT), was reported superior to flooding; however, at three months flooding was superior in reducing the symptoms of PTSD. Psychodynamic therapy and hypnotherapy showed significant reductions in avoidance and intrusion symptoms, respectively. The potential negative effects and limited symptom clusters treated with these types of therapies suggest the need for more effective and safe treatments for PTSD.

Eye Movement Desensitization and Reprocessing (EMD/R) has emerged as a new treatment that boasts rapid and dramatic reductions in symptoms of Posttraumatic Stress Disorder (PTSD). The treatment technique was developed by Francine Shapiro in 1989. The technique consists of exposure to the relevant traumatic images and cognitions, saccadic eye movements, focusing on the physiological aspects of the anxiety related to the trauma, the development of a positive cognition, and therapist controlled thought stopping.

The first controlled study (Shapiro, 1989) reported dramatic results that were

obtained in one session in treating individuals with a wide variety of different types of traumatic memories. The results revealed a lasting reduction in anxiety, changes in cognitions associated with the trauma, and cessation of intrusion symptoms. Since that time numerous case studies have applied the technique to an adult PTSD population (Kleinknecht & Morgan, 1992; Lipke & Botkin, 1992; Marquis, 1991; Puk, 1991; Spates & Burnette, 1995; Thomas & Gafner, 1994; Vaughan, Wiese, Gold & Tarrier, 1994; Wolpe & Abrams, 1991), child PTSD population (Coco & Sharpe, 1993; Pellicer, 1993), Panic Disorder (Goldstein & Feske, 1994), Body Dysmorphic Disorder (Hassard, 1993), phobias (Kleinknecht, 1993), and sexual dysfunction (Wernik, 1993).

Several controlled studies have also been reported ( Bauman & Melnyk, 1994; Boudewyns, Stwetka, Hyer, Albrecht & Sperr, 1993; Foley & Spates, 1995; Forbes, Creamer & Rycroft, 1994; Hekmat, Groth & Rogers, 1994; Jensen, 1994; Montgomery & Ayllon, 1994a; 1994b; Renfrey & Spates, 1994; Sanderson & Carpenter, 1992; Vaughan, Armstrong, et al., 1994; Wilson, Becker & Tinker, 1995).

Boudewyns, Stwetka, Hyer, Albrecht & Sperr (1993) compared EMD/R to an exposure control procedure in treating traumatic memories. Twenty subjects were randomly assigned to either a standard EMDR protocol (n=9), an exposure control protocol (n=6), or to milieu treatment on an inpatient unit of a V.A. medical center (n=5). The subjects were all male Vietnam combat veterans. The study utilized a pre-test post-test comparison group design.

The EMDR group received two 90-minute sessions of standard EMDR. The EC group was asked to recall the memory in the same manner and for the same amount of

time as the EMDR subjects, but without the eye movements. Treatment was carried out over a 14 day period. Subjects were assessed one week following treatment on the CAPS, IES Intrusion and Avoidance scales, and the Mississippi scale. Other dependent measures included: (a) SUDS taken during treatment, (b) SUDS taken during a taped playback of intake report of trauma, (c) heart rate reactivity recorded during taped playback of initial report of trauma, (d) Electromyogram recorded during taped playback, (e) hand temperature recorded during taped playback, and (f) therapist rating of treatment response.

The results revealed a significant decrease in SUDS scores taken during treatment for both treatment groups. The EMDR group showed significantly greater reductions in the SUDS than the EC condition. There were a significantly greater number of EMD/R clients who were rated as treatment responders by the therapists. There was no significant change in the pre and post SUDS taken during the taped playback. There were no significant findings on any of the psychophysiological measures or the standardized psychological measures.

This study had a small number of subjects in each group which makes interpretation of the findings limited. Also, the number of treatment sessions was limited to only two. The decision to limit the number of sessions was based on the fact that Shapiro reported dramatic improvement with only one session. Significant treatment effects may have been found if the sessions were not limited in this way. The use of standardized measures and psychophysiological measures are strong features of the study. This is an improvement upon earlier studies, including Shapiro's initial study (1989a) that

did not make use of standardized or objective measures.

Jensen (1994) evaluated the effectiveness of EMD/R with a group of Vietnam combat veterans suffering from PTSD. Using a pretest posttest control group design, twenty-five subjects were randomly assigned to either the standard EMD/R treatment condition or control. Jensen included two standardized measures of PTSD: The Structured Interview for PTSD (SI-PTSD) (assessed at pre- and post-test), and the Mississippi Scale for Combat-related PTSD (M-PTSD) (assessed only at post-test); also, the Goal Attainment Scaling (GAS) was added as a measure that assessed at post-test whether a previously specified PTSD goal was attained.

Using an analysis of covariance, the results of the study showed no differences between groups on any measure except for the SUDS. On this measure, the EMDR group did have significantly lower SUDS ratings, but it was not a clinically significant decrease. The author concluded that the present study failed to support the effectiveness of EMDR with combat veterans.

This study addresses two important issues raised in the literature. One, the use of a standardized PTSD measure for assessing PTSD symptomology; and two, the use of Vietnam combat veterans as subjects. Only two studies to date have attempted to evaluate EMDR with a group of combat veterans, one of the largest groups of chronic PTSD sufferers (Boudewyns, Stwetka, Hyer, Albrecht, & Sperr, 1993; Silver, Brooks & Obenchain, 1995).

There are three principal weaknesses of Jensen's study. First, the no-treatment control group was informed that they would not be receiving the treatment and was given

a list of local alternative sites for treatment. This shows that there was no control over what did occur for this group during the time period of the study. It is possible that while no differences were found between groups, that the control group was receiving some type of treatment that may have been affecting their outcome measures also. In this case, a finding of no relative effect of treatment for the EMDR subjects may be misleading.

Second, all of the subjects in the study were Vietnam combat veterans, 36% of which were receiving compensation from the U.S. for their service-connected PTSD disorder. Previous researchers have pointed out that a negative finding of a treatment for PTSD with combat veterans may be explained by a loss of financial compensation upon reporting PTSD symptom reduction (Boudewyns, et al, 1993; Lipke & Botkin, 1992).

Third, with respect to the negative findings in this study it is important to note that the subjects only received two EMDR treatment sessions. It seems reasonable to assume that combat veterans who have been suffering from PTSD for many years probably have many traumatic memories that could be targeted for treatment. Perhaps the lack of success with the EMDR treatment is a result of the subjects not being exposed to all of the traumatic memories giving rise to their distress.

An interesting finding with respect to the SI-PTSD is that for both groups, SI-PTSD scores actually increased from pre to post. The difference between the groups however was not significant. The analysis of the results was performed on incomplete data. The first 4 subjects did not report SUDS and VoC ratings prior to treatment, and 2 other subjects did not give VoC ratings following treatment.

In a study by Vaughan, Armstrong, Gold, O'Connor, Jenneke, and Tarrier (1994)

EMDR was compared to two other treatments - image habituation training (IHT) and applied muscle relaxation (AMR). The study employed a pretest posttest comparison group design. Thirty-six subjects who met partial DSM-III-R criteria for PTSD were included in the study. All subjects met criteria A, B, and D; however, 22% of the subjects failed to qualify for the diagnosis of PTSD because they had less than the required three Category C (Avoidance/numbing) symptoms. The types of traumatic events experienced by the subjects included: victim of violent crime, rape, child abuse, and motor accident. Co-morbid diagnoses of Panic Disorder were made for 11 patients (31%), Generalized Anxiety Disorder in 20 (55%), and Major Depression in 6 (17%).

Subjects were randomly assigned to one of four conditions: EMD, IHT, AMR, or a wait list control group. All treatment groups received four sessions. For the EMD group, all therapists were trained by Shapiro and the protocol was reported as that described by Shapiro. For the IHT group, subjects were required to listen to continuous loop audiotaped descriptions of their trauma and to record cognitions and anxiety levels on a homework sheet for 60 minutes per day. The AMR group subjects were taught to recognize early signals of anxiety so that they could then apply the relaxation technique described by Ost (1987). These subjects were instructed to practice the relaxation technique for two 20-minute periods per day. The authors presented no information regarding whether or not the relaxation was actually practiced as instructed.

Assessment measures included two structured interviews, the Structured Interview for PTSD (SI-PTSD) and the Anxiety Disorders Interview Schedule Revised (ADIS-R). The SI-PTSD was used to diagnose PTSD as well as assess PTSD symptomology change.

The ADIS-R was used to obtain measures of Generalized Anxiety Disorder and Panic Disorder. The Hamilton Rating Scale for Depression (HRSD) was used as a measure of depression. Self report measures included the State-Trait Anxiety Inventory (STAI), The Beck Depression Inventory (BDI), and the Impact of Events Scale (IES).

Results comparing post-wait list to post-treatment scores on the SI-PTSD and HRSD revealed a significant effect of treatment. All treatments were superior to no treatment for Category C and D (Avoidance and Hyperarousal symptoms) and HRSD yet failed to reach significance for Category B (reexperiencing) symptoms. In addition, at entry to the study, 78% of subjects were diagnosed with PTSD. At post-test this figure was 47%, and 30% at a 3 month follow-up. The effects of individual treatment on measures of symptomatology revealed significant improvement from pre to post test, with no significant differences between treatment groups. Only EMD produced significant improvement in Flashbacks and Nightmares at posttreatment and follow-up. Significant improvement in the Avoidance symptoms occurred only for the EMD group. Hyperarousal symptoms improved significantly with both EMD and IHT. Panic Disorder was eliminated in the EMD group, although one subject relapsed at follow-up. For all treatment groups, there was a reduction in GAD diagnoses. There was significant improvement on HRSD scores at posttreatment and follow-up for both EMD and AMR.

The treatment comparison used in this study provided a substantial design feature addition to the EMDR literature. Due to the fact that the results failed to demonstrate consistent superiority of any one treatment over any other, no definite conclusions about the relative efficacies of the three treatments can be made. Although the results of this



study indicate that the treatments were equally effective, there are several reasons why replication is needed before EMDR can be evaluated against the other treatments. First, the initial scores on the SI-PTSD for these subjects are on the low end compared to most PTSD patients. The authors of the SI-PTSD, Davidson, Smith, & Kudler (1989) state that scores on each of the questions need to be at least a 2 in order to be considered significant distress. Based on this, the scores obtained on each of the Categories B, C, and D, as well as total symptom scores, did not comprise significant distress. This is something to note, simply in that with more distressed patients there may be differential treatment effects.

Replication is also needed because this study used a limited number of treatment sessions, with both the IHT and AMR groups receiving homework outside of the sessions. Therefore it is difficult to say whether subjects in the three groups were receiving equivalent doses of therapy.

Another study that addressed a clinical population was reported by Forbes, Creamer and Rycroft (1994). This study selected 8 subjects who all met DSM-III-R criteria for PTSD. All subjects received 4 - 90 minute sessions of EMDR. Due to high drop out among control group members, the study was run without a control group. Subjects were assessed using two structured interviews, three self-report measures, and a physiological measure of muscle tension at pre-treatment, one week posttreatment, and a 3 month follow-up. The interviews consisted of the SI-PTSD (to assess PTSD symptomology) and the SCID (to determine presence of co-morbid diagnoses). The SCID was included to see if EMDR treatment effects could generalize to the existing co-

morbid symptomology. The self-report measures included: the Symptom Checklist-90-Revised (SCL-90), Global Severity Index (GSI), Impact of Events Scale (IES), and the Beck Depression Inventory (BDI). A suggestibility scale was also included (Stanford Hypnotic Clinical Scale) to investigate the effects of suggestibility on treatment outcome. The therapists were trained by Shapiro and standard EMDR protocol was used.

Based on the SCID, three subjects met criteria for a diagnosis of Major Depression. At follow-up, only one subject still met the criteria. Data on the SI-PTSD revealed significant effects for each of the three symptom categories (re-experiencing, avoidance and hyperarousal), as well as for total PTSD severity. There was significant improvement from pre- to posttreatment, with no further change from posttreatment to follow-up. Clinically significant improvement was also investigated based on the guidelines of Jacobson and Truax (1991) that subjects be more than two standard deviations below the mean of the pretreatment sample at posttreatment (or follow-up). Based on the SI-PTSD scores, 75% ( $n=6$ ) showed significant improvement at posttreatment; this figure dropped to 62% ( $n=5$ ) at follow-up. The authors report that four subjects (50%) continued to meet the criteria for a full diagnosis of PTSD at both posttreatment and follow-up. For the self-report measures (SCL-90-R, IES & BDI), significant improvement was obtained on all measures. The significant differences were found from pre- to posttreatment, with no changes from posttreatment to follow-up. With regards to the EMG measure, the authors reported that missing data did not allow t-tests to be performed, however, effect size analyses revealed large reductions in EMG from the first to last session in the baseline condition (.99), while moderate reductions

were apparent while subjects were imagining the trauma (.61). Pearson correlation coefficients revealed a significant relationship between EMG levels and overall symptom improvement on the SI-PTSD ( $r=.96$ ,  $p<.05$ ). SUDS levels were reported only as means: beginning of first session (mean=8.5, SD=2.0) and end of first session (mean=3.0, SD=3.58). A significant relationship was found for suggestibility and treatment outcome, ( $r=.86$ ,  $p<.05$ ). This relationship was accounted for solely by reductions in the SI-PTSD "avoidance" symptom cluster.

The results of this study need to be interpreted with caution due to both the small sample size and the lack of any control group. The use of the structured interview to assess PTSD symptomology provides for a more standardized assessment of symptom change, and is an asset to the study. Also the evaluation of the clinically significant improvement provides additional important information. There is a need for more studies on EMDR to incorporate these types of analyses.

In the most well controlled study to date, Wilson, Becker and Tinker (1995) treated 80 participants suffering from traumatic memories with either standard EMDR or a delayed treatment condition. Participants received no other type of therapy while involved in the study. All therapists in the study were trained by Shapiro. Several standardized psychological measures were used including the Impact of Events, SCL-90-R, and the State-Trait Anxiety Inventory. Results revealed a statistically significant decrease in symptoms reported for the EMDR group from pretest to a 1 week posttest, with results maintained 90 days later. For the delayed treatment condition, there was no significant change from pretest 1 to pretest 2, however there was a significant change

following treatment that was maintained at the 90 day follow-up. Clinical significance was also examined using normative data for the SCL-90-R, IES, and the STAI. Prior to beginning treatment, subjects scores were above the normal range on each variable. Following treatment the means all fell within the normal range. Effect size analyses revealed an effect size of 1.82 on the trauma-specific measures (SUDS, IES Intrusion, IES Avoidance) and an effect size of .65 on the general measures (SCL-90-R and STAI). This study provides very strong support for EMDR's effectiveness in treating PTSD symptoms. Overall, the results of these studies clearly support the effectiveness of EMDR. While it appears that the technique is effective in reducing symptoms of PTSD, it is unclear why.

Several investigators have attempted to evaluate the role of eye movements in the EMD/R procedure. Sanderson and Carpenter (1992) compared what was reportedly eye movement desensitization to image confrontation in a crossover design that utilized 58 spider phobics. The two procedures were reportedly identical with the exception of the eye movements in the EMD group. The two procedures were equally effective in reducing anxiety levels. Although this study appears to support the conclusion that eye movements are not a necessary component, there are methodological problems that limit the conclusions. The EMD procedure was not standard EMD. The procedure actually resembled image confrontation plus eye movements rather than EMD. Also, no standardized or objective measures were used.

