

The EMDR Protocol for Recent Critical Incidents: Follow-Up Report of an Application in a Human Massacre Situation

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This article reports the follow-up results of our field study (Jarero & Uribe, 2011) that investigated the application of the eye movement desensitization and reprocessing (EMDR) Protocol for Recent Critical Incidents (EMDR-PRECI) in a human massacre situation. A single individual session was provided to 32 forensic personnel of the State Attorney General in the Mexican state of Durango who were working with 258 bodies recovered from clandestine graves. Pre-post results showed significant improvement for both immediate treatment and waitlist/delayed treatment groups on the Impact of Event Scale (IES) and Short PTSD Rating Interview (SPRINT). In this study, we report the follow-up assessment, which was conducted, at 3 and 5 months posttreatment. Follow-up scores showed that the original treatment results were maintained, with a further significant reduction of self-reported symptoms of posttraumatic stress and PTSD between posttreatment and follow-up. During the follow-up period, the employees continued to work with the recovered corpses and were continually exposed to horrific emotional stressors, with ongoing threats to their own safety. This suggests that EMDR-PRECI was an effective early intervention, reducing traumatic stress for a group of traumatized adults continuing to work under extreme stressors in a human massacre situation. It appears that the treatment may have helped to prevent the development of chronic PTSD and to increase psychological and emotional resilience.

Keywords: EMDR-PRECI; early EMDR intervention; EMDR and prevention of PTSD; human massacre mental health; posttraumatic stress; resilience

Eye movement desensitization and reprocessing (EMDR) is an evidence-based psychotherapy for post-traumatic stress disorder (PTSD), with approximately 15 randomized clinical trials demonstrating its efficacy in reducing and eliminating PTSD symptoms. It has been shown to provide outcomes similar to those achieved by cognitive behavioral approaches (Bisson & Andrew, 2007), with effects maintained at follow-up. There is also preliminary support for its application in the treatment of other psychiatric disorders, for various mental health problems, and somatic symptoms.

In her adaptive information processing (AIP) model, Shapiro (2001) posits that much of psychopathology is due to the maladaptive encoding in memory and/or incomplete processing of traumatic or disturbing adverse life experiences. This is thought to impair the individual's ability to integrate these experiences in

an adaptive manner. The eight-phase, three-pronged process of EMDR is said to facilitate the resumption of normal information processing and integration. This treatment approach, which targets past experience, current triggers, and future potential challenges, can often result in the alleviation of presenting symptoms; with a decrease or elimination of distress related to the targeted memory, improved view of the self, relief from bodily disturbance, and resolution of present and future anticipated triggers (EMDR International Association [EMDRIA], 2011).

EMDR and Early Intervention

The authors view early EMDR intervention as having a natural place in the crisis intervention and disaster mental health continuum of care context and have argued that EMDR may be key to early intervention

as a brief treatment modality (Jarero, Artigas, & Luber, 2011). In some critical incidents (e.g., earthquake, flooding, landslides, tsunamis), related stressful events continue for an extended time (often more than 6 months). We have argued that this lack of a posttrauma period of safety prevents the consolidation in memory of the original critical incident (Jarero et al., 2011). Accumulated traumatic memories may be a possible factor in sensitizing the individual to painful or threatening triggers, resulting in the development of later disorders, with sensitization increasing with the number of exposures to similar traumatic situations (McFarlane, 2009; Suliman et al., 2009). In addition to treating present distress for a specific recent event, early interventions may be essential to help prevent sensitization or the progressive accumulation of trauma memories or negative associative links (Tofani & Wheeler, 2011).

The EMDR Protocol for Recent Critical Incidents

EMDR Protocol for Recent Critical Incidents (EMDR-PRECI) is a modification of Shapiro's (2001) Recent Traumatic Events Protocol provided in an individual treatment format to clients suffering from recent ongoing trauma. It was developed in the field to treat critical incidents where related stressful events continue for an extended time and where there is no posttrauma period of safety for memory consolidation (see Jarero et al., 2011 for a detailed description of the protocol).

EMDR-PRECI uses an eight-phased protocol. Phases 1 and 2 are the history taking and preparation phases. In Phase 3, disturbing memory fragments are assessed with the client identifying the most disturbing image, related negative cognition (NC), emotion, ratings of subjective units of disturbance (SUD), and body sensation location but no positive cognition (PC) or rating of validity of positive cognition (VOC). During Phase 4 (desensitization), the client focuses on each memory fragment, while simultaneously engaging in dual attention stimulation using eye movements (EM) as a first choice and the butterfly hug (BH; Artigas, & Jarero, 2009) as an alternative bilateral stimulation (BLS). Each memory fragment is processed in turn, using the free associative processing of the standard EMDR desensitization phase. When all fragments have been processed with Phase 4, and the client identifies no further disturbance, Phase 5 is applied to the entire extended event with a PC developed for the entire incident. Installation of PC does not use frequent checking of

VOC but full reprocessing doing BLS while information is moving. A supplemental step is conducted in this phase to review the whole sequence holding the PC. Phase 6 uses standard EMDR procedures. Phase 7 uses Jarero and Artigas's postdisaster self-soothing strategies (Jarero et al., 2011), and Phase 8 uses standard procedures.

There is preliminary evidence supporting the efficacy of EMDR-PRECI in reducing symptoms of posttraumatic stress in adults and maintaining those effects despite ongoing threat and danger in a disaster mental health continuum of postincident care context. EMDR-PRECI was shown to produce significant improvement on self-report measures of posttraumatic stress symptoms for adults traumatized by an earthquake (Jarero et al., 2011). This randomized, controlled group field study was conducted subsequent to a 7.2 earthquake in North Baja California, Mexico. Treatment was provided to 18 individuals who had high scores on the Impact of Events Scale (IES). One session of EMDR-PRECI produced significant improvement on symptoms of posttraumatic stress for the immediate and the waitlist treatment groups, with results maintained at 12 weeks follow-up, even though frightening aftershocks continued to occur frequently.

