

Benefits of Immediate EMDR vs. Eclectic Therapy Intervention for Victims of Physical Violence and Accidents at the Workplace: A Pilot Study

Marie-Jo Brennstuhl, PhD, Cyril Tarquinio, Professor, Lionel Strub, PhD, Sebastien Montel, Professor, and Jenny Ann Rydberg, PhD

Université de Lorraine, Psychology of Health Team, Metz, France

Zoi Kapoula, Professor

Hôpital Européen Georges Pompidou, Service d'Ophthalmologie-ORL-Stomatologie, Paris, France

This study focuses on 34 victims of aggression at the workplace, less than 48 hours following the incident of aggression. We compared victims who received an EMDR emergency protocol (URG-EMDR; $n = 19$) that we developed with those who received a method of intervention called eclectic therapy ($n = 15$). The results show that URG-EMDR therapy, provided within 48 hours, resulted in a greater decrease in perceived stress and a lower PCL-S score than eclectic therapy did. The scores were lower in both groups after 24 hours, and after 3 months, the drop was significantly greater among the victims treated with the URG-EMDR protocol; none of the EMDR-treated patients exhibited symptoms of posttraumatic stress.

More and more research is being conducted on violence at the workplace (Tragno, Duveau, & Tarquinio, 2007). Workplace violence includes homicide, assault, threats, verbal abuse, and other behaviors that create an environment of fear, and also includes stalking, degrading or violent initiation rites, and behaviors that lead to severe stress or avoidance behavior in the victim (National Occupational Health and Safety Commission [OHSC], 1999). In 10% to 18% of the cases, victims of this kind of violence will develop PTSD (Flannery, 1995, 1996; Teegen, 2002; Warshaw & Messite, 1996).

Acute stress disorder (ASD) was introduced into the *DSM-IV* (American Psychiatric Association, 1994) in order to identify survivors who are in the acute phase of stress after exposure to trauma and who are, thus, at a high risk for developing posttraumatic stress disorder (PTSD) (Harvey & Bryant, 2002). After an episode of workplace violence, a victim can manifest several types of disorders; the most prototypical ones are ASD and PTSD (VanderBos & Bulatao, 1996). The presence of

ASD or subsyndromal ASD is one of several factors that has been observed to increase the risk of developing PTSD (Bryant, Creamer, O'Donnell, Silove, & McFarlane, 2012; Harvey & Bryant, 1998; Marmar, Weiss, Metzler, & Delucchi, 1996). The rationale for having a predictive index for PTSD is that the majority of people who experience posttraumatic stress reactions in the initial weeks after trauma can show a reduction of symptoms in the months that follow (Bryant, 2003). *DSM-IV* defines ASD as experiencing a fearful response to having lived through or witnessed a threatening event (Cluster A), exhibiting three dissociative symptoms (Cluster B), having a re-experiencing symptom (Cluster C), marked avoidance (Cluster D), marked anxiety or arousal (Cluster E), and evidence of significant distress or impairment (Cluster F). The disturbance must last for at least two days and at most four weeks (Cluster G). A major focus in diagnosing ASD is the emphasis placed on peritraumatic dissociation.

The introduction of ASD led to the development of early intervention programs aimed at preventing PTSD in those most likely to suffer from this condition. In the first ASD treatment study (Bryant, Harvey, Sackville, Dang, & Basten, 1998), five sessions of either Cognitive Behavioral Therapy (CBT) or supportive counseling (SC) were provided to civilian trauma survivors who met the criteria for ASD. CBT involved educating the victim about reactions to trauma, breathing retraining, progressive muscle-relaxation training, self-talk exercises to manage anxiety-producing situations, prolonged imaginal and in vivo exposure, and cognitive therapy. This preliminary evidence suggests that PTSD can be effectively treated by CBT (Bryant et al., 1998).

The effectiveness of Eye-Movement Desensitization and Reprocessing (EMDR) in treating PTSD was demonstrated in 16 randomized control tests that showed that EMDR was more effective than the absence of treatment (Wilson, Becker, & Tinker, 1995; Wilson, Silver, Covi, & Foster, 1996) and more effective

Address correspondence to Cyril Tarquinio, Université de Lorraine, Research Section APEMAC UE 4360, Psychological and Epidemiological Approaches to Chronic Diseases, Psychology of Health Team, Metz, France. E-mail: cyril.tarquinio@univ-lorraine.fr

than pharmacology alone (Van der Kolk et al., 2007). EMDR was shown to be as effective as behavioral or cognitive-behavioral methods (Rothbaum, Astin, & Marsteller, 2005). These findings have been corroborated by the results of five meta-analyses (Bisson & Andrew, 2007; Bradley, Greene, Russ, Dutra, & Westen, 2005; Davidson & Parker, 2001; Maxfield & Hyer, 2002; Van Etten & Taylor, 1998).

Two types of intervention for treating such victims can be distinguished: preventative methods, which tend to be implemented rapidly in order to stop the expression of trauma as early as possible, and curative methods, whose objectives are to treat the trauma itself. EMDR therapy is mainly a curative method. However, numerous studies have pointed out the merits of having a more preventive approach, such as an early intervention method using emergency protocols (within the first few hours) or protocols addressing recent events (2 days to 3 months after the incident). The aim of emergency interventions is to achieve rapid treatment, as in defusing or psychological debriefing (Mitchell & Everly, 2000). An emergency approach based on EMDR treatment using various protocols has been proposed by several authors (Quinn, 2007, 2009; Shapiro & Laub, 2008; Tarquinio, Brennstuhl, Reichenbach, Rydberg, & Tarquinio, 2012).