Renfrey and Spates (1994) evaluated the role of eye movements by comparing three conditions: (1) standard EMD, (2) a variant of EMD in which eye movements were

engendered through a light tracking device, and (3) a variant of EMD in which fixed visual attention replaced eye movements. Twenty-three PTSD patients were exposed to one of the three conditions. Results revealed that all three interventions produced significant improvements across all dependent measures. The measures included Subjective Units of Disturbance (SUDS), Impact of Events Scale (IES), Symptom Checklist-90-Revised (SCL-90-R), and heart rate reactivity. The authors concluded that the eye movements are not essential to treatment outcome. However, the small number of subjects in this study does limit the generality of the findings.

Montgomery and Ayllon (1994) used a multiple baseline across subjects to evaluate whether the saccadic eye movements are central to treatment. All six subjects were exposed to first, a non-saccade phase, followed by a second phase that included the saccadic eye movements. Dependent measures included SUDs and physiological measures (heart rate and blood pressure). Results revealed no significant decreases in SUDs levels with the EMD minus eye movements procedure. However, significant decreases in SUDs were reported following the second phase for five of the six subjects. The authors concluded that the eye movements are necessary to produce treatment gains.

There are several methodological problems that limit any conclusions regarding the role of the eye movements in this study. First, the EMD minus eye movements condition was reported to be identical to the standard EMD condition. There were however, substantial differences in the two procedures. The EMD minus eye movements condition did not have subjects blank out the image and take a deep breath, nor did it involve the therapist asking for the changes that have occurred in cognitions or

physiology. The more obvious problem with this study in using a multiple baseline design is that all subjects received the two treatments in the same order, so that treatment effects after phase 2 (standard EMD) may have just been the result of an increased number of treatment sessions. Finally, subjects received an average of 3 sessions of the EMD minus eye movements and 6 sessions of the standard EMD. Therefore, the conclusion that the difference between groups and hence, the essential component, is eye movements is of questionable validity.

Foley & Spates (1995) examined the role of the eye movements with 40 college students who suffered from public-speaking anxiety. All of these subjects had experienced a specific traumatic speech related event. Subjects were randomly assigned to either a standard EMD/R protocol incorporating eye movements; a moving audio stimulus in place of the saccadic eye movements; a protocol with eyes resting on the hands in place of the saccadic eye movement, or a no-treatment control condition. The subjects' anxiety level was assessed using self-report measures of anxiety, heart rate reactivity, and a behavioral assessment of speech anxiety. Results revealed significant improvement on all measures except heart rate reactivity, which showed no change. Further, there were no significant differences between groups, suggesting that eye movements are not an essential component insofar as outcome measures were concerned.

Bauman & Melnyk (1994) evaluated the efficacy of the EMDR procedure with test anxious students. Fifteen pairs of students, who were matched on initial test anxiety, were randomly assigned to EMDR or a control condition (finger tapping). The finger tapping condition was identical to the standard EMDR condition except that finger

tapping replaced eye movements. The purpose of the study was to determine whether EMDR effectively treats test anxiety and, if so, whether eye movements are the critical factor. Results revealed that the two conditions produced equally significant improvements on the SUDs and the Test Anxiety Inventory.

Although the data are not conclusive, it appears that eye movements are not an essential outcome-determining feature of the treatment. Other possible components that may be responsible for producing the positive effects include the exposure to the negative images or cognitions associated with the trauma, and the development and rehearsal of a positive (adaptive) cognition. To date, no study has attempted to systematically evaluate the effects of either of these components. Further, there have been few well-controlled investigations that clearly establish the efficacy of these treatments when administered alone for PTSD.

While research on cognitive therapy has demonstrated it to be a highly effective treatment for depression (Dobson, 1989; Robinson, Berman, & Neimeyer, 1990) as well as for panic disorder (Margraf, Barlow, Clark, & Telch, 1993), these effects have not been as clearly demonstrated in the PTSD literature.

In a variation of cognitive therapy, two studies found Stress Inoculation Training (SIT) superior to an exposure type therapy (exposure or flooding) with a PTSD population at post test (Veronen & Kilpatrick, 1983; Foa et al., 1991). Two other studies found cognitive therapy (cognitive-behavioral therapy or SIT) as effective as systematic desensitization or supportive psychotherapy (Frank et al., 1988; Resick et al., 1988). However each of these studies is limited by high drop out rates. Also, in the Veronen &

Kilpatrick study, non-random assignment to treatment groups prevents conclusions regarding the results. Further, the results of the Foa study indicated a reverse outcome at follow-up, with exposure superior to SIT. Taken together these findings suggest equivocal outcomes at best for the cognitive treatment of PTSD, and commends additional research.

Similarly, while "exposure" has been accorded the status of a principle in explaining the effects of EMD/R, investigations of exposure as a stand alone treatment suggest the need for further work. Using a variation of exposure therapy, Vaughan and Tarrier (1992) treated ten patients with image habituation training. Results revealed that six improved considerably, two showed moderate improvements, and two showed minimal improvement across a range of self report measures. Other investigators have found differential treatment outcome for individual symptom clusters of PTSD. Keane, Fairbank, Caddell & Zimering (1989) found implosive (flooding) therapy produced significant improvements in the re-experiencing dimension of PTSD, anxiety, and depression; however, there was no change in the numbing and avoidance symptoms. Similarly, Cooper & Clum (1989) found that imaginal flooding produced significant improvement in subjective anxiety and sleep disturbance; however, there was no treatment effect on depression or trait anxiety. Therefore, as with cognitive therapy for PTSD, exposure treatment also requires substantially greater investigation before it can provide a basis for understanding the mechanism of action of EMD/R.

Research from cognitive dismantling studies in related areas reveals mixed findings with respect to the role of the cognitive component in treatment. Marshall (1985) treated



height phobics with either an exposure alone or exposure plus cognitive component. He found that the cognitive component appeared to add nothing significant at posttest; however, by follow-up continued improvements were found for the combined exposure and cognitive treatment.

In a cognitive dismantling study of cognitive-behavioral treatment of depression, a behavioral activation condition (BA) was compared to a modifying automatic thoughts (AT), and combined treatment package of cognitive-behavioral treatment (CT) (Jacobson, et al., 1996). Results revealed significant improvement with no differences between groups, indicating that the behavioral and cognitive components were as effective as the combined treatment package. Interestingly, they also found that the behavioral condition was actually more likely to produce changes in attributional style than the cognitive conditions.

Barlow and colleagues (Margraf, Barlow, Clark & Telch, 1992) conducted a series of studies on panic control treatment in which the cognitive component was dismantled. Based on their research, the contribution of the cognitive component appeared to lie in preventing drop-out and relapse, and not in producing direct outcome changes.

### Problem Statement

In order to understand the mechanisms of EMDR, the present study attempted to evaluate the role of the cognitive reprocessing component. In this study, the EMDR procedure was compared to the standard procedure minus the cognitive component.

Therefore, when referring to Shapiro's standard procedure, the term EMD/R has been adopted. When referring to the procedure that excludes the cognitive reprocessing component, the term EMD is used. The effects of the two interventions were evaluated across SUDs, as well as standardized objective measures of PTSD symptomology (Impact of Events Scale and the Structured Interview for PTSD).

It was hypothesized that (a) the presenting complaints associated with the traumatic memories would be reduced or eliminated as a result of treatment; (b) self-report of anxiety would decrease; (c) positive self-cognition would increase; and (d) no differences would be found between treatment groups at post-test. Due to the nature of the mixed results in the literature regarding the effects of a cognitive component on treatment outcome at follow-up, in the present study we hypothesized that the null hypothesis of no change from post to follow-up would be retained.

## METHOD

### Participants

A total of 106 individuals were referred to the study. Of these 106 potential subjects, 42 decided not to participate, 32 were screened out, and 8 individuals dropped out of the study once treatment began. The remaining 23 subjects completed the study. There were 20 female and 3 male participants, ranging in age from 18 to 51 years old ( $M=35$ ). All subjects were experiencing traumatic memories and met either full (65%) or partial criteria (35%) for PTSD. The types of traumatic events included rape/molestation (35%), robbery (15%), emotional/psychological abuse (15%), automobile accident (10%), physical assault (10%), death of child (10%), and witnessing a traumatic event (5%).

Subjects were recruited from the community through newspaper advertisements, public postings, referrals from members of local professional and human service organizations, as well as appropriate referrals from private practitioners in the community, The University Psychology Clinic, hospital emergency rooms and trauma centers.

Potential subjects were evaluated for co-morbid psychiatric diagnoses to exclude individuals with symptoms consistent with a DSM-IV borderline personality diagnosis, obsessive-compulsive personality diagnosis, psychotic thinking, or substance abuse (using the DSM-IV criteria for personality disorders, SCL-90-R, and DAST, respectively) (See below for a description of scales).

All subjects were assessed for symptoms of post-traumatic stress disorder and had to meet a partial diagnosis of PTSD. All subjects had to have experienced a traumatic event as defined by part “A” of the DSM-IV diagnostic criteria for PTSD. In addition, subjects had to meet diagnostic criteria for at least 2 of the 3 main PTSD symptom clusters.

### Experimental Design

A pretest posttest comparison group design was used. All participants were randomly assigned to either the standard EMDR group or the modified treatment group that omitted the cognitive reprocessing component (EMD). This component requires that the subject develop and focus on a positive (adaptive) cognition.

### Setting

All assessment and treatment sessions were conducted in individual therapy rooms at the University Psychology Clinic. Each room was equipped with direct observation capabilities as well as videotaping facilities. All assessment sessions were conducted by trained research assistants who were upper level undergraduate psychology students. All therapists were doctoral students who had been trained for 8 weeks by a senior clinical psychologist who had himself received training in EMDR by Shapiro.

### Dependent Variables

The dependent variables in this study include: subjective distress ratings (SUDS),

validity ratings of positive belief statements (VoC), anxiety scores (SCL-90-R & a behavioral rating of anxiety), depression scores (SCL-90-R), and PTSD symptomology scores (SI-PTSD & IES). The SUDS and VoC ratings were taken throughout the treatment procedure and were used to gauge the need for additional sessions. The VoC ratings were taken only for the EMDR group. This analysis is included in the supplementary analyses section. The other dependent variables were assessed at either post-treatment (using the SCL-90-R and IES), or at the one month follow-up (using the SI-PTSD).

Each of the dependent variables was assessed using subjects' self report with the exception of the behavioral rating of anxiety taken during both the initial session and follow-up sessions. While self report measures have been criticized due to their lack of objectivity, their appropriateness can be argued in this instance on grounds of validity. The diagnostic criteria for PTSD requires an individual to report on private symptoms. Therefore, it is the subject's self report that most directly confers the disorder or improvement.

### Measures

A number of clinical assessment instruments were used in conducting this study, including: the Structured Interview for Post-traumatic Stress Disorder (SI-PTSD) (Davidson, Smith & Kudler, 1989), The Revised Symptom Checklist (SCL-90-R) (Derogotis, 1977), Impact of Events Scale (IES) (Horowitz, Wilner & Alvarez, 1979), the modified Behavioral Assessment of Speech Anxiety (BASA-modified) and the Drug

Abuse Screening Test (DAST) (Gavin, Ross & Skinner, 1989). The Subjective Units of Discomfort (SUDs) and Validity of Cognition (VoC) were also used in the present study as process measures taken during treatment. The SUDs was also taken at the 1 week posttest and the 1 month follow-up periods.

The SI-PTSD is a 13-item self-report questionnaire measuring the intrusion, avoidance, and increased arousal symptoms of PTSD. Each item is rated on a 4-point scale, with the total score ranging from 0 to 52. Davidson, Smith & Kudler reported internal consistency and test-retest reliability estimates of .94 and .71, respectively. Concurrent validity was established by correlation of .79 with Spitzer and Williams's (1985) Structured Clinical Interview for Diagnosis of DSM-III. In this study the SI-PTSD was used to establish the primary diagnosis requiring treatment and to determine symptom remission following treatment at a 1 month follow-up. (See Appendix A)

The SCL-90-R is a 90-item self-report questionnaire that measures nine primary current symptom dimensions and three global indices of distress. Each of the 90 items are rated on a 5-point scale of distress (0-4). Derogatis (1983) reported the internal consistency to range from .77 to .90 for the various symptom dimensions. Test-retest reliability was found to be between .80 and .90 for the nine symptom dimensions. (See Appendix B)

The IES is a 15-item self-report questionnaire measuring two dimensions of PTSD: event-related intrusion and avoidance. The frequency of these symptoms is indicated on a 4-point scale. Horowitz et al. reported split-half reliability for the total scale to be .86, internal consistency of the subscales (Cronbach's alpha) to be .78 for

intrusion and .80 for avoidance, and test-retest reliability (one week) to be .87. (See Appendix C)

The DAST is a 28-item self-report questionnaire that measures various consequences of drug use that are combined in a total DAST score to yield a quantitative index of problems related to drug misuse. Skinner reported the internal consistency reliability estimate to be .92. Factor analysis suggested a unidimensional scale. Concurrent validity was examined by correlating the DAST with background variables, frequency of drug use during the past 12 months, and indices of psychopathology. (See Appendix D)

A personality assessment based on DSM-IV diagnostic criteria for Borderline and Obsessive-compulsive personality disorders was created for the purposes of the present study. Subjects were read a list of statements taken directly from the DSM-IV and were asked to indicate if this was not characteristic (score=0), a little bit / sometimes characteristic (score=1), or definitely characteristic of them (score=2). This criteria was used as a basis for screening. (See Appendix E)

A modified version of the Behavioral Assessment of Speech Anxiety (BASA) was used during the initial and follow-up assessment sessions while the SI-PTSD was administered. Trained observers were present for each of these sessions to rate the behavioral signs of anxiety (shortened breath, wringing hands, rapid speech). (See Appendix F) The observers were trained using video clips that depicted behavioral expressions of anxiety in the actors. Training continued until an acceptable level of agreement was consistently reached. Half-way through the study, observers went through

the training procedure again to insure consistency in scoring. In addition, bi-weekly meetings were held in which any difficulties in scoring were addressed.

### Treatment Integrity

In order to ensure that each of the two interventions was properly administered, trained observers viewed a sample of the treatment sessions (15%). Two observers were provided with a checklist that outlined the steps in each of the two treatments. (See Appendix G). Observers were blind to the treatment they were observing. The observers viewed the videotapes separately and checked off the presence of each of the steps outlined and concluded with a judgment as to which treatment procedure was used. An inter-rater reliability check was performed on the final judgement that examined the number of agreements divided by the number of agreements plus disagreements. This procedure yielded an inter-rater reliability of 100%.

### Procedure

Subjects attended two separate screening sessions at the Psychology Clinic. In the first sessions, subjects signed an informed consent that described what participation entailed (Appendix H). Subjects then completed the SCL-90-R to determine if they should be excluded on the basis of psychotic thinking. T-scores above a 65 on this scale resulted in exclusion from the study. The DAST was administered to screen for current drug or alcohol abuse. Scores on the DAST above 9 resulted in exclusion. For each of the borderline and obsessive-compulsive scales on the personality assessment, subjects



were screened from the study if they scored a mean of 1 on either scale. All remaining subjects who were not excluded based on the initial screening session were scheduled for the structured interview.