Resilience and the Adaptive Information Processing Model

Resilience is a growing area of interest in the field of trauma (Harvey, 2007). The American Psychological Association (APA, 2003) described resilience as the process of adapting well in the face of adversity, trauma, tragedy, threats, or even significant sources of stress such as family and relationship problems, serious health problems, or workplace and financial stressors. Resilience also has been described as a dynamic process where people exhibit positive behavioral adaptation when they encounter significant adversity or trauma (Luthar, Cicchetti, & Becker, 2000).

According to Shapiro's (2001) AIP model, resilience can be understood as a manifestation of the adaptive information networks that include the fully processed memories of previously adverse or traumatizing events, which are no longer disturbing. A subsequent stressful situation is thus understood to stimulate the adaptive memories, which then provide a base of stability, comprehension, and manageability when experiencing new trauma. In other words, when people are confronted by a new adversity or traumatizing event, they are able to access adaptive information stored in their memory networks to cope with the challenge.

In AIP terms (Shapiro, 2001), a lack of resilience is seen when the associated memories contain negative information; that is, when past disturbing life experiences have not been fully processed and have become dysfunctionally stored in memory. When these negative memories are activated by present stressors, the individual reexperiences past distress and may feel emotionally overwhelmed, resulting in present maladaptive behavior, negative emotions, negative self-beliefs, and diminished capacity to cope. In turn, the negative effects of diminished coping may also be stored in these same memory networks, lowering resilience, thereby creating further vulnerability for future stressful situations.

EMDR is designed to identify and process the past memories that underlie such difficulties in coping, to address present situations that trigger disturbances, and to enable the development of a positive memory template for future adaptive behavior (Shapiro, 2001, 2006). The reprocessing of pivotal memories is thought to facilitate a rapid learning experience that transforms negative perspective and affects into more neutral or even positive ones. These then are said to become the basis of resilience by enhancing the ability to cope effectively with subsequent related stressors. According to Jarero (2010), EMDR reprocessing of dysfunctionally stored memories that underlie current maladaptive behaviors can lead to a profound restructuring of the personality's intrapsychic matrix. He proposed that the reprocessing of disturbing memories may enable an individual to employ the full potential of his or her functional capacity and available personal resources in future adverse circumstances. Where previously the individual may have been vulnerable to psychological distress, it is hypothesized that now he or she will have the potential for resilience in situations of repeated trauma. The role of psychological therapy in relation to resilience needs to be explored more fully (Alayarian, 2007).

Method

Background

Over the past several years, Mexico has suffered from drug-trade-related violence, which has been extraordinarily intense and grisly even by criminal market standards. Its drug trafficking organizations have been engaged in ever-spiraling turf wars over smuggling routes and corruption networks, turning the streets of some Mexican cities into macabre displays of gun fights and murders. In 5 years, the total casualties of this war number more than 50,000 people, including

organized crime members, soldiers, police officers, innocent adult civilians, and 1,400 children. In comparison, during almost nine years of war in Iraq, the U.S. military suffered 4,000 casualties. Criminal groups have shown a determined willingness to fight Mexican law enforcement and security forces—an increasing ambition to control other illicit and informal economies in Mexico and to extort legal businesses.

Finding Mexican police forces pervaded by corruption and lacking the capacity to effectively deal with organized crime, President Felipe Calderón dispatched the military into Mexico's streets. Yet although having some success in capturing prominent drug traffickers, the military has also found it enormously difficult to suppress violence and reduce the insecurity of Mexican citizens. Institutional reforms to improve the police forces and justice system, although crucial for expanding the rule of law in Mexico, have been slow and will inevitably require years of committed effort. Meanwhile, patience among many Mexicans for the battle against criminal groups is starting to run out (Felbab-Brown, 2011). Horror and violence are an almost daily occurrence, and many live in fear and terror, frequently exposed to the inhumanity and brutality of this war.

In April 2011, 218 decomposing and mutilated corpses were discovered in seven clandestine graves in the Mexican state of Durango. It was said that these mass graves probably contained the bodies of executed drug gang rivals, or kidnap victims, or even some police. The task of body recovery and identification was conducted by the State Attorney General forensic personnel, who were very traumatized by this massive and horrific task. They also became the target of death threats from the warring gangs.

In May 2011, Durango's State Attorney General asked the Mexican Association for Mental Health in Crisis to provide support for their forensic personnel who were working in the clandestine graves and in the morgue (DNA identification, fingerprints, forensic anthropology work). The Mexican National Human Rights Commission sponsored the clinicians' travel expenses. The clinicians provided the EMDR-PRECI (Jarero et al., 2011). A field study was conducted to evaluate the treatment's effectiveness in this setting (Jarero & Uribe, 2011).

Procedure

The research was conducted in four phases: Phase 1 was the baseline assessment; Phase 2 was the treat-

ment and assessment of the immediate treatment group; Phase 3 was the treatment and assessment of the waitlist/delayed treatment group; and Phase 4 was the two follow-up assessments of both treatment groups. Phases 1–3 were conducted during May to July, 2011, and the results were reported in an earlier publication (Jarero & Uribe, 2011). The current article summarizes the earlier findings and reports on the two follow-up assessments conducted at 3 and 5 months posttreatment in September and November 2011.

Measures

The IES (Horowitz, Wilmer, & Alvarez, 1979) and the Short PTSD Rating Interview (SPRINT; Connor & Davidson, 2001; Vaishnavi, Payne, Connor, & Davidson, 2006) were administered at baseline, pretreatment, posttreatment, and two follow-up assessments by two independent professionals.

