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

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This ongoing field study was conducted subsequent to the discovery of clandestine graves with 218 bodies recovered in the Mexican state of Durango in April 2011. A preliminary psychometric assessment was conducted with the 60 State Attorney General employees who were working with the corpses to establish a triage criterion and provide baseline measures. The Impact of Event Scale (IES) and the short posttraumatic stress disorder (PTSD) rating interview were administered, and the 32 individuals whose scores indicated moderate-to-severe posttraumatic stress and PTSD symptoms were treated with the eye movement desensitization and reprocessing (EMDR) Protocol for Recent Critical Incidents (EMDR-PRECI). Participants were assigned to two groups: immediate treatment (severe scores) and waitlist/delayed treatment (moderate scores). Each individual client session lasted between 90 and 120 minutes. Results showed that one session of EMDR-PRECI produced significant improvement on self-report measures of posttraumatic stress and PTSD symptoms for both the immediate treatment and waitlist/delayed treatment groups. This study provides preliminary evidence in support of the protocol's efficacy in a natural setting of a human massacre situation to a group of traumatized adults working under extreme stressors. More controlled research is recommended to evaluate further the protocol's efficacy.

Keywords: EMDR-PRECI; early EMDR intervention; EMDR and recent events; human massacre mental health; posttraumatic stress

The Merriam-Webster Dictionary (2011) defines a human *massacre* as the act or an instance of killing several usually helpless or unresisting human beings under circumstances of atrocity or cruelty. Records of human massacres date back to the year 61 A.D., when the Roman army destroyed the Celtic Druid stronghold on Anglesey, Britain (Wikipedia, 2011). The human massacres related to organized crime in Latin America had their origins in paramilitarism and narcotrafficking in Colombia during the 20th century when paramilitary groups controlled the large majority of the illegal drug trade of cocaine and other illegal substances (Human Rights Watch, 2011).

The *Mexican drug war* is an ongoing armed conflict taking place between the Mexican government forces who seek to combat drug trafficking and organized crime and the rival drug cartels, who also fight each other for regional control. Although Mexican drug cartels, or drug trafficking organizations, have existed for a few decades, they became more powerful and more violent following the demise of Colombia's Cali and Medellin cartels in the 1990s. The government held a generally passive stance regarding cartel violence in the 1990s and early 2000s. That changed on December 11, 2006, when newly elected President Felipe Calderón sent 6,500 federal troops to the state of Michoacán to end drug violence there. This action is regarded as the first major operation against organized crime and is generally viewed as the starting point of the war between the government and the organized crime. As time progressed, Calderón continued to escalate his campaign, so that there are now about 45,000 troops involved, as well as state and federal police forces. The number of casualties has escalated significantly over time. By June 2011, casualties of this war were more than 50,000 persons, including organized crime members, soldiers, police officers, and innocent civilians (Los Angeles Times, 2011).

Since 2011, several clandestine graves have been found in several Mexican states. In April 2011, the

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discovery of 183 bodies in 40 graves in the northeastern border state of Tamaulipas caused an international furor because families from the United States, Mexico, and Central America showed up in search of loved ones who had reportedly been pulled off buses, then vanished in the vast reaches of farmland near San Fernando; the scene of two mass killings in less than a year (MSN News, 2011).

Then, in the Mexican state of Durango, seven clandestine graves were found in the bustling urban areas of the city of almost 600,000 residents, with the recovery of 218 bodies since April 11, 2011. Officials only say that the mass graves probably hold the corpses of executed rivals from other gangs or possibly kidnapped victims or even some police. The region was written off long ago as narco-controlled territory. Some of the corpses in Durango have been in the ground for less than 3 months, buried since the Sinaloa cartel's internal dispute broke out; others have been there for as long as 4 years. In some cases, the remains are nearly skeletal after months or years in the desert-like conditions of Durango.