The therapeutic method proposed in this study is part of the emergency-protocol tradition. The study focuses on victims of aggression at the workplace in the hours following the incident (less than 48 hours), based on an emergency protocol we developed and called URG-EMDR (URG stands for "Urgences" in French, translated "Emergency"). We compared this intervention procedure with a method called eclectic therapy ("our control group"), in order to determine their respective effects on measures of total Posttraumatic Checklist Scale (PCL-S), intrusion, avoidance, and neurovegetative activation and on the subjective unit of distress (SUD) score, 24 hours after the intervention and then three months later. The PCL-S (Weathers et al., 1993) is a brief self-report inventory that assesses the 17 symptoms of PTSD. The SUD (Subjective Unit of Distress scale) is a Likert-type scale that indicates the level of distress caused by the event (Wolpe, 1990; Wolpe & Abrams, 1991). Our two main hypotheses were (a) that the decrease in the total PCL-S score as well as the intrusion, avoidance, and neurovegetative activation scores and the SUD scores would be significantly greater in the group treated with the URG-EMDR protocol than in the eclectic therapy group; and (b) that the decrease in the various scores would remain stable in the URG-EMDR group after 24 hours (short-term) and after three months (medium-term).

METHOD

Participants

Thirty-four victims participated in the study. They were divided into two groups (19 in the URG-EMDR group and 15 in the eclectic therapy group). Twenty (58.8%) participants were employees in large-scale retailing or in a local store and 14

(41.2%) were civil service employees. The inclusion criteria for this study required that participants (a) be a victim of an act of aggression on the job that prevented them from working; (b) exhibit the symptoms of ASD as listed in *DSM-IV*; (c) have clinical manifestations that could be attributed to the workplace aggression event and for which a consultation took place within 48 hours; (d) be first-time victims of violence or of a potentially traumatic event; (e) speak and understand French; (f) be between 18 and 60 years of age; and (g) be willing to participate in the study and sign a consent form. The exclusion criteria were: (a) having schizophrenia, bipolar disorder, depression with psychotic features, substance dependence, or delusional disorder, as defined by *DSM-IV*; (b) currently taking any kind of medication (e.g., antidepressant or anti-anxiety medication); and (c) reporting suicidal ideation judged to be sufficiently serious to require immediate psychiatric treatment or hospitalization. See Table 1 for more information about the participants in this study.

To determine eligibility for the study, recent victims were assessed by a psychologist who had a Master's degree and was trained in conducting structured interviews of assault victims. The participants in the URG-EMDR group were assessed between June 2010 and November 2011; those in the control group, between November 2010 and February 2011. The participants in the eclectic therapy group were selected to match the URG-EMDR group participants on the following variables: (a) initial ASD symptom severity (identified after an interview with the victim in conformity with the symptoms of *DSM-IV* (1994)), (b) type of assault, (c) demographics, and (d) time since assault (under 48 hours). Initially, 45 individuals (see Figure 1) were chosen to be part of the EMDR therapy group, but 11 were excluded because they did not meet the inclusion criteria; four of those excluded had already experienced potentially traumatic incidents and seven stopped before the end of the study and did not answer the researchers' requests after 24 hours or 3 months. Note that the persons not included in the study did undergo psychotherapy, as initially requested (support therapy, EMDR, CBT, etc.).

We chose follow-up after 24 hours and after 3 months in order to see whether the effects were sustained over time and, more particularly, to find out if PTSD had set in.

The personnel departments of the companies who agreed to participate in this study contacted us a few hours after a violent incident occurred. We then called the victim in order to set up a meeting to propose treatment using the URG-EMDR protocol, explaining that the aim of the study was to evaluate treatment for victims of workplace violence. The protocol was explained orally and in writing. Based on the information provided, each participant gave his or her consent to be included in the study. Beforehand, we had obtained the agreement of any necessary individuals in the company (e.g., from management, human resources, and employee organizations). The confidentiality and the anonymity of the results were guaranteed for all of the employees of the two groups. Thus, what was said during the therapeutic process (URG-EMDR and eclectic protocols) was not disclosed. As stated above, the participants of this

TABLE 1
 Characteristics of the Participants of the URG-EMDR Group vs. the Eclectic Group

Variables	URG-EMDR Group (<i>n</i> = 19)	Eclectic Group (<i>n</i> = 15)	Comparison
Type of Trauma			$X^2 = 0.35$, <i>df</i> = 4, <i>n.s.</i>
Robbery	6	5	
Threatened at Knifepoint	4	2	
Physical Aggression	9	8	
Age (<i>SD</i>)	33.6 (6.5)	32.2 (4.7)	$t = 0.6$, <i>df</i> = 32, <i>n.s.</i>
Gender			$X^2 = 1.9$, <i>df</i> = 1, <i>n.s.</i>
Male	14	10	
Female	5	5	
Nationality			$X^2 = 3.5$, <i>df</i> = 1, $p < .10$
French	15	15	
EEC	4	0	
Marital Status			$X^2 = 1.8$, <i>df</i> = 2, <i>n.s.</i>
Married	9	7	
Coupled	2	4	
Single	8	4	
Educational Level			$X^2 = 7.6$, <i>df</i> = 3, $p < .05$
Junior High School	5	3	
Technical School	11	6	
High School	0	5	
> High School	3	1	
Previous Psychiatric History			$X^2 = 0.09$, <i>df</i> = 1, <i>n.s.</i>
Yes	6	4	
No	14	11	
Seniority (Years [<i>SD</i>])	8.5 (2.7)	7.9 (4.6)	$t = 0.4$, <i>df</i> = 32, <i>n.s.</i>
Status			$X^2 = 3.06$, <i>df</i> = 1, <i>n.s.</i>
Manager	1	4	
Employee	18	11	
Time Since Trauma (Hours [<i>SD</i>])	35.05 (11.3)	30.53 (7.8)	$t = 1.3$, <i>df</i> = 32, <i>n.s.</i>
12–24 Hours	3	4	
25–48 Hours	16	11	$X^2 = 2.07$, <i>df</i> = 2, <i>n.s.</i>

EEC = European Economic Community.

study volunteered to undergo treatment and to participate in the study.