The interviews were conducted by two trained interviewers who were clinical doctoral students. Subjects were asked about any traumatic experiences they had encountered. If subjects reported multiple traumas they were asked to describe the three worst traumas, and were interviewed on each trauma separately. Subjects needed only to meet the diagnostic criteria for one trauma; however, if they did meet criteria for more than one trauma data was collected on the additional traumas throughout the study.

The diagnostic criteria for the study included that subjects had to have experienced a traumatic event as defined by part “A” of the DSM-IV diagnostic criteria for PTSD. In addition, subjects had to meet the criteria for at least 2 of the 3 main symptom clusters (B,C,and D). Criteria B requires at least one symptom of re-experiencing the event (flashbacks, nightmares), Criteria C requires at least three symptoms of avoidance of the trauma and numbing of general responsiveness, and Criteria D includes at least two symptoms of increased arousal (ie. sleeping disturbances, hypervigilance, exaggerated startle response). These symptoms had to have occurred for a period of at least one month.

During the interview session subjects also completed the Impact of Events Scale. Again, if multiple traumas were reported, subjects completed a separate IES on up to 3 traumas. The IES was used as a pretest-posttest measure of PTSD symptomology.

Subjects who qualified were then randomly assigned to a treatment group and

therapist. All subjects attended between 1-3 90 minute treatment sessions. The EMDR group received Shapiro's standard EMDR treatment (See Appendix I). Subjects in the EMD group received the identical treatment, but without the cognitive reprocessing component (See Appendix J). In this group the subjects followed the standard procedure but were not asked to develop a positive cognition and assign a VoC to it, nor did treatment include the installation phase where the positive cognition is held in mind along with the traumatic image. In order to ensure that the treatment conditions were otherwise parallel, subjects in the EMD group received an additional 4 sets of the saccadic eye movements, mirroring the EMDR condition's installation phase. Following treatment subjects were scheduled for the 1 week posttest. At the completion of treatment, any subjects that reported significant anxiety remaining were provided with a referral for further treatment.

## RESULTS

### Preliminary Analysis

#### Drop-outs vs. Completers

Three males and five females who were selected to participate did not complete the study. These individuals each had from 1 to 2 treatment sessions before dropping out of the study. One subject moved out of town and was no longer able to come to the clinic for treatment. Five subjects stated that they were uncomfortable with addressing the traumatic memories in treatment at this time. The other two subjects dropped out and were unreachable from that point on.

A one way analysis of variance revealed a significant difference between the participants who dropped out of the study and those that completed on the SCL-90-R Depression ( $p<.05$ ) & GSI ( $p<.05$ ), IES Intrusion ( $p<.05$ ), SI-PTSD Category B score ( $p<.05$ ), Category D score ( $p<.05$ ) and Total score ( $p<.05$ ) (See Table 1).

### Treatment Conditions

There were 2 males and 9 females in the EMD condition. There was 1 male and 11 females in the EMDR condition. A one way ANOVA revealed no pretreatment differences between the EMD and the EMDR group on any measure. The mean number

of treatment sessions for the EMD group was 2.75. For the EMDR group the mean number of sessions was 2.92. The types of traumatic events that subjects were exposed to was evenly distributed between groups (Table 2).

Table 1

Comparison of Mean Scores of Treatment Completers Vs. Dropouts		
	Completers N=23	Dropouts N=8
SCL-90-R Anxiety	1.9 (.7)	2.4 (1.1)
SCL-90-R Depression	1.8 (.8)	2.5 (.8)*
SCL-90-R GSI	1.5 (.6)	2.0 (.6)*
SCL-90-R PSDI	2.3 (.4)	2.5 (.6)*
IES Intrusion	2.1 (.6)	2.7 (.5)
IES Avoidance	2.2 (.5)	2.4 (.3)
SI-PTSD B	11.3 (3.6)	14.4 (3.8)*
SI-PTSD C	11.2 (6.0)	15.1 (4.7)
SI-PTSD D	9.7 (3.4)	13 (3.9)*
SI-PTSD Total	32.3 (10.8)	42.1 (9.5)*
BASA	9.8 (6.2)	12.6 (5.2)

\*Significant at .05 level

### Primary Analyses

A two factor repeated measures analysis of variance was conducted for each of

the primary dependent measures (SCL-90-R anxiety, depression, GSI, PSDI, IES intrusion, IES avoidance, SI-PTSD, BASA, and SUDs scores). For each of the measures, the data are presented graphically for visual inspection, the appropriate statistical analysis is described, and the means and standard deviations are displayed in table form. (See Table 3).

Table 2

Types of Traumatic Events by Group	
EMD	EMDR
Sexual Assault (N=5)	Sexual Assault (N=3)
Automobile Accident (N=2)	Automobile Accident (N=1)
Physical Assault (N=2)	Physical Assault (N=2)
Death of Child (N=1)	Death of Child (N=1)
Accusations of Abuse/Loss of Son (N=1)	Robbery (N=3) Accusations of Abuse/Loss of Son (N=1)
	Witnessing a Traumatic Event (N=1)

Figure 1 displays the change from pretest to post-test in group means for the SCL-90-R anxiety scores. A consistent decrease in mean scores is evident for both groups. The repeated measures ANOVA conducted on the SCL-90-R anxiety scores (2 groups x 2 assessment periods) revealed a significant effect for treatment group,  $F(1,21) = 4.39$ ,

$p < .05$ , and a significant effect for assessment phase,  $F(1,21) = 14.14$ ,  $p < .001$ . There was no significant treatment by phase interaction. An independent t-test was conducted on the mean post-test scores of the SCL-90-R anxiety subscale and revealed no significant difference between the mean of the EMD group and the mean of the EMDR group.

Table 3

Means, Standard Deviations, and Effect Sizes on Outcome Measures				
	EMD	Effect Size	EMDR	Effect Size
SCL-90-R				
Anxiety (Pre)	2.13 (.74)		1.73 (.58)	
Anxiety (Post)	1.59 (.82)	.73	.93 (.68)	1.37
SCL-90-R				
Depression (Pre)	1.99 (.78)		1.65 (.83)	
Depression (Post)	1.58 (1.04)	.52	1.13 (.95)	.62
SCL-90-R				
GSI (Pre)	1.62 (.60)		1.35 (.53)	
GSI (Post)	1.25 (.80)	.62	.78 (.68)	1.07
SCL-90-R				
PSDI (Pre)	2.29 (.40)		2.21 (.44)	
PSDI (Post)	1.86 (.71)	1.09	1.50 (.77)	1.63
IES Intrusion (Pre)	2.2 (.63)		2.02 (.53)	

Table 3-Continued

	EMD	Effect Size	EMDR	Effect Size
IES Intrusion (Post)	1.21 (.89)	1.61	1.25 (.78)	1.45
IES Avoidance (Pre)	2.36 (.34)		2.02 (.53)	
IES Avoidance (Post)	1.39 (.85)	2.86	1.2 (.62)	1.54
SI-PTSD B (Pre)	11.09 (3.36)		11.5 (3.94)	
SI-PTSD B (Follow-up)	6 (1.30)	1.52	5.27 (.95)	1.58
SI-PTSD C (Pre)	12.73 (6.48)		9.83 (5.37)	
SI-PTSD C (Follow-up)	8.8 (2.48)	.61	5.55 (.56)	.80
SI-PTSD D (Pre)	10 (3.44)		9.5 (3.5)	
SI-PTSD D (Follow-up)	6.3 (1.73)	1.08	5.82 (1.2)	1.05
SI-PTSD Total (Pre)	33.82 (10.94)		30.83(10.9)	
SI-PTSD Total (Follow-up)	21.1 (17.70)	1.16	16.64 (9.57)	1.29
BASA (Pre)	11.27 (7.36)		8.75 (4.56)	
BASA (Follow-up)	4.5 (3.14)	.92	4.46 (4.89)	.94
SUDS (Pre)	8.1 (1.52)		8.46 (1.04)	
SUDS (Post)	2.5 (1.5)		3.09 (1.97)	
SUDS (1 month)	2.5 (2.17)	3.68	3.9 (2.89)	4.39
Mean Effect Size		1.16		1.21

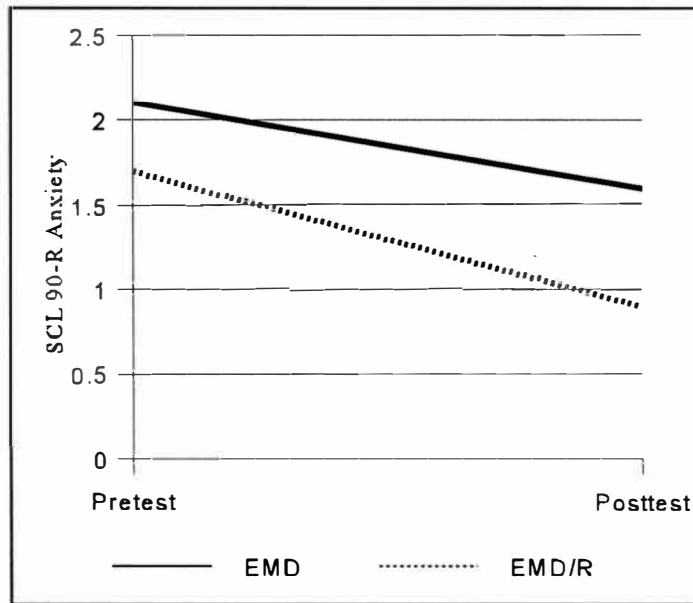


Figure 1. Mean SCL-90-R Anxiety Scores.

Figure 2 displays the change from pretest to post-test in group means for the SCL-90-R depression scores. The means for both groups decreased from pretest to posttest. A 2 x 2 repeated measures ANOVA indicated that this was a significant decrease.  $F(1,21) = 6.83, p < .05$ . There were no significant differences between groups nor a significant treatment by phase interaction.

Figure 3 displays the change from pretest to post-test in group means for the SCL-90-R GSI scores. The 2 x 2 repeated measures ANOVA revealed a significant effect for assessment phase,  $F(1,21) = 12.12, p < .01$ . There were no significant differences between groups nor a significant group by phase interaction.



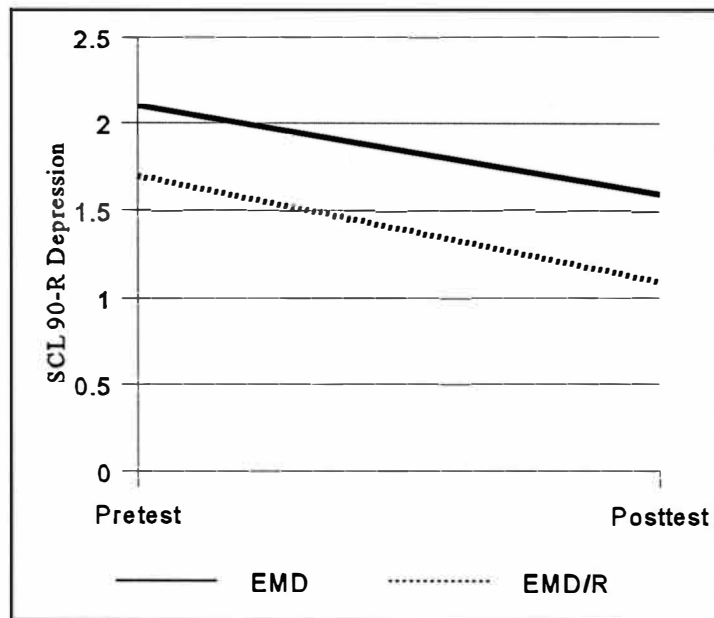


Figure 2. Mean SCL-90-R Depression Scores.

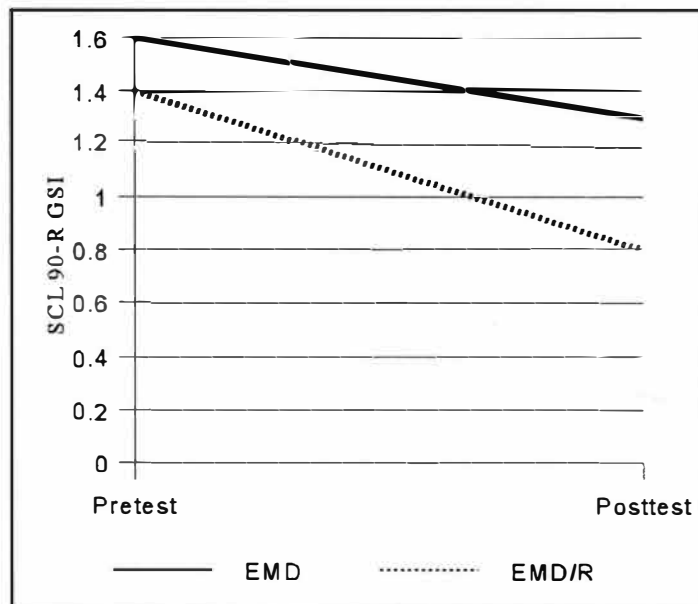


Figure 3. Mean SCL-90-R GSI Scores.

Figure 4 displays the change from pretest to posttest in group means for the SCL-90-R PSDI scores. For both groups the means decreased from pretest to posttest. The 2 x 2 ANOVA revealed that this finding was significant.  $F(1,21) = 12.08, p < .01$ . There were no significant differences between groups nor a significant group by phase interaction.

Figure 5 displays the change from pretest to posttest in group means for the IES Intrusion scores. There was a consistent decrease in mean scores for both treatment groups. The 2 x 2 ANOVA revealed that this was a significant decrease.  $F(1,21) = 30.33, p < .001$ . There was no significant group or interaction effect.

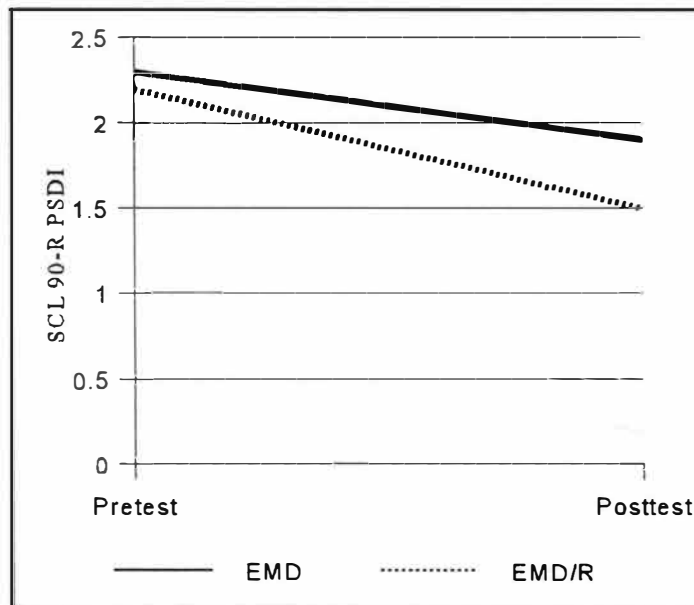


Figure 4. Mean SCL-90-R PSDI Scores.

