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EFFICACY OF EMDR

EMDR has a broad base of published case reports and controlled research which support it as an empirically validated treatment of trauma.. The International Society for Traumatic Stress Studies current treatment guidelines have designated EMDR as an effective treatment for PTSD (Chemtob, Tolin, van der Kolk & Pitman, 2000) as has the United Kingdom Department of Health (2001).

In 1995 the APA Division 12 (Clinical Psychology) initiated a project to determine the degree to which extant therapeutic methods were supported by solid empirical evidence. In 1997, independent reviewers (Chambless et al., 1998) placed EMDR on a list of empirically validated treatments, as "probably efficacious for civilian PTSD." At the same time, exposure therapy (e.g., flooding) and stress inoculation therapy (SIT) were described as "probably efficacious for PTSD," while no other therapies were judged to be empirically supported by controlled research for any posttraumatic stress disorder (PTSD) population. On the bases of further studies, in 1999, the International Society for Traumatic Stress Studies treatment guidelines designated EMDR as effective for PTSD (Chemob et al, 2000). A meta-analysis of all psychological and drug treatments for PTSD reported: "The results of the present study suggest that EMDR is effective for PTSD, and that it is more efficient than other treatments." (Van Etten & Taylor, 1998; see also Allen, Keller & Console, 1999; Feske, 1998; Lipke, 1999; Perkins, & Rouanzoin, 2002; Spector & Read, 1999).

See Shapiro (1999, 2001, 2002) for procedures, protocols, theories, and discussion of clinically valid research criteria . See Shapiro & Forrest (1997) for a comprehensive narrative of cases, and in-session transcripts, and "EMDR for Trauma" in the APA Psychotherapy Videotape series. For a comprehensive review of areas of debate see Perkins and Rouanzoin (2002).

Since the initial efficacy study (Shapiro, 1989a), positive therapeutic results with EMDR have been reported with a wide range of populations including the following:

1. Combat veterans from Desert Storm, the Vietnam War, the Korean War, and World War II who were formerly treatment resistant and who no longer experience flashbacks, nightmares, and other PTSD sequelae (Blore, 1997b; Carlson, Chemtob, Rusnak, & Hedlund, 1996; Daniels, Lipke, Richardson, & Silver, 1992; Lipke, 2000; Lipke & Botkin, 1992; Silver & Rogers, 2002; Thomas & Gafner, 1993; White, 1998; Young, 1995).

