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Original article

## EMDR and early psychological intervention following trauma

### *L'EMDR et l'intervention psychologique précoce à la suite d'un traumatisme*

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#### ABSTRACT

*Introduction.* – This article evaluates developments in the field of early psychological intervention (EPI) after trauma in general and the place of early eye movement desensitization and reprocessing (EMDR) intervention (EEI) in particular. The issues and dilemmas involved with EPI and EEI will be outlined; related research presented and the current status evaluated.

*Literature and clinical findings.* – Reviewing the literature and drawing on findings from initial research and case studies, the rationale and contribution that EMDR therapy has to offer is discussed relative to current evidence and theory regarding post-traumatic stress syndromes and trauma memories. The relative advantages of EEI will be elaborated.

*Discussion and conclusion.* – It is proposed that EEI, while trauma memories have not yet been integrated, may be used not only to treat acute distress but may also provide a window of opportunity in which a brief intervention, possibly on successive days, could prevent complications and strengthen resilience. Through the rapid reduction of intrusive symptoms and de-arousal response as well as by identifying potential obstructions to adaptive information processing (AIP), EMDR therapy may reduce the sensitisation and accumulation of trauma memories.

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#### R É S U M É

*Introduction.* – Cet article évalue de façon générale les développements menés dans le champ de l'intervention psychologique précoce (EPI) après un traumatisme, et la place de l'intervention EMDR précoce (EEI) de façon plus spécifique. Il aura pour objectif de passer en revue les questions et les controverses soulevées par l'EPI et l'EEI, de présenter les recherches afférentes à ce domaine et d'en évaluer l'état actuel.

*Littérature et résultats cliniques.* – L'article aborde, au travers de la littérature scientifique et des résultats issus de recherches initiales et d'études de cas, la logique sous-jacente à la thérapie EMDR et ses contributions potentielles en se basant sur les preuves actuelles et la théorie relative aux états de stress post-traumatique et aux souvenirs traumatisants. Les avantages relatifs de l'EPI sont décrits en détails.

*Discussion et conclusion.* – Cet article suggère que la prise en charge d'un individu par une EEI avant l'intégration des souvenirs traumatisants pourrait revêtir un intérêt non seulement pour traiter la détresse aiguë, mais aussi pour donner accès à une intervention brève peut être délivrée selon un format de journées consécutives, qui permettrait de prévenir d'éventuelles complications et de renforcer la résilience. La thérapie EMDR pourrait contribuer à réduire la sensibilisation et l'accumulation de souvenirs traumatiques dans la mémoire via la réduction rapide des symptômes intrusifs et la réponse de désactivation, ainsi que l'identification d'obstructions potentielles au traitement adaptatif de l'information.

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## 1. Introduction

After relative neglect, the field of early psychological intervention (EPI) following trauma is attracting increasing attention from researchers in recent years. The particular circumstances of early intervention require developing a distinct body of knowledge. There are some answers, various opinions and many questions that

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remain to be explored. For example, whether to intervene early (with therapy) at all? How early? How to intervene? The role of mental health practitioners in situations where normal people are exposed to abnormal distressing events, in which a majority will cope and recover spontaneously from initial stressful reactions, needs to consider good practice guidelines. Some will have high levels of distress or unremitting symptoms and some will only have disturbances emerging much later. A substantial minority of these people will develop debilitating psychological and/or physical disorders following these experiences. Another group may experience sub-clinical distress for prolonged periods that also impacts their quality of life. Questions about the form, timing and focus of early interventions will be presented in the light of research findings and professional considerations.

The paper addresses a number of questions or aspects of early intervention: what is EPI in general and early eye movement desensitization and reprocessing (EMDR) intervention (EEI) in particular? Why do we need to intervene early? When (how soon after) can or should we intervene? How to intervene in emergency situations and maintain standards of good practice? Who do we treat? Finally, what are the advantages of EMDR therapy that make it especially suited for early intervention?