The task of body recovery was conducted by State Attorney General forensic personnel wearing masks and sterile suits. The sheer number of bodies outstripped the capacity of the city's morgue, and so the personnel worked in refrigerated trailers as they struggled to identify the corpses, by detecting individual features such as tattoos or fingerprints from the bodies that still retained some skin. Piles of cadavers in white plastic body bags were stacked along a wall of the trailers, awaiting examination (Time World, 2011). While working on the decomposing bodies, the workers stood on a carpet of live maggots, which were constantly falling from the cadavers. The stench in the room was overpowering.

To understand the magnitude of this unique scenario's stressful effect, it is necessary to describe the daily work: Day after day, the employees work with bodies—or body parts—in various states of putrefaction; some parts are unrecognizable. They use very thin gloves and are constantly exposed to horrific smells, live worms, and body parts tearing into pieces. The work environment is physically stressful because they move from the cold refrigerated trailers, to the non–air-conditioned morgue, to the heat of the desert. The employees often find themselves imagining the horror suffered in each death, as they examine the specific wounds and injuries. They also have to respond to the desperate family members looking for their loved ones. Meanwhile, they are constantly exposed to the power and cruelty of the cartels, they see new decapitated corpses being brought in, some of them of coworkers that were tortured before execution, and they are afraid that they will also become victims. They have already suffered one organized crime attack to the General Attorney offices where the forensics are located. Some of them have received telephone calls threatening to kidnap and torture them (e.g., "We will cut out your tongue.") or their loved ones (e.g., "We will kidnap your 12-year-old daughter and abuse her in all possible ways and return her to you useless."). In addition, some employees have missing family members whom they dread to find in the clandestine graves.

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. The Mexican Human Rights Commission sponsored the clinicians' travel expenses. It was agreed that the treatment to be provided would be the eye movement desensitization and reprocessing (EMDR) Protocol for Recent Critical Incidents (EMDR-PRECI; Jarero, Artigas, & Luber, 2011) and that the treatment would be provided using controlled research protocols. The purpose of the research was to evaluate the therapy's effectiveness in the treatment of employees exposed to the horrors of human massacre.

This was the first time that the EMDR-PRECI (Jarero et al., 2011) was used in an urban disaster context. The clinicians decided to use this protocol because of the continuum of stressful events in which the State Attorney General employees (forensic personnel, public prosecutors, psychologist, and administrative personnel) had been living since the original critical incident of April 11, 2001, when the first clandestine grave was uncovered.

EMDR Treatment of Acute Trauma

EMDR has established efficacy in the treatment of posttraumatic stress disorder (PTSD; see American Psychiatric Association, 2004; Bisson & Andrew, 2007) and is also applicable to a wide range of other experientially based clinical complaints (Shapiro, 2001; Solomon & Shapiro, 2008). There is an emerging body of research supporting the use of EMDR and modified EMDR protocols to treat acute trauma in both group and individual formats (Jarero et al., 2011). Standard EMDR has been investigated as a treatment for recent trauma in several studies. Fernández's (2008) case report showed that three EMDR sessions were sufficient to alleviate all symptoms, restore prior functions, and eliminate the acute PTSD diagnosis of an Italian citizen who had survived the 2004 tsunami in Thailand. Victims of Hurricane Andrew, who were

given one EMDR session 2.5 months following the disaster, showed significant improvement compared to waitlist controls (Grainger, Levin, Allen-Byrd, Doctor, & Lee, 1997). Ichii (1997) described successful EMDR treatment of two female survivors of the 1995 Hanshin-Awaji earthquake in Japan, with effects maintained at 5-months follow-up.

The EMDR Integrative Group Treatment Protocol (EMDR-IGTP) has been used in its original format or with adaptations to meet the circumstances in numerous settings around the world (Gelbach & Davis, 2007; Maxfield, 2008). Case reports and field studies have documented its effectiveness with children and adults after natural or man-made disasters and during ongoing war trauma (Adúriz, Knopfler, & Bluthgen, 2009; Jarero & Artigas, 2009; Jarero, Artigas, & Hartung, 2006; Jarero, Artigas, & Montero, 2008; Zaghrout-Hodali, Alissa, & Dodgson, 2008). Recent research by Jarero and Artigas (2010) successfully applied the EMDR-IGTP to adults in a situation of ongoing geopolitical crisis and violence, significantly reducing Impact of Event Scale (IES) scores, with effects maintained throughout the crisis.