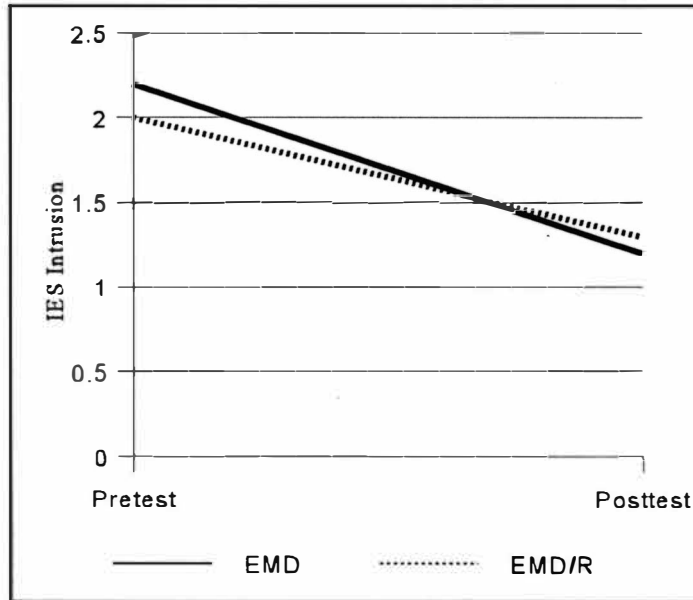


Figure 5. Mean Impact of Events Intrusion Score.

Figure 6 displays the change from pretest to posttest in group means for the IES Avoidance scores. Graphically, the results are very similar to the IES Intrusion scores. The 2 x 2 ANOVA also revealed a significant effect for assessment phase,  $F(1,21) = 36.88$ ,  $p < .001$ . There were no significant differences between groups nor a significant group by phase interaction.

Figure 7 displays the change from pretest to 1 month follow-up in group means for the SI-PTSD total scores. A 2 x 2 (group x assessment phase) ANOVA revealed a significant effect for assessment phase  $F(1,19) = 49.13$ ,  $p < .001$ . There was also a significant effect for assessment phase for SI-PTSD Category B,  $F(1,19) = 50.01$ ,  $p < .001$ ; SI-PTSD Category C,  $F(1,19) = 19.64$ ,  $p < .001$ ; and SI-PTSD Category D,  $F(1,19) = 19.64$ ,  $p < .001$ .

(1,19) = 26.72,  $p < .001$ ). There was no significant differences between groups nor a significant group by phase interaction.

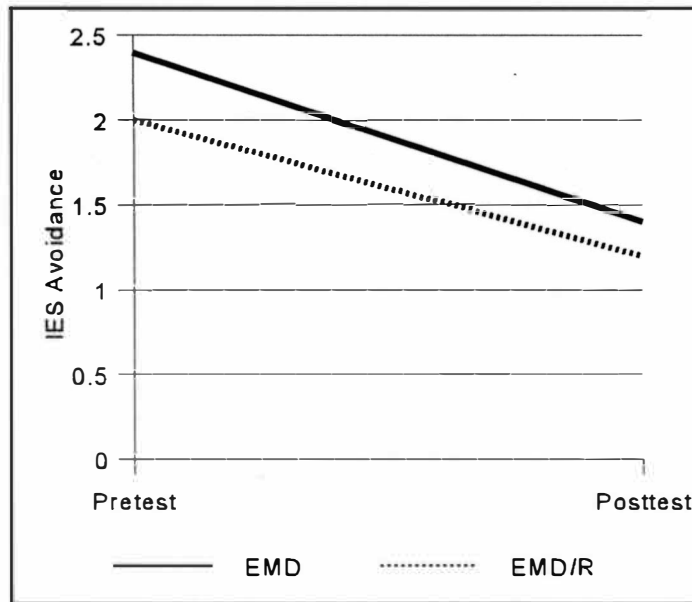


Figure 6. Mean Impact of Events Avoidance Score.

Figure 8 displays the change in the mean SUDs scores across assessment phase. Graphically, the mean SUDs scores appear to change at about the same rate. A 2 x 4 repeated measures ANOVA (group x assessment phase) revealed a significant effect for groups,  $F(1,18) = 4.58$ ,  $p < .05$ , and a significant effect for assessment phase  $F(1,18) = 42.30$ ,  $p < .001$ . There was no significant group by phase interaction. Independent t-test revealed a significant decrease in SUDs from the beginning to the end of treatment ( $t = 10.10$ ,  $p < .001$ ), with no further significant changes at post-test or follow-up. An

independent t-test conducted on mean SUDs scores at end of treatment revealed no significant difference between the EMD and EMDR conditions.

Figure 9 displays the change in mean BASA scores from pretest to the 1 month follow-up. The graphical presentation indicates a consistent decrease for both treatment groups. A 2 x 2 ANOVA confirms that there was a significant effect for assessment phase  $F(1,19) = 10.31, p < .01$ , with no significant differences between groups nor a significant group by phase interaction.

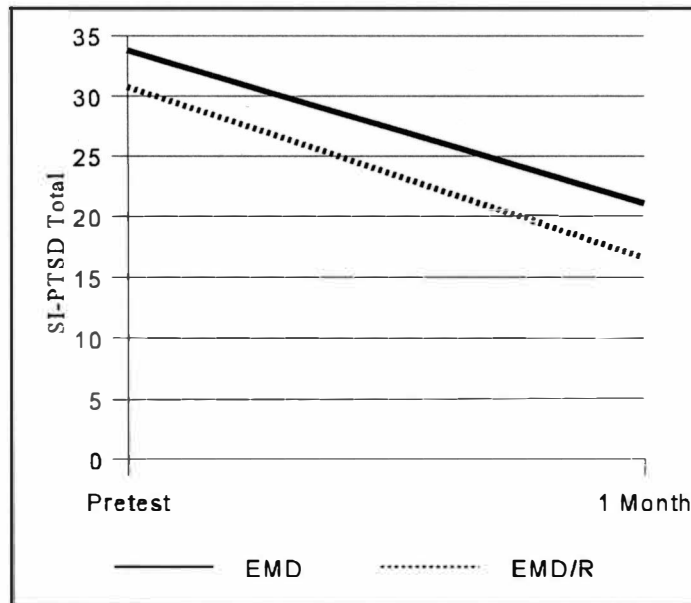


Figure 7. Mean SI-PTSD Total Scores.

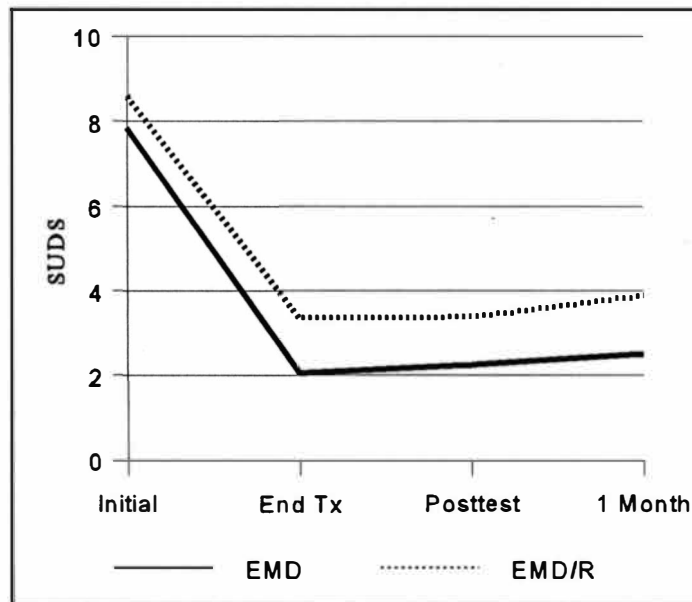


Figure 8. Mean SUDS Scores.

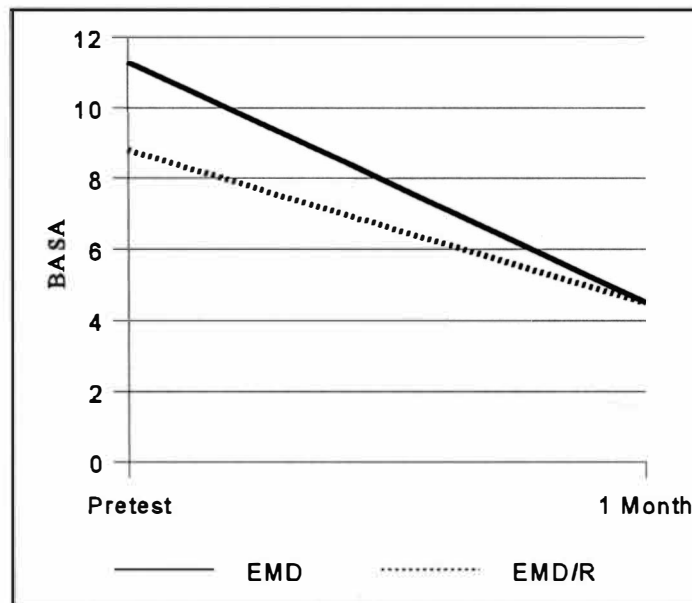


Figure 9. Mean BASA Scores.

### Supplemental Analyses

Change in subjects' belief regarding the positive cognition was examined for subjects in the EMDR group. Four of these subjects did not report a sufficient decrease in anxiety by the end of treatment (based on SUDs), and therefore end-state belief in the positive cognition was not addressed. The remaining 9 subjects reported a pre-treatment VoC of 3.67 and post-treatment VoC of 6.56. A paired t-test revealed that this change was significant at the .001 level.

It was noted that all subjects tended to spontaneously report increases in positive cognitions regardless of which treatment group they were in. In other words, it did not seem to matter whether or not the therapist introduced a positive self-statement to the client.

In addition to the primary dependent measures, all participants were instructed to complete a daily checklist of PTSD symptoms (See Appendix K). The checklists were grouped into three assessment phases: (1) during treatment, (2) between treatment and posttest, (3) from posttest to 1 month follow-up. Due to the poor compliance with respect to this measure, there was a substantial amount of missing data. Three subjects did not complete any of the checklists. Seven subjects had no data available for at least one of the three assessment phases. Finally, even within assessment phases many subjects failed to complete the checklists daily, producing variable numbers of checklists between subjects.

For these reasons, no statistical analysis could be performed on the data. For each subject, the raw scores within each phase were converted to proportions of total symptoms across phases of assessment. Then, these proportions were averaged across subjects within each assessment phase. Figure 10 represents the mean proportion of symptoms endorsed within each phase.

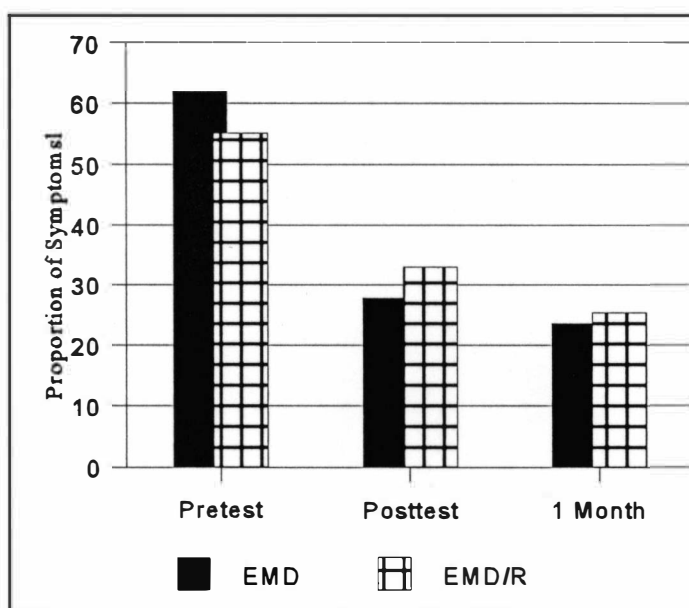


Figure 10. Mean Proportion of Symptoms on Daily Checklist.

### Effect Size Analysis

In order to examine the clinical significance of the changes from pretreatment to posttreatment (or follow-up), effect sizes were computed for all dependent measures. The effect sizes are reported in Table 3. In general, the effect sizes for the trauma-specific measures tended to be of greater magnitude than the more general measures of



symptomology. Averaged across measures, the mean effect size for the EMD group (1.24) did not differ from the mean effect size for the EMDR group (1.28).

On the measures where normative data were available (SCL-90-R and IES), mean post-test scores were compared to the mean scores in the normative population. For both the IES Intrusion and Avoidance subscales, end-state functioning of subjects in both the EMD and EMDR groups were within the normal range. The more general measures of psychological functioning (SCL-90-R) did not demonstrate this effect.

As an additional assessment of clinically significant change, the proportion of subjects that met diagnostic criteria for PTSD at the 1 month follow-up was examined. At pretest, all subjects met either full PTSD criteria (70%) or qualified for the diagnosis based on meeting criteria for two out of the three symptom clusters (30%). At the 1 month follow-up, 20% of the sample still qualified for the diagnosis of PTSD and another 20% met the two-thirds diagnostic criteria. These results are presented graphically in Figure 11.

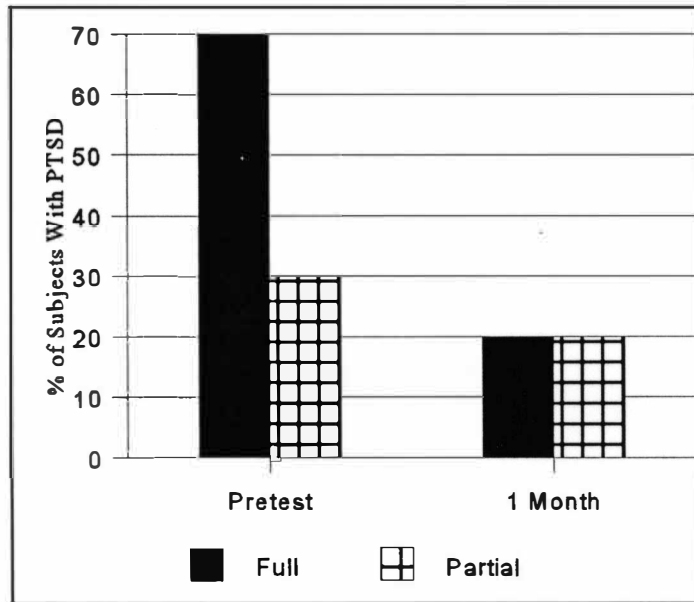


Figure 11. Percentage of Subjects Meeting Diagnostic Criteria.

## DISCUSSION

### Evaluation of the Primary Hypotheses

The present study evaluated the cognitive reprocessing component of EMDR by comparing the standard procedure to a procedure that did not include the cognitive component. In this investigation it was hypothesized that (a) the presenting complaints associated with the traumatic memories would be reduced or eliminated as a result of treatment; (b) self-report of anxiety would decrease; (c) positive self-cognition would increase; (d) no differences would be found between treatment groups at post-test; and (e) the null hypothesis of no change from post to follow-up would be retained.

The first hypothesis was supported in this study. On all of the primary dependent measures there was a statistically significant decrease from pretest to posttest (or follow-up). On both subscales of the IES, subjects end-state functioning was within the normal range.

The second hypothesis, that the self report of anxiety would decrease, was supported in the present investigation. The mean decrease in SUDs was from 8.23 at the beginning of treatment to 2.7 at the end of treatment.

The third hypothesis, that the belief in the positive cognition would increase was also supported in this investigation. Subjects in the EMDR condition reported an increase in VoC scores from 3.67 at pretreatment to 6.56 at posttreatment.