### 1.1. Response to trauma

Trauma is associated with disruption and distress with risk of developing various disorders. Consequently, mental health professionals need to address both treatment of distress and the notion of prevention. In the National Co-morbidity Survey, Kessler, Sonnega, Bromet et al. (1995) found an overall lifetime prevalence of PTSD of 7.8%. Although a majority of those exposed to trauma do not develop posttraumatic stress disorder (PTSD), a significant one third remain symptomatic for 3 years or more with greater risk of secondary complications (National Institute for Clinical Excellence, 2005). The search for EPI to reduce suffering from traumatic stress and to prevent the development of chronic PTSD has tended in recent years to focus on identifying high risk factors. In addition, it is noted that PTSD is only one of the disorders that can develop independently or co-morbidly from trauma. For example at 12 months: PTSD was found in 10% of those exposed to trauma, whereas 16% had Major Depression Disorder, 11% General Anxiety Disorder, 10% substance abuse, 9% agoraphobia, 7% social phobia, 6% panic disorder, 6% specific phobia and 4% had Obsessive Compulsive Disorder, (Bryant, 2011).

The existence of delayed onset PTSD or other disorders as a possible response to trauma is of particular interest for early intervention. McFarlane opens a recent paper with this thought: "One of the greatest challenges to the field of traumatic stress has been the observation that many individuals who coped well at the time of their traumatic exposure became unwell at a later date" (McFarlane, 2009, p. 1). In an attempt to explain these delayed onset phenomena McFarlane points to traumatic memories and time dependent sensitization/kindling, in which short term sub-clinical early symptoms may become increasingly disturbing over time. Traumatic stress and traumatic memories may be general risk factors for psychopathology because of the effects of re-traumatization on sensitization and kindling with the risk of PTSD growing with the number of exposures to traumas. This suggests an important role for treating trauma memories that matches the emphasis that the adaptive information processing (AIP) model of EMDR (Shapiro, 1995, 2001, 2007a,b) places on trauma memories. EMDR therapy has a distinctive approach to the reprocessing of disturbing memories. Unlike symptom extinction and competing response approaches proposed by exposure therapies, EMDR therapy's approach is to ask the question "where was this learned?"

with the goal of altering the original trauma memory to achieve an adaptive reconsolidation (Suzuki et al., 2004).

### 1.2. Disruption of homeostasis

Following disturbing life events there may be on-going interaction of the traumatic memory with environmental triggers and stresses, in which the trauma is re-experienced, with accompanying psychophysiological reactivation and psychological distress. There is a body of research which suggests that the dysregulation of the metabolic system, stemming from chronic stress and attempts to accommodate it (allostatic load) contributes to the development of a variety of illnesses, as well as certain disorders of immune function (Vanitallie, 2002). McFarlane (2010a,b) brings together wide-ranging evidence relating to the delayed effects of traumatic stress and their cumulative impact on psychological and physical health, which includes hypertension, hyperlipidemia, obesity and cardiovascular problems as well as some difficulties to explain medical conditions such as fibromyalgia, irritable bowel, chronic fatigue, whiplash and other pain syndromes. The clinical implications are far-reaching. The linking of Post Traumatic Stress Syndromes with such varied and serious physical conditions draws even more attention to the significance of traumatic stress. "There is the potential for a pervasive disruption of an individual's neurobiology and psychophysiology following and PTSD is only one end point. The association with cardiovascular risk factors and inflammatory markers indicates that exposure to traumatic stress leads to a general disruption of an individual's underlying homeostasis" (McFarlane, 2010b, p. 5). The high cost to individuals and to society is evident.

EMDR interfaces well with the focus on trauma memories and thus may have much to contribute here as an approach that specializes in the rapid treatment of disturbing memories. The period of time soon after the trauma during the acute phase is considered particularly vulnerable. Therefore, the option of EEI should be examined.

### 1.3. Eye movement desensitization and reprocessing

EMDR is an integrative evidence based therapy, which for over 20 years, has been used to treat disorders relating to traumatic stress and distressing life experiences (Shapiro, 1995, 2001). EMDR is based on an AIP model that proposes that present problems are rooted in earlier experiences that have been dysfunctionally stored in the brain (state dependent learning) and need to be reprocessed.

