The EMDR Protocol for Recent Critical Incidents: Application in a Disaster Mental Health Continuum of Care Context

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This randomized, controlled group field study was conducted subsequent to a 7.2 earthquake in North Baja California, Mexico. Treatment was provided according to continuum of care principles. Crisis management debriefing was provided to 53 individuals. After this, the 18 individuals who had high scores on the Impact of Event Scale (IES) were then provided with the eye movement desensitization and reprocessing (EMDR) Protocol for Recent Critical Incidents (EMDR-PRECI), a single-session modified EMDR protocol for the treatment of recent trauma. Participants were randomly assigned to two groups: immediate treatment group and waitlist/delayed treatment group. There was no improvement in the waitlist/delayed treatment group, and scores of the immediate treatment group participants were significantly improved, compared with waitlist/delayed treatment group paticipants. One session of EMDR-PRECI produced significant improvement on symptoms of posttraumatic stress for both the immediate-treatment and waitlist/delayed treatment groups, with results maintained at 12-week follow-up, even though frightening aftershocks continued to occur frequently. This study provides preliminary evidence in support of the protocol's efficacy in a disaster mental health continuum of care context. More controlled research is recommended to evaluate further the efficacy of this intervention.

Keywords: early EMDR intervention; disaster mental health; critical incidents; natural disaster; posttraumatic stress

In 2010, there were 950 natural disasters; earthquake, flood, droughts, and volcanic eruptions resulted in 295,000 deaths and $130 billion of physical damage (Milenio News Agency, 2011). An often overlooked cost of disasters is the psychological wounds that are not always visible, attended, or acute. For more than 10 years, experts have concluded that the psychological casualties of a disaster will outweigh the physical by an estimated 4:1 ratio (Everly, Barnett, Sperry, & Links, 2010). The psychological impact of natural and man-made disasters can be overwhelming for individuals, their families, and communities. Research has shown that deleterious effects can include the development of mental health problems such as symptoms of PTSD and depression (Norris et al., 2002), with natural recovery often requiring up to 18 months. Current literature indicates that the prevalence of posttraumatic stress disorder (PTSD), the most researched postdisaster psychological disorder, ranges from 11% to 40% among those who have been exposed to a natural or man-made disaster.

Norris, Murphy, Baker, and Perilla (2004) observed that trauma in developing countries is unusually commonplace, challenging to treat, and difficult to study. They call for "early and ongoing interventions that provide mental health care to disaster victims in a way that is culturally appropriate and feasible for places . . . that have few mental health professionals to draw upon" (pp. 290–291). The number of traumatized individuals in the world is staggering; it is essential that treatment be provided

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to help large groups of people return to baseline functioning as rapidly as possible. Randomized, controlled research is needed to investigate and to evaluate the treatment of critical incidents, so that effective therapies can be developed and provided to alleviate the suffering of the world's many victims of disasters (Luber, 2009).

Disaster Mental Health and Continuum of Care

To understand the recent disaster mental health and continuum of care conceptualization, it is essential to review the definition of key terms concerning recent trauma. According to Everly and Mitchell (2008):

- *Critical incidents* are stressful events, which have the potential to overwhelm one's usual coping mechanism, resulting in psychological distress and an impairment of normal individual, as well as collective, adaptive functioning" (p. 4).
- A *psychological crisis* "is a response to a critical incident wherein the individual's psychological balance has been disrupted" (p. 5).
- *Crisis intervention* is the "urgent psychological or behavioral care designed to first stabilize and then reduce symptoms of distress or dysfunction so as to achieve a state of adaptive functioning, or to facilitate access to a continuum of care when necessary" (p. 8).
- *Disaster mental health* may be thought of as "the specific principles and practices of psychological crisis intervention, as well as clinical and community mental health, applied to large-scale and mass casualty disasters" (p. 9).
- *Continuum of care* may be thought of as "a stepped progression of health care provided in an increasingly intensified manner. In psychosocial intervention, we see a progression from crisis intervention to counseling, to psychotherapy, to psychotropic medical practice, and to psychosocial rehabilitation" (p. 9).

Setting appropriate goals for psychological crisis intervention and disaster mental health must be based on a realistic formulation of what such interventions are and what they are not. Everly and Mitchell (2008) propose that those goals are (a) stabilization of psychological functioning through meeting basic physical needs, then addressing the most basic of psychological needs; (b) mitigation of psychological dysfunction distress; (c) return of acute adaptive psychological functioning; and/or (d) facilitation of access to the next level of care.