EMDR-PRECI was evaluated in a study by Jarero et al. (2011) who compared immediate treatment and waitlist/delayed treatment groups with 18 adults who had been traumatized by a recent 7.2 earthquake in North Baja California, Mexico. Results showed that one session (lasting between 80 and 130 minutes) of EMDR-PRECI produced significant improvement of symptoms of posttraumatic stress for both the immediate treatment and waitlist/delayed treatment groups, with results maintained at 12-weeks follow-up.

Early EMDR intervention has a natural place in the Crisis Intervention and Disaster Mental Health Continuum of Care Context, and EMDR may be key to early intervention as a brief treatment modality (Jarero et al., 2011). Several protocols have been developed to provide modifications of EMDR to individuals in the acute phases after a critical incident. The primary reason for the modifications is that memory consolidation appears to change in the weeks and months following a critical incident (Maxfield, 2008; F. Shapiro, 2001, 2009; E. Shapiro & Laub, 2008).

Related stressful events can continue for an extended time (often more than 6 months) following the original critical incident (e.g., earthquake, flooding, landslides). This lack of a post-safety period prevents the consolidation in memory of the original critical incident. The continuum of stressful events with similar emotions, physical sensations, sensorimotor, and cognitive information does not give the state dependent traumatic memory (van der Kolk & van der Hart, 1991) sufficient time to consolidate into an integrated whole. Thus, the memory network remains in a permanent excitatory state, expanding with each subsequent stressful event in this continuum like the ripples from a rock falling in the middle of a lake.

The traumatic incident may extend over time, into a continuum of events. For example, a time continuum could include events that occurred immediately before, during, and after the disaster; community responses such as violence or looting; the individual's personal reactions and emotions; regrets about what they did and did not do; various losses; medical issues; concerns about the food, water, and air contamination; current effect; present and future economic issues; and constant worry related to living in a threatening environment.

The EMDR Protocol for Recent Critical Incidents

EMDR-PRECI was developed in the field to treat original critical incidents (e.g., earthquake, flooding, landslides), where related stressful events continue for an extended time (often more than 6 months). It is a modification of Shapiro's (2001) Recent Traumatic Events Protocol. Although it is similar to her protocol, it is also different in several important ways in order to accommodate the extended time frame with its continuum of stressful events often along the themes of safety, responsibility, and choice. It contains some unique elements developed by Jarero and Artigas (Jarero et al., 2011), derived from their observations during their many years of experience working in the field with survivors of natural or human provoked disasters in Latin America and the Caribbean. Authors recommend the use of Francine Shapiro's Recent Traumatic Events Protocol for a single incident during the first three months following the initial event with a window of consolidation post-safety (e.g., for a rape victim who is safe and protected after the assault) because it assumed that the traumatic memory will not have been fully consolidated within that time period (Shapiro, 2001). As noted earlier, EMDR-PRECI has preliminary evidence supporting its efficacy in reducing symptoms of posttraumatic stress in adults and maintaining those effects despite ongoing threat and danger in a disaster mental health continuum of care context (Jarero et al., 2011).

EMDR-PRECI uses an 8-phased protocol (see Jarero et al., [2011] for a detailed description of the protocol). Phase 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 the memory fragment, while simultaneously engaging in dual attention stimulation using eye movements (EM) as a first choice and the butterfly hug (BH) as an alternative bilateral stimulation (BLS); EMDR-PRECI uses the full power of standard EMDR free associative processing. Phase 5 is not conducted until all fragments have been processed with Phase 4, and the client identifies no further disturbance; then Phase 5 is applied to the entire extended event with a PC developed for the entire event. Installation of PC does not use frequent checking of VOC but full reprocessing doing BLS while information is moving. A supplement step is conducted in this phase to review the whole sequence holding the PC. Phase 6 uses standard procedures. Phase 7 uses Jarero and Artigas's postdisaster self-soothing strategies (Jarero et al., 2011), and Phase 8 uses standard procedures.