For the eclectic therapy group, the idea was to provide a more conventional approach integrating theory, method, and techniques that were relatively consistent with standard psychotherapy methods. Although the EMDR protocol has been standardized to some extent, this is obviously not true of more eclectic approaches, which, by definition, are more heterogeneous. There are two good reasons for comparing EMDR with a more eclectic kind of therapy. First, the latter approach is still the most widespread in the practices of psychologists and psychotherapists, who, while claiming to use clearly established approaches (CBT, hypnosis, supportive

counseling, psychodynamics), are usually forced to adapt their approach to fit each individual patient's situation and the presenting problem's progression over time. Second, eclectic therapy has proven effective in reducing trauma symptoms in adult survivors in both group and individual settings (Bowen, Shelley, Helmes, & Landman, 2010; Regel, 2007).

As in Edmond, Sloan, and McCarty's (2004) study, each therapist made individual choices as to the specific intervention approaches used in any given session, based on the unique needs of each victim. The types of treatment used in the course of the study included emotional support, information, interpretation, and relaxation exercises. Three experienced psychotherapists (at least five years of clinical practice) worked with the patients in

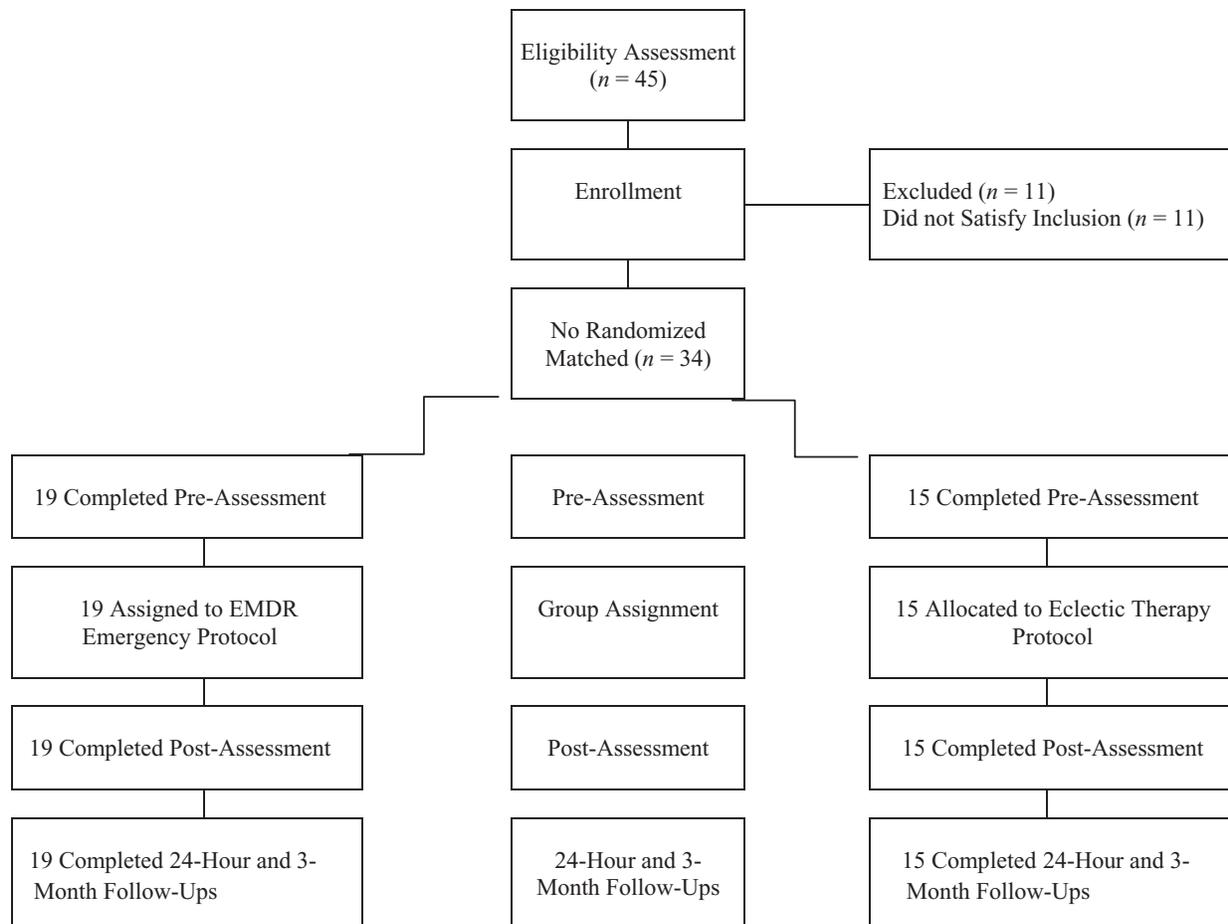


FIGURE 1. Consort Flowchart

this group. None of them was involved in the therapy provided to the patients in the URG-EMDR group.

Independent Assessments

Evaluation was done by two independent assessors who had Master's degrees in psychology. Both were experienced in evaluating treatment outcomes and were unaware of group assignments. Participants in both groups were evaluated three times: (a) within the first few hours after the assault (pretest phase), (b) 24 hours after the pretest phase, and (c) 3 months post-assault.

Measures

The participants answered questions on several scales during the pretest phase.

Posttraumatic Checklist Scale

The PCL-S (Weathers et al., 1993), developed by a research team from the National Center for Posttraumatic Stress Disorder, is a brief self-report inventory that assesses the 17 symptoms of PTSD. Initial psychometric data showed that the PCL-S correlates well with the the Clinician Administered PTSD Scale

(CAPS) (Blake et al., 1990; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996). The PCL-S was tailored for veterans with combat-related trauma. A score above 50 indicates a strong presumption of the presence of PTSD (McFall, 1990). We used the version of the PCL-S translated into French by Yao, Cottraux, Note, De Mey-Guillard, Mollard, and Ventureya (2003).

Total Subjective Unit of Distress Scale (SUD; Wolpe, 1990; Wolpe & Abrams, 1991.)