Eye Movement Desensitization and Reprocessing and Early Trauma Intervention

Eye movement desensitization and reprocessing (EMDR) has established efficacy in the treatment of PTSD (see Bisson & Andrew, 2007; Schubert & Lee, 2009) 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.

Standard EMDR has been investigated as a treatment for recent trauma in several studies. A case report by Fernández (2008) 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 with the waitlist/delayed-treatment 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-month 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, Bluthgen, & Knopfler, 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 IES scores, with effects maintained throughout the crisis.

EMDR Modifications for Early Interventions

Several protocols have been developed to provide modifications of EMDR to individuals with acute traumatic stress. The primary reason for the modifications is that memory consolidation appears to change in the weeks and months following a critical incident. Shapiro (2001) developed the Recent Traumatic

Events Protocol, also called the Recent Events Protocol, after the 1989 San Francisco earthquake when she found that processing one part of the memory had no effect on any other part of the incident. She hypothesized that although the memory of a recent traumatic event is consolidated on some level because the client can give a serial description of the experience, for the most part, information is fragmented and is not integrally linked. On the basis of clinical observation, she estimated that the period required for consolidation is approximately 2 to 3 months. She now thinks that the period may be longer if individuals are continuously exposed to danger and threat.

F. Shapiro's (2001, 2009b) Recent Event Protocol was tested in research by Silver, Rogers, Knipe, and Colelli (2005) with survivors of the 9/11 World Trade Center attack. The authors concluded that "EMDR is a useful treatment intervention both in the immediate aftermath of disasters as well as later" (p. 29). A subsequent examination of three of these cases by Colelli and Patterson (2008) found that the usefulness of this protocol extended beyond the 3-month limit suggested by F. Shapiro (2001). Another test of this protocol is a field case study by Wesson and Gould (2009) who provided four sessions on consecutive days to a 27-year-old active duty U.K. soldier who was experiencing acute stress reaction at 2 weeks posttrauma; treatment resulted in the soldier's immediate return to frontline duties, with effects maintained at 18-month follow-up.

E. Shapiro and Laub (2008) developed the Recent Traumatic Episode Protocol and described its effectiveness with several cases; however, no research has yet been conducted on their protocol. Another modification is that by Kutz, Resnik, and Dekel (2008) who found that a single session of modified EMDR was effective in treating 86 patients with acute stress syndrome suffering from intrusion distress following accidents and terrorist bombing attacks. Fifty percent reported immediate fading of intrusive symptoms and general alleviation of distress, 27% described partial alleviation of their symptoms and distress, whereas 23% reported no improvement.

For a summary of other proposed modifications, see E. Shapiro and Laub (2008).

The EMDR Protocol for Recent Critical Incidents

It is the authors' opinion that EMDR may be key to early intervention after traumatic events as a brief treatment modality. Use of EMDR can result in the adaptive processing of trauma memories, the prevention of the accumulation of negative associated links, and the reduction of suffering and later complications (E. Shapiro, 2009). Thus, it promotes mental health and resilience (especially in ongoing trauma). Based on our understanding of the recent disaster mental health and continuum of care, it is clear that early EMDR intervention has a natural place in the crisis intervention and disaster mental health continuum of care context.

We have developed the EMDR-PRECI (Table 1). It is a modification of Shapiro's (2001) Recent Traumatic Events Protocol and is based on the observations of Jarero and Artigas (2010) during their many years of experience working in the field with natural or human-provoked disasters survivors in Latin America and the Caribbean.

Similarities and Dissimilarities Between EMDR-PRECI and Other Protocols

The EMDR-PRECI is a modification of F. Shapiro's (2001, 2009b) Recent Event Protocol. Although it is similar to that protocol, it is also different in several important ways to accommodate the extended period with its continuum of stressful events. EMDR-PRECI also has some similarities and differences to E. Shapiro and Laub's (2008) Recent Episode Protocol. Please see Table 2 for a comparison of the protocols.

EMDR-PRECI has some unique elements developed by Jarero and Artigas (2010), based on their experiences working with disaster victims for many years. The following section highlights some important elements of EMDR-PRECI.