2. Persons with phobias and panic disorder who revealed a rapid reduction of fear and symptomatology (Doctor, 1994; de Jongh & ten Broeke, 1998; de Jongh, ten Broeke & Renssen, 1999; De Jongh, van den Oord, & ten Broeke, in press; Feske & Goldstein, 1997; Goldstein, 1992; Goldstein & Feske, 1994; Kleinknecht, 1993; Nadler, 1996; O'Brien, 1993). Some controlled studies of spider phobics have revealed comparatively little benefit from EMDR, (e.g., Muris & Merckelbach, 1997; Muris, Merckelbach, Holdrinet, & Sijsenaar, 1998; Muris, Merckelbach, van Haften, & Nayer, 1997) but evaluations have been confounded by lack of fidelity to the published protocols (see De Jongh et al., 1999; Shapiro, 1999). One evaluation of panic disorder with agoraphobia (Goldstein, de Beurs, Chambless, & Wilson, 2000) also reported limited results (for comprehensive discussion see Shapiro, 2001, 2002).
3. Crime victims and police officers who are no longer disturbed by the aftereffects of violent assaults and the stressful nature of their work (Baker & McBride, 1991; Kleinknecht & Morgan, 1992; McNally & Solomon, 1999; Page & Crino, 1993; Shapiro & Solomon, 1995; Solomon, 1995, 1998; Wilson, Becker, Tinker, & Logan, 2001).
4. People relieved of excessive grief due to the loss of a loved one or to line-of-duty deaths, such as engineers no longer devastated with guilt because their train unavoidably killed pedestrians (Puk, 1991a; Solomon, 1994, 1995, 1998; Shapiro & Solomon, 1995).
5. Children healed of the symptoms caused by the trauma of assault or natural disaster (Chemtob, Nakashima, Hamada & Carlson, 2002; Cocco & Sharpe, 1993; Datta and Wallace, 1994, 1996; Greenwald, 1994, 1998, 1999; Lovett, 1999; Pellicer, 1993; Puffer, Greenwald & Elrod, 1998; Shapiro, 1991; Tinker & Wilson, 1999).
6. Sexual assault victims who are now able to lead normal lives and have intimate relationships (Hyer, 1995; Parnell, 1994, 1999; Puk, 1991a; Shapiro, 1989b, 1991, 1994; Wolpe & Abrams, 1991).
7. Accident, surgery, and burn victims who were once emotionally or physically debilitated and who are now able to resume productive lives (Blone, 1997a; Hassard, 1993; McCann, 1992; Puk, 1992; Solomon & Kaufman, 1994).
8. Victims of sexual dysfunction who are now able to maintain healthy sexual relationships (Levin, 1993; Wernik, 1993).
9. Clients at all stages of chemical dependency, and pathological gamblers, who now show stable recovery and a decreased tendency to relapse (Henry, 1996; Shapiro & Forrest, 1997; Shapiro, Vogelmann-Sine, & Sine, 1994; Vogelmann-Sine, Sine, & Smyth, 1999; Vogelmann-Sine, Sine, Smyth, & Popky, 1998).
10. People with dissociative disorders who progress at a rate more rapid than that achieved by traditional treatment (Fine, 1994; Lazrove, 1994; Lazrove & Fine, 1996; Marquis & Puk, 1994; Paulsen, 1995; Rouanzoin, 1994; Young, 1994).

11. People engaged in business, performing arts, and sport who have benefited from EMDR as a tool to help enhance performance (Crabbe, 1996; Foster & Lendl, 1995, 1996).
12. People with somatoform disorders, including chronic pain, who have attained a rapid relief of suffering (Brown, McGoldrick, & Buchanan, 1997; Grant, 1999; Grant & Threlfo, in press; Ray & Zbik, 2001; Wilson et al., 2000)
13. Clients with a wide variety of PTSD and other diagnoses who experience substantial benefit from EMDR (Allen & Lewis, 1996; Cohn, 1993; Fensterheim, 1996; Forbes, Creamer, & Rycroft, 1994; Korn & Leeds, in press; Manfield, 1998; Marquis, 1991; Parnell, 1996; 1997; Puk, 1991b; Shapiro & Forrest, 1997; Spates & Burnette, 1995; Spector & Huthwaite, 1993; Vaughan, Wiese, Gold, & Tarrier, 1994; Wolpe & Abrams, 1991; Zabukovec, Lazrove, & Shapiro, 2000).

Brief descriptions of the published studies appear below. For a comprehensive review of the studies' methodological strengths and weaknesses see Maxfield & Hyer, 2002. For suggested parameters to strengthen future research comparing EMDR to other PTSD treatments see Chemtob et al., 2000; Maxfield & Hyer, 2002; Shapiro 2001, 2002).

The following randomized controlled studies investigated EMDR treatment of civilians with PTSD:

1. **Chemtob, Nakashima, Hamada, and Carlson (2002).** The effects of three sessions of EMDR with children suffering the aftereffects of Hurricane Iniki were evaluated using a lagged-groups design. Thirty-two children who had not responded to previous treatments and met the criteria for the classification of PTSD were randomly assigned to treatment and delayed treatment conditions. The children had shown no improvement 3.5 years after the hurricane and a year after the most recent attempts at treatment. Clinical improvements were reported in both groups on measures of PTSD symptoms, anxiety, and depression, and there was a 53% decrease in PTSD diagnosis at post-treatment. These changes remained stable at a six-month follow-up. In addition to the substantial reduction of PTSD symptoms, there was a marked reduction in visits to the school nurse in the year following the EMDR treatment as compared to previous years. This is the first controlled study investigating the treatment of disaster-related PTSD, and the first controlled study investigating the treatment of children with PTSD.
2. **Edmond, Rubin, and Wambach (1999).** Although this study did not use cases of diagnosed PTSD, the effectiveness of EMDR was tested with adult female survivors of childhood sexual abuse. Fifty-nine women were assigned randomly to one of three groups: (1) individual EMDR; (2) routine individual treatment; or (3) delayed treatment control. In a three-month follow-up, EMDR participants scored significantly better than routine individual treatment participants on two of the four measures, with large effect sizes suggestive of clinical significance.
3. **Ironson et al. (2002).** This controlled community-based study compared EMDR and prolonged imaginal exposure therapy. Both therapies produced a significant reduction in PTSD and depression symptoms, and these effects were maintained at three-month