Method

Prior to treatment and to have a better understanding of the situation, the clinicians visited the morgue and the refrigerated trailers where the bodies were being stored. They also saw one of the clandestine graves still open and the house next door in which the victims were tortured to death in narco-satanic rituals before being buried. Security was a concern for the forensic employees, many of whom feared that organized crime members would kidnap and torture them or their loved ones to stop the investigations. For security reason, the clinicians worked inside the police academy and were provided with training on how to respond if an armed attack should occur. In preparation for their work, they asked the State Attorney General logistic coordinator for the following: private spaces, two comfortable chairs with arms (clients feel more secure if they can hold the chair arms), Kleenex tissues, trash cans without lid and plastic bag (in case of client's vomiting), fresh water, juice, and protein bars. To prevent traumatization, the clinicians followed Green Cross Academy of Traumatology Standards of Self Care (2008) and every day after work, they used the butterfly hug to stimulate their adaptive information processing system while mentally running a movie of the day's work.

Measures

The IES (Horowitz, Wilner, & Alvarez, 1979) and the Short PTSD Rating Interview (SPRINT; Connor & Davidson, 2001; Vaishnavi et al., 2006) were administered at baseline (Time 1), pretreatment (Time 2), and posttreatment (Times 3 and 4), and will be administered again at follow-up (Times 5 and 6).

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; 26–43 moderate distress; and 44–75 high or severe distress.

The SPRINT is an 8-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, work, family, and social impairment. SPRINT performs similarly to the CAPS rating scale in the assessment of PTSD symptoms clusters and total scores, can be used as a diagnostic instrument. 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; between 11 and 17 to moderate symptoms; between 7 and 10 to mild symptoms; scores of 6 or less indicate 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 his authors.

Procedure

The research was conducted in four phases: Phase 1 was the baseline assessment; Phase 2 was the treatment and assessment of the immediate treatment group; Phase 3 was the treatment and assessment of waitlist/delayed treatment group; and Phase 4 is the follow-up assessment of both treatment groups.

Phase 1

At Time 1, from May 16 to 20, 2011, two independent mental health professionals administered the IES and the SPRINT to the 60 State Attorney General employees who were working with the 218 corpses found in the clandestine graves in Durango. The scores were used

to establish a triage criterion for the next phases and to determine baseline measures. Based on the screening scores, two groups were formed: those with severe scores were placed in the immediate treatment group ($N = 18$; 8 females, 10 males), and those with moderate scores were placed in the waitlist/delayed treatment group ($N = 14$; 8 females, 6 males). The focus on intense reactions, as opposed to reactions of moderate strength, addresses the concern that moderate levels of distress are expected after disasters and may resolve on their own or with less intensive interventions, such as crisis counseling (Norris et al., 2008).

Phase 2

From June 8 to 12, two EMDR clinicians travelled to the site and provided EMDR-PRECI treatment to the immediate treatment group. IES and SPRINT measures were taken pretreatment those days (Time 2). Posttreatment measures were administered on June 30 (Time 3).

Phase 3

From June 29 to July 2, three EMDR clinicians travelled to the site and provided EMDR-PRECI treatment to the waitlist/delayed treatment group. IES and SPRINT measures were taken pretreatment those days (Time 3). Posttreatment measures were administered on July 20 (Time 4).

Phase 4

Follow-up measures will be taken on September 30 (Time 5) and November 30 (Time 6), 2011. All measures will be taken by independent professionals, and the statistical analysis will be conducted by another independent professional.

Participants

Sixty State Attorney General employees completed the IES and SPRINT at baseline (Time 1). Participants in this study were the 32 individuals (16 females, 16 males) who scored higher than 24 on the IES measure and 14 or more on SPRINT measure. They continued to work on the forensic project during the duration of this study. Their attendance in treatment was not mandated by the employer and there were no dropouts in this study.