Core Elements of EMDR Protocol for Recent Critical Incidents

The Disaster Is an Extended Event With a Continuum of Important Markers

The EMDR-PRECI is often used with disaster survivors up to 6 months after the event. In Jarero and Artigas's (2010) work with disaster survivors in Latin America and the Caribbean, they have noted that even 6 months postevent, the impact and memories behave as an unconsolidated recent traumatic event and have found that concentrating/reprocessing on one part of the memory has no effect on any other part of the incident. Jarero and Artigas conceptualize the disaster as an extended event, with a continuum of important markers: preimpact phase, impact phase, heroic phase, honeymoon phase, disillusionment phase, anniversaries phase, and reconstruction phase (Everly & Mitchell, 2008). They hypothesized

TABLE 1. The EMDR Protocol for Recent Critical Incidents

Phase 1: Client History

1. The clinician asks the client to describe the event in a narrative form, from right before the event occurred until the present moment. If the client is in great distress (e.g., crying and not able to speak) or has physical complaints (e.g., headache, dizziness, nauseas, etc.), do not push for the narrative. Say, "Just give me a brief description of what happened."
2. Clinician identifies a series of separated aspects of the extended event (fragments).
3. Clinician does not ask or probe for the most disturbing aspects of the event to avoid triggering abreaction at this stage of the protocol.
4. Clinician does not do BLS during this phase to ensure that processing does not start prematurely, before containment and safety measures are in place.
5. When possible, administer a scale pre-reprocessing to have baseline measure and post-treatment to assess effectiveness.

Phase 2: Preparation

1. Clinician screens client to make sure he or she is an appropriate candidate for EMDR Protocol for Recent Critical Incidents (EMDR-PRECI).
2. Clinician educates client about EMDR-PRECI.
3. Clinician instructs client in the mechanics of EMDR-PRECI, including the butterfly hug (see Table 3).
4. Clinician teaches client high-efficacy, self-soothing strategies that are easy to learn and which promote self-efficacy. (see Table 4 for examples).

Phase 3: Assessment

1. Clinician says, "Mentally run the movie of the whole event from right before the beginning until today, and at the end please let me know the worst part, the worst fragment."
2. The worst fragment is developed as the first target. The client identifies the image, a NC, and emotion. The level of disturbance (SUDs) is rated from 0 to 10, and location of physical sensation is identified. The clinician only offers an NC such as "I'm in danger," if clients are unable to come up with their own NC.

Phase 4: Reprocessing Sequence

Target and reprocess in the following sequence:

1. Elicit worst fragment
2. Elicit other fragments
   a. The worst memory fragment is desensitized using standard procedures until SUD = 0 or ecological.
   b. The next disturbing memory fragment is identified by saying, "Close your eyes, and mentally run the movie of the whole event from right before the beginning until today, and at the end please let me know any other part that disturbs you now."

This procedure is repeated until the entire event can be visualized from start to finish without emotional, cognitive, or somatic distress.

Phase 5: Global Installation Phase

1. Clinician elicits the representative positive cognition of the entire extended event.

   Say, "When you bring up the event, what would you like to believe about yourself now?"_____
2. Clinician checks the VOC.

   Say, "Think about the incident and those words (repeat the selected PC). From 1 (*completely false*) to 7 (*completely true*) how true do they feel *now*?"

(Continued)

TABLE 1. The EMDR Protocol for Recent Critical Incidents (Continued)

3. Clinician links the PC and the entire event and adds BLS.

   Say, "Think of the entire event (or incident) and hold it together with the words _____ (repeat the selected positive cognition), *and let whatever happens happen*."

   - Do sets of BLS (same speed and approximate duration as in desensitization) to fully install the PC (VOC = 7).
   - At the end of the set, say, "Take a breath . . . what do you notice now?"
   - If disturbing material arises, say, "Go with that," or "Notice that."
   - Keep doing BLS while information is moving.
   - When BLS stops, check VOC until the PC is fully installed (VOC = 7 or ecological).
   - If VOC < 7, check for a blocking belief.
   - Say, "What prevents this from being a 7?"
   - Reprocess with BLS whatever client reports until VOC = 7 or ecological.

Supplement Step

Say, "Close your eyes, think of the positive cognition, and review the whole sequence in your mind holding the PC."

On completion, say, "Does the positive cognition feel less than true on any part of the sequence?"

If so, target that part.

Phase 6: Body Scan

1. Clinician runs a body scan following standard procedures.

Phase 7: Closure

1. Clinician uses the standard procedures to close the session.

Three-Pronged Approach

1. Past memories were the traumatic incident memories already reprocessed.
2. Clinician reprocesses present triggers with the client. Each trigger may be connected to different situations that need different skills sets or information to optimize future functioning. A future template is done for each trigger that is processed.
3. Future Template. Clinician asks the client to run movie for the desired response to cope in the future.