follow-up. The drop-out rate was less in the EMDR group. Further, EMDR proved more efficient: Seven out of ten EMDR participants achieved a 70% reduction in symptoms in three active treatment sessions, while only two out of nine persons in the prolonged exposure condition achieved the same level of symptom reduction (i.e., 70% of EMDR vs. 29% of prolonged exposure participants). This is the only study to-date to control for the effects of homework as equivalent exposure homework was given in each condition. Acceptable fidelity was reported and treatment effects were stable at follow up.

4. **Lee et al. (in press).** EMDR was compared to a treatment protocol that combined stress inoculation therapy and prolonged exposure (SITPE). The 24 subjects each met DSM-III-R criteria for PTSD and were randomly assigned to one of the treatment conditions. Each subject was also their own wait list control. Outcome measures included self-report and observer-rated measures of PTSD, and self-report measures of depression. At post-treatment, both EMDR and SITPE produced significant improvement, with equivalent effects, except for significantly greater improvement on PTSD intrusive symptoms for the EMDR participants. Effects were maintained at 3 months follow-up, with those in the EMDR condition showing greater gains. EMDR was found to be more efficient than SITPE because it required less homework (an average of 3 hours compared to 28 hours per SITPE). High fidelity to treatment was reported for both conditions.
5. **Marcus et al. (1997, 2001).** Sixty seven individuals diagnosed with PTSD were treated in a controlled study funded by Kaiser Permanente Hospital. EMDR was found superior to standard Kaiser Care which consisted of cognitive, psychodynamic, or behavioral individual therapy plus combinations of group therapy, and medication. An independent evaluator assessed participants with multiple self-report measures of PTSD symptoms, depression, and anxiety, and with a structured interview. The clients were evaluated at pre-treatment, after 3 sessions, and at post-treatment. There was faster and more complete recovery from PTSD in the EMDR condition (50% after three sessions and 77% at post-treatment with 100% of single trauma victims), compared to the standard care group (20% after three sessions and 50% at post-treatment). Follow up evaluations reported maintenance or increase of treatment effects. The EMDR treatment providers were reported as having adequate preassessed fidelity.
6. **Renfrey and Spates (1994).** Although designed as a component analysis, this study is included since it used a sufficient number of sessions to assess clinical outcomes. 23 PTSD subjects were evaluated in a study which compared EMDR with eye movements initiated by tracking a clinician's finger, EMDR with eye movements engendered by tracking a light bar, and EMDR using fixed visual attention. All three conditions produced positive changes on measures of PTSD and general symptoms, with an elimination of PTSD diagnosis in 85% of the eye movement groups, and 57% of the fixation group. The eye movement conditions were termed "more efficient" by the researchers given the use of fewer treatment sessions to achieve effects. This study is hampered by a small number subjects (6-7 in each posttest cell) making statistical significance improbable for a component analysis of this kind. No fidelity checks were reported.
7. **Rothbaum (1997).** This controlled study of rape victims compared EMDR to a waitlist condition and found that, after three EMDR treatment sessions, 90% of the participants no longer met full criteria for PTSD, compared to 12% of those on the waitlist. Results

were evaluated on instruments measuring posttraumatic stress, depression, and dissociation by an independent assessor. Results were also clinically significant with the mean scores of EMDR participants decreasing to within normal range. Treatment effects were maintained at 3-month follow up. Delayed treatment of the waitlist group resulted in a replication of effects. Acceptable fidelity to treatment was reported by an external assessor.