The IES is a 15-item widely used self-report questionnaire. It is a reliable measure of subjective posttraumatic stress to a stressful or traumatic life event. Responses are scored according to a Likert scale, where 0 = *not at all*, 1 = *rarely*, 3 = *sometimes*, and 5 = *often*. Scores between 0 and 8 are considered subclinical, scores between 9 and 25 are considered low or mild distress, scores between 26 and 43 are considered moderate distress, and scores between 44 and 75 are considered high or severe distress.

The SPRINT is an eight-item interview or self-rating questionnaire with solid psychometric properties that can serve as a reliable, valid, and homogeneous measurement of PTSD illness severity and global improvement; as well as a measure of somatic distress, stress coping, and work, family, and social impairment. Each item is rated on a five-point scale: *not at all* (0), *a little bit* (1), *moderately* (2), *quite a lot* (3), and *very much* (4). Scores between 18 and 32 correspond to marked or severe PTSD symptoms, 11 and 17 to moderate symptoms, 7 and 10 to mild symptoms, scores of 6 or less indicated either no or minimal symptoms. The SPRINT also contains two additional items to measure global improvement according to percentage change and by severity rating. This questionnaire was translated from English to Spanish, back translated from Spanish to English, and reviewed and authorized by one of its authors. SPRINT performs similarly to the Clinician-Administered PTSD Scale (CAPS) rating scale in the assessment of PTSD symptoms clusters and total scores and can be used as a diagnostic instrument (Vaishnavi et al., 2006). In the

SPRINT, a cutoff score of 14 or more was found to carry a 95% sensitivity to detect PTSD and 96% specificity for ruling out the diagnosis, with an overall accuracy of correct assignment being 96% (Connor & Davidson, 2001).

Participants

At the beginning of the study, a preliminary psychometric assessment was conducted with all the 60 State Attorney General employees who were working with the corpses. The assessment established a triage criterion for the next phases and provided baseline measures. The IES and SPRINT were administered, and the 32 individuals whose baseline scores indicated moderate-to-severe posttraumatic stress and PTSD symptoms were assigned to two groups. Those with severe scores were assigned to immediate treatment ($N = 18$; 8 females, 10 males), and those with moderate scores were assigned to waitlist/delayed treatment ($N = 14$; 8 females, 6 males). The 28 participants with lower scores did not receive any treatment because research has shown that minor distress may resolve on its own, or with less intensive interventions such as crisis counseling (Norris, Hamblen, Brown, & Schinka, 2008). As planned, there was a significant difference at baseline between the scores of immediate treatment and the waitlist/delayed treatment groups (Jarero & Uribe, 2011) on both the SPRINT and IES measures (see Figures 1 and 2).

After receiving the single session of EMDR-PRECI and completing the posttreatment measures, the participants continued to work on the forensic project during the duration of the study and had continual exposure to horrific stressors. All participants completed the follow-up assessments at 3 and 5 months. Their attendance in treatment was voluntary and not mandated by their employer. There were no dropouts in the study.

Treatment

Members of immediate and waitlist/delayed treatment groups were treated with one session of EMDR-PRECI. Each individual client session lasted between 90 and 120 min (Phases 1 and 2 lasted 30–35 min; reprocessing phases lasted between 50 and 65 min). Only one treatment session was provided to each participant. This limitation in treatment provision was a factor of the dangerous environment, as the clinicians' time on site was restricted because of safety concerns.

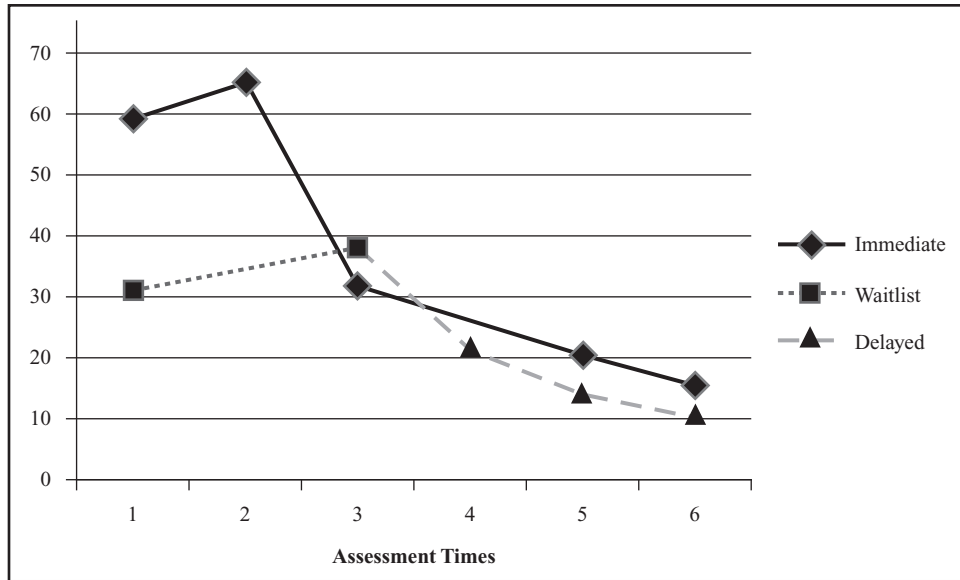


FIGURE 1. Mean IES scores at baseline, pretreatment, posttreatment, and two follow-up assessments.