Treatment

EMDR-PRECI was administered to the 32 participants, using the EMDR-PRECI protocol (Jarero et al., 2011). Each individual client session lasted between 90 and 120 minutes (Phases 1 and 2 last 30 to 35 minutes; reprocessing phases last between 50 and 65 minutes); only one treatment session was provided to each participant.

Results

Phenomenological Data

At Pretreatment. During EMDR-PRECI's history taking (Phase 1), the participants described distress related to the following symptoms:

- *Flashbacks and intrusive images*
- *Nightmares* about violence or the dead persons (e.g., the client tells the dead persons to go and rest in peace, the client asks the dead persons their name to help them find their relatives, or the organized crime killers came into the client's home to kill the client)
- *Visual hallucinations* (e.g., seeing their relative's faces in the corpses' file pictures)
- *Cognitive symptoms*: repetitive thinking (e.g., fear of being infected by the cadavers; fear that the dead person's spirit had possessed the client; revenge desires), catastrophic thinking (e.g., *"Something very bad is about to happen."*), impaired concentration, memory problems, death wishes (e.g., *"If I die, my love ones will be safe,"* or *"If I die today, it's ok."*), or difficulty expressing ideas
- *Avoidance* of memories, places, or persons that are reminders of the incident
- *Emotional symptoms* (e.g., anxiety, anger, panic attacks, hypervigilance, waking up in the middle of the night with anxiety and fear, depression, apathy, numbing, loss of hope, desire to cry, irritability, intolerance)
- *Physical symptoms* (e.g., nausea evoked by memories of the cadaver smell; shortness of breath, loss of appetite and weight because food smells like cadaver; increase in appetite and weight for excessive carbohydrates to mitigate anxiety, headaches, dizziness, vomiting, diarrhea, constipation, hyperarousal, insomnia, sleep without rest, arrhythmia, palpitations, chest tightness, dermatitis, hands and feet are cold all the time, immunologic system depression, pain in neck, back, stomach, or chest, decrease of visual perception of colors and light intensity [e.g., seeing everything in grey])
- *Behavioral symptoms* (e.g., wash their hands repeatedly; increase in drinking alcohol and/or smoking or initiate this behavior for the first time in their lives; stop eating any type of meat, ketchup, or mustard; do not want to take a shower; do not want go to work; desire to sleep all the time; isolation;

wake up at night to check if their children are alive; avoidance of public places)
- *Spiritual symptoms* (e.g., anger with God, stop believing in God)

At Target Assessment. In Phase 3, the client identifies the dominant image and NC associated with the targeted event. In this study, the images of the targeted incidents were not always an image of the worst thing witnessed. Sometimes, the worst image was something they imagined might have happened (e.g., how a victim suffered when being killed); sometimes it was a future event they feared might happen (e.g., the killers coming into the office, shooting); and sometimes, it was a non-visual sensory perception such as the putrefaction smell or the tactile memory of the decomposing flesh.

Examples of NCs the clients mentioned were *"I should have done something," "I'm in danger," "I'm not in control," "I'm powerless," "I should have known better," "I cannot trust anyone," "I'm vulnerable," "I'm a failure," "It is my fault and I'm guilty," "I'm dishonest," "I'm a bad person," "I cannot protect myself," "I'm not important."*

During Reprocessing Phases (4–6). Clinical observations during reprocessing phases (4-6) using the full power of standard EMDR free associative processing showed that adjusting the EM length of sets and speed to the client's necessities or using the BH as an alternative BLS resulted in a non-stuck and a rapid progression of traumatic information processing in the perceptual, experiential and meaning processing levels in both groups.

Symptom Improvement

Baseline. The measures taken at baseline (Time 1) were used to create the two treatment groups. Participants with more severe scores were placed in the immediate treatment group and those with moderate scores in the waitlist/delayed treatment group. A two-sample hypothesis test showed that there was a significant difference between scores at baseline, with higher scores in the immediate group on both IES, $t\,(30) = -15.47$, $p < .001$; and SPRINT, $t\,(30) = -5.77$, $p < .001$. See Table 1 for averages and standard deviations.