The fourth hypothesis, that no differences would be found between the EMD and EMDR conditions was not entirely supported. On two measures (SCL-90-R anxiety and SUDs scores) the difference between treatment groups using the repeated measures ANOVA was significant at the .05 level. On these two measures, the EMDR group showed fewer symptoms than the EMD group when the phases were ignored. However, the analyses performed on the post-test means did not reveal a significant difference between groups. Taken together, this does not necessarily indicate that the difference was a result of the experimental manipulation. It is possible that the slight but non-significant difference between groups at pre-test affected these results.

Finally, the fifth hypothesis, that there would be no significant change from posttest to follow-up was supported. This hypothesis was supported based on SUDs data only, as this was the only measure taken at both the post-test and the follow-up assessments.

### Comparisons With Previous Research

The reductions in symptoms reported on the outcome measures (SCL-90-R, IES, SI-PTSD) in the present study are consistent with previous research on EMDR (Shapiro, 1989; Vaughan, et al., 1994; Wilson, Becker & Tinker, 1995). On one measure, the IES, we found clinically significant decreases in symptoms to the extent that subjects could be considered in the normal range across measures. Other researchers have reported similar findings of clinically significant decreases following EMDR treatment (Wilson, Becker & Tinker, 1995).

With respect to the SUDs data, the decreases reported in the present study are not of the magnitude reported by Shapiro (1989). In that study, the mean SUDs scores at post-treatment were less than 1, compared to 2.7 in the present study. The present findings are more consistent with those of Sanderson and Carpenter (1992) and Wilson, Becker & Tinker, (1995).

The finding of greater reductions on measures that directly assess PTSD symptomology was consistent with previous research (Wilson, Becker & Tinker, 1995). This finding may be understandable when one considers the way in which experiencing a traumatic event can disrupt an individual's life. While treatment may produce rapid relief from nightmares, anxiety, and avoidance, the effects of the trauma on other aspects of life (depression, isolation) may be being maintained by other factors, or require greater amounts of time for reductions to occur.

The present study supports the findings of previous research on cognitive dismantling that found no difference in treatment conditions at post-test (Margraf, Barlow, Clark & Telch, 1993; Marshall, 1985; Jacobson et al., 1996). Because data are only available at the one month follow-up in this investigation, it is still unknown what the longer term effects of the cognitive component may be.

The results of the present study also support previous EMDR studies that often did not make use of the cognitive component, and yet still achieved positive outcomes (Boudewyns, et al., 1993; Sanderson & Carpenter, 1992; Wolpe & Abrams, 1991). In this investigation, not only did subjects improve regardless of treatment condition, but subjects in the EMD condition were just as likely to report positive statements regarding

the traumatic event as were the subjects in the EMDR condition.

The finding that subjects who dropped out of the study had significantly higher scores on several measures (SCL-90-R depression & GSI, IES Intrusion, SI-PTSD Category B, D, and Total) is an issue that the literature has been silent on. While other exposure-type treatments for PTSD (ie. flooding) have been criticized for the high dropout rates (Solomon, Gerrity & Muff, 1992) many studies in the EMDR literature have failed to mention drop out rates. This is an important consideration, in that if the most severe PTSD cases are not following through with treatment, then it certainly limits the generalizability of conclusions regarding the efficacy of EMDR.

The fact that the majority of the individuals who dropped out of the study were in the EMD condition is consistent with the findings of Margraf et al., 1992. In their research, a condition that included a cognitive component had lower rates of dropout in treating Panic Disorder.. In the present study, it may be that the use of the positive cognition in treatment provided a sense of hope and rationale to continue treatment.

### Strengths of the Present Study

The current investigation used standardized measures to assess pre- to post change. The lack of standardized objective measures in the earlier investigations of EMDR has been a repeated criticism (Herbert & Mueser, 1992; Lohr, Kleinknecht, et al., 1993). An attempt was also made at defining change in PTSD symptomology in more behavioral terms, through the use of the trained observers who rated overt signs of anxiety during the structured interview.

All subjects were randomly assigned to treatment condition. A treatment integrity check was also performed in order to ensure that the treatments were being administered reliably. All of the assessments were conducted by independent assessors. Finally, follow-up assessments were included in the present study.

### Limitations

The results of the present investigation need to be interpreted with caution due to the small sample size. The sample size in this study is, however, well within the range of previous studies that evaluated EMDR and studies more generally in the PTSD treatment area.

Another limitation of this investigation is that while differences were not found between treatment groups on most outcome measures, there was no measure that assessed changes in cognitions for the EMD group. Although it was noted that subjects in the EMD group also reported increased positive cognitions at the end of treatment, it would be more informative to use measures that directly assess these changes in comparison with the standard treatment.

Another limitation of the study involves the observers who were trained to rate subjects' degree of distress on the modified version of the BASA. While training continued until a high degree of consistency was achieved, ideally the observers should be trained to a specific criteria (ie. 95% agreement). Another limitation with respect to the BASA involves when the ratings were taken. Observers rated subjects' distress during the structured interview at pretest, and then again at the follow-up. During the

pretest, subjects were asked to describe the traumatic events before being questioned on their symptoms. At the follow-up interview, this reporting of the traumatic event was not done. In retrospect, it appears that having the subjects be able to report on the trauma with few displays of anxiety at the follow-up would have been a stronger indicator of change.

An attempt was made to monitor the symptoms of PTSD daily through the use of the checklists. Having subjects come to the clinic for only a few assessment periods may not capture the fluctuations in symptoms that occur, or even the most severe of their symptoms. The poor compliance rate with this measure does not allow for interpretations to be made regarding the outcome.

Future studies should address some of the above mentioned limitations. Specifically, in order to determine if there is a unique contribution of the cognitive reprocessing component, the use of measures that more directly assess cognitive change in each condition is recommended. Future research may also want to examine the role of the cognitive component by comparing standard EMDR to a procedure that makes exclusive use of the cognitive component.

### Conclusions

Adding to the literature that supports the efficacy of EMDR in treating PTSD, the present study found that EMDR was effective in reducing the symptoms related to experiencing a traumatic event. Statistical analyses suggest that these findings were not due to chance. Further, the majority of subjects no longer met criteria for the primary



diagnosis of PTSD.

Findings with respect to the cognitive reprocessing component appear to support the idea that this specific component of EMDR is not essential to treatment outcome. Further research would need to be conducted in order to determine what contribution, if any, this component makes.

## Appendix A

### Structured Interview for Post Traumatic Stress Disorder (SI-PTSD)

Initials \_\_\_\_\_ ID# \_\_\_\_\_ Date \_\_\_\_\_ Visit# \_\_\_\_\_

## Structured Interview for Posttraumatic Stress Disorder (SI-PTSD)

### Introduction

I should like to ask about the difficulties or problems that caused you to come for help.

First would you please tell me your age: \_\_\_\_\_

Where do you live? \_\_\_\_\_

Are you employed? If yes: What is your job? \_\_\_\_\_

If no: When did you last work? \_\_\_\_\_

What did you do? \_\_\_\_\_

Why did you stop work? \_\_\_\_\_

With whom do you live? \_\_\_\_\_

Please tell me about your family friends and social activities.

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### A. Experience of Trauma

- A1 Did you ever experience, witness or have to confront an extremely stressful event which involved actual or threatened death or serious injury, or a threat to the physical integrity of yourself or others?

No \_\_\_\_\_ Yes \_\_\_\_\_

- A2 Did you react to the event(s) with intense fear, helplessness or horror?

No \_\_\_\_\_ Yes \_\_\_\_\_

*How many experiences  
Pick 3 ~~or~~ worst ones  
Start w/ most*

1. Write description of  
trauma on back  
→

How long were you in that situation? \_\_\_\_\_

What was the worst thing about it for you? \_\_\_\_\_

A3 Define the event(s). Identify by the numbers below. Narrative comment may be added.

Event	Age at event
1 = Combat	_____
2 = Rape	_____
3 = Incest	_____
4 = Other physical assault/attack	_____
5 = Seeing someone killed or hurt	_____
6 = Natural disaster	_____
7 = Accident	_____
8 = Complicated bereavement	_____
9 = Threat or close call	_____
10 = Life-threatening illness	_____
11 = Captivity	_____
12 = Other (identify)	_____

A4 Interviewer should make judgement whether the experiences qualify for DSM-III-R criterion of stressor: i.e. event is outside range of usual experience and markedly distressing to almost anyone.

No \_\_\_\_\_ Yes \_\_\_\_\_

## B. Reexperiencing the Traumatic Event

After it was over, did you find yourself persistently remembering or dreaming about the events over and over again for at least one month?

No \_\_\_\_\_ Yes \_\_\_\_\_

Did this happen even when you weren't trying to remember?

No \_\_\_\_\_ Yes \_\_\_\_\_

# B1 Recurrent intrusive recollections

Have you experienced painful images, thoughts or memories of (.....)trauma which you couldn't get out of your mind even though you may have wanted to?

Have these been recurrent?

*Ask how  
distressing -  
f verbal response  
not suff. for  
you to  
assign it*

- 0 = not at all
- 1 = mild: rarely and/or not bothersome
- 2 = moderate: at least once a week and/or produces some distress
- 3 = sévere: at least 4 times per week or moderately distressing
- 4 = extremely severe: daily or produces so much distress that patient cannot work or function socially

*then go thru  
asking from  
not at all*

Rate worst ever

Rate past 4 weeks (or other designated period) \_\_\_\_\_

## B2 Dreams

*daily  
ack up  
D sandy + /*

I'd like to ask you about your dreams.

Have you had repeated dreams of violence, combat or death (or other theme related to trauma)?

Were these of actual scenes you were involved in?

Do you recognize people in the dream?

Are these dreams of the event?

How frequent are these dreams?

Do you wake up sweating or shouting? Trembling?  
Palpitations? Trouble breathing?

Are the nightmares so bad that your spouse (partner) does not sleep in the same bed, or in the same room?

- 0 = no problems
- 1 = mild: infrequent or not disruptive
- 2 = moderate; at least once a week/somewhat distressing
- 3 = severe: at least four times a week/moderately distressing
- 4 = extremely severe: six to seven times a week/ extremely distressing

Rate worst ever

Rate past 4 weeks (or other designated period). \_\_\_\_\_

**B3 Acting or feeling as if event was currently happening**

At times have you reacted to something as if you were back in combat, reliving rape or other relevant trauma? Has it seemed that the event was recurring or that you were living through it again? Did you have hallucinations of the event?

- 0 = not at all
- 1 = rarely
- 2 = sometimes
- 3 = often
- 4 = every week

Rate worst ever \_\_\_\_\_

Rate past 4 weeks (or other designated period) \_\_\_\_\_

**B4 Intense psychological distress at exposure to reminders of event**

Do any of the symptoms occur or get worse if something reminds you of the stressful event? Ask about TV programs, weather conditions, news, Veterans' Day, recent disaster involving the loss of life, loss of good friends, being in places which remind person of the event. (Feel angry, sad, irritable, anxious, frightened?)

- 0 = not at all
- 1 = a little bit: infrequent or of questionable significance
- 2 = somewhat: one or two symptoms occur
- 3 = significantly: several symptoms occur or one symptom with much distress
- 4 = marked: very distressing, may have activated an episode of the illness, resulting in hospitalization, different treatment, etc.

Rate worst ever \_\_\_\_\_

Rate past 4 weeks (or other designated period) \_\_\_\_\_

**B5 Does exposure to an event that reminds you of or resembles the trauma, cause you to have any physical response? (Sweating, trembling, heart racing, nausea, hyperventilating, feeling frozen; do not include nightmares.)**

- 0 = not at all
- 1 = a little bit: infrequent or questionable
- 2 = somewhat: mildly distressing
- 3 = significantly: causes much distress
- 4 = marked: very distressing or has sought help from doctors because of the physical response (e.g., chest pain so severe that patient was sure he or she was having a heart attack)

Rate worst ever

Rate past 4 weeks (or other designated period)       **C. Avoidance of Stimuli Associated with the Trauma**

**C1 Have you persistently tried to avoid thoughts, feelings or conversations about the trauma? Did this last at least four weeks?**

No        Yes       

- 0 = no avoidance
- 1 = mild: of doubtful significance
- 2 = moderate: definite effort is made, but is able to function at work and socially
- 3 = severe: definite avoidance which affects life in some way (keeps moving from place to place/cannot work/works excessively/or episodic substance abuse because of need to avoid thoughts or feelings).
- 4 = very severe: dramatic effect on life

Rate worst ever

Rate past 4 weeks (or other designated period)       **C2 Avoidance of activities that arouse recollection of the event**

Have you persistently avoided places, people or occasions that remind you of the event? Did this last at least four weeks?

No        Yes       

Movies? Noisy places? Veterans' meetings? Funerals?  
Other places?

- 0 = no avoidance
- 1 = mild: of doubtful significance (uncomfortable but doesn't avoid)
- 2 = moderate: definite avoidance of situations
- 3 = severe: very uncomfortable and avoidance affects life in some way
- 4 = Extremely severe: house-bound, cannot go out to shops and restaurants

Rate worst ever

Rate past 4 weeks (or other designated period)

C3 Psychogenic amnesia

56

Is there an important part of the event that you cannot remember?

- 0 = no problem: remembers everything
- 1 = mild: remembers most details
- 2 = moderate: some difficulty remembering significant details
- 3 = severe: remembers only a few details
- 4 = very severe: claims total amnesia for the trauma

Rate worst ever \_\_\_\_\_

Rate past 4 weeks (or other designated period) \_\_\_\_\_

C4 Loss of interest - Since your condition began, have you experienced less interest (pleasure) in things that you used to enjoy?

What things have you lost interest in? What do you still enjoy?

- 0 = no loss of interest
- 1 = one or two activities less pleasurable
- 2 = several activities less pleasurable
- 3 = most activities less pleasurable
- 4 = almost all activities less pleasurable

Rate worst ever \_\_\_\_\_

Rate past 4 weeks ( or other designated period) \_\_\_\_\_

C5 Detachment/estrangement

Do you have less to do with other people than you used to?  
Do you feel estranged from other people?

- 0 = no problem
- 1 = feels detached/estranged, but still has normal degree of contact with others
- 2 = sometimes avoids contact that would normally participate in
- 3 = definitely and usually avoids people with whom would previously associate
- 4 = absolutely refuses or actively avoids all social contact since the stress

Rate worst ever \_\_\_\_\_

Rate past 4 weeks ( or other designated period) \_\_\_\_\_



C6 Restricted range of affect

57

Can you have warm feelings/feel close to others? Do you feel numb? Was it different before?

- 0 = no problem
- 1 = mild: of questionable significance
- 2 = moderate: some difficulty expressing feelings
- 3 = severe: definite problems with expressing feelings
- 4 = very severe: have no feelings, feels numb most of the time

Rate worst ever

Rate past 4 weeks (or other designated period) \_\_\_\_\_

C7 Foreshortened future

What do you see happening in your future?

What do you visualize as you grow old? What are your expectations of the future?

- 0 = describes positive or realistic future
- 1 = mild: describes pessimistic outlook at times, but varies from day to day depending on events
- 2 = moderate: pessimistic much of the time
- 3 = severe: constantly pessimistic
- 4 = can see no future/ views early death as likely ( but without adequate medical basis)

Rate worst ever

Rate past 4 weeks ( or other designated period) \_\_\_\_\_

D. Increased Arousal

D1 Sleep disturbances

We spoke earlier about nightmares-what about other aspects of sleeping? Have you had trouble falling asleep?