Results

Results of the Pre-Post Comparison

Results reported in the pre-post study (Jarero & Uribe, 2011) showed that IES and SPRINT scores increased in both groups between baseline and pretreatment administrations, with a worsening of symptoms before the start of treatment. A statistical comparison of the posttreatment scores of the immediate treatment and pretreatment scores of the waitlist group indicated the treated group had significantly

lower scores than the waitlist group. This finding occurred even though the original baseline scores of the waitlist/delayed treatment group were significantly less than those of the immediate treatment group. A comparison of pretreatment and posttreatment scores showed significant improvement on self-report measures of posttraumatic stress and PTSD symptoms for both the immediate and delayed treatment groups, providing preliminary evidence for the effectiveness of one session of EMDR-PRECI (see Figures 1 and 2).

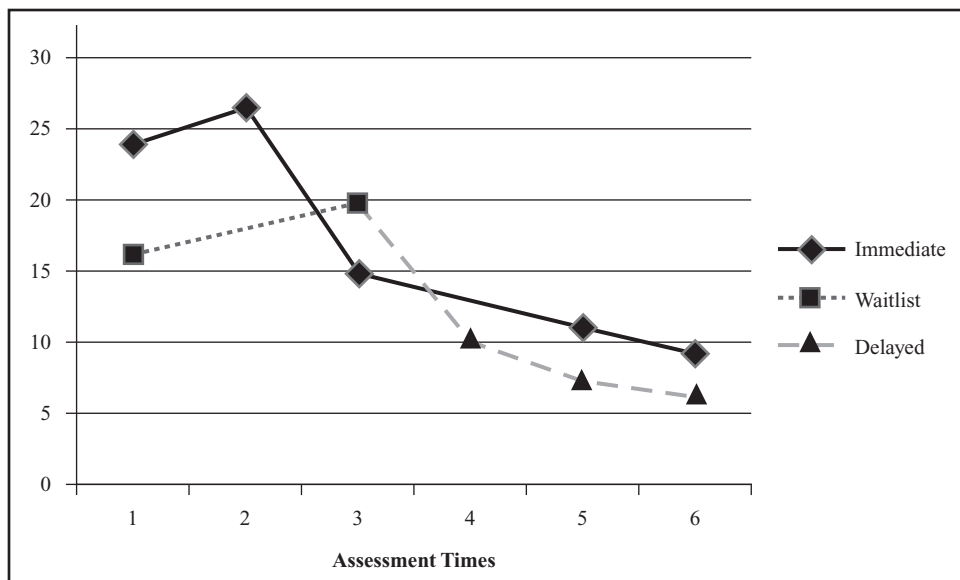


FIGURE 2. Mean SPRINT scores at baseline, pretreatment, posttreatment, and two follow-up assessments.

Results of the Follow-Up Assessments

The present follow-up study reports on Phase 4 of the field research study, which included follow-up assessments with study participants conducted on September 30 and November 30, 2011. In the period between the follow-up assessments, two more clandestine graves were discovered with another 40 bodies, requiring forensic work by the participants. The participants also received renewed threats of violence from organized crime members and endured the same extreme stressful circumstances in a horrific work environment.

Global Improvement. The SPRINT contains two items to measure global improvement, one assessing percentage change and the other rating severity. Item 1: “How much better do you feel since beginning treatment? As a percentage between 0 to 100.” Item 2: “How much has the above symptoms improved since starting treatment? 1 *worse*, 2 *no change*, 3 *minimally*, 4 *much*, 5 *very much*.”

On Item 1, the mean response at follow-up for the immediate treatment group was 80% and for the waitlist/delayed treatment group it was 88%. On Item 2, the mean response at follow-up for the immediate treatment group was (4) *much*, and for the waitlist/delayed treatment group it was (5) *very much*.

Treatment Effect Across Time. Comparisons between repeated measurements for both instruments (IES and SPRINT) and for both groups (immediate and delayed treatment) were done using analysis of variance (ANOVA). Results indicated a significant main effect of the treatment across time for the immediate treatment group, for IES scores: $F(4, 65) = 494.12, p < .001$ and for SPRINT scores: $F(4, 85) = 157.3, p < .001$; and for the waitlist/delayed treatment group, for IES scores: $F(4, 65) = 174, p < .001$ and for SPRINT scores: $F(4, 65) = 27.07, p < .001$. Turkey post hoc comparisons of

the Time 5 IES measures indicated significant differences across the multiple comparisons at $p < .05$ (see Figures 1 and 2 and Tables 1 and 2).

Treatment Effect for Both Groups Between PreTreatment and Follow-Up. Researchers used paired sample t tests to determine the differences on IES and SPRINT scores between pretreatment and the last follow-up measurement for the immediate treatment group and the waitlist/delayed treatment group. Results showed a significant decrease in scores for the immediate treatment group, for IES, $t(17) = 37.2, p < .001$, and SPRINT, $t(17) = 22.70, p < .001$; and for the waitlist/delayed treatment group, for IES, $t(13) = 27.88, p < .001$, and SPRINT, $t(13) = 10.84, p < .001$.

Comparison of Immediate Treatment and Waitlist/Delayed Groups. t Tests for independent samples were used to compare the follow-up scores for the two treatment groups for both instruments to know the effect of the treatment for the two different groups, which had started treatment with significantly different scores on both measures. There were significant differences on the IES, $t(30) = 7.35, p < .001$ (equal variances assumed, according to Levene’s test for equality of variances), and the SPRINT, $t(19) = 5.19, p < .001$ (equal variances not assumed according to Levene’s test). Mean scores at Phase 4 in both instruments were significantly lower for the delayed treatment group than for the immediate treatment group (see Figures 1 and 2).