Note. BLS = Bilaterals; EMDR-PRECI = EMDR Protocol for Recent Critical Incidents; NC = negative cognition; SUD = Subjective Units of Disturbance; VOC = Validity of Cognition; PC = positive cognition.

that the event has not been consolidated in memory, because the experience of a continuum of stressful events with similar emotions and physical sensations 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 event in this continuum. There has been no definitive research to measure the memory consolidation process or to determine individual variables that may influence consolidation. It appears that the time for memory consolidation may vary considerably (Maxfield, 2008).

Jarero and Artigas also observed that when they asked clients to recite the history of the disaster, they actually described the event in a narrative form from just before the impact until the present moment (even 6 months later). For them, there was not a day or exact moment in which the original event memory finished and new stressful events began. It behaves as a continuum often along the themes of safety, responsibility, and choice (e.g., what they were doing right before the earthquake; when the earthquake struck; what happened when the tsunami occurred; feelings of being unsafe; how people treated each other after the event that were upsetting, such as issues of being attacked, raped, or others harmed; things they felt they should have been able to prevent and could not; issues of loss; medical issues; concerns about food and water contamination; how they are affected currently; the economic issues in the present and future). These observations are similar to Shapiro and Laub's (2008) recent traumatic episode conceptualization that recommends targeting the original incident along with any significant subsequent experiences until the present.

TABLE 2. Similarities and Dissimilarities Between EMDR-PRECI and Other Protocols

EMDR-Protocol for Recent Critical Incidents	Recent Traumatic Event Protocol[a]	Recent Traumatic Episode Protocol[b]
Phase 1		
Asks the client to describe the traumatic event in a narrative form, from right before the event occurred until the present moment. No BLS.	Collects history according to EMDR standard procedures.	Asks for a general description of the trauma at this stage. No BLS.
Conceptualizes the critical incident as an extended event, with a continuum of ongoing stressful events with similar emotions and physical sensations, interfering with memory consolidation.	Conceptualizes traumatic event as composed of several separate moments/aspects.	Conceptualizes traumatic episode as a trauma continuum composed of multiple fragments, experiences, and events.
Phase 2		
Specifically suggests using the butterfly hug for reprocessing purposes during session as an alternative for the EM or between sessions.	Does not specifically suggest using the butterfly hug for reprocessing purposes.	Does not specifically suggest using the butterfly hug for reprocessing purposes.
Uses Jarero & Artigas's postdisaster self-soothing strategies.	Uses standard EMDR safe place and phase 2 strategies.	Uses E. Shapiro's 4-element self-soothing strategies (includes safe place) and Laub's Resource Connection.
Phase 3 for Initial Reported Fragment/Point of Disturbance		
Assesses most disturbing aspect or fragment, asking client to identify image, NC, emotion, SUD, and body sensation location, but not PC or VOC.	Obtains a narrative history of the event. If applicable, asks client to assess most disturbing moment as a complete target with image, NC, PC, VOC, emotion, SUD, and body sensation location.	Obtains a narrative history of the trauma episode with BLS, and then immediately after, uses Google search to identify the first PoD and assesses it with image, NC, PC, VOC, emotion, SUD, and body sensation location (flexibility is permitted).
Waits for clients to respond with their own NC before offering one. No PC is developed.	Suggests a tentative NC and PC to the client if they have difficulty formulating NC or PC.	Waits for clients to respond with their own NC before offering one. Suggests a tentative NC and PC to the client if they have difficulty formulating NC or PC.
Phase 4 for Worst Fragment/Aspect/Point of Disturbance		
Uses the free associative processing of standard EMDR.	Uses the free associative processing of standard EMDR.	Uses "telescopic processing" = three-staged strategies, EMD→EMDr→EMDR, to gradually expand associative processing. Free associative processing is used if trauma episode-focused processing is not sufficient.
Primarily uses butterfly hug and EM for BLS.	Uses various forms of BLS.	Uses various forms of BLS, but recommends EM and always keeping eyes open, as well.

(Continued)

TABLE 2. Similarities and Dissimilarities Between EMDR-PRECI and Other Protocols (Continued)