Do you wake in the middle of the night?

Are you unable to go back to sleep after waking?

- 0 = no loss of sleep
- 1 = mild: occasional difficulty but no more than two nights/week
- 2 = moderate: difficulty sleeping at least three nights/week
- 3 = severe: difficulty sleeping every night
- 4 = extremely severe: less than 3 hours sleep/night

Rate worst ever

Rate past 4 weeks (or other designated period) \_\_\_\_\_

## . D2 Have you been more irritable or more easily annoyed than usual?

How did you show your feelings? Have you had angry outbursts?

- 0 = not at all
- 1 = mild: occasional feelings of annoyance or anger which may go unnoticed by others
- 2 = moderate: increased feelings of annoyance, becomes snappy or argumentative (at least once every 2 weeks); others may have commented
- 3 = severe: almost constantly irritable or angry/often loses temper or has significant impairment in ability to relate to others as a result of this
- 4 = very severe; preoccupied with anger or feelings of retaliation, overtly aggressive or assaultive/marked impairment in function

Rate worst ever

Rate past 4 weeks (or other designated period) \_\_\_\_\_

## D3 Impairment in concentration

Have you noticed any trouble concentrating?

Is it hard to keep your mind on things?

Can you pay attention easily?

What about reading or watching TV?

- 0 = no difficulty
- 1 = serial subtraction, 1 mistake out of 5; or patient acknowledges slight problem
- 2 = serial subtraction; 2 mistakes out of 5; or patient describes definite difficulty
- 3 = serial subtraction; 3 mistakes out of 5; interferes with daily activities, job, etc.
- 4 = serial subtraction, 4 or 5 mistakes, or will not even attempt subtraction; constant problems, unable to do simple tasks

Rate worst ever

Rate past 4 weeks (or other designated period) \_\_\_\_\_

Subtract  
by 7  
100 →  
to 70's  
100  
93  
86  
79  
72  
65

## D4 Hypervigilance

Do you have to stay on guard? Are you easily distracted? Do you feel on edge?

- 0 = no problem
- 1 = mild: occasional/not disruptive
- 2 = moderate: causes discomfort/ feels on edge or watchful in some situations
- 3 = severe: causes discomfort/feels on edge or watchful in most situations
- 4 = very severe: causes extreme discomfort and alters life (feels constantly ~~on guard/must~~ keep back to wall/socially ~~impaired~~ because of feeling on edge)

Rate worst ever

Rate past 4 weeks (or other designated period) \_\_\_\_\_

## D5 Startle

Do you startle easily? Do you have a tendency to jump? Is this a problem after unexpected noise, or if you hear or see something that reminds you of (the original trauma)?

- 0 = no problem
- 1 = mild: occasional but not disruptive
- 2 = moderate: causes definite discomfort or an exaggerated startle response at least every 2 weeks
- 3 = severe: happens more than once a week
- 4 = extremely severe: so bad that patient cannot function at work or socially

Rate worst ever

Rate past 4 weeks (or other designated period) \_\_\_\_\_

## D6 Behavior/survival guilt

Are you troubled by feelings of guilt or shame for what you did in combat, (or rape or another situation)?

Do you feel that you did not deserve to survive ?

Have you felt guilty about surviving?

- 0 = no guilt
- 1 = mild: sometimes feels guilty, but basically takes the view of "I did my job" or "I did the best I could in that situation".
- 2 = moderate: expresses some distress because of these feelings, or feels guilty much of the time
- 3 = severe: constant feelings of guilt, which may evoke significant distress

4 = extremely severe: preoccupied with these feelings 60

Rate worst ever behavior guilt \_\_\_\_\_

Rate past 4 weeks ( or other designated period) \_\_\_\_\_

behavior guilt \*(Do not include in total score) \_\_\_\_\_

Rate worst ever survival guilt \_\_\_\_\_

Rate past 4 weeks (or other designated period) \_\_\_\_\_

survival guilt \*(Do not include in total score) \_\_\_\_\_

**E. How long has this condition lasted?**

E1. Did the symptoms which you have described last for at least four weeks? \_\_\_\_\_

E2. How many months after the trauma did these symptoms first develop? \_\_\_\_\_ Age at the time \_\_\_\_\_

**F. In the interviewer's judgement, and taking in to account the subject's responses, has the disturbance caused clinically significant distress or impairment in social, occupational or other important areas of functioning?**

No \_\_\_\_\_

Yes \_\_\_\_\_

100  
Trauma #

SCORESHEET: SI-PTSD

Initials		ID#	DATE	VISIT #
			<i>Worst Ever</i>	<i>Present</i>
B	1			
	2			
	3			
	4			
	5			
	(Subtotal)			
C	1			
	2			
	3			
	4			
	5			
	6			
	7			
	(Subtotal)			
D	1			
	2			
	3			
	4			
	5			
	(Subtotal)			
Total (B,C, D1-D5)				
D6				

## SCORE SHEET FOR STRUCTURED PTSD INTERVIEW

Total worst ever score for all appropriate B, C and D items. Do not include D-6 when score is totaled.

total

Total present (past 4 weeks or other designated period) score for all appropriate B, C and D items

total

Score No as 1, Yes as 2 to all answers below:

## DSM-III-R Diagnosis

Traumatic event definitely present? \_\_\_\_\_

At least one item from B 1-4 with score of at least 2 \_\_\_\_\_

At least three items from category C with score of at least 2. \_\_\_\_\_

At least one item from B5 and D 1-5 with score of at least 2. \_\_\_\_\_

All items (categories B, C and D) present at least one month? \_\_\_\_\_

Past diagnosis? \_\_\_\_\_

Present diagnosis? \_\_\_\_\_

## DSM-IV Diagnosis

Traumatic event definitely present? \_\_\_\_\_

At least one item from category B with score of at least 2 \_\_\_\_\_

At least three items from category C with score of at least 2 (at least one item must be from C 1-2 and one must be from C 3-7) \_\_\_\_\_

At least two items from category D 1-5 (each must score at least 2) \_\_\_\_\_

Past diagnosis \_\_\_\_\_

Present diagnosis \_\_\_\_\_

3 out of 4

3 to 7 only

If more than one trauma,  
State which ones qualify.

## Appendix B

### Symptom Checklist-90-R (SCL-90-R)

Permission to reprint the SCL-90-R was not granted by the authors.



## Appendix C

### Impact of Events Scale (IES)

On \_\_\_\_\_ (date) you experienced \_\_\_\_\_ (life event). Below is a list of comments made by people after stressful life events. Please check each item, indicating how frequently these comments were true for you DURING THE PAST 7 DAYS. If they did not occur during that time, please mark the "not at all" column.

0 = Not at all

1 = Rarely

2 = Sometimes

3 = Often

- |  |   |   |   |   |
|--|---|---|---|---|
| 1. I thought about it when I didn't mean to.   | 0 | 1 | 2 | 3 |
| 2. I avoided letting myself get upset when I thought about it or was reminded of it.               | 0 | 1 | 2 | 3 |
| 3. I tried to remove it from memory.   | 0 | 1 | 2 | 3 |
| 4. I had trouble falling / staying asleep because pictures or thoughts about it came into my mind. | 0 | 1 | 2 | 3 |
| 5. I had waves of strong feelings about it.  | 0 | 1 | 2 | 3 |
| 6. I had dreams about it.  | 0 | 1 | 2 | 3 |
| 7. I stayed away from reminders of it.   | 0 | 1 | 2 | 3 |
| 8. I felt as if it hadn't happened or it wasn't real.  | 0 | 1 | 2 | 3 |
| 9. I tried not to talk about it.   | 0 | 1 | 2 | 3 |
| 10. Pictures about it popped into my mind.   | 0 | 1 | 2 | 3 |
| 11. Other things kept making me think about it.  | 0 | 1 | 2 | 3 |
| 12. I was aware that I still had a lot of feelings about it, but I didn't deal with them.          | 0 | 1 | 2 | 3 |
| 13. I tried not to think about it.   | 0 | 1 | 2 | 3 |
| 14. Any reminder brought back feelings about it.   | 0 | 1 | 2 | 3 |
| 15. My feelings about it were kind of numb.  | 0 | 1 | 2 | 3 |

## Appendix D

### Drug Abuse Screening Test (DAST)

Drug Abuse Screening Test

Subject: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Please respond to the following questions based on your involvement with drugs or alcohol within the last month.

	Yes	No
1) Do you use drugs other than those needed for medical reasons?.....	( )	___
2) Do you abuse prescription drugs?.....	( )	___
3) Do you abuse more than one drug at a time?.....	( )	___
4) Can you get through the week without using drugs?.....	___	( )
5) Are you always able to stop using drugs when you want?.....	___	( )
6) Do you abuse drugs on a continuous basis?.....	( )	___
7) Do you try to limit your drug use to certain situations?.....	( )	___
8) Have you had blackouts or flashbacks as a result of drug use?.....	( )	___
9) Do you feel bad about your drug abuse?.....	( )	___
10) Does your spouse (parents) ever complain about your involvement with drugs?.....	( )	___
11) Do your friends or relatives know or suspect you abuse drugs?.....	( )	___
12) Is drug abuse creating problems between you and your spouse?.....	( )	___
13) Has any family member sought help for problems related to your drug use?.....	( )	___
14) Have you lost friends because of your drug use?.....	( )	___
15) Have you neglected your family or missed work because of your use of drugs?.....	( )	___
16) Have you been in trouble at work because of drug abuse?.....	( )	___
17) Have you lost a job because of drug abuse?.....	( )	___
18) Have you gotten into fights when under the influence of drugs?.....	( )	___
19) Have you been arrested because of unusual behavior while under the influence of drugs?.....	( )	___
20) Have you been arrested for driving under the influence of drugs?.....	( )	___
21) Have you engaged in illegal activities in order to obtain drugs?.....	( )	___
22) Have you been arrested for possession of illegal drugs?.....	( )	___
23) Have you experienced withdrawal symptoms as a result of heavy drug intake?.....	( )	___
24) Have you had medical problems because of your drug use (e.g., hepatitis, memory loss)?.....	( )	___
25) Have you gone to anyone for help for a drug problem?.....	( )	___
26) Have you ever been in the hospital for medical problems related to your drug use?.....	( )	___
27) Have you been involved in a treatment program specifically related to drug use?.....	( )	___
28) Have you been treated as an out-patient for problems related to drug abuse?.....	( )	___

Are you currently taking any prescription drugs for your symptoms that resulted from the trauma? Yes \_\_\_ No \_\_\_

If so, which one(s)? \_\_\_\_\_

How long have you been taking this medication? \_\_\_\_\_

Appendix E

Personality Screener

## Procedures for Personality Assessments

1. Inform subject that you will be reading them a list of statements that may or may not be true for them.
2. For each statement, ask them if this is a) not characteristic of me; b) a little bit true for me, or sometimes true; or c) definitely characteristic of me.
3. Ask that they consider how they view their own behavior, as well as how others close to them report that they behave.

Next to each item, write down the number 0-2 that corresponds to their answer. (0=not characteristic of me; 1=a little bit true for me, or sometimes true; 2=definitely characteristic of me)

## I.

- \_\_\_ a. engaging in frantic efforts to avoid real or imagined abandonment (don't include suicidal or self-mutilating behavior)
  - \_\_\_ b. having a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealizing and devaluing the other person
  - \_\_\_ c. having a disturbance in identity with a noticeable and persistently unstable self-image
  - \_\_\_ d. engaging in recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior
  - \_\_\_ e. exhibiting emotional instability due to a distinct reactivity of mood - mood swings (ie. intense episodic depressed mood, irritability, or anxiety usually lasting a few hours and rarely more than a few days)
  - \_\_\_ f. having chronic feelings of emptiness
  - \_\_\_ g. having inappropriate, intense anger or difficulty controlling anger (frequent displays of temper, constant anger, recurrent physical fights)
- 

## II.

- \_\_\_ a. Being preoccupied with details, rules, lists, order, organization or schedules to the extent that the major point of activity is lost
- \_\_\_ b. showing perfectionism that interferes with task completion (ie. unable to complete a project because overly strict standards are not met)
- \_\_\_ c. Being overconscientious, scrupulous, and inflexible about matters of morality, ethics, or values (not accounted for by cultural or religious identification).
- \_\_\_ d. Being reluctant to delegate tasks or to work with others unless they submit to exactly my way of doing things
- \_\_\_ e. showing rigidity and stubbornness

I. = Borderline scale

II. = Obsessive-Compulsive scale

## Appendix F

### Modified Behavioral Assessment of Speech Anxiety (BASA)

Subject # \_\_\_\_\_ Session (pre/1month/2month): \_\_\_\_\_  
 Observer: \_\_\_\_\_

### **Modified Behavioral Assessment of Speech Anxiety (BASA)**

Following is a list of ways in which anxiety may be behaviorally manifested during a therapy session with a client who is recounting a traumatic memory. Each behavioral manifestation may occur in varying degrees of severity, which may be quantified according to the following rating scale:

0	1	2	3
not at all	slight	moderate	strong

For each behavioral manifestation of anxiety that occurs during the interview session, mark your rating (from 0 to 3) to indicate how severe it was.

Voice \_\_\_\_\_

- \_\_\_\_\_ 1. Quivering or tense voice
- \_\_\_\_\_ 2. Too fast
- \_\_\_\_\_ 3. Too soft
- \_\_\_\_\_ 4. Loud/pressured speech

Verbal fluency \_\_\_\_\_

- \_\_\_\_\_ 1. Nonfluencies, stammers, halting
- \_\_\_\_\_ 2. Vocalized pauses ("Umm")
- \_\_\_\_\_ 3. Hunts for words, speech blocks

Mouth and throat \_\_\_\_\_

- \_\_\_\_\_ 1. Swallows
- \_\_\_\_\_ 2. Clears throat
- \_\_\_\_\_ 3. Breathes heavily
- \_\_\_\_\_ 4. Breathes quickly

Facial expression \_\_\_\_\_

- \_\_\_\_\_ 1. Lack of eye contact, extraneous eye movements
- \_\_\_\_\_ 2. Tense face muscles, grimaces, twitches
- \_\_\_\_\_ 3. "Deadpan" facial expression

Arms and hands \_\_\_\_\_

- \_\_\_\_\_ 1. Rigid or tense
- \_\_\_\_\_ 2. Fidgeting, extraneous movements
- \_\_\_\_\_ 3. Wringing hands

Gross bodily movements \_\_\_\_\_

- \_\_\_\_\_ 1. Rocks
- \_\_\_\_\_ 2. Holds self

Overt autonomic arousal \_\_\_\_\_

- \_\_\_\_\_ 1. Tears
- \_\_\_\_\_ 2. Sobbing
- \_\_\_\_\_ 3. Trembling
- \_\_\_\_\_ 4. Perspiring
- \_\_\_\_\_ 5. Sniffling/runny nose



Appendix G

Treatment Integrity Checklist

### Treatment Observer Rating Checklist

Place a check next to each of the components that the therapist engages in.