The SUD is a Likert-type scale that indicates the level of distress caused by the traumatic episode in its entirety. Respondents answer the following question (derived from Shapiro and Laub's [2008, 2009] Recent-Traumatic Episode Protocol (R-TEP), an emergency approach based on EMDR treatment). "You have just reviewed everything that happened before your eyes (the whole episode related to the event). How do you rate your distress now, on a scale ranging from 0 (no distress at all) to 10 (worst distress that you can imagine)?" The scale provides a highly subjective rating of what the victim feels when asked to go over the entire violent episode of which he or she was a victim. In the present study, we measured the total SUD score of patients in both groups on the pretest and on two posttests.

We decided to use the total SUD score as the main dependent variable in our study because we think it supplies a rapid, accurate, and revealing assessment of the patient's feelings following an incident.

In keeping with the EMDR protocol, the therapists were then required to obtain a SUD score ranging from 0 to 10, for each patient and for each specific traumatic memory being targeted for treatment (called a "target" memory in EMDR). They did so while eliciting the target memory, and then again after each set of sensory stimulations (patients were not asked to return to the target memory but simply to rate their current level of disturbance following the stimulation).

The three professionals intervening in the context of this study were all trained in EMDR therapy and were accredited European EMDR practitioners. They all applied the protocol presented in Table 2. The average duration of URG-EMDR treatment (phases 3 to 6) was 1 hour and 31 minutes.

The EMDR emergency treatment protocol (URG-EMDR) was revised and perfected after several months of use. It cannot be considered an original contribution, but rather as an integrative approach that combines the key points of the basic protocol (Shapiro, 1995, 2001), the Recent Event Protocol (Shapiro, 2001), the R-TEP Protocol (Shapiro & Laub, 2008, 2009), the Modified Abridged EMDR Protocol (Kutz et al., 2008), and the Emergency Response Procedure (Quinn, 2009), as well as certain psychological debriefing principles (Table 2). In addition, some awkward and complex aspects that are not always suitable for the immediate treatment of victims were avoided. The protocol was developed because of difficulties encountered in applying other approaches in the context of early treatment. Being too unwieldy, too complex, and requiring an overly canonical approach, other models did not always fit our purposes. We developed the URG-EMDR protocol in order to have a tool that would be more flexible and more suited to the situations we encounter.

RESULTS

The results were processed with SPSS 19.0 software. An analysis of variance (ANOVA) with repeated measures was used in line with the experimental design of the participant groups (URG-EMDR vs. eclectic therapy group) and the evaluation phases (pretest vs. 24-hour follow-up vs. 3-month follow-up). This type of analysis was preferred to a MANOVA because of the small size of our samples and because the dependent variable did not always exhibit strong correlations, depending on the assessment phase. Mauchly's sphericity test (Mauchly's $W = .329$, $df 2$, $p < .001$) was significant, which is often the case with small samples (type II error). We therefore applied the Greenhouse-Geisser (1959) correction of the degrees of freedom for all results presented.

There were no pre-treatment differences between groups on any measures. The mean pre-treatment score on the total PCL-S

scale was 51.32 ($SD = 11.2$). All participants obtained a score above 50, which indicates a strong presumption of the presence of PTSD (McFall, 1990). See Table 3 for additional descriptive statistics.

For the total score obtained on the PCL-S, significant effects of the assessment phase ($p < .001$) and participant group ($p < .001$), and an interaction between these two variables ($p < .001$), were found (see Table 4). Pair-wise comparisons across phases for patients treated with EMDR therapy indicated a significant drop in the PCL-S score between the pretest and the follow-ups after both 24 hours ($t = 8.3$, $p < .001$) and 3 months ($t = 8.8$, $p < .001$). There also was a difference between the results of the 24-hour and 3-month posttests ($t = 2.6$, $p < .01$). Similar differences were observed, although less marked, for the eclectic therapy group, after 24 hours ($t = 3.5$, $p < .004$) and after 3 months ($t = 2.5$, $p < .05$).

The PCL-S intrusion scores went in the same direction as above, with significant effects of assessment phase ($p < .001$) and group ($p < .001$), and an interaction between the two ($p < .001$). Pair-wise comparisons across phases for the EMDR group yielded a significant decrease in the intrusion score between the pretest and the posttests at 24 hours ($t = 6.08$, $p < .001$) and 3 months ($t = 6.3$, $p < .001$) later. There was no difference, however, between the two posttest scores ($t = 1.7$, n.s.). For the eclectic therapy group, the only significant difference was between the 24-hour posttest and the 3-month posttest ($t = 5.4$, $p < .001$).

The PCL-S avoidance scores revealed the same significant effects: assessment phase ($p < .000$), group ($p < .001$), and their interaction ($p < .001$). Pair-wise comparisons of the phases for the EMDR patients indicated a significant decline in the avoidance score between the pretest and the posttests, after 24 hours ($t = 8.2$, $p < .000$) and after 3 months ($t = 10.9$, $p < .001$). The 24-hour and 3-month scores also differed significantly from each other ($t = 2.9$, $p < .01$). For the eclectic therapy group, a difference was observed between the pretest and both follow-up tests: 24 hours later ($t = 2.5$, $p < .05$) and 3 months later ($t = 4.9$, $p < .000$). That said, the difference between the two posttest scores was not significant.

The neurovegetative activation scores on the PCL-S were comparable to the preceding ones, with an assessment-phase effect ($p < .000$), a group effect ($p < .001$), and an interaction between the two ($p < .001$). Pair-wise comparisons of the phases for the EMDR therapy group showed a significant difference between the pretest and the 24-hour ($t = 6.3$, $p < .000$) and 3-month ($t = 6.9$, $p < .000$) posttests. This score decreased significantly between the two posttests ($t = 2.1$, $p < .05$). No significant differences between the assessment phases were found for the eclectic therapy group.

The PCL-S and total SUD scores both decreased after 24 hours and after 3 months. The effect sizes measured with Cohen's d were greater for the EMDR group than for the eclectic group (see Table 3).