Treatment Effect for the Immediate Treatment Group. Researchers used one-way analysis of variance (ANOVA) tests to determine the differences in IES and SPRINT scores over the three time periods (baseline, pretreatment, and posttreatment), for the immediate treatment group. Results indicated that there was a main effect for the treatment because IES scores differed significantly across the three times, $F\,(2, 51) = 200.00$, $p < .0001$; as did SPRINT scores, $F\,(2, 51) = 68.02$, $p < .0001$. Tukey's post hoc comparisons of the three times indicate that all average scores significantly differed from one another at the $p < .05$ level for both tests. The means and standard deviations are presented in Table 1.

In the approximate three-week period between baseline (Time 1) and pretreatment (Time 2), the immediate treatment group demonstrated a significant increase in scores on the IES and SPRINT measures, indicating a worsening of symptoms. This suggests that time alone was insufficient to produce an improvement in symptoms. Then, after EMDR treatment, there was a large decrease in the posttraumatic symptoms, with posttreatment scores (Time 3) significantly smaller than those at pretreatment (Time 2) for both IES and SPRINT (please see Figures 1 and 2).

Treatment Effect for the Waitlist/Delayed Treatment Group. One-way ANOVAS were also used to determine if there were differences in IES and SPRINT scores over the three time periods (baseline, pretreatment, and posttreatment) for the waitlist/delayed group. Results indicated that there was a main effect for the treatment on IES scores because scores differed significantly across the three times, $F\,(2, 39) = 75.25$,

TABLE 1. Means and Standard Deviations of Posttraumatic Stress Scores

	N	Baseline	Pretreatment	Posttreatment
Impact of Event Scale				
Immediate treatment	18	59.22 (5.41)	65.17 (5.90)	32.17 (4.41)
Waitlist/delayed treatment	14	31.29 (4.58)	38.21 (3.49)	21.71 (2.27)
Short PTSD rating interview				
Immediate treatment	18	23.83 (3.73)	26.39 (3.45)	14.83 (1.86)
Waitlist/delayed treatment	14	16.07 (3.83)	19.71 (6.58)	10.07(3.95)

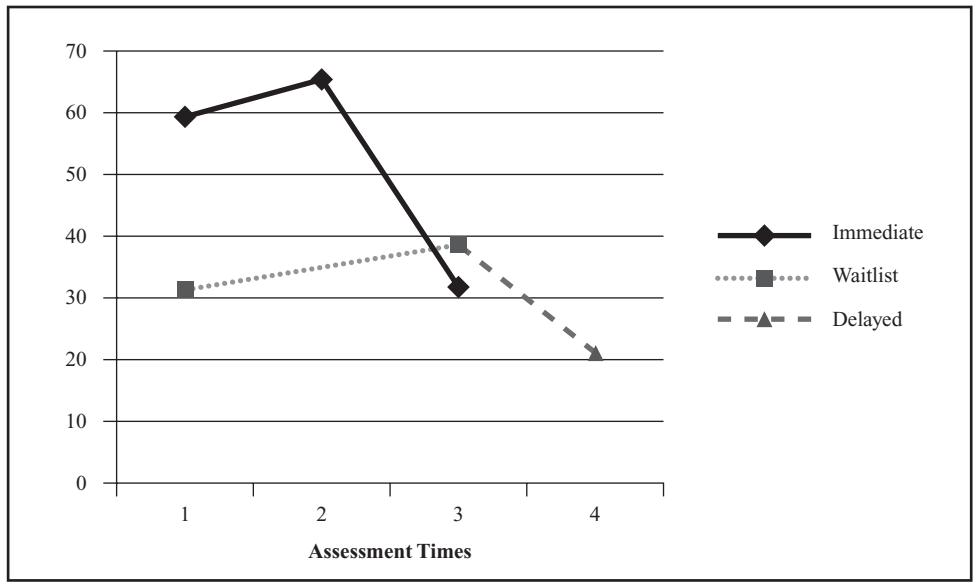

FIGURE 1. Mean scores on the Impact of Event Scale.
Note. Time 1 = baseline; Time 2 = pretreatment immediate group; Time 3 = pretreatment waitlist/delayed, posttreatment immediate group; Time 4 = posttreatment waitlist/delayed group.