EMDR-Protocol for Recent Critical Incidents	Recent Traumatic Event Protocol[a]	Recent Traumatic Episode Protocol[b]
Phase 5 for Worst Fragment/Aspect/Point of Disturbance		
Phase 5 is not done for fragments.	Moment is processed to completion of the installation phase, if applicable; VOC = 7.	PoD is processed from completion of the installation phase to an ecologic level.
Phase 3 for Subsequent Fragments/Aspects/Points		
After worst fragment is reprocessed asks client to "Run the movie of the whole incident" with eyes closed to find remaining fragments with disturbance. No BLS	Other disturbing moments are processed in chronological order. After this, asks client to visualize the event with eyes closed to find any remaining moments with disturbance.	After a PoD is reprocessed, uses Google search with continuous BLS to find another point. Sequencing is not necessarily chronological.
Each disturbing fragment is assessed with image, NC, emotion, SUD, and body sensation location, but not PC or VOC.	Each disturbing moment/aspect is assessed as a complete target with image, NC, PC, VOC, emotion, SUD, and body sensation location.	Each identified point is assessed as a complete target with image, NC, PC, VOC, emotion, SUD, and body sensation location (as possible).
Phase 4 and Phase 5 for Subsequent Fragment/Aspects/Points		
Each subsequent disturbing aspect is processed to completion of desensitization phase.	Each remaining disturbing target is processed, in chronological order, to completion of installation phase.	Each subsequent PoD is processed with telescopic processing to completion of installation phase (not necessarily chronological).
PC is not identified for fragments, and no installation of PC is done for fragments.	Installation of the PC uses standard EMDR procedure with frequent checking of VOC.	Installation of the PC uses standard EMDR procedure with frequent checking of VOC.
Phase 5 for Entire Extended Event		
Is conducted when the client identifies no further disturbance when visualizing the extended event from start to finish with eyes closed.	Is conducted when the client identifies no further disturbance when visualizing the episode from start to finish with eyes open.	Is conducted when the client identifies no further points of disturbance when doing a "Google search" of the episode.
PC is developed for the entire event. Installation of the PC does not use frequent checking of VOC but full reprocessing doing BLS while information is moving. A supplement step is conducted to review the whole sequence holding the PC.	Installation of the PC uses standard EMDR procedures which include frequent checking of VOC.	PC is developed for the whole episode. Installation of the episode PC uses standard EMDR procedures, which include frequent checking of VOC.
Phase 7		
Uses Jarero and Artigas's postdisaster self-soothing strategies.	Uses standard EMDR safe place and other session closure strategies.	Uses E. Shapiro's 4-element self-soothing strategies (includes safe place) and Laub's resource connection.

Note. This table does not contain the full steps for any of the protocols but simply lists those elements that are similar and dissimilar to EMDR-PRECI.

BLS = Bilaterals; NC = negative cognition; SUD = Subjective Units of Disturbance; PC = positive cognition; VOC = validity of cognition; PoD = point of disturbance.

[a]F. Shapiro (2001, 2009b).

[b]E. Shapiro & Laub (2008).

TABLE 3. The Butterfly Hug

"Cross your arms over your chest so that the middle finger from each hand will be placed below the collarbone, and the rest of the fingers and hand will cover the area that is located under the connection between the collarbone and the shoulder and the collarbone and sternum or breastbone. Hands and fingers must be as vertical as possible (fingers toward the neck and not toward the arms). Once you do this, you can interlock your thumbs (forming the body of the butterfly), and the extension of your other fingers outward will form the butterfly's wings. Your eyes can be closed or partially closed looking toward the tip of your nose. Next, you alternate the movement of your hands, simulating the flapping wings of a butterfly. You breathe slowly and deeply (abdominal breathing) while you observe what is going through your mind and body (cognitions, images, sounds, odors, affect and physical sensations) without changing, repressing, or judging. You can pretend as though what you are observing is like clouds passing by."

For reprocessing purposes: This exercise can be done for 1–3 mins.

For self-soothing purposes: Once clients have learned the butterfly hug, they can be instructed to use it between sessions to modulate disturbing affect if other self-soothing techniques are not effective.

Source: From the Butterfly Hug scripted protocol. 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.

Positive Cognition is Developed and Installed Only for the Entire Event

Unlike F. Shapiro's Recent Event Protocol (2001), no attempt is made in EMDR-PRECI to develop negative and positive cognitions for each memory fragment. The authors have found that it is too stressful for clients to attempt to articulate these during the procedure because the event contains multiple fragments, each of which can be associated with different negative and positive cognitions. The authors have also found that the entire continuum of the extended event must be desensitized before any attempt is made to develop and install a positive cognition.

The Validity of Cognition is Not Assess After Each Set

Over several years, it has been observed that most survivors continue to process the event during the installation and body scan phases. Perhaps, this is caused by the continuum of stressful events, the state-dependent nature of the traumatic memory, and/or the continuing state of disaster-related difficulty, resulting in many ongoing triggers (people living in tents, difficulty with food supply, many injured people, etc.). As a result, we do not assess the validity of cognition (VOC) after each set as is the way it is done in standard EMDR or the Recent Traumatic Event Protocol (Shapiro, 2001) to allow for uninterrupted processing of the memory.