Maintenance of Treatment Effects. A statistical analysis compared the posttreatment results for each treatment group with their final follow-up scores to evaluate whether there was any change in reported symptoms between posttreatment and follow-up. t Tests for paired samples were used to compare the posttreatment scores with the last follow-up for the two treatment groups. There were significant differences on the IES for both groups: for the immediate group,

TABLE 1. Mean Scores and Standard Deviations

	N	Baseline Time 1	Pretreatment Time 2	Posttreatment Time 3	Follow-up 1 Time 4	Follow up 2 Time 5
Impact of Event Scale						
Immediate treatment	18	59.22 (5.41)	65.17 (5.90)	32.17 (4.41)	20.72 (2.16)	15.83 (1.82)
Waitlist/delayed treatment	14	31.29 (4.58)	38.21 (3.49)	21.71 (2.27)	14.14 (3.15)	10.85 (2.17)
Short PTSD Rating Interview						
Immediate treatment	18	23.83 (3.73)	26.39 (3.45)	14.83 (1.86)	11.05 (1.73)	9.27 (1.12)
Waitlist/delayed treatment	14	16.07 (3.83)	19.71 (6.58)	10.07 (3.95)	7.36 (3.10)	6.21 (1.96)

TABLE 2. Statistical Comparisons Between Scores at Pretreatment and Follow-Up for Each Group

	Time	Mean (SD)	<i>t</i>	<i>df</i>	<i>p</i>
Impact of Event Scale					
Pretreatment versus follow-up					
Immediate treatment	Time 2 vs. Time 5	65.17 (5.90)/15.83 (1.82)	37.27	17	<i>p</i> < .001
Waitlist/delayed treatment		38.21 (3.49)/10.85 (2.17)	27.88	13	<i>p</i> < .001
Posttreatment versus follow-up					
Immediate treatment	Time 3 vs. Time 5	32.17 (4.41)/15.83 (1.82)	18.37	17	<i>p</i> < .001
Waitlist/delayed		21.71 (2.27)/10.85 (2.17)	25.23	13	<i>p</i> < .001
Short PTSD Rating Interview					
Pretreatment versus follow-up					
Immediate treatment	Time 2 vs. Time 5	26.39 (3.45)/9.27 (1.12)	22.70	17	<i>p</i> < .001
Waitlist/delayed		19.71 (6.58)/6.21 (1.96)	10.84	13	<i>p</i> < .001
Posttreatment versus follow-up					
Immediate treatment	Time 3 vs. Time 5	14.83 (1.86)/9.27 (1.12)	8.22	17	<i>p</i> < .001
Waitlist/delayed		10.07 (3.95)/6.21 (1.96)	6.32	13	<i>p</i> < .001

$t(17) = 18.37, p < .001$ and for the delayed group, $t(13) = 25.23, p < .001$. There were also significant differences on the SPRINT for both groups: for the immediate group, $t(17) = 18.22, p < .001$ and for the delayed group, $t(13) = 6.32, p < .001$. Mean scores (see Table 1) confirmed that in both instruments and in both conditions (immediate and delayed), scores not only were maintained but continued to decrease significantly by follow-up 2. (see Table 3).

Discussion

This study examined follow-up results with traumatized adults working under extreme stressors to whom treatment was provided in a natural setting as a need-focused intervention. These individuals were provided with EMDR-PRECI, in two groups: immediate treatment and waitlist/delayed treatment. Our earlier

study (Jarero & Uribe, 2011) showed that the treatment produced a significant decrease in symptoms when it was compared to waitlist and when pretreatment scores were compared to posttreatment. Our current study shows that treatment gains were evident at 3- and 5-month follow-up, with a continuing significant decrease in symptoms of posttraumatic stress. EMDR-PRECI appears to be an effective and efficient treatment for PTSD symptoms, in situations of ongoing extreme stress.

Before treatment started, there was a worsening of symptoms between baseline and pretreatment on both the IES and SPRINT measures (see Figures 1 and 2). This may be because of the continuum of stressful events and the ongoing threats faced by the participants in this study. This suggests that without treatment, there would not have been a natural or spontaneous improvement.

TABLE 3. Statistical Comparisons Between Treatment Groups at Follow-Up

	Time	Mean (SD)	<i>t</i>	<i>df</i>	<i>p</i>
Impact of Event Scale					
Immediate treatment versus waitlist/delayed treatment	Time 5 vs. Time 5	15.83 (1.82)	7.35	30	<i>p</i> < .001
		10.85 (2.17)			
Short PTSD Rating Interview					
Immediate treatment versus waitlist/delayed treatment	Time 5 vs. Time 5	9.27 (1.12)	5.19	19	<i>p</i> < .001
		6.21 (1.96)			

Comparisons of the Immediate and Waitlist/Delayed Treatment Groups

The two treatment groups were created by placing those participants with lower scores into the waitlist/delayed treatment group and those with more severe scores into the immediate treatment group. This was done for ethical reasons, to provide faster relief for those with more intense suffering.

The study did not have the capacity to examine the specific reasons why there was a differential response to the trauma, why some individuals experienced more severe symptoms than others. A number of factors could explain these differential responses. Perhaps those with more intense symptoms had some preexisting psychological problems, personality factors, or other risk factors rendering them more vulnerable to develop PTSD; perhaps they had more intense exposure to the trauma in the work setting, or were more directly or personally impacted by the massacre or by the threats to themselves and their families. Future research is needed to investigate these various possibilities.

The differences between the two groups were maintained throughout the study. Although treatment was very helpful to those with severe symptoms, their scores did not attain the lesser level of those who began with less distress. The significant difference between the two groups was apparent at baseline, posttreatment, and at both follow-ups, with the delayed group consistently showing less severe symptoms. Although a second treatment session may have been beneficial for those participants with more severe scores, the clinicians' time on site was restricted because of safety concerns in the dangerous environment, and it was not possible to provide more than one treatment session to each participant. Also, it should be noted that the finding that those with severe symptoms at baseline had more severe symptoms at follow-up is consistent with research investigating individual predictors of the longitudinal course of PTSD (e.g., Ehlers, Mayou, & Bryant, 1998; Marmar et al., 1999).