8. **Scheck et al. (1998).** Sixty females ages 16-25 screened for high-risk behavior and traumatic history were randomly assigned to two sessions of either EMDR or active listening; 77% of them were diagnosed with PTSD by a blind independent assessor. Both treatments resulted in significant improvement on measures of PTSD, depression, anxiety, and self-concept. The effects of EMDR were significantly greater than that of active listening on all measures except self-concept. Before treatment, the means of all measures were more than one standard deviation (above the 84th percentile) above the mean for normative comparison groups. Following the brief treatment, the EMDR participants came within the first standard deviation on all five measures. Fidelity to treatment was previously assessed for some of the clinicians in the study. Treatment effects were maintained at follow up.
9. **Shapiro (1989a).** The initial controlled study of 22 rape, molestation, and combat victims compared EMDR and a modified flooding procedure that was used as a placebo to control for exposure to the memory and to the attention of the researcher. Positive treatment effects were obtained for the treatment and delayed treatment conditions on SUDs and behavioral indicators, which were independently corroborated at 1- and 3-month follow-up sessions. This study is hampered by the lack of standardized measures and the possibility of experimenter effects since the researcher and treating clinician were the same.
10. **Vaughan, Armstrong, et al. (1994).** In a controlled comparative study, 36 subjects with PTSD were randomly assigned to treatments of (1) imaginal exposure, (2) applied muscle relaxation, and (3) EMDR. Treatment consisted of four sessions, with 60 and 40 minutes of additional daily homework over a 2- to 3-week period for the imaginal exposure and muscle relaxation groups, respectively, and no additional homework for the EMDR group. All treatments led to significant decreases in PTSD symptoms for subjects in the treatment groups as compared to those on a waiting list. A comparison between treatment groups found a significantly greater reduction at post-treatment for the EMDR group on PTSD intrusive symptoms. At follow-up, 70% of participants in all treatment groups no longer met PTSD diagnostic criteria. No fidelity checks were reported.
11. **D. Wilson, Covi, Foster, and Silver (1996).** In a controlled study, 18 subjects suffering from PTSD were randomly assigned to eye movement, hand tap, and exposure-only groups. Significant differences were found using physiological measures (including galvanic skin response, skin temperature, and heart rate) and the SUD Scale. The results revealed, with the eye movement condition only, a one-session desensitization of subject distress and an automatically elicited and seemingly compelled relaxation response, which arose during the eye movement sets. High fidelity to treatment had been previously assessed. The study is hampered by the lack of standardized diagnostic and assessments of symptoms.

12. **S. Wilson et al. (1995, 1997).** A controlled study randomly assigned 80 trauma subjects (46% diagnosed with PTSD) to treatment or delayed-treatment EMDR conditions and to one of five clinicians. Significant differences were found between the EMDR and waitlist groups at 30 and 90 days on standardized measures of PTSD symptoms, depression, and anxiety. This improvement was also clinically significant, with the means of the EMDR condition moving into a normal range on all measures. Treatment effects were replicated with treatment of the wait list. Effects were equally large whether or not the subject was diagnosed with PTSD. High fidelity to treatment had been previously assessed for many of the participating clinicians. In a 15 month follow-up study, it was determined that treatment effects had been maintained and that there was an 84% reduction in PTSD diagnosis compared to pre-treatment.