Continuum of Care

Jarero and Artigas suggest that the EMDR-PRECI must be part of a community-based trauma response program that provides a continuum of care for the treatment and management of individual and group reactions to shared traumatic events. This continuum of care must be accessible to the community members and sensitive to each participant's gender, developmental stage, ethnocultural background, and magnitude of trauma exposure (Macy et al., 2004).

The Current Study

On April 4, 2010, a 7.2 Richter scale earthquake struck in North Baja California, Mexico (in comparison, the Haitian January 2010 earthquake was 7.0). This was the largest earthquake to occur in the region within

TABLE 4. Self-Soothing Strategies

Abdominal Breathing

Close your eyes; put one hand on your stomach, and imagine that you have a balloon inside your stomach. Now, inhale and see how the balloon grows and moves your hand up. Now you can exhale and see how the balloon deflates, and your hand goes down. Put all your attention in that. If anything distracts you, gently return to the exercise. Do this exercise for 5 mins.

Concentration Exercise

While doing the abdominal breathing, mentally repeat, "I know I'm inhaling . . . I know I'm exhaling." Put all your attention in that. If anything distracts you, gently return to the exercise. Do this exercise for 5 mins.

Pleasant Memory

Remember a time when you were calm or happy . . . put your hand in your chest . . . expand those good feelings and physical sensations in your body. Put all your attention on that. If anything distracts you, gently return to the exercise. Do this exercise for 5 mins.

the last 120 years. Shortly after the earthquake, a private company asked the Mexican Association for Mental Health Support in Crisis to help their 53 employees living in that area.

On April 19, 2010, two EMDR clinicians arrived in the affected area. They did a crisis management briefing intervention (CMB; Everly, 2000) with the 53 company employees. Afterward, the IES was given to all participants to have a triage criterion for the continuum of care.

Based on the IES screening scores, the clinicians invited the 18 adults (8 females and 10 males) with IES scores of 44 or higher to receive the next level of care; they accepted. 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, Hamblen, Brown, & Schinka, 2008).

For company operational policies, the clinicians had to divide the group randomly into two for one-session treatment with the EMDR-PRECI. Participants in the immediate treatment group ($N = 9$; 5 females, 4 males) received treatment the next day, and IES measures were taken posttreatment after 4 days on April 24. Participants in the waitlist/delayed treatment group ($N = 9$; 3 females, 6 males) received treatment on April 24, and IES measurements were taken pretreatment that day and posttreatment after 4 days on April 28. At 12 weeks follow-up, the participants were contacted, and all completed the IES again, reporting their distress related to the original incidents. At the time of follow-up, the participants were still exposed to high stress levels related to ongoing aftershocks and media predictions that a bigger and more devastating earthquake was imminent.

Method

Assessment

The IES (Horowitz, Wilmer, & Alvarez, 1979) is a 15-item self-rating questionnaire designed to measure subjective posttraumatic stress. 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 distress; scores between 26 and 43 are considered moderate distress; and scores between 44 and 75 are considered high distress. The IES is considered to have good psychometric properties (Horowitz et al., 1979).

The IES was administered to all 53 participants following the first treatment intervention, crisis management briefing, on April 19 (Time 1). The 18 participants who scored more than 44 on the IES moved into the second phase of the continuum of care. The IES was administered to the immediate treatment group at post-EMDR-PRECI treatment on April 24 (Time 2) and at 3-month follow-up (Time 4). The IES was administered to the waitlist/delayed treatment group at post-waitlist (pretreatment) on April 24 (Time 2), at post-EMDR-PRECI treatment on April 28 (Time 3), and at 3-month follow-up (Time 4) (see Figure 1). Independent professionals conducted the data collection, and the statistical analysis was conducted by another independent professional.