EMDR-PRECI and the Prevention of Chronic Post-Traumatic Stress Disorder

Expedient diagnostic assessment of PTSD is often very relevant in times of mass trauma (Vaishnavi et al., 2006). Unfortunately, because of time limitations (structured interviews sometimes required as much as 45 min of a clinician's time), the therapists in this study were unable to administer a structured interview such as CAPS to assess for the diagnosis of PTSD. However, SPRINT has performed similarly

to the CAPS in the assessment of PTSD symptoms clusters and total scores; it can be used as a diagnostic instrument and only takes an average of 5–10 min to complete. In the SPRINT, a cutoff score of 14 or higher was found to carry a 95% sensitivity to detect PTSD and 96% specificity for ruling out the diagnosis, with an overall accuracy of correct assignment being 96% (Connor & Davidson, 2001).

At the beginning of this study (Jarero & Uribe, 2011), baseline measures were administered to participants as a screening tool, and those participants whose SPRINT scores met or exceeded the cutoff criteria of 14 were assigned to treatment. Based on the 95% sensitivity of the SPRINT, we can assume that at pretreatment, acute PTSD (duration of symptoms was less than 3 months) was present for all participants in both groups. In the follow-up assessments, reported in this study, the SPRINT scores at Time 5 were 9.27 and 6.21, indicating that chronic PTSD (symptoms last 3 months or longer) was not present in either group. Not one of the participants had a score over 14, suggesting that none would meet diagnostic criteria for chronic PTSD. Statistical results and SPRINT sensitivity lead the authors to conclude that one session of EMDR-PRECI helped to prevent the development of chronic PTSD in this study population.

Because this was a field study, it was not ethically possible to maintain an untreated control group for the 6 months of the study. However, the comparison of untreated waitlist group with the treated immediate treatment group provides a limited control for the effects of time. In this 1-month period, the symptoms of the untreated waitlist group deteriorated and were significantly worse than those of the treated participants who showed a significant improvement (Jarero & Uribe, 2011).

Although it has been shown that improvement in symptoms over time is the common course observed in longitudinal studies (Orcutt, Erickson, & Wolfe, 2004), in these circumstances, participants were continually exposed to the horrors of human massacre and were themselves often threatened by the warring crime lords. Intensity and duration of exposure to trauma have been shown to play an important role in symptom development (Norris et al., 2002). It would be anticipated that these individuals would have been likely to develop chronic PTSD, which is tenacious and disabling (Kessler, 2000). Developing interventions to prevent PTSD is a pressing public health need (Institute of Medicine of the National Academies, 2011).

These results are relevant in comparison to prolonged exposure (PE) or cognitive therapy (CT).

TABLE 4. Comparisons Between Shalev et al., 2011 and the Current Study

	Prolonged Exposure (PE)	Cognitive Therapy (CT)	EMDR-PRECI
Statistical analysis	ANOVA	ANOVA	ANOVA
Follow-up	2 months posttreatment	2 months posttreatment	3 and 5 months posttreatment
Number of sessions	12 weekly	12 weekly	1 session
Session duration	90 minutes	90 minutes	90–120 minutes
Ongoing stressful events postincident	NO	NO	YES
In vivo exposure or home work	YES	YES	NO
PTSD after traumatic event and treatment	21.6%	20.0%	0%
Dropouts	44.4%	40%	0%

A recent study by Shalev et al. (2011) was conducted in a hospital setting with survivors of traumatic events who met PTSD diagnostic criteria. The participants were not engaged in further stressful events. They received 12 weekly 1.5 hr sessions of CT or PE (with prolonged imaginal exposure to traumatic memories and in vivo exposure to avoided situations). Results showed that the proportion of participants who continued to meet diagnostic criteria for PTSD 5 months after the traumatic event (and 2 months posttreatment) was 21.6% for PE and 20.0% for CT. Partial or noncompleters proportion (dropouts) was 44.4% for PE and 40% for CT. Shalev et al. concluded that PE and CT effectively prevented chronic PTSD in recent survivors. We compare that to the results in this study where one session of therapy significantly reduced symptoms at 3- and 5-month follow-up, where there were no dropouts, and where the SPRINT scores of all participants were far below PTSD cutoff levels (see Table 4). Researchers have viewed EMDR as more effective than exposure-based CBT, both in vivo and imaginal, in improving the PTSD symptoms because of its rapid effects, low drop-out rates, and lower ratings of distress following treatment (Fleming, 2012).

EMDR-PRECI and the Possible Development of Resilience

Before treatment, the participants expressed that they were very overwhelmed by their work with the mutilated decomposing bodies and by the ongoing dangers in the workplace. By the end of the EMDR-PRECI treatment session, clinicians observed important indicators of change in the clients such as distancing

themselves from the trauma, having access to more adaptive information, negative affect reduction, reduction in ratings of subjective disturbance, and an increase in validity of positive cognitions. Examples of positive cognitions mentioned by clients during the EMDR-PRECI global installation phase were, “I can,” “I do the best I can,” “I can choose whom to trust,” “I’m strong,” “I learned from it,” “I deserve to live,” “I deserve good things,” “I’m a good person,” “I now have choices,” “I’m now in control,” “I can make my need known,” “I’m intelligent,” “I can be trusted,” “I deserve to be happy,” “I’m honorable.” It appears that this confidence in self-mastery and self-efficacy continued for months after the treatment ended, even though they continued to work on site under new organized crime threats, new clandestine graves with more bodies, and the same extreme stressful circumstances in a horrific work environment.