Most international practice guidelines include EMDR therapy as an efficacious treatment for PTSD (e.g. UK: National Institute for Clinical Excellence, 2005; American Psychiatric Association, 2004; French National Institute of Health and Medical Research, INSERM, 2004; Dutch National Steering Committee Guidelines Mental Health Care, 2003). When comparing prolonged exposure and cognitive behavioral therapy and EMDR therapy, it has been found that all are about equally effective but that EMDR is less time intensive and in contrast requires no homework between sessions (Lee, Gavriel, Drummond, Richards & Greenwald, 2002; Power, McGoldrick, & Brown, 2002; Rothbaum, Astin & Marsteller, 2005; Schubert & Lee, 2009). EMDR therefore can be used on consecutive days, which is a considerable advantage in disaster and emergency situations.

### 1.4. Eye movement desensitization and reprocessing and early intervention

EMDR is thus a well-established therapeutic intervention for post trauma and many EMDR practitioners are involved with humanitarian teams – Humanitarian Assistance Programs (HAP) – following disasters and offer pro-bono interventions after

critical incidents worldwide. The work in the field and clinical experience with EEI has been extensive (Maxfield, 2008a,b; Gelbach, 2008). Despite the understandable difficulties of conducting research in disaster situations there are surprisingly few publications addressing EEI, although among the studies that have been published the results indicate that EEI is a brief intervention with rapid treatment effects that can be utilized in the field or emergency situations to good effect on consecutive days. As it is not as dependent on verbal representations as other therapeutic approaches, it has advantages in acute stress and in multi-cultural situations.

## 2. Early psychological intervention and early eye movement desensitization and reprocessing intervention

The Cochrane review (Roberts, Kitchiner, Kenardy & Bisson, 2008, 2009) gives an authoritative definition of EPI in line with diagnostic and statistical manual of mental disorders (DSM IV) as psychological interventions began within the first 3 months after a traumatic event with the aim mostly of preventing PTSD or ongoing distress in those with traumatic stress symptoms, with acute stress disorder (ASD), or who are at risk for PTSD or other disorders. It relates both to treatment and prevention. In their systematic review and meta-analysis of multiple-session early interventions following traumatic events, Roberts et al. (2009) found 25 randomized controlled trials (RCTs) that met their criteria. Fourteen of them involved forms of CBT, whereas the remainder were forms of psychosocial interventions aimed at preventing PTSD. They concluded that the results for EPI were encouraging but mixed. "Trauma-focused CBT (TFCBT) was the only intervention with convincing evidence of efficacy in reducing and preventing Traumatic Stress Symptoms, particularly for those who met the diagnostic criteria for ASD or acute PTSD". However, they noted that CBT was less effective with heterogeneous populations. "The presence of a specific diagnosis may be the most important predictor of who will benefit from TFCBT. However, merely screening for ASD is problematic as it misses many individuals who go on to develop PTSD". (2009, p. 7). They were unable to recommend (yet) any psychological intervention for routine use after trauma, but noted that no evidence of harm was found either. Finally, they pointed out that "Given the modest overall effects of TFCBT, the development and trialling of other Psychological treatments are important" (p. 7).

Another review and meta-analysis (Kornor, Winje, Ekeberg, Weisaeth & Kirkehei, 2008) found seven studies that met their criteria for early TFCBT random controlled studies and similarly concluded that TFCBT had limited effectiveness in prevention of chronic PTSD in a clinically heterogeneous population.

### 2.1. History of early eye movement desensitization and reprocessing intervention protocols

Francine Shapiro developed the recent traumatic event (RTE) protocol as an application of the standard EMDR protocol when working with victims soon after an earthquake, conceptualizing the traumatic event as a fragmented experience that has not yet consolidated and one image was unable to represent the entire event. It is therefore necessary to process a number of targets, which are aspects or parts of the event in order to facilitate adaptive integration and consolidation (Shapiro, 1995, 2001). Therefore, the standard EMDR procedures needed to be extended to a protocol that addresses multiple targets or fragments of the unconsolidated memory. Later Shapiro also reintroduced her original circumscribed eye movement desensitization (EMD) protocol for use in emergency situations such as combat, which appeared in the military and post-disaster response manual (Shapiro, 1989, 2001, 2004). The EMD protocol differs from the standard EMDR protocol

in that there are frequent returns to target between sets of bi-lateral stimulation (BLS), with only short chains of associations, as opposed to the free associations of the standard protocol.