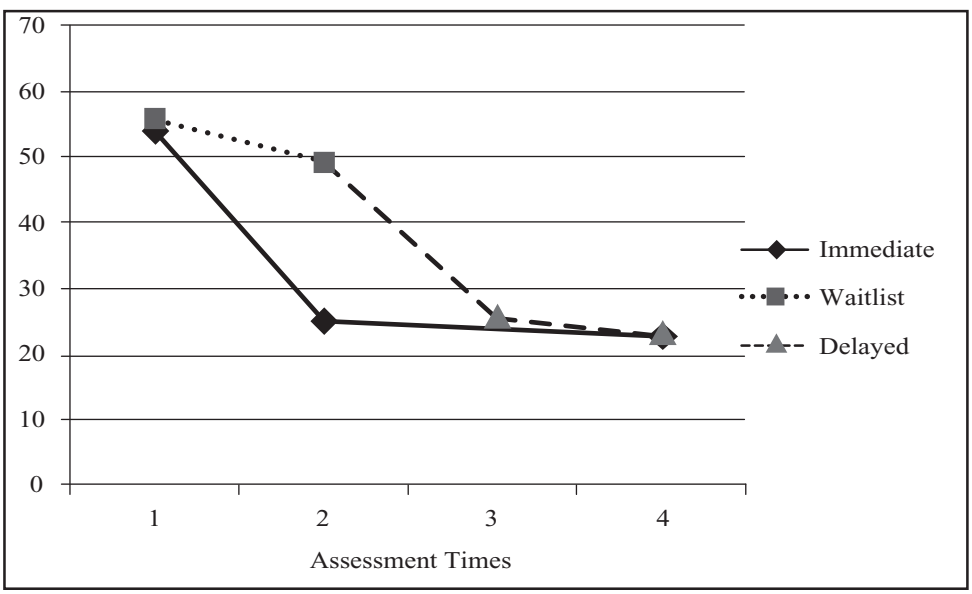

FIGURE 1. Mean Impact of Event Scores.

Treatment

Crisis Management Briefing Intervention. The CMB intervention (Everly, 2000) is one component of the Critical Incident Stress Management (CISM) crisis intervention system, a comprehensive, integrative, and multicomponent approach to crisis response (Everly, Flannery, & Eyler, 2000). The CMB is a practical 4-phase group crisis intervention. It is highly efficient, requiring from 45 to 75 minutes to conduct and may be used with large groups consisting of 10 to 300 individuals. Although it was designed to be used with primary victim civilian populations in the wake of terrorism, mass disasters, violence, and other large-scale crises, it may have applicability in other settings with other populations, as well. The CMB is designed to be used within a comprehensive CISM framework and should not be used as a "stand-alone" intervention. Assessment and referral for continued psychological care is one of the core components of the CISM approach.

The CMB phases are:

Phase 1: Groups of individuals who have experienced a common crisis event are assembled.

Phase 2: The most appropriate and credible sources/authorities explain the *facts* of the crisis event.

Phase 3: Credible health care professionals discuss the most common *reactions* (signs, symptoms, and psychological themes) that are relevant to the particular crisis event.

Phase 4: The professionals teach personal coping and self-care strategies that may be of value in mitigating the distressing reactions to the crisis event. Simple and practical *stress management* strategies are discussed. Community and organizational *resources* available to facilitate recovery are introduced. Questions are actively entertained as appropriate.

EMDR-PRECI (as described previously) was administered to 18 participants whose scores on the IES exceeded 44. Immediate treatment group participants received treatment on April 20, with sessions lasting between 80 and 130 minutes. The waitlist/delayed treatment group received treatment on April 28, with sessions lasting between 85 and 125 minutes.

Results

Pre-EMDR-PRECI Symptoms

The IES initial screening average scores on April 19 placed the immediate treatment group (mean = 54.22) and waitlist/delayed treatment group (mean = 55.67) participants in the high distress range, indicating a high level of psychological distress to a stressful life event. There were no significant differences between the groups at pretreatment (Time 1), $t(16) = -1.10$, $p > .29$.

During EMDR-PRECI's history-taking phase, the participants mentioned at least three of the following symptoms: flashbacks; nightmares (e.g., of the ceiling falling or of running while the house collapses); waking up in terror, thinking the earthquake is happening; fears of dying in the next earthquake; loss of future (e.g., "Why plan for the future if I can die or lose everything in seconds?"); impaired concentration; memory problems; fears about the structural safety of houses and schools (e.g., sleeping in the backyard, not sending children to school, carefully examining buildings before entering); repetitive thinking (rumination); emotional dysregulation (e.g., anxiety, anger, panic attacks, depression); and physical symptoms (body itching, loss of appetite, headaches, diarrhea, vomiting, feeling the earth is moving, hyperarousal).

These symptoms coincide with the symptoms by Jarero during his 1-month work in Haiti after the January 2010 earthquake. Other symptoms he observed in Haiti because of the terrible devastation (North Baja California, Mexico did not suffer such consequences) were profound loss of hope because of their loss of home, work (no money to survive), school, and church to find spiritual comfort; being unable to assimilate that they could not properly bury their loved ones who were under tons of rubbish; fear about the future because of insecurity, criminality, and pandemic diseases; and afraid of becoming crazy like people who were in the streets still screaming.