$p < .0001$. Tukey's post hoc comparisons of the three times indicate that all scores significantly differ from one another at the $p < .05$ level.

For SPRINT scores, results demonstrated that there was also a main effect for the treatment, $F(2, 39) = 13.53$, $p < .0001$. Tukey's post hoc comparisons of the three times indicate that although the baseline and pretreatment scores did not significantly differ from one another, the posttreatment score was significantly lower than both of those scores at the $p < .05$ level. The means and standard deviations are presented in Table 1.

Provision of EMDR-PRECI for the waitlist/delayed group, then, showed similar effects to that achieved in the immediate treatment group. The waitlist/delayed group also showed an increase in

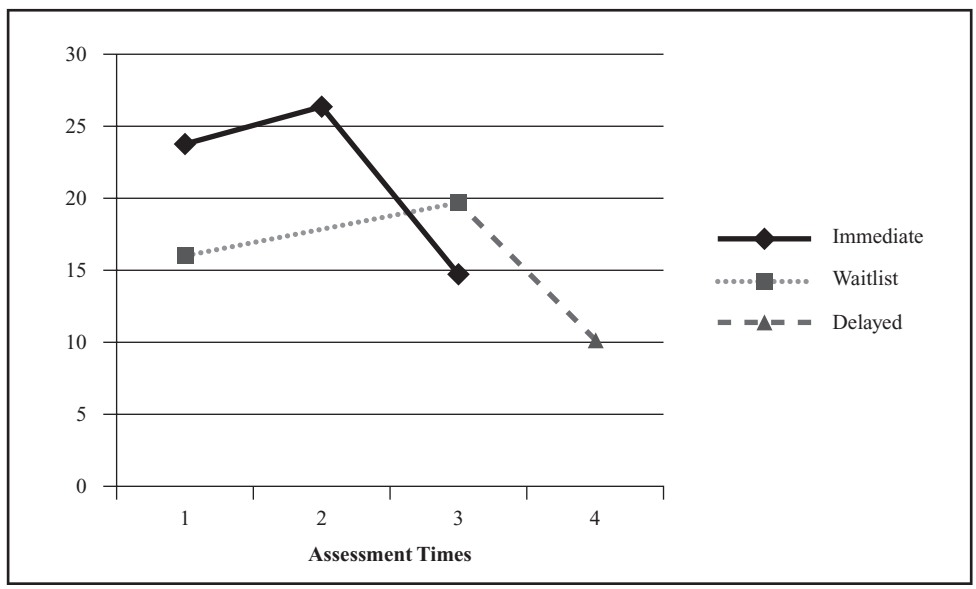

FIGURE 2. Mean scores on the short PTSD rating interview.
Note. Time 1= baseline; Time 2= pretreatment immediate group; Time 3= pretreatment waitlist/delayed, posttreatment immediate group; Time 4= posttreatment waitlist/delayed group.

TABLE 2. Statistical Comparisons Between Treatment Groups: Immediate Treatment Versus Waitlist/Delayed Treatment

	Time	Mean (*SD*)	*t*	*df*	*p*
Impact of Event Scale					
Immediate posttreatment versus	Time 3	32.17 (4.41)			
waitlist/delayed pretreatment	Time 3	38.21 (3.49)	4.20	30	<.001
Immediate posttreatment versus	Time 3	32.17 (4.41)			
waitlist/delayed posttreatment	Time 4	21.71 (2.26)	8.68	26	<.001
Short PTSD rating interview					
Immediate posttreatment versus	Time 3	14.83 (1.86)			
waitlist/delayed pretreatment	Time 3	19.71 (6.58)	2.69	15	<.001
Immediate posttreatment versus	Time 3	14.83 (1.85)			
waitlist/delayed posttreatment	Time 4	10.07 (3.95)	4.16	17	<.001

scores between baseline (Time 1) and pretreatment (Time 3) 6 weeks later, indicating that time alone was insufficient to ameliorate posttraumatic symptoms and that symptoms worsened over time (please see Figures 1 and 2).