Finally, an analysis using the Bonferroni test clearly showed that the difference between the two groups after 24 hours was

TABLE 2
General Description of the Six Phases of the URG-EMDR Protocol Used in the Study

Phases of the URG-EMDR Protocol	
Phase 1	<p>Assessment of the patient's condition and brief history-taking: The purpose of this phase is to obtain information about the participant's clinical condition:</p> <ul style="list-style-type: none"> * Participant's general state in terms of symptoms (identification of psychoaffective changes since the traumatic episode, etc.) * Evaluation of the participant's affective, social, and family context (social and affective support) <p>General presentation of the traumatic episode by the participant. The psychotherapist must be satisfied with the overall view of the situation.</p>
Phase 2	<p>General information about psychological trauma and presentation of the URG-EMDR protocol: The participant is informed about the potential psychological effects of workplace violence (such as that experienced by the participant). This step is similar to what is done during psychological debriefing (Mitchell & Everly, 1993, 2000). The victim is given psychoeducational information that provides a picture of EMDR therapy in general, and of the URG-EMDR protocol in particular.</p>
Phase 3	<p>Recalling the traumatic episode: The participant is asked to imagine that the traumatic episode (the violent workplace event) which he/she experienced was taped in his/her memory as if it were a movie. He/she is then asked to rewind the "film" back to the beginning, and even to the moment just before the beginning (taken from R-TEP, Shapiro & Laub, 2008, 2009). The patient is then asked to view this "film" and to imagine that he/she has a virtual remote control that can be used to stop, go forward, or go backward in the film. Whenever the participant comes to an aspect of the episode (see point of disturbance in R-TEP; Shapiro & Laub, 2008, 2009) that generates negative emotions (examples of points of disturbance for a single traumatic event: the aggressor's entry into the store, the sight of the weapon, etc.), he/she can stop the unfolding of the episode in his/her mind. A single traumatic episode, then, can have several critical points that vary in emotional weight. All points of disturbance are treated using the URG-EMDR protocol. Explicit goals of the URG-EMDR protocol are to rapidly reduce the emotional and somatic loads of each disturbance point, and then, as a side-effect, to reduce the emotional load of the traumatic episode in its entirety.</p>
Phase 4	<p>Measure of total SUD: To verify the total SUD score of the entire traumatic episode, the participant is asked the following question (derived from Shapiro and Laub's [2008, 2009] R-TEP, although not occurring in the same phase of the protocol): "You have just reviewed everything that happened before your eyes (the whole episode related to the event). How do you rate your distress now, on a scale ranging from 0 (for no distress at all) to 10 (for the worst distress you can imagine)?"</p>
Phase 5	<p>Desensitization of points of disturbance: Each point of disturbance is seen as a target for desensitization. In preparation for the desensitization, the psychotherapist identifies:</p> <ul style="list-style-type: none"> * The emotion: "When you return to this critical point (e.g., the sight of the weapon), what emotions do you feel? (There can be several.) * The SUD score for the specific target: "When you think about this critical point (e.g., the sight of the weapon), how do you rate yourself now on a scale from 0 to 10, with 0 for no distress at all, and 10 for the worst distress you can imagine?" * The sensation in the body: "Where do you feel this disturbance in your body?" <p>Next, the participant follows the bilateral movements of the therapist's fingers from left to right with his/her eyes. This series of movements lasts for one or more minutes, depending on the participant's reactions (about 80 to 85 back-and-forth movements per minute, which is quite fast). All sorts of reactions can appear during this phase (memories, awareness, diverse associations, body sensations, emotions, etc.). At each pause between two series of bilateral movements, the patient reports "what he/she is thinking about or what comes to mind, or what he/she is feeling on an emotional or physical level" during the period of drifting attention that accompanies eye movements. Intermediate SUD scores are recorded after each series of bilateral movements:</p> <ul style="list-style-type: none"> * If the associations are linked to the point of disturbance being targeted (e.g., the sight of the weapon), the participant is asked to continue and to concentrate on the lateral movements. * If the associations are not linked to the point of disturbance (e.g., linked to another aspect of the patient's life, another problematic situation, etc.), the patient is asked to return to the target (e.g., the sight of the weapon), as proposed by Kutz et al. (2008). Each return to the target is accompanied by a verification and the assignment of an intermediate SUD score.

* When the values of the intermediate SUD scores go down to 2 or 3, one can then go on to the next point of disturbance. It is difficult, of course, to obtain intermediate SUD scores of 0 at this stage because there are usually other critical points to process, so an emotional load is still present. The patient is then asked to resume the traumatic episode right after the point of disturbance just processed (e.g., the sight of the weapon) and to stop visualizing the episode as soon as another point disturbs him/her with a manifest emotional load or a substantial level of perturbation.

* All points of disturbance are processed one after the other, following the same procedure.

Phase 6

Verification of the final total SUD score for the entire traumatic episode: Once all of the points of disturbance have been processed, the patient is asked to go over the entire episode by returning to each disturbance point processed in Phase 5. "You have just reviewed everything that happened before your eyes (the whole episode related to the event). How do you rate your distress now, on a scale ranging from 0 (for no distress at all) to 10 (for the worst distress you can imagine)?"

The goal is not necessarily to get down to a SUD of 0, but it is imperative to obtain a final total SUD score at least three times lower than the initial one. If this is not the case, it is then recommended to return to the most problematic points of disturbance, that is, those that still have an overly high individual SUD score.