Symptom Improvement

The immediate treatment group showed a significant decrease in IES scores between pretreatment (Time 1) and posttreatment (Time 2), $t(8) = 13.19$, $p < .001$, whereas the waitlist/delayed treatment group showed no improvement between Time 1 and Time 2 (see Table 5). A comparison of the two groups shows the immediate treatment group with significantly greater improvement at posttreatment (Time 2) on the IES measure, compared with the waitlist/delayed treatment group at Time 2, $t(16) = -7.79$, $p < .001$. These findings suggest that the effects of time and the previous CMB intervention were insufficient to alleviate waitlist/delayed treatment group participants' distress, whereas one session of EMDR-PRECI made a significant change for the immediate treatment group.

Provision of EMDR-PRECI for the delayed treatment group showed similar effects to that achieved

TABLE 5. Scores on the Impact of Event Scale

	Means (*SD*) at Pre-Tx	Means (*SD*) at Post	Means (*SD*) Follow-up
Immediate treatment ($N = 9$)	54.22 (11.00)	24.89 (4.83)	22.67 (4.85)
Waitlist/delayed treatment ($N = 9$)	55.67 (8.37)	49.22 (8.03)	
	49.22 (8.03)	25.33 (4.74)	22.78 (5.47)

in the immediate treatment group. There was a significant decrease in IES scores between pretreatment (Time 2) and posttreatment (Time 3), $t(8) = 15.88$, $p < .001$. A comparison of the posttreatment scores for the immediate and waitlist/delayed treatment groups shows equivalent effects, $t(16) = -.20$, $p > .85$.

Follow-up was conducted for both immediate and waitlist/delayed treatment groups at 12 weeks. There was a significant difference between pretreatment (Time 1) and follow-up (Time 4) for the immediate treatment group, $t(8) = 13.992$, $p < .001$, and a significant difference between pretreatment (Time 2) and follow-up (Time 4) for the waitlist/delayed treatment group, $t(8) = 20.82$, $p < .001$. A comparison of the follow-up scores for the two treatment groups found no differences, $t(16) = -.046$, p w$> .96$. These effects at follow-up are especially significant, given the continuing aftershocks and media catastrophizing.

Discussion

This study was a randomized, controlled group field study, with treatment provided in a natural setting to a group of adults after a 7.2 earthquake, during a period of frequent aftershocks. The treatment was provided as part of a continuum of care, an approach strongly recommended by the authors. The first step in the continuum of care is crisis intervention work, and in this study, all 53 employees were provided with CMB. Following that intervention, and in accordance with continuum of care principles, an evaluation was conducted to identify those individuals requiring more comprehensive care. These individuals were provided with EMDR-PRECI, in two groups: immediate treatment group and waitlist/delayed treatment group.

No evaluation of the CMB intervention was conducted; however, it is apparent that the CMB intervention was insufficient for the more highly distressed participants who were placed in the waitlist/delayed treatment group. Their symptoms did not improve between Time 1 and Time 2.

The results indicated that one session of EMDR-PRECI produced significant improvement on measures of posttraumatic stress for both the immediate and waitlist/delayed treatment group, with results maintained at 12-week follow-up. This maintenance of effects indicates that the treated event was no longer disturbing to the participants, even though the aftershocks were still ongoing. This is consistent with the hypothesis that follows from Shapiro's (2001) AIP model: Thoroughly processing a disturbing memory changes the way that the experience is stored in memory, so that distress is no longer triggered by similar events. The development of resilience was not evaluated in this study because we did not assess whether subsequent similar incidents created less distress for the participants. It is possible that resolving initial distress may have increased resilience, so that the participants would have been less disturbed by subsequent similar events (Jarero & Artigas, 2010).

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 posttraumatic response by reducing symptoms of posttraumatic stress and maintaining those effects despite ongoing threat and danger. The possibility of using this modified EMDR protocol as one component of a comprehensive system of postdisaster interventions has important global implications (Shapiro, 2009a). Some of the benefits include the transportability and time effectiveness—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 et al., 2005).

Future research is needed to investigate the effectiveness and utility of EMDR-PRECI. Several uncontrolled and preliminary trials were conducted previously in Haiti, the Caribbean, and Latin America over a period of several years. New research is now occurring in México and Colombia, collecting data for the use of this protocol in what Jarero calls "urban disasters," provoked by narcowar, guerrilla, and paramilitary operations with grenade attacks, kidnapping, murder, rape, and so forth.

Bryant (2007) wrote that "there is a need to develop better early interventions that acutely traumatized

people can tolerate and respond to" (p. 24). It is our hope that EMDR-PRECI can become a tool to decrease suffering and bring peace and resolution to people around the world.

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