Several other EMDR protocols adapted for early intervention have been published. Shapiro and Laub (2008,2009) proposed a new more comprehensive integrative application of EMDR for EEI, which incorporated and extended the main existing protocols. Recently, Jarero, Artigas and Luber (2011) have published another protocol called the protocol for recent critical incidents (PRECI) that is also based on the recent event protocol and has certain similarities to the recent traumatic episode protocol (R-TEP).

An EMDR integrative group treatment protocol (EMDR-IGTP) has also been developed for use in mass disasters when there are large numbers of victims and few clinicians, so that the possibility of individual intervention is limited (Jarero et al., 2006; Laub & Bar-Sade, 2009).

### 2.2. Early eye movement desensitization and reprocessing intervention studies

There are various clinical and field reports of the utility of EEI that are characterised by effective brief treatment interventions. EMDR was used with Hurricane Andrew survivors and a non-randomized controlled study yielded positive results for single session EMDR interventions at two and a half months following the disaster, showing significant improvements in the EMDR group as compared to the waiting-list controls, (Grainger Dailey, Levin, Allen-Byrd, Doctor & Lee, 1997). In a study by Silver, Rogers, Knipe, and Colelli (2005), following the 9/11 terrorist attacks, survivors were treated with four to five EMDR therapy sessions. Using an analogue wait-list control group, it was found that both interventions at 2 to 10 weeks and at 30 to 48 weeks were effective, although the symptoms seen among the later group were more severe and the investigators concluded that "EMDR is a useful treatment intervention both in the immediate aftermath of disaster as well as later" (p. 29). Case studies have been published treating adult and child disaster survivors with acute symptoms using EMDR, indicating that only a few sessions were needed. A single EMDR session given in the first month to two survivors of the 1995 Hanshin-Awaji earthquake in Japan effectively treated their ASD, with gains maintained at 5 months (Ichii, 1997). Three EMDR sessions treating a tsunami survivor with acute PTSD enabled him to return to symptom free functioning, (Fernandez, 2008). Child victims of the Molise earthquake in Italy in 2002, required an average of 6.5 EMDR sessions in all for effective treatment, spread over three treatment cycles 1 month, 3 months and 1 year after the earthquake (Fernandez, 2007). Tofani & Wheeler (2011) reported three complex case studies in great detail in which the R-TEP protocol was used with a child, an adolescent and an adult, obtaining measurable treatment and behavioural gains within only three or four sessions.

Promising applications of EEI with specialised protocols among military personnel have been published. Russell (2006), reported successful use of a protocol similar to EMD following acute combat reaction of four US soldiers (earliest was 2 weeks). Wesson and Gould (2009), used the EMDR recent event protocol 2 weeks after acute combat response with a UK soldier on four consecutive days, which helped him to return to functioning. Gains were maintained at an 18 months follow-up.

Studies utilising specialised EMDR protocols with civilian populations include: case studies using the recent event protocol with survivors of 9/11, the early intervention required five sessions (Colelli & Patterson, 2008). A study conducted by Emre Konuk and his colleagues following the bombings in Istanbul in 2008 used the R-TEP with 23 adult survivors, taking careful measures. An average of three, 120 minute, R-TEP sessions were found to be sufficient to process the disturbing targets of the traumatic episode. Scores

on the SCL-90, Impact of event scale and on Foa's PTSD Symptom checklist decreased dramatically. Positive effects were maintained at 3- and 6-month follow-ups (Kaya, 2010). The EMDR R-TEP is also currently being utilised with over 2500 survivors of the recent earthquakes in northern Italy with pre- and post-treatment data measures collected (Fernandez 2012, personal communication). It was also extensively employed with survivors from the earthquake in eastern Turkey earlier this year (Konuk, 2012, personal communication). Recently two promising RCT studies have been published with delayed treatment designs with the PRECI protocol. In the former, participants were treated two weeks following a 7.2 earthquake in Mexico. "One session of EMDR-PRECI produced significant improvement on symptoms of posttraumatic stress for both the immediate-treatment and wait-list/delayed treatment groups, with results maintained at 12-week follow-up" (Jarero et al., 2011). In the latter, an on-going field study, 32 symptomatic workers whose task was to exhume bodies from a human massacre situation in Mexico, were similarly treated with one 90- to 120-minute session in the two groups, yielding preliminary positive findings (Jarero & Uribe, 2011).