The following randomized controlled studies investigated EMDR treatment of combat veterans with PTSD:

1. **Boudewyns, Stwertka, Hyer, Albrecht, and Sperr (1993).** A pilot study randomly assigned 20 chronic inpatient veterans to EMDR, exposure, and group therapy conditions and found significant positive results from EMDR for self-reported distress levels and therapist assessment. No changes were found in standardized and physiological measures, a result attributed by the authors to insufficient treatment time considering the secondary gains of the subjects who were receiving compensation. Results were considered positive enough to warrant further extensive study, which was funded by the VA. No fidelity check reported for the study.
2. **Boudewyns and Hyer (1996).** Sixty-one combat veterans with chronic PTSD were randomly assigned to one of three conditions: (1) group therapy, (2) group therapy plus EMDR, or (3) group therapy plus EMDR-with-eyes-closed (EC). In addition to group therapy, veterans in the EMDR and EC conditions received 5 to 7 EMDR or EC sessions, in which one or two memories were treated. This study was hampered by the limited treatment time which was insufficient for processing multiple traumatic memories. Participants in all three conditions improved significantly on a structured interview measuring PTSD symptoms, with no group differences. Subjects in the EC and EMDR conditions showed superior improvement on mood and physiological measures compared to group therapy controls. This study indicated that the addition of EMDR or EC to group treatment may improve outcome. In this second study, fidelity to treatment was reported as variable by an external assessor and clients were assessed by a blind independent evaluator.
3. **Carlson et al. (1998).** This study randomly assigned 35 Vietnam combat veterans suffering from PTSD to (1) EMDR, (2) biofeedback relaxation, or (3) wait list/routine VA clinical care. After a full course of treatment (12 sessions) the EMDR participants showed substantial clinical improvement, with a number becoming symptom-free. EMDR was superior to control conditions on PTSD and depression measures; there were no differences between treatment groups on physiological measures. Positive clinical fidelity to treatment was externally assessed and there were no drop-outs in the EMDR group during treatment. Treatment effects were maintained at nine month follow up. This is the only study of combat veterans to achieve acceptable fidelity and to use the number of EMDR sessions suggested for this population (see Shapiro, 1995).

4. **Jensen (1994).** A controlled study of the EMDR treatment of 25 Vietnam combat veterans suffering from PTSD, as compared to a non-treatment control group, found small but statistically significant differences after two sessions for in-session distress levels, as measured on the SUD Scale, but no differences on global measures such as the Structured Interview for Post-traumatic Stress Disorder. The intern-researchers reported fidelity checks of low adherence to the EMDR protocol and skill of application, which indicated their inability to make effective use of the method to resolve the therapeutic issues of their subjects. The study is also hampered by an insufficient amount of treatment time for these multiply-traumatized veterans.
5. **Pitman et al. (1996a).** In a controlled component analysis study of 17 chronic outpatient veterans, using a crossover design, subjects were randomly divided into two EMDR groups, one using eye movement and a control group that used a combination of forced eye fixation, hand taps, and hand waving. Six sessions were administered for a single memory in each condition. Both groups showed significant moderate decreases in self-reported distress, intrusion, and avoidance symptoms. Fidelity was judged as variable by an external assessor. The study is further hampered by the small sample and treating only 1-2 memories in this multiply-traumatized population.
6. **Rogers et al. (1999).** Two groups of combat veterans received a single session of exposure or EMDR focusing on the most disturbing event. Both groups showed improvement on the Impact of Event scale specific to the treated incident. The EMDR treatment resulted in greater positive changes in the level of in-session distress and self-monitored intrusive recollections. This study was designed as primarily a process report to compare both methods. Clinicians were trained in both procedures and used standardized manuals, but no fidelity checks were reported.

Case series and uncontrolled studies that investigated EMDR treatment for symptoms of PTSD:

1. **Silver, Brooks, and Obenchain (1995).** An analysis of an inpatient veterans' PTSD program (n = 100) compared EMDR, biofeedback, and relaxation training and found EMDR to be vastly superior to the other methods on seven of eight measures. While hampered by a nonrandomized design, this study constitutes the only field study evaluating EMDR in comparison to other standardized treatments typically used by practicing clinicians in a V.A. setting.
2. **Lipke (1995).** Greater positive effects with EMDR, compared to other treatment methods, were reported by 76% of 445 respondents to a survey of trained clinicians who had treated over 10,000 clients. Only 4% found fewer positive effects with EMDR.
3. **Grainger, Levin, Allen-Byrd, Doctor, and Lee (1997).** A study of 40 Hurricane Andrew survivors found significant differences on the Impact of Event Scale and SUD scales in a non-randomized comparison of EMDR and non-treatment conditions. Although hampered by a nonrandomized design, this is one of the few field studies evaluating the effects of treatment on a post disaster population.