1. Has subject identify most distressing image
2. Asks subject to assign SUDS
3. Has subject develop positive cognition
4. Asks subject to assign VoC
5. Has subject engage in saccadic eye movements
6. Asks for a report on changes
7. Ask for VoC after SUDS reaches 0 or 1
8. Has subject hold image and positive cognition in mind while engaging in eye movements

Appendix H  
Informed Consent

Informed Consent for Participation in an Investigation

Western Michigan University

Department of Psychology

Principal Investigator/Advisor: C. Richard Spates, PhD

Co-Principal Investigator: Karen Cusack

I have been invited to participate in the Post Traumatic Stress Screening and Treatment Project in a study entitled "Eye Movement Desensitization and Reprocessing in the Treatment of PTSD: A Procedural Dismantling." I understand that this project is under the direction of Dr. C. Richard Spates and Karen Cusack of the Psychology Department at Western Michigan University. I further understand this research is intended to study the relative efficacy of one of two variations of a treatment for Post Traumatic Stress Disorder. I understand that I will not know which procedure I will receive until assigned by the researcher. I understand that in either procedure I will be required to recall certain aspects of a traumatic experience as part of therapy. I further understand that the treatment will be provided by a trained therapist and will be under the supervision of Dr. Spates at all times.

My consent to participate in this project indicates that I understand that I will be asked to attend two initial assessment sessions, 1-3 90 minute treatment sessions, depending on how well the treatment works for me, and that I will be asked to return to the Psychology Clinic at approximately one week, one month, and two months after the last treatment session to complete questionnaires or go through a follow-up interview. All sessions will be conducted at the WMU Psychology Clinic by therapists trained in the use of the procedures.

During the first (assessment) session I will be asked to complete three questionnaires. During the second (assessment) session I will be given one structured interview and one additional questionnaire. The first questionnaire, the Symptom-Checklist-90-Revised (SCL-90-R) asks me to respond to 90 short statements about a wide range of feelings, thoughts, and activities. The second questionnaire, the Personality Diagnosis Questionnaire (PDQ-4), contains questions about my patterns of relating to other people and how I view myself. The third questionnaire will ask about any drug and alcohol use in which I take part at the present time. The fourth questionnaire, the Impact of Events Scale (IES), will ask about my responses to the traumatic event that I experienced. The Structured Interview for Post-traumatic Stress Disorder (SI-PTSD) asks me to respond to questions about my thoughts, feelings, and physical responses regarding the traumatic event/s that I experienced. Each of these assessment sessions will take approximately one hour. I understand that as a result of these assessments, I may not qualify for participation in the study. In that case, and if I desire counseling, I may be provided with a therapist referral list. This list might assist me in seeking suitable treatment at my own expense elsewhere if I so choose.

As in all research, there may be unexpected risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or treatment will be made available to me except as otherwise specified in this consent form. I understand that one potential risk of my participation in this project is that I may be upset by the content of the assessment or treatment sessions. I understand, however, that Dr. Spates, Karen Cusack, or another Psychology Clinic staff member is prepared to offer crisis counseling should I become significantly upset and that I would not be responsible for the cost of such crisis intervention. A determination as to the degree of distress I experience will be continually assessed by experienced professional psychologist(s). When in their professional judgement I become distressed to the point where I should no

longer continue with the treatment, the session will be terminated. Should additional treatment be deemed appropriate, Psychology Clinic staff are prepared to make a referral if I need further counseling. I will be responsible for the cost of therapy if I choose to pursue it.

I understand that at various points my assessment or treatment sessions may be observed. This observation would be for purposes of training, or to ensure the reliable administration of the treatment procedures only. I also understand that at times, it may be necessary to videotape a session for training purposes. I understand that my session would only be videotaped with my permission. If I agree, a separate consent form will be given to me on the day videotaping is being requested. My signature on that form will indicate that I give my permission to be videotaped for that session only. All videotapes will be kept strictly confidential. The tapes will be kept in a locked box in the clinic. Only Karen Cusack, Dr. Richard Spates, and research assistants currently being trained in the procedures will have access to the material on the tape. Once all of the data are collected, the videotape will be erased.

One way in which I may benefit from this activity is having the chance to express my feelings about the trauma, which research indicates is beneficial for individuals who have suffered from a traumatic event. I also understand that others who have experienced a traumatic event may benefit from the knowledge that is gained from this research.

I understand that all the information collected from me is confidential. That means that my name will not appear on any papers on which this information is recorded. The forms will all be coded and Karen Cusack will keep a separate master list with the names of participants and the corresponding code numbers. Once the data are collected and analyzed, the master list will be destroyed. All other forms will be retained for one year

following completion of the study in a locked file in the Western Michigan University Psychology Clinic. Information will be kept on computer disk for at least a period of five years after that point.

I understand that I may refuse to participate or quit at any time during the study without prejudice or penalty. If I have any questions or concerns about this study, I may contact either Karen Cusack at 342-1335 or Dr. Spates at 387-8332. I may also contact the Chair of the Human Subjects Institutional Review Board at 387-8293 or the Vice President for Research at 387-8298 with any concerns that I have. My signature below indicates that I understand the purpose and requirements of the study and that I agree to participate.

---

Signature

Date

Appendix I  
EMDR Protocol



## Procedures for EMDR Sessions

### Before session begins:

- Get client file
- Check that you have 14 daily checklists to give to subject
- Check file to see which procedure is being administered (EMDR or EMD)
- Remember to ask for the checklists from the previous week
- Make sure Kleenex is available

Seat the subject comfortably, however they will be most comfortable.

Establish rapport. This should consist of just some light conversation to put the subject at ease. Generally you will have had the chance to begin this on the elevator ride down.

Ask them to describe the trauma. You might say, "I've read about the \_\_\_\_ (fire, auto accident) that you were involved in. I'd like to take a few minutes to have you tell me a little more about that". Establishing rapport and description of trauma should take around 10 min.

Before going into treatment description you may want to say something like, "Thank you for sharing that with me, I can see that it's not easy to talk about. Before we get started I would like to explain a little bit about the treatment".

### Treatment Description

Inform the subject that you will be asking them to:

- 1) recall the traumatic event and keep it in mind and
- 2) follow your fingers with their eyes for about 30 seconds at a time then
- 3) briefly resting and providing you with information regarding recall of the event.
- 4) let them know you will also be asking for a rating regarding how he/she is feeling emotionally/physically at approximately 5-7 minute intervals.

Then say: "At various points during today's session, I am going to move my fingers across your field of vision, like this (demonstrate this using a couple of back and forth movements). In a moment I will be moving my chair closer to you and we will practice the technique. First, there are a few things I'd like you to keep in mind.

1) It is important that you recall all aspects of the experience, including the specifics of what happened (the "story"), your thoughts and evaluations about it, and your physical and emotional reactions to what happened to you.

(In other words, it is important that the person address not only the events themselves but the physiological, cognitive and emotional responses as well.)

2) If you have experienced more than one traumatic event, you should begin by addressing the most recent one. If you have experienced an event with a number of parts, you should begin by addressing the most upsetting part.

As today's session goes on I will be giving you specific instructions as to certain things you should be aware of when you start moving your eyes. After many of the groups of eye movements I will be taking a physiology check. I need to know from you exactly what is going on with as clear feedback as possible. Sometimes things will change and sometimes they won't. I may ask you if the picture changes- sometimes it will and sometimes it won't. I'll ask you how you feel from 0 to 10. Sometimes it will change and sometimes it won't. There are no supposed to's in this process. So just give as accurate

*feedback as you can as to what is happening without judging whether it should be happening or not. Just let whatever happens, happen."*

*"Remember, whenever I move my fingers in front of you, it is important that you do the best you can to follow them with your eyes. If you wish to stop, tell me or signal me. If your eyes stop moving without you letting me know I will encourage you to keep them moving. If you have difficulty following I will make adjustments to help you continue. I would like you to keep your head still but follow my moving fingers with your eyes. Let's practice the technique now. (Move chair closer)*

Practice, doing one full set of eye movements. If adjustments need to be made it would be here that you would determine this. (ie. lower, diagonal, further away)

### Pivotal Image

*Please visualize the most unpleasant moment from the episode and pay attention to the negative feeling that goes with the scene... On a scale of 0 to 10 with 10 being most uncomfortable and 0 being not uncomfortable at all where is your feeling now with that scene in mind? ... What is the name of that uncomfortable feeling? ... Where do you feel it in your body?...*

### Present / Negative Cognition

You might want to ask for this by saying, *"If the image were a snapshot, what caption could you write underneath it that would best communicate your thoughts about what happened? What do you tend to say to yourself when that image comes to mind?"* If having trouble you may suggest some relevant cognitions from the list.

### Desired Cognition

You could say, *"What would you like to be able to believe or think or say to yourself when you see that image?"*

VoC Ratings: *"On a scale of 1-7, where 1 is not at all true, and 7 is completely true, how true does that statement seem to be for you?"*

### Begin Treatment:

*"Now take a moment to conjure up the image of what happened. With this in mind also recall your physical and emotional feelings at the time. I'll give you a moment to get this all in mind, and ask you to follow my fingers with your eyes when you are ready. (Wait briefly) O.K. Now with that in mind, follow my fingers..."*

After about 23-26 saccades, stop and say, *"Blank it out, take a deep breath. (Pause briefly). "Tell me what comes up now / what do you notice now / What changes now?"*

Remember... you are looking for thoughts, feelings, and body sensations. If they are consistently reporting just scenes, you may want to ask, *"What do you feel?"* or *"What physical feelings do you have in your body?"*

After every 4th set of saccades you will be asking for a SUDs rating. *"On a scale from 0 to 10 where 0 is completely calm and 10 is the most distress possible for you, how would you rate what you are feeling now?"*

Continue with sets of saccades, taking SUDs scores every 4th set, until they reach a 0 or 1 **OR** until they have remained consistently low (3). Try for complete desensitization, but if you are in your last session and nearing the end, getting two consecutive 3's is sufficient.

At this time ask the subject to recall the desired cognition as well as the rating they gave it. Ask them to hold this statement in mind and do 2 sets of saccades. Then take VoC rating on it. Continue with saccades, taking a rating every other set, until the VoC has reached a 7, or remains at 6.

#### Installation Phase

Ask subject to hold in mind the original (pivotal) image **and** the desired cognition. Do 2 sets of saccades. Remember with this phase and the desired cognition phase you are just asking them to hold it in mind and follow your finger. There are no "what comes up?" in these phases.

You should have about 15 minutes towards the end for the VoC and the installation phase.

The session should be limited to 1 hour 15 minutes.

At the end of the last session you will take them upstairs to schedule the 1 week post-test session. Also, remember that they need 14 more daily checklists!

Good luck!!!

Appendix J  
EMD Protocol

## Procedures for EMD Sessions

### Before session begins:

- Get client file
- Check that you have 14 daily checklists to give to subject
- Check file to see which procedure is being administered (EMDR or EMD)
- Remember to ask for the checklists from the previous week
- Make sure Kleenex is available

Seat the subject comfortably, however they will be most comfortable.

Establish rapport. This should consist of just some light conversation to put the subject at ease.

Ask them to describe the trauma. You might say, "I've read about the \_\_\_\_ (fire, auto accident ) that you were involved in. I'd like to take a few minutes to have you tell me a little more about that". Establishing rapport and description of trauma should take around 10 min.

Before going into treatment description you may want to say something like, "Thank you for sharing that with me, I can see that it's not easy to talk about. Before we get started I would like to explain a little bit about the treatment".

### Treatment Description

Inform the subject that you will be asking them to:

- 1) recall the traumatic event and keep it in mind and
- 2) follow your fingers with their eyes for about 30 seconds at a time then
- 3) briefly resting and providing you with information regarding recall of the event.
- 4) let them know you will also be asking for a rating regarding how he/she is feeling emotionally/physically at approximately 5-7 minute intervals.

Then say: "At various points during today's session, I am going to move my fingers across your field of vision, like this (demonstrate this using a couple of back and forth movements). In a moment I will be moving my chair closer to you and we will practice the technique. First, there are a few things I'd like you to keep in mind.

1) It is important that you recall all aspects of the experience, including the specifics of what happened (the "story"), your thoughts and evaluations about it, and your physical and emotional reactions to what happened to you.

( In other words, it is important that the person address not only the events themselves but the physiological, cognitive and emotional responses as well.)

2) If they have experienced more than one traumatic event, they should begin by addressing the most recent one. If they have experienced an event with a number of parts, they should begin by addressing the most upsetting part.

As today's session goes on I will be giving you specific instructions as to certain things you should be aware of when you start moving your eyes. After many of the groups of eye movements I will be taking a physiology check. I need to know from you exactly what is going on with as clear feedback as possible. Sometimes things will change and sometimes they won't. I may ask you if the picture changes- sometimes it will and sometimes it won't. I'll ask you how you feel from 0 to 10. Sometimes it will change and sometimes it won't. There are no supposed to's in this process. So just give as accurate

*feedback as you can as to what is happening without judging whether it should be happening or not. Just let whatever happens, happen."*

*"Remember, whenever I move my fingers in front of you, it is important that you do the best you can to follow them with your eyes. If you wish to stop, tell me or signal me. If your eyes stop moving without you letting me know I will encourage you to keep them moving. If you have difficulty following I will make adjustments to help you continue. I would like you to keep your head still but follow my moving fingers with your eyes. Let's practice the technique now. (Move chair closer)*

Practice, doing one full set of eye movements. If adjustments need to be made it would be here that you would determine this. (i.e.. lower, diagonal, further away)

### Pivotal Image

*Please visualize the most unpleasant moment from the episode and pay attention to the negative feeling that goes with the scene... On a scale of 0 to 10 with 10 being most uncomfortable and 0 being not uncomfortable at all where is your feeling now with that scene in mind? ... What is the name of that uncomfortable feeling? ... Where do you feel it in your body...*

### Present / Negative Cognition

You might want to ask for this by saying, *"What words best go with the picture and express your belief about yourself?" or "What do you tend to say to yourself when that image comes to mind?"*

If having trouble you may suggest some relevant cognitions from the list. Keep in mind that if you are still having trouble you don't want to hold up treatment for this. An appropriate cognition will present itself as treatment progresses if you are really stuck.

### Begin Treatment:

*"Now take a moment to conjure up the image of what happened. With this in mind also recall your physical and emotional feelings at the time. I'll give you a moment to get this all in mind, and ask you to follow my fingers with your eyes when you are ready. (Wait briefly) O.K. Now with that in mind, follow my fingers..."*

After about 23-26 saccades, stop and say, *"Blank it out, take a deep breath. (Pause briefly). "Tell me what comes up now / what do you notice now / What changes now?"*

Remember... you are looking for thoughts, feelings, and body sensations. If they are consistently reporting just scenes, you may want to ask, *"What do you feel?" or "What physical feelings do you have in your body"*

After every 4th set of saccades you will be asking for a SUDs rating. *"On a scale from 0 to 10 where 0 is completely calm and 10 is the most distress possible for you, how would you rate what you are feeling now?"*

Continue with sets of saccades, taking SUDs scores every 4th set, until they reach a 0 or 1 OR until they have remained consistently low (3). Try for complete desensitization, but if you are in your last session and nearing the end, getting two consecutive 3's is sufficient.

If there is still time remaining, and their SUDs is all the way down to 0 or 1, still give them an extra 4 sets so that this procedure will parallel the EMDR procedure.

The session should be limited to 1 hour and 15 minutes.