TABLE 3
Means and SDs of Self-Report Measures in the URG-EMDR ($n = 19$) and Eclectic Group ($n = 15$) on the Pretest, 24-hour Follow-Up, and 3-Month Follow-Up

Variable Group	Pretest	24-Hour Follow-Up	3-Month Follow-Up	Cohen's d	
				a	b
Total PCL-S					
EMDR Group	51.2 (11.2)	27.3 ^a (6.3)	25.5 ^a (5.4)	2.7	3.04
Eclectic Group	51.46 (11.5)	49.1 ^b (9.9)	36.3 ^b (8.7)	0.19	1.51
Cohen's d		2.66	1.64		
PCL-S Intrusion					
EMDR Group	14.8 (4.2)	8.5 ^a (2.01)	8.1 ^a (1.8)	1.9	1.85
Eclectic Group	15.1 (4.1)	15.5 ^b (3.3)	13.6 ^b (2.9)	0.1	0.41
Cohen's d		2.55	2.27		
PCL-S Avoidance					
EMDR Group	20.2 (4.5)	10.3 ^a (3.5)	9.4 ^a (3.1)	2.5	2.79
Eclectic Group	19.4 (4.6)	16.6 ^b (4.1)	16.06 ^b (4.2)	0.64	0.75
Cohen's d		1.6	1.8		
PCL-S Neurovegetative					
EMDR Group	16.1 (4.2)	8.4 ^a (2.3)	8.1 ^a (1.9)	3.16	3.37
Eclectic Group	16.9 (4.5)	17.0 ^b (4.1)	16.06 ^b (4.2)	0.02	0.19
Cohen's d		2.58	2.4		
Global SUDs					
EMDR Group	7.8 (1.1)	1.7 ^a (1.1)	2.5 ^a (0.84)	5.54	5.41
Eclectic Group	8.3 (1.2)	7.7 ^b (0.9)	7.73 ^b (0.91)	0.56	0.53
Cohen's d		5.97	5.9		

Note. Means in the same column that do not share the same subscript differ at a Bonferroni corrected alpha level of $p < .05$.

ES = effect size; Total PCL-S = total score on posttraumatic checklist scale; PCL-S intrusion = posttraumatic checklist scale, intrusion subscale; PCL-S avoidance = posttraumatic checklist scale, avoidance subscale; PCL-S neurovegetative activation = posttraumatic checklist scale, neurovegetative subscale; SUD = Subjective Unit of Distress.

For calculating Cohen's d, column "a" indicates the value between the pretest and the 24-hour follow-up; column "b" indicates the value between the pretest and the 3-month follow-up.

TABLE 4
Analysis of Variance (Pretest, 24-Hour Follow-Up, 3-Month Follow-Up) x Group (EMDR, Eclectic)

Variables	Phase of Evaluation (df 1.197, 38.3)		Group (df 1, 32)		Phase of Evaluation x Group (df 1.197, 38.3)	
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>
Total PCL-S	40.8	<.001	29.7	<.001	17.1	<.001
PCL-S Intrusion	24.27	<.001	22.26	<.001	16.5	<.001
PCL-S Avoidance	38.17	<.001	12.8	<.001	11.41	<.001
PCL-S Neurovegetative	20.4	<.001	30.6	<.001	13.57	<.001
SUD	84.42	<.001	255.84	<.001	54.25	<.001

statistically significant on every score. The EMDR-treated group got lower scores than the eclectic therapy group did. This result was maintained after three months, which argues for effect stability. Moreover, the effect sizes remained stable over time, suggesting outcome reliability.

DISCUSSION

The aim of this study was to test a new protocol for early treatment of victims of aggression or violence at the workplace. The protocol was designed to reduce psychological distress following the experience of the event, alleviate the acute symptoms of posttraumatic stress, and show that this kind of early treatment can help prevent the onset of a posttraumatic stress disorder.

In line with our hypotheses, URG-EMDR therapy within 48 hours resulted in a greater decrease in perceived stress (SUD) and a lower PCL-S score than eclectic therapy did. Moreover, the follow-up assessment three months later indicated long-term benefits of this approach; unlike the patients in the eclectic therapy group, none of the EMDR-treated patients exhibited symptoms of posttraumatic stress. Differences were found on every score of the PCL-S scale (i.e., total PCL-S, intrusion, avoidance, and neurovegetative activation).

Although the scores were lower in both groups after 24 hours and after 3 months, the drop was significantly greater among those treated with the URG-EMDR protocol.

Thus, early treatment based on an EMDR protocol seems to be an interesting approach for improving the psychological well-being of victims. It is critical to consider early psychological intervention (EPI), especially when an acute stress disorder (or acute PTSD) is diagnosed. ASD is shown to be a high risk factor of PTSD. Even when there is no ASD, the sensitization and kindling phenomena described by McFarlane (2010) still exist. It seems, then, that EPI can contribute to preventing late-onset PTSD, even in the absence of ASD or PTSD after three months.

This approach can contribute to reducing victim suffering, which is known to be considerable right from the beginning of the traumatization process. There are various arguments in favor of looking into—and taking—preventive therapeutic ac-

tions before the psychotrauma settles in (Boscarino, Adams, & Figley, 2005; McFarlane & Bryant, 2007; Stergiopoulos, Cimo, Cheng, Bonato, & Dewa, 2011). EMDR therapy can rise to this challenge via short, appropriate, and easy-to-use protocols. Implementing the URG-EMDR protocol in the first few hours after the traumatic event can help stabilize victims (reduce arousal, reassure them that they are safe) and limit the intensity of the intrusive symptoms, avoidance behaviors, and neurovegetative symptoms typical of PTSD. In talking about the traumatic episode, the individual is not asked to describe or elaborate upon his or her experience. The goal is deeper, because it concerns avoiding, reducing, or absorbing the eventual traces that such a shock can leave in the victim's memory. Specialists of debriefing know how it can sometimes be difficult for victims to verbalize their traumatic experiences. The reasons for this are numerous, including an inability to step back from what has just occurred, the presence of defense mechanisms, an unwillingness to go over the event, or poor language skills. But, especially, it may be due to the consequences of a peritraumatic dissociation, which can distance the victim from the experience of the event and can sometimes result in event-related amnesia. EMDR in general—and the URG-EMDR protocol in particular—may require cognitive elaboration, but the work of victims can also be based on emotions, or the body, or on all three of these aspects at the same time. The approach has a strong integrative and ecological dimension stemming from its ability to work on different factors that can help alleviate psychotrauma in victims. This research puts new protocols at the disposal of advanced practice nurses for use in emergency psychological interventions. As is the case with psychological debriefing (Mitchell & Everly, 1993, 2000), after training, advanced practice nurses will be able to continue their commitment to the treatment of victims with even more effective tools (Sacks, Clements, & Fay-Hillier, 2001), which have shown their pertinence and their efficiency in studies carried out in the domain.