Although resilience was not measured directly, statistical results indicate that ongoing exposure to a traumatic work environment and subsequent similar incidents no longer elicited the same distressing symptoms after EMDR treatment but, in turn, created less distress for the participants. Based on these results, we can conclude that participants appeared to have developed psychological and emotional resilience.

These results also provide some preliminary support for hypotheses deriving from Shapiro’s (2001, 2006) AIP model: Adaptive resolution of disturbing memories should lead to a shift in symptoms, personal characteristics, and the sense of self; and effective EMDR treatment should give the individual access to a wider range of memory and experience and the potential for resilience in situations of ongoing

trauma. According to this model, when the dysfunctional stored memories have been processed and assimilated into adaptive memory networks, the learning that has taken place becomes the functional basis for interpretation and response to any newly encountered situation. The application of this model is indicated in this study: It appears that when the treated participants coped effectively with similar incidents, the information was connected with adaptive networks, expanding them, increasing the learning and the positive resources; therefore, in each new similar event, participants responded with more and more resources and a sense of resourcefulness and resilience. These hypotheses need to be tested more directly.

EMDR-PRECI as an Intervention in an Ongoing Trauma Situation

Ongoing traumatic situations such as the urban disasters in this study—war, ethno-political violence, and natural or human-provoked disasters—can cause deleterious effects. War-related traumas tend to include repeated exposures. Their negative impact on health may be more persistent and pervasive in the long term, with the development of lasting symptoms and suffering over decades. Identifying traumatized individuals in the early aftermath and providing access to mental health care if suffering persists may prevent long-term effects (Holgerson, Klöckner, Boe, Weisaeth, & Holen, 2011).

Disasters are collectively experienced traumatic events with a severe impact, which affect large numbers of people. Following a disaster, survivors may start to suffer from mental health disturbance, such as PTSD, depressive disorders, substance abuse, and anxiety disorders (e.g., specific phobia). For example, Meewisse, Olf, Kebler, Kitchiner, and Gerson, (2011) reported that at 2 years postdisaster (huge explosion in a central storage facility of fireworks factory in the Netherlands), 48.3% of survivors fulfilled the criteria for a mental health disorder in the past 12 months. The most common disorders were PTSD (21.8%), specific phobia (21.5%), and depression (16.1%). High 12-month comorbidity rates among these three disorders were found, and more than half of the survivors suffered from two or more coexisting disorders. The prevalence of psychopathology at 3 years after the 1999 earthquake in Turkey was similar for PTSD (11.7%), depression (10.5%), and specific phobia (10.0 %) (Onder, Tural, Aker, Kiliç, & Erdögan, 2006). Haiti 2010 earthquake survivors may deal with the

aftermath for months or years to come as they cope with the reminders of the destruction (Jordan, 2010).

The possibility of utilizing EMDR-PRECI as one component of a comprehensive system to prevent psychopathology in those at risk, to develop resilience, and break the suffering cycle has important global implications. Some of the protocol benefits include transportability and its ease of use for both new and experienced EMDR practitioners. It is time effective—only one session was needed to achieve resolution of posttraumatic symptoms (Jarero & Uribe, 2011). There is no need for homework, thus facilitating a short duration of work in the field. It is likely that EMDR-PRECI will also have that same cross-cultural effectiveness as the standard EMDR therapy protocol for PTSD (Maxfield, 2008, 2009).

These study results lend support to the view that the EMDR-PRECI can be used effectively as an early intervention in a natural setting of a human massacre situation to a group of traumatized adults working under extreme stressors when there is no posttrauma period of safety for memory consolidation by reducing self-report measures of posttraumatic stress and PTSD symptoms, helping to prevent the development of chronic PTSD, and developing mechanisms of psychological and emotional resilience.

The authors recommend future research on the EMDR-PRECI to better understand the early phases of trauma where there seems to be lack of memory consolidation due to the lack of a posttrauma safety period that prevents the consolidation of the original critical incident in memory or in long-lasting unresolved events (e.g., traumatic bereavement on prolonged grief reactions, posttraumatic stress symptoms, and general mental health).

References

- Alayarian, A. (2007). Trauma, resilience and creativity: Examining our therapeutic approach in working with refugees. *European Journal of Psychotherapy, Counselling & Health, 9*(3), 313–324.
- American Psychological Association. (2003). *The road to resilience*. Retrieved December 6, 2011, from <http://www.apa.org/helpcenter/road-resilience.aspx#>
- Artigas, L., & Jarero, I. (2009). The Butterfly Hug. In M. Luber (Ed.), *Eye movement desensitization and reprocessing (EMDR) scripted protocols: Special populations* (pp. 5–7). New York: Springer Publishing.
- Bisson, J., & Andrew, M. (2007). Psychological treatment of post-traumatic stress disorder (PTSD). *Cochrane Database of Systematic Reviews, (3)*, CD003388. <http://dx.doi.org/10.1002/14651858.CD003388.pub3>