The EMDR-IGTP, (Jarero, Artigas & Hartung, 2006) originally designed for working with children has also been modified for use with adults (Jarero & Artigas, 2010). Studies have found it reduces anxiety, strengthening coping resources and also screens for those who may require further individual attention (Wilson, Tinker, Hofmann, Becker & Marshall 2000). There is some evidence that it can strengthen resilience among children exposed to on-going conflict situation (Zaghrou-Hodali, Alissa & Dodgson, 2008).

EMDR, however, was not included in the 2009 Cochrane Review, as there had not been any EEI Random Controlled Trials published yet at that time. As EMDR is widely used in the field following trauma, EMDR researchers should be directing their attention to controlled studies of early intervention with the various EEI protocols. More details of the work carried out in the field of EMDR treatment of recent events and community disasters can be found in the special issue of the EMDR Journal of Practice & Research, Volume 2, Number 2, 2008, devoted to the subject.

### 3. The need for early psychological intervention and early eye movement desensitization and reprocessing intervention

Since traumatic stress syndromes are universal and largely transient there is much interest in trying to discern specific markers of responses that may predict those who are at risk for developing disorders. Prominent among these is the ASD diagnosis. However, the state of current evidence about early response to trauma and subsequent disorders reveals a complex picture. Bryant et al. (2011), summarising the findings of an ambitious study which investigated the extent to which ASD at one month predicts posttraumatic psychiatric disorders at 12 months after trauma, in a large sample from five Australian hospitals concluded that the ASD diagnosis has limited utility in identifying recent trauma-exposed individuals who are at high risk for PTSD. . . however. . . most people diagnosed with ASD will suffer some psychiatric disorder a year later. . . In contrast the overall utility of the diagnosis as an early screening strategy. . . is very limited because the majority of people who develop a disorder will not initially display full or subsyndromal ASD (p.5).

A central issue concerning EPI then is, on the one hand, if the majority of people exposed to trauma do not develop psychiatric disorders why do we need EEI? Why don't we just wait and see those left with symptoms of ASD or acute PTSD (after 1 to 3 months) as some suggest (Shalev, 2011). This raises both practical and ethical questions. On the other hand, most of the people with ASD will

**Table 1**

Studies have suggested the following mechanisms of action in eye movement desensitization and reprocessing (EMDR) (9).

Disruption of the traumatic recollection in working memory
Evocation of a sense of psychological distance from trauma
Neurological communication across the two brain hemispheres
Psychophysiological orienting response
Relaxation and/or cognitive flexibility
REM evocation of an REM-like mind-brain state
Reciprocal inhibition. Coupling of traumatic recollection and relaxation

go on to have PTSD, so EPI for treatment of ASD for this group is called for and is supported by evidence (Roberts et al., 2009; Bryant, Friedman, Spiegel, Ursan & Strain, 2010). However, as this only accounts for a minority of those who get PTSD and the fact that PTSD is only one of several disorders that can follow from trauma, we may be neglecting a significant group who develop disorders. The possibility of delayed onset PTSD should also be remembered, as it was found to occur in up to 68% of cases, depending on definitions (Andrews, Brewin, Philpott & Stewart, 2007).

#### 3.1. What has eye movement desensitization and reprocessing to offer?

It is contended that EMDR therapy, not only integrates and processes the trauma memory, but it has demonstrated various psycho-physiological sequelae that are relevant in this context, (Table 1). Gunter and Bodner (2008) reviewing the evidence for proposed mechanisms of action involved with EMDR report the following: eye movements can reduce the vividness, emotionality, and completeness of unpleasant or traumatic memories, they appear to enhance both episodic memory (Propper & Christman, 2008) and cognitive flexibility (Kuiken, Bears, Miall & Smith, 2002). Eye movements are also associated with physiological changes during EMDR sessions, including decreased heart rate/skin conductance, increased high-frequency heart rate variability (parasympathetic tone), and increased finger temperature and breathing rate (Sondergaard & Eloffsson, 2008). These changes have been variously interpreted as evidence of de-arousal or reciprocal inhibition (Aubert-Khalifa, Roques & Blin, 2008), the evocation of the orienting responses (Armstrong & Vaughan, 1996), working memory limitation (Maxfield, 2008a,b), or the triggering of a REM-like state that facilitates cortical integration of disturbing memories into semantic networks (Stickgold, 2002).