Comparison of Immediate Treatment and Waitlist/Delayed Groups. A two-sample hypothesis test of the two groups at Time 3 was conducted to compare the immediate posttreatment scores with the pretreatment scores of the waitlist/delayed group. The results show the immediate treatment group with significantly lower scores than the waitlist/delayed groups on the IES, $t\ (30) = 4.20$, $p < .001$; and SPRINT, $t\ (30) = 3.01$, $p < .01$. This finding is even more meaningful when one considers that at baseline, the initial scores of the waitlist/delayed treatment group were less severe than those of the immediate group. Results of this controlled comparison suggest that the decrease of symptoms for the immediate group may be attributed to the single session of EMDR-PRECI (see Table 2 and Figures 1 and 2).

Discussion

This study examined traumatized adults working under extreme stressors to which treatment was provided in a natural setting. These individuals were provided with EMDR-PRECI in two groups—immediate treatment and waitlist/delayed treatment.

Results indicated that IES and SPRINT scores increased in both groups between baseline and pretreatment administrations, showing a worsening of symptoms over that time period. Although some research (Norris et al., 2008) has suggested that symptoms of acute trauma remit naturally with time, that effect was not found in this study. This may be caused by the continuum of stressful events and the ongoing threats faced by the participants in this study.

The posttreatment scores of the immediate treatment group were compared to the waitlist/delayed treatment group to evaluate the effects of treatment, with results demonstrating that the treated group had significantly lower scores than the waitlist group. This finding occurred even though the baseline scores of the waitlist/delayed treatment group were less severe scores than those of the immediate treatment group. Results also 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.

It is important to note that the posttreatment scores were not taken directly after completion of the intervention. Instead, the posttreatment measures were administered 3 weeks after the treatment was provided. During this 3-week interval, the participants continued to work on site—in the horrific work environment—and with ongoing threats. These results appear to provide support for the hypothesis deriving from Shapiro's (2001) Adaptive Information Processing (AIP) model: Thoroughly processing disturbing memory changes the way that the experience is stored in memory, so that distress is no longer triggered by similar events. The results indicate that the continued exposure to the traumatic work environment no longer elicited the same distressing symptoms after EMDR treatment. Although this suggests the development of possible resiliency, these effects and the prevention of chronic PTSD will be investigated in the follow-up testing that will be conducted in September and November, 2011.

Only one treatment session was provided to the participants. This limitation in treatment provision was a factor of the dangerous environment, and the clinicians' time on site was limited because of safety concerns. Although in this situation, the threats were of human origin, dangerous environments are often a concern for clinicians working in any disaster setting (e.g., earthquakes). Therefore, effective treatment for acute trauma must be brief and transportable.

The possibility of utilizing EMDR-PRECI as one component of a comprehensive system of postdisaster interventions has important global implications (Shapiro, 2009). Some of the benefits include transportability, and its ease of use for both new and experienced EMDR practitioners. Like the standard EMDR therapy protocol for PTSD (Maxfield, 2009), EMDR-PRECI seems to be equally cross-culturally effective, therapy can be done on consecutive days, and there is no need for homework between sessions. Unlike some other recent event protocols such as Shapiro and Laub's (2008) recent episode protocol, EMDR-PRECI does not restrict associations during desensitization but uses the full power of standard EMDR free associative processing. It is also time effective—only one session was needed to achieve resolution of posttraumatic symptoms. This is especially important given the high mobility of survivors in some disaster settings (see Silver, Rogers, Knipe, & Colelli, 2005).

This study lends support to the view that the EMDR-PRECI can be used effectively with adults as an early intervention in the acute phase of a critical incident, when there is no postsafety window of consolidation by reducing self-report measures of posttraumatic stress and PTSD symptoms. Future research is needed to investigate the effectiveness and utility of EMDR-PRECI.

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