Strengths and Limitations

Methodologically speaking, this study was quite sound since it met five (and part of a sixth) of the seven “gold standards” for clinical studies (Foa & Meadows, 1997), namely: (1) the

target symptoms were well-defined, with clear inclusion and exclusion criteria, (2) standardized measures were used, (3) an independent individual who was blind to the treatment condition administered and collected the assessment measures, (4) the assessor was trained in the use and scoring of standardized scales, (5) the therapy program was manualized and replicable, and (6) group assignment was not randomized but matched on the criteria stated above. One standard was not met: No treatment-adherence ratings were made. Overall, and in spite of difficulties in implementing this research, the results pointed out the merits of EMDR therapy in treating victims of aggression.

Although a number of precautions were taken in conducting this field study, it has some limitations. One concerns the stability of effects of URG-EMDR therapy beyond three months. We have no way of knowing whether the effects were sustained after that period. Later evaluations—say, after 6 and 12 months—could strengthen the results already obtained in this pilot study. Also, it would have been useful to compare the URG-EMDR protocol with interventions such as defusing, which is also implemented in the hours following a potentially traumatic event. Such a comparison could prove particularly interesting since data are already available about the use of approaches like this in firms, and the debate about their effectiveness remains lively. Lastly, while our small sample size limits the power of our statistical tests, the results encourage us to pursue our investigations at a larger scale.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

REFERENCES

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Bisson, J., & Andrew, M. (2007). Psychological treatment of post-traumatic stress disorder (PTSD). *Cochrane Database of Systematic Reviews*, 3. doi: 10.1002/14651858. CD003388.pub3
- Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Klauminzer, G., & Charney, D. S. (1990). A clinician rating scale for assessing current and lifetime PTSD: The CAPS-1. *Behavior Therapy*, 13, 187–188.
- Blanchard, E. B., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD Checklist (PCL). *Behaviour Research and Therapy*, 34, 669–673.
- Boscarino, J. A., Adams, R. E., & Figley, C. R. (2005). A prospective cohort study of the effectiveness of employer-sponsored crisis interventions after a major disaster. *International Journal of Emergency Mental Health*, 7(1), 9–22.
- Bowen, A., Shelley, M., Helmes, E., & Landman, M. (2010). Disclosure of traumatic experiences, dissociation, and anxiety in group therapy for post-traumatic stress disorder. *Anxiety Stress Coping*, 23(4), 449–461.
- Bradley, R., Greene, J., Russ, E., Dutra, L., & Westen, D. (2005). A multidimensional meta-analysis of psychotherapy for PTSD. *American Journal of Psychiatry*, 162, 214–227.
- Bryant, R. A. (2003). Early predictors of posttraumatic stress disorder. *Biological Psychiatry*, 53, 789–795.
- Bryant, R. A., Creamer, M., O'Donnell, M., Silove, D., McFarlane, A. C., (2012). The capacity of acute stress disorder to predict post-traumatic psychiatric disorders. *Journal of Psychiatric Research*, 46(2), 168–173.
- Bryant, R. A., Harvey, A. G., Sackville, T., Dang, S., & Basten, C. (1998). Treatment of acute stress disorder: A comparison of cognitive-behavioral therapy and supportive counseling. *Journal of Consulting and Clinical Psychology*, 66, 862–866.
- Davidson, P. R., & Parker, K. C. H. (2001). Eye movement desensitization and reprocessing (EMDR): A meta-analysis. *Journal of Consulting and Clinical Psychology*, 69, 305–316.
- Edmond, T., Sloan, L., & McCarty, D. (2004). Sexual abuse survivors' perceptions of the effectiveness of EMDR and eclectic therapy. *Research on Social Work Practice*, 14(4), 259–272.
- Flannery, R. B. (1995). *Violence in the workplace*. New York, NY: Crossroad.
- Flannery, R. B. (1996). Violence in the workplace. 1970–1995: A review of the literature. *Aggression and Violent Behaviour*, 1(1), 3–25.
- Foa, E. B., & Meadows, E. A. (1997). Psychosocial treatments for posttraumatic stress disorder: A critical review. *Annual Review of Psychology*, 48, 449–480.
- Greenhouse, S. W., & Geisser, S. (1959). On methods in the analysis of profile data. *Psychometrika*, 24, 95–112.
- Harvey, A. G., & Bryant, R. A. (1998). The relationship between acute stress disorder and posttraumatic stress disorder. A prospective evaluation of motor vehicle accident survivors. *Journal of Consulting and Clinical Psychology*, 66, 507–512.
- Harvey, A. G., & Bryant, R. A. (2002). Acute stress disorder: A synthesis and critique. *Psychological Bulletin*, 128, 886–902.
- Kutz, I., Resnik, V., & Dekel, R. (2008). The effect of single-session modified EMDR on acute stress syndromes. *Journal of EMDR Practice and Research*, 2(3), 190–200.
- Marmar, C. R., Weiss, D. S., Metzler, T. J., & Delucchi, K. (1996). Characteristics of emergency services personnel related to peritraumatic dissociation during critical incident exposure. *American Journal of Psychiatry*, 153, 94–102.
- Maxfield, L., & Hyer, L. A. (2002). The relationship between efficacy and methodology in studies investigating EMDR treatment of PTSD. *Journal of Clinical Psychology*, 58, 23–41.
- McFall, M. E. (1990). Convergent validity of measures of PTSD in Vietnam combat veterans. *The American Journal of Psychiatry*, 147(5), 645–648.
- McFarlane, A. C. & Bryant, R. A. (2007). Post-traumatic stress disorder in occupational settings: Anticipating and managing the risk. *Occupational Medicine*, 57(6), 404–410.
- McFarlane, A. (2010). The long-term costs of traumatic stress : intertwined physical and psychological consequences. *World Psychiatry*, 9(1), 3–10.
- Mitchell, J. T., & Everly, G. S. (1993). *Critical incident stress debriefing: An operations manual for the prevention of traumatic stress among emergency services and disaster workers*. Ellicott City, MD: Chevron.
- Mitchell, J. T., & Everly, G. S. (2000). Critical incident stress management and critical incident stress debriefing: Evolutions, effects and outcomes. In B. Raphael & J. P. Wilson (Eds.), *Psychological debriefing: Theory, practice and evidence*. New York, NY: Cambridge University Press.
- National Occupational Health and Safety Commission. (1999). *Work-related traumatic fatalities in the Australian Capital Territory, 1989 to 1992*. Sydney: Author.
- Ozer, E. J., Best, S. R., Lipsey, T. L. & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults : A meta-analysis. *Psychological Bulletin*, 129(1), 52–73.
- Quinn G. (2007). *Emergency Response Protocol presentation*. Paris, France: EMDR Europe Association Conference.
- Quinn G. (2009). The emergency response protocol. In M. Luber (Ed.), *Eye movement desensitization and reprocessing scripted protocols: Basics and special situations* (pp. 271–276). New York, NY: Springer.