4. **Lazrove, Kite, Triffleman, McGlashan, and Rounsaville (1998).** This open trial research study at the Yale Psychiatric Clinic provided three sessions of EMDR to eight adults with chronic PTSD. There was statistically significant improvement on all measures at post-treatment. While one subject dropped out very early in the study, of the seven subjects who completed treatment (including mothers who had lost their children to drunken drivers), none met PTSD criteria at 2 month follow-up.
5. **Devilley, Spence and Rapee (1998).** This component study compared EMDR to an analogue treatment without eye movement and a support control condition, by assessing treatment effects on 51 Vietnam combat veterans. At post treatment all groups showed significant and moderate improvement on measures of PTSD, depression, anxiety, and problem coping. There were no differences between the three groups. Measures of reliable change indicated that 67% of the EMDR group, 42% of the EMDR-with-eyes-fixed group, and 10% of the standard care group were reliably improved at post-treatment on a PTSD measure. This study is hampered by having afforded only two sessions of treatment to this multiply-traumatized population; fidelity to treatment was questionable based upon the described procedures. A 30% drop-out rate was reported.
6. **Devilley and Spence (1999).** This nonrandomized civilian study compared EMDR to a CBT protocol designed and implemented by the primary researcher. While based upon the work of Foa, Rothbaum, Riggs, & Murdock, (1991), as noted in the study, additional CBT techniques were added to protocols researched in previous controlled studies. Not only did this study report that the CBT protocol was more effective than EMDR, very poor effects were achieved in the EMDR condition. After 9 EMDR sessions only 36% remission of PTSD was achieved. The description of EMDR provided in this study has numerous deviations from standard practice.
7. **Sprang (2001).** Fifty clients suffering from PTSD and complicated mourning (traumatic grief) received either EMDR or guided mourning treatment in this multi-site nonrandomized community study. Guided mourning is a CBT treatment often and successfully used for individuals who have been unable to cope with the traumatic death of a loved one. EMDR significantly reduced symptoms more than the CBT treatment on behavioral measures, and on four of five psychosocial measure, including a measure of PTSD symptoms. EMDR was more efficient, creating change at an earlier stage, and requiring fewer treatment sessions.

EMDR Studies

Numerous controlled studies with civilian trauma victims indicate that after the equivalent of three 90-minute sessions 84 - 90% of the subjects no longer meet the criteria for PTSD.

Controlled outcome studies with civilian trauma victims indicate that after three EMDR sessions 84 - 90% of the subjects no longer meet the criteria for PTSD. The Rothbaum (1997) study found that after three EMDR sessions 90% of the rape victims no longer met full criteria for PTSD. In a test of subjects whose responses to EMDR were reported by Wilson, Becker & Tinker (1995), it was found that 84% of the participants initially diagnosed

with PTSD still failed to meet criteria at 15 month follow-up (Wilson, Becker & Tinker, 1997). Similar data (90-100% elimination of diagnoses for single trauma victims) were reported by Marcus, Marquis, & Sakai (1997) in a controlled study and by Lazrove et al. (1998) in a recent systematically evaluated case series. While one subject dropped out very early in the study, of the seven subjects who completed treatment (including mothers who had lost their children to drunken drivers), none met PTSD criteria at follow-up. In a study of traumatized adolescent women (Scheck, Schaeffer & Gillette, 1998) after only two sessions of EMDR approximately 77% no longer had PTSD.

Controlled studies with multiply traumatized civilians indicate a 77-80% remission of PTSD diagnosis in approximately 6-8 sessions (Ironson et al., 2002; Lee et al., in press; Marcus et al., 1997)

Studies with combat veterans are hampered by insufficient treatment time and fidelity to treatment. The only study using the 12 session suggested minimum treatment (see Shapiro, 1995) indicated that 75% of the Vietnam veterans no longer had PTSD after the 12 sessions (Carlson et al., 1998).

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