- Connor, K. M., & Davidson, J. R. T. (2001). SPRINT: A brief global assessment of post-traumatic stress disorder. *International Clinical Psychopharmacology*, 16(5), 279–284.
- Ehlers, A., Mayou, R. A., & Bryant, B. (1998). Psychological predictors of chronic posttraumatic stress disorder after motor vehicle accidents. *Journal of Abnormal Psychology*, 107(3), 508–519.
- EMDR International Association. (2011, September). Update EMDRIA definition of EMDR. *EMDRIA Newsletter*.
- Felbab-Brown, V. (2011). *Calderon's Caldron: Lessons from Mexico's battle against organized crime and drug trafficking in Tijuana, Ciudad Juárez y Michoacán*. Latin America Initiative at Brookings. Retrieved December 6, 2011, from http://www.brookings.edu/~media/Files/rc/papers/2011/09_calderon_felbab_brown/09_calderon_felbab_brown.pdf
- Fleming, J. (2012). The effectiveness of eye movement desensitization and reprocessing in the treatment of traumatized children and youth. *Journal of EMDR Practice and Research*, 6(1), 16–26.
- Harvey, M. R. (2007). Towards an ecological understanding of resilience in trauma survivors: Implications for theory, research, and practice. *Journal of Aggression, Maltreatment and Trauma*, 14(1–2), 9–32.
- Holgerson, K. H., Klöckner, C. A., Boe, H. J., Weisaeth, L., & Holen, A. (2011). Disaster survivors in their third decade: Trajectories of initial stress responses and long-term course of mental health. *Journal of Traumatic Stress*, 24(3), 334–341.
- Horowitz, M., Wilmer, N., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine*, 41(3), 209–218.
- Institute of Medicine of the National Academies (2011). *Treatment of PTSD: An assessment of the evidence brief report, 2007*. Retrieved on December 7, 2011, from <http://www.iom.edu/Reports/2007/Treatment-of-PTSD-An-Assessment-of-The-Evidence.aspx>
- Jarero, I. (2010). Explorando la naturaleza de las memorias traumáticas y el EMDR. *Revista Iberoamericana de Psicopatología y Disociación*, 2(2), 1–87. Retrieved December 7, 2011, from <http://revibapst.com/MEMORIASMDR.pdf>
- Jarero, I., Artigas, L., & Luber, M. (2011). The EMDR protocol for recent critical incidents: Application in a disaster mental health continuum of care context. *Journal of EMDR Practice and Research*, 5(3), 82–94.
- Jarero, I., & Uribe, S. (2011). The EMDR protocol for recent critical incidents: Brief report of an application in a human massacre situation. *Journal of EMDR Practice and Research*, 5(4), 156–165.
- Jordan, K. (2010). The use of psychosocial assessment following the Haiti earthquake in the development of the three-year emotional psycho-medical mental health and psychosocial support (EP-MMHPS) plan. *International Journal of Emergency Mental Health*, 12(4), 237–246.
- Kessler, R. C. (2000). Posttraumatic Stress Disorder: The burden to the individual and to society. *Journal of Clinical Psychiatry*, 61(Suppl. 5), 4–12.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543–562.
- Marmar, C. R., Weiss, D. S., Metzler, T. J., Delucchi, K. L., Best, S. R., & Wentworth, K. A. (1999). Longitudinal course and predictors of continuing distress following critical incident exposure in emergency services personnel. *The Journal of Nervous and Mental Disease*, 187(1), 15–22.
- McFarlane, A. C. (2009). The duration of deployment and sensitization of stress. *Psychiatric Annals*, 39(2), 81–88.
- Maxfield, L. (2008). EMDR treatment of recent events and community disasters. *Journal of EMDR Practice and Research*, 2(2), 74–78.
- Maxfield, L. (2009). Twenty years of EMDR. *Journal of EMDR Practice and Research*, 3(4), 115–116.
- Meewisse, M. L., Olf, M., Kebler, R., Kitchiner, N. J., & Gerson, B. P. (2011). The course of mental health disorder after a disaster: Predictors and comorbidity. *Journal of Traumatic Stress*, 24(4), 405–413.
- Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part 1. An empirical review of the empirical literature, 1981–2001. *Psychiatry*, 65(3), 207–239.
- Norris, F. H., Hamblen, J. L., Brown, L. M., & Schinka, J. A. (2008). Validation of the Short Posttraumatic Stress Disorder Rating Interview (expanded version, Sprint-E) as a measure of postdisaster distress and treatment need. *American Journal of Disaster Medicine*, 3(4), 201–212.
- Onder, E., Tural, U., Aker, T., Kiliç, C., & Erdoğan, S. (2006). Prevalence of psychiatric disorders three years after the 1999 earthquake in Turkey: Marmara earthquake survey (MES). *Social Psychiatry and Psychiatry Epidemiology*, 41(11), 868–874.
- Orcutt, H. K., Erickson, D. J., & Wolfe, J. (2004). The course of PTSD symptoms among Gulf War veterans: a growth mixture modeling approach. *Journal of Traumatic Stress*, 17(13), 195–202.
- Shalev, A. Y., Ankri, Y., Israeli-Shalev, Y., Peleg, T., Adessky, R., & Freedman, S. (2011). Prevention of posttraumatic stress disorder by early treatment: Results from the Jerusalem trauma outreach and prevention study. *Archives of General Psychiatry*. Retrieved December 7, 2011, from <http://archpsyc.ama-assn.org/cgi/content/abstract/archgenpsychiatry.2011.127>
- Shapiro, F. (2001). *Eye movements desensitization and reprocessing. Basic principles, protocols, and procedures* (2nd ed.). New York: Guilford Press.
- Shapiro, F. (2006). *EMDR: New notes on adaptive information processing, with case formulation principles, forms, scripts, and worksheets*. Watsonville, CA: EMDR Institute.
- Suliman, S., Mkabile, S. G., Fincham, D. S., Ahmed, R., Stein, D. J., & Seedat, S. (2009). Cumulative effect of multiple traumas on symptoms of posttraumatic stress disorder, anxiety, and depression in adolescents. *Comprehensive Psychiatry*, 50(2), 121–127.

- Tofani, L. R., & Wheeler, K. (2011). The recent-traumatic episode protocol: Outcome evaluation and analysis of three case studies. *Journal of EMDR Practice and Research*, 5(3), 95–110.
- Vaishnavi, S., Payne, V., Connor, K., & Davidson, J. R. (2006). A comparison of the SPRINT and CAPS assessment scales for posttraumatic stress disorder. *Depression and Anxiety*, 23(7), 437–440.

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