- Regel, S. (2007). Post-trauma support in the workplace : The current status and practice of critical incident stress management and psychological debriefing within organizations in the UK. *Occupational Medicine*, 57(6), 411–416.
- Rothbaum, B. O., Astin, M. C., & Marsteller, F. (2005). Prolonged exposure vs. eye movement desensitization and reprocessing for PTSD rape victims. *Journal of Traumatic Stress*, 18, 607–616.
- Sacks, S. B., Clements, P. T., & Fay-Hillier, T. (2001). Care after chaos: Use of critical incident stress debriefing after traumatic workplace events. *Perspectives in Psychiatric Care*, 37(4), 133–136.
- Shapiro F. (1995). *Eye movement desensitization and reprocessing: Basic principles, protocols and procedures* (1st ed.). New York, NY: Guilford.
- Shapiro F. (2001). *Eye movement desensitization and reprocessing: Basic principles, protocols, and procedures* (2nd ed.). New York, NY: Guilford.
- Shapiro, E., & Laub, B. (2008). Early EMDR intervention (EEI): A summary, a theoretical model, and the Recent Traumatic Episode Protocol. *Journal of EMDR Practice and Research*, 2(2), 79–96.
- Shapiro, E., & Laub, B. (2009). The New Recent Traumatic Episode Protocol. In M. Luber (Ed.), *Eye movement desensitization and reprocessing scripted protocols: Basics and special situations* (pp. 251–270). New York, NY: Springer.
- Stergiopoulos, E., Cimo, A., Cheng, C., Bonato, S., & Dewa, C. S. (2011). Interventions to improve work outcomes in work-related PTSD: A systematic review. *BMC Public Health*, 11, 838.
- Tarquinio, C., Brennstuhl, M. J., Reichenbach, S., Rydberg, J. A., & Tarquinio, P. (2012). Early treatment of rape victims: Presentation of an emergency EMDR protocol. *European Journal of Sexology and Sexual Health*, 21(3), 113–121.
- Teegen, F. (2002). *Posttraumatische Belastungsstörungen bei gefährdeten Berufsgruppen*. Bern: Huber.
- Tragno, M., Duveau, A., & Tarquinio, C. (2007). Les violences et agressions physiques au travail: Revue de questions. *Revue Européenne de Psychologie Appliquée/European Review of Applied Psychology*, 57(4), 237–255.
- VandenBos, G. R., & Bulatao, E. Q. (1996). *Violence on the job: Identifying risks and developing solutions*. Washington, DC: American Psychological Association.
- Van der Kolk, B. A., Spinazzola, J., Blaustein, M. E., Hopper, J. W., Hopper, E. K., Korn, D. L., & Simpson, W. B. (2007). A randomized clinical trial of eye movement desensitization and reprocessing, fluoxetine, and pill placebo in the treatment of posttraumatic stress disorder: Treatment effects and long-term maintenance. *Journal of Clinical Psychiatry*, 68(1), 37–46.
- Van Etten, M., & Taylor, S. (1998). Comparative efficacy of treatments for post-traumatic stress disorder: A meta-analysis. *Clinical Psychology and Psychotherapy*, 5, 126–144.
- Warshaw, L. J., & Messite, J. (1996). Workplace violence: Preventive and interventional strategies. *Journal of Occupational and Environmental Medicine*, 38, 993–1006.
- Weathers, F. W., Litz, B. T., Herman, J. A., Huska, J. A., & Keane, T. M. (1993). *The PTSD Checklist: Reliability, validity and diagnostic utility*. San Antonio, TX: The 9th Annual Conference of the ISTSS.
- Wilson, S., Becker, L. A., & Tinker, R. H. (1995). Eye movement desensitization and reprocessing: Treatment for psychologically traumatized individuals. *Journal of Consulting and Clinical Psychology*, 63, 928–937.
- Wilson, S., Silver, S. M., Covi, W., & Foster, S. (1996). Eye movement desensitization and reprocessing: Effectiveness and autonomic correlates. *Journal of Behavior Therapy and Experimental Psychiatry*, 27, 219–229.
- Wolpe, J. (1990). *The practice of behavior therapy* (4th ed.). New York: Pergamon Press.
- Wolpe, J., & Abrams, J. (1991). Post-traumatic stress disorder overcome by eye movement desensitization: A case report. *Journal of Behavior Therapy and Experimental Psychiatry*, 22, 39–43.
- Yao, S. N., Cottraux, J., Note, I., De Mey-Guillard, C., Mollard, E., & Ventureya, V. (2003). Evaluation des états de stress post-traumatique: validation d'une échelle, la PCLS. *L'Encéphale*, 29, 232–238.