Even in the absence of clinically significant symptoms there may be a preventive role for EMDR: by preventing the accumulation of traumatic memories that contribute to the sensitizing of later disorders. From the EMDR perspective, articulated in the AIP model, adaptively processed memories are prevented from becoming dysfunctionally stored memories that underlie many disorders. Even more than that they can enhance further links to adaptive memory networks thereby promoting resilience. Additionally, as symptomatic avoidance is known to strengthen with time after the trauma this may increasingly become a barrier to seeking treatment (Brewin, Fuchkan, Huntley et al., 2010; Shalev, Ankri, Peleg, Israeli-Shalev, & Friedman, 2011), which could be reduced by earlier intervention, while trauma survivors may be more accessible to treatment.

PTSD can be viewed as an information processing disorder with far reaching implications beyond PTSD: "PTSD is a challenging condition, as people become captured by their past experiences and have difficulty engaging with the present. At the core of this condition is the role of traumatic memories, which orientate the individual's awareness and reactivity to reminders of the instigating traumatic event. This has important implications for the application of EMDR as a treatment for disorders above and beyond

**Table 2**  
Advantages of early eye movement desensitization and reprocessing (EMDR) intervention (EEI).

Brief intervention, rapid treatment effects
Psycho-physiological de-arousal response, rapid decreases in imagery/distress
Can be on consecutive days (no homework required); advantageous for high distress and for field teams
Prevents accumulation of trauma-memories; prevention (is better than cure)
May strengthen resilience, important for on-going situations
Economic factor (avoids hi long term costs to some individuals and society)
Possible “golden hour” soon after the trauma during which intervention may help
When there are ASD symptoms evidence that treatment can be beneficial
Even when there are no clinically significant symptoms during the acute phase after trauma, PTSD or other disorders may still develop as delayed onset months or years later or after subsequent exposures to trauma
PTSD is only one of a number of disorders that can follow from trauma
Traumatic stress is a risk factor for many psychological and somatic complaints
Majority of Trauma-exposed victims with symptoms will not seek treatment
Avoids avoidance—more likely to be accessible to treatment soon after trauma

PTSD” (McFarlane, 2010a). EMDR therapy, with its proven ability for rapid processing of disturbing memories, offers a parsimonious approach for early intervention (Table 2).

#### 4. Questions facing the field of early psychological intervention: If and when to intervene

One of the dilemmas facing the EMDR clinician is whether or not to intervene with EMDR soon after a trauma, since the early symptoms are likely to be part of a normative adaptive response to a trauma. “The so-called normal response is highly variable. . . Determining whether an individual is experiencing a problematic response or reaction that will spontaneously resolve after a traumatic event can be difficult” (Bisson, Brayne, Ochberg & Everly, 2007).

The opinions about psychological (therapy) intervention immediately after a trauma are mixed. Solomon (2008) suggests that while people are temporarily in shock or dissociated and emotional impact has not yet occurred this may be a natural protection that should only be removed with caution. Van der Kolk (1996) points out that while people are hyper-aroused, the cortex is as if “off-line” and no effective processing can take place, so that the first task is calming. We know that a diagnosis of ASD is shown to hold a high risk for disorders. The difficulty arises with knowing whether or when to intervene when there is no ASD diagnosis.

Whereas the normative emergency stress responses may be initially an adaptive attempt to cope with physical survival issues (issues of safety/vulnerability or control/helplessness), posttraumatic stress symptoms when they persist, especially after the danger has passed, become maladaptive and may be additionally concerned with secondary psychological survival and identity issues (“what does this say about me?” issues of responsibility/self blame/inferiority).