At the end of the last session you will take them upstairs to schedule the 1 week post-test session. Check my calendar in the Cusack & research assistants mailbox. Both Chad and Amy's schedules are written in there so you know when you can schedule these sessions. Please write the appointment in this book. Also remember that they need 14 more daily checklists.

Good Luck!!!

Appendix K  
Daily Stress Checklist



Subject # \_\_\_\_\_

Date \_\_\_\_\_

## Daily Stress Checklist

Below is a list of statements that describe some of the feelings people often have after a stressful event. Please respond to each statement that was true for you today by placing a check next to that statement.

1. Did you avoid activities associated with the event? \_\_\_\_
2. Did you feel angry? \_\_\_\_
3. Did it interfere with your ability to perform at work? \_\_\_\_
4. Was your temper short with family members? \_\_\_\_
5. Did your emotional state change without warning? \_\_\_\_
6. Did you have trouble in remembering things? \_\_\_\_
7. Did you stay away from social gatherings? \_\_\_\_
8. Did you lose trust in other people? \_\_\_\_
9. Did you feel afraid or helpless? \_\_\_\_
10. Did you try to avoid thinking about what happened? \_\_\_\_
11. Did you question whether or not life was worth living? \_\_\_\_
12. Did you experience nightmares about what happened? \_\_\_\_
13. Were there times when you didn't know what to do next? \_\_\_\_
14. Did you have difficulty in sleeping through the night? \_\_\_\_
15. Did you feel "numb" or unable to relate to other people? \_\_\_\_
16. Were you afraid to return to the place where it occurred? \_\_\_\_
17. Was your temper short with people at work? \_\_\_\_
18. Did you feel like crying when you thought about what happened? \_\_\_\_
19. Did your sexual desire decrease? \_\_\_\_
20. Did thoughts about what happened keep returning? \_\_\_\_
21. Did you feel that you must be on your guard? \_\_\_\_
22. Did it interfere with your social life or personal relationships? \_\_\_\_
23. Did you feel that others couldn't understand what it was like? \_\_\_\_
24. Did you have trouble falling asleep? \_\_\_\_
25. Did you feel that it was happening again? \_\_\_\_
26. Did you have trouble in concentrating? \_\_\_\_
27. Were you easily startled or upset by things that reminded you of it? \_\_\_\_
28. Did you "block" when you tried to think about what happened? \_\_\_\_

Appendix L

HSIRB Approval Forms

fu  
Human Subjects Institutional Review Board



Kalamazoo, Michigan 49008-3899  
616 387-8293

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## WESTERN MICHIGAN UNIVERSITY

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Date: August 15, 1995

To: Karen Cusack

From: Richard Wright, Chair

Re: HSIRB Project Number 95-07-01

*Richard A. Wright*

This letter will serve as confirmation that your research project entitled "Eye movement desensitization and reprocessing in the treatment of post traumatic stress disorder: A procedural dismantling" has been **approved** under the **full** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you must seek specific approval for any changes in this design. You must also seek reapproval if the project extends beyond the termination date. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: Aug. 15, 1996

xc: Spates, PSY

 Human Subjects Institutional Review Board




Kalamazoo, Michigan 49008-3899  
616 387-8293

## WESTERN MICHIGAN UNIVERSITY

Date: October 25, 1995

To: Karen Cusack

From: Richard Wright, Chair 

Re: HSIRB Project Number 95-07-01

This letter will serve as confirmation that the changes to your research project "Eye movement dessensitization and reprocessing in the treatment of post traumatic stress disorder" requested in your memo dated October 18, 1995 have been approved by the Human Subjects Institutional Review Board. This changes are:

1. Remove the exclusion criteria for Panic Disorder.
2. Adopt a less restrictive inclusion critreia for PTSD.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

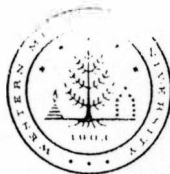
You must seek reapproval for any changes in this design. You must also seek reapproval if the project extends beyond the termination date.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: October 25, 1996

xc: C. Richard Spates, PSY

Human Subjects Institutional Review Board



Kalamazoo, Michigan 49008-3899  
616 387-8293

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## WESTERN MICHIGAN UNIVERSITY

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Date: December 6, 1995

To: Karen Cusack

From: Richard Wright, Chair

Re: HSIRB Project Number 95-07-01

A handwritten signature in cursive script that reads "Richard A. Wright".

This letter will serve as confirmation that the changes to your research project "Eye movement desensitization and reprocessing: a procedural dismantling" requested in your memo dated November 28, 1995 have been approved by the Human Subjects Institutional Review Board with one additional minor change in your original consent form. Please indicate in the consent form that subjects may be asked to be videotaped during the course of the project.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

You must seek reapproval for any changes in this design. You must also seek reapproval if the project extends beyond the termination date.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: October 25, 1996

xc: C. Richard Spates, PSY

## BIBLIOGRAPHY

- American Psychiatric Association (1980). Diagnostic and Statistical Manual of Mental Disorders, Third Ed. Washington, D.C. A.P.A.
- American Psychiatric Association (1994). Diagnostic and Statistical Manual of Mental Disorders, Fourth Ed. Washington, D.C. A.P.A.
- Bauman, W. & Melnyk, W.T. (1994). A controlled comparison of eye movements and finger tapping in the treatment of test anxiety. Journal of Behavior Therapy and Experimental Psychiatry, 25(1), 29-33.
- Bocco, N. & Sharpe, L. (1993). An auditory variant of eye movement desensitization in a case of childhood post-traumatic stress disorder. Journal of Behavior Therapy and Experimental Psychiatry, 24(4), 373-377.
- Boudewyns, P.A., Stwetka, S.A., Hyer, L.A., Albrecht, J.W., & Sperr, E.V. (1993). Eye movement desensitization for PTSD of combat: A treatment outcome pilot study. The Behavior Therapist, 16(2), 29-33.
- Choy, T. & Bosset, F. (1992). Post-traumatic stress disorder: An overview. Canadian Journal of Psychiatry, 37, 578-583.
- Cooper, N.A., & Clum, G.A. (1989). Imaginal flooding as a supplementary treatment for PTSD in combat veterans: A controlled study. Behavior Therapy, 20, 381-391.
- Davidson, J., Smith, R., & Kudler, H. (1989). Validity and reliability of the DSM-III criteria for posttraumatic stress disorder: Experience with a structured interview. Journal of Nervous and Mental Disease, 177, 366-341.
- Derogotis, L.R. (1992). SCL-90-R: Administration, scoring and procedures manual--II. Baltimore: Clinical Psychometric Research.
- Dobson, K.S. (1989). A meta-analysis of the efficacy of cognitive therapy for depression. Journal of Consulting and Clinical Psychology, 57, 414-419.

- Foa, E.B., Rothbaum, B.O., Riggs, D.S., & Murdock, T.B. (1991). Treatment of Posttraumatic Stress Disorder in rape victims: A comparison between cognitive-behavioral procedure and counseling. Journal of Consulting and Clinical Psychology, 59, 715-723.
- Foley, T. & Spates, C.R. (1995) Eye movement desensitization of public speaking anxiety: A partial dismantling. Journal of Behavior Therapy and Experimental Psychiatry, 26(4), 321-329.
- Forbes, D., Creamer, M. & Rycroft, P. (1994). Eye movement desensitization and reprocessing in posttraumatic stress disorder: A pilot study using assessment measures. Journal of Behavior Therapy and Experimental Psychiatry, 25(2), 113-120.
- Frank, E., Anderson, B., Stewart, B.D., Dancu, C., Hughes, C., & West, D. (1988). Efficacy of cognitive behavior therapy and systematic desensitization in the treatment of rape trauma. Behavior Therapy, 19, 403-420.
- Freidman, M.J. (1996). PTSD diagnosis and treatment for mental health clinicians. Community Mental Health Journal, 32(2), 173-189.
- Gavin, D.R., Ross, H.E., & Skinner, H.A. (1989). Diagnostic validity of the Drug Abuse Screening Test in the assessment of DSM III drug disorders. British Journal of Addiction, 84(3), 301-307.
- Goldstein, A.J., & Feske, U. (1994). Eye movement desensitization and reprocessing for panic disorder: A case series. Journal of Anxiety Disorders, 8(4), 351-362.
- Hassard, A. (1993). Eye movement desensitization of body image. Behavioural Psychotherapy, 21, 157-160.
- Hekmat, H., Groth, S., & Rogers, D. (1994). Pain ameliorating effect of eye movement desensitization. Journal of Behavior Therapy and Experimental Psychiatry, 25(2), 121-129.
- Helzer, J.E., Robins, L.N., & McEvoy, L. (1987). Posttraumatic stress disorder in the general population: Findings of the Epidemiologic Catchment Area Survey. New England Journal of Medicine, 317, 1630-1634.
- Horowitz, M.J., Wilner, N., & Alvarez, W. (1979). Impact of event scale: A measure of subjective distress. Psychosomatic Medicine, 41, 209-218.
- Jacobson, N.S., Dobson, K.S., Truax, P.A., Addis, M.E., Koerner, K., Gollan, J.K.,

- Gortner, E. & Prince, S. (1996). A component analysis of cognitive-behavioral treatment for depression. Journal of Consulting and Clinical Psychology, 64(2), 295-304.
- Jensen, J. (1994). An investigation of eye movement desensitization and reprocessing (EMD/R) as a treatment for posttraumatic stress disorder (PTSD) symptoms of Vietnam combat veterans. Behavior Therapy, 25, 311-325.
- Keane, T.M., Fairbank, J.A., Caddell, J.M., & Zimering, R.T. (1989). Implosive (flooding) therapy reduces symptoms of PTSD in vietnam combat veterans. Behavior Therapy, 20, 245-260.
- Kilpatrick, D.G., Saunders, B.E., McMullan, A.A., Best, C.L., Veronen, L.J., & Resnick, H.S. (1989). Victim and crime factors associated with the development of crime related post-traumatic stress disorder. Behavior Therapy, 20, 199-214.
- Kleinknecht, R.A. (1993). Rapid treatment of blood and injection phobias with eye movement desensitization. Journal of Behavior Therapy and Experimental Psychiatry, 24(3), 211-217.
- Kleinknecht, R.A. & Morgan, M.P. (1992). Treatment of posttraumatic stress disorder with eye movement desensitization. Journal of Behavior Therapy and Experimental Psychiatry, 23(1), 43-49.
- Kulka, R.A., Schlenger, W.E., Fairbank, J.A., Hough, R.I., Jorda, B.K., Marmar, C.R., & Weiss, D.S. (1988). National Vietnam veterans readjustment study advance data report: Preliminary findings from the national survey of the Vietnam generation. Executive Summary. Washington, D.C.: Veterans Administration.
- Lipke, H.J., & Botkin, A.L. (1992). Case studies of eye movement desensitization and reprocessing (EMD/R) with chronic post-traumatic stress disorder. Psychotherapy, 29(4), 591-595.
- Margraf, J., Barlow, D.H., Clark, D.M. & Telch, M.J. (1993). Psychological treatment of Panic: Work in progress on outcome, active ingredients, and follow-up. Behavior Research and Therapy, 31(1), 1-8.
- Marquis, J.N. (1991). A report on seventy-eight cases treated by eye movement desensitization. Journal of Behavior Therapy and Experimental Psychiatry, 22(3), 187-192.



- Marshall, W.L. (1985). The effects of variable exposure in flooding therapy. Behavior Therapy, 16, 117-135.
- Montgomery, R.W. & Ayllon, T. (1994a). Eye movement desensitization across images: A single case design. Journal of Behavior Therapy and Experimental Psychiatry, 25(1), 23-28.
- Montgomery, R.W. & Ayllon, T. (1994b). Eye movement desensitization across subjects: Subjective and physiological measures of treatment efficacy. Journal of Behavior Therapy and Experimental Psychiatry, 25(3), 217-230.
- Pellicer, X. (1993). Eye movement desensitization treatment of a child's nightmares: A case report. Journal of Behavior Therapy and Experimental Psychiatry, 24(1), 73-75.
- Puk, G. (1991). Treating traumatic memories: A case report on the eye movement desensitization procedure. Journal of Behavior Therapy and Experimental Psychiatry, 22(2), 149-151.
- Renfrey, G. & Spates, C.R. (1994). Eye movement desensitization: A partial dismantling study. Journal of Behavior Therapy and Experimental Psychiatry, 25(3), 231-239.
- Resnick, P.A., Jordon, C.G., Girelli, S.A., Hutter, C.K. & Marhoeffer-Dvorak, S. (1988). A comparative outcome study of behavioral group therapy for sex assault victims. Behavior Therapy, 19, 385-401.
- Robinson, L.A., Berman, J.S., & Neimeyer, R.A. (1990). Psychotherapy for the treatment of depression: A comprehensive review of controlled outcome research. Psychological Bulletin, 108, 30-49.
- Sanderson, A., & Carpenter, R. (1992). Eye movement desensitization versus image confrontation: A single-session crossover study of 58 phobic subjects. Journal of Behavior Therapy and Experimental Psychiatry, 23(4), 269-275.
- Shapiro, F. (1989). Efficacy of the eye movement desensitization procedure in the treatment of traumatic memories. Journal of Traumatic Stress, 2, 199-223.
- Solomon, S.D., Gerrity, E.T., & Muff, A.M. (1992). Efficacy of treatments for posttraumatic stress disorder. Journal of the American Medical Association, 268(5), 633-638.
- Spates, C.R., & Burnette, M.M. (1995). Eye movement desensitization: Three

unusual cases. Journal of Behavior Therapy and Experimental Psychiatry, 26(4), 321-329.

Thomas, R. & Gafner, G. (1994). PTSD in an elderly male: Treatment with eye movement desensitization and reprocessing (EMDR). Clinical Gerontologist, 14(2), 57-59.

Vaughan, K., Armstrong, M.S., Gold, R., O'Connor, N., Jenneke, W., & Tarrier, N. (1994). A trial of eye movement desensitization compared to image habituation training and applied muscle relaxation in post-traumatic stress disorder. Journal of Behavior Therapy and Experimental Psychiatry, 25(4), 283-291.

Vaughan, K. & Tarrier, N. (1992). The use of image habituation training with post-traumatic stress disorders. British Journal of Psychiatry, 161, 658-664.

Vaughan, K., Wiese, R., Gold, R., & Tarrier, N. (1994). Eye movement desensitization symptom change in post-traumatic stress disorder. British Journal of Psychiatry, 164, 533-541.

Veronen, L.J. & Kilpatrick, D.G. (1983). Stress management for rape victims. In D. Meichembaum, & M.E. Jaremko (Eds.) Stress Reduction and Prevention. (pp.371-374). New York: Plenum Press.

Wernik, U. (1993). The role of the traumatic component in the etiology of sexual dysfunctions and its treatment with eye movement desensitization procedure. Journal of Sex Education and Therapy, 19(3), 212-222.

Wilson, S.A., Becker, L.A., & Tinker, R.H. Eye movement desensitization and reprocessing (EMDR) treatment for psychologically traumatized individuals. Journal of Consulting and Clinical Psychology, 63(6), 928-937.

Wolpe, J. & Abrams, J. (1991). Post-traumatic stress disorder overcome by eye movement desensitization: A case report. Journal of Behavior Therapy and Experimental Psychiatry, 22(1), 39-43.