If EMDR can help release the AIP system when things have gone wrong with the functional storing of old distressing memories by reprocessing them adaptively, can it also be a preventative measure employed during the vulnerable acute phase after a trauma, to ensure that the information is being adaptively processed while the memory is still consolidating—as a preventative measure?

#### 4.1. Timing of intervention and very early intervention

The aftermath of the event may be more important than prior traumatic events (Brewin, Andrews & Valentine, 2000). The weeks following a trauma may be a critical period where increased stress could lead to irreversible changes in the central nervous system (Shalev, 1996). Others have also asked whether there may be a critical time in psychiatry analogous to some other medical conditions during which intervention right after exposure to traumatic events may attenuate the pathological response such as PTSD, whether there is a “golden hour” in the aftermath of trauma during which the way in which we intervene can ameliorate or aggravate? (Zohar, Sonnino, Juven-Wetzler & Cohen, 2009; Shalev, 2002). Rothbaum et al., conducted a small pilot study to test the feasibility of intervening within 24 hours of a trauma using a brief form of imaginal exposure in the emergency department (Rothbaum, Houry, Heekin et al., 2008). They concluded that it seemed feasible and noted that the five subjects receiving the intervention fared slightly better than the five who only had assessment one week later.

#### 4.2. Eye movement desensitization and reprocessing and very early intervention

Elements of EMDR, particularly the BLS together with ‘grounding’ assurance and positive cognitions have been used even hours after a critical incident for people who have are unresponsive or have other unusual responses. Their goals are more limited to calming, establishing communication or reducing the distress of intrusions. The empirical evidence of de-arousal and other Psycho-physiological effects of BLS studies are noted in this context. The emergency response procedure (ERP), (Quinn, 2007, 2009) was provided in the hospital Emergency Room following terrorist attacks, or in ambulances to victims with extreme responses and were unable to communicate because of severe distress, as an alternative to medication and injections. Data collected by Kutz, Resnik, and Dekel (2008), over a number of years in a hospital setting has shown that a single session of a modified form of EMD can be used effectively in the days and weeks following a critical event: “brief intervention can be extremely beneficial for immediately reducing the intensity, duration, and number of acute stress symptoms, most notably intrusive phenomena, in most of those who exhibit acute stress (AS) syndromes” (p. 198).

#### 4.3. Outreach studies

In their outreach study 2 years after the London terrorist bombings, in which 52 people were killed, nearly 1000 people who were involved were contacted. About a third had PTSD symptoms, but only a small minority of them had sought or been referred for treatment (Brewin et al., 2010). It has been suggested that early and proactive outreach to treat people with PTSD could help reduce the enormous societal costs of this disorder (Kessler, Berglund, Demler et al., 2005).

In contrast, Shalev et al. (2011a,b), in their ambitious Jerusalem outreach study came to surprising conclusions that highlights the difficulty of reaching out and offering early intervention. Half of the 1502 screened symptomatic trauma survivors who were contacted declined an initial clinical assessment and of those survivors who were assessed by clinicians to have ASD and then invited to treatment, 27% declined this early treatment. The 296 diagnosed with ASD who finally started were divided into the five treatment groups (twelve 90-minute weekly sessions of cognitive therapy or prolonged exposure, in addition to the SSRI medication, the placebo and the wait-list controls). Of the original 5286 persons who were initially contacted within a month after being admitted to the ER at Hadassah hospital following a variety of traumas, during the 4 years

of the outreach project, only about 6% actually ended up getting treatment. Although the results clearly showed significant results for the cognitive therapy and prolonged exposure interventions as effective for reducing PTSD among those clinically diagnosed with ASD, the cost in man hours and inefficiency of this form of outreach and treatment is considerable. Interestingly, there was no difference between the placebo and the medication groups and the delayed PE treatment group did equally well compared with the early treatment group, at 9 months.

## 5. How to treat with early intervention?

### 5.1. Issues and dilemmas of early eye movement desensitization and reprocessing intervention: good practice guidelines

Beyond the issue of lack of memory consolidation there are other issues that need to be considered such as the nature of the situation (i.e. emergency or urgency) that may require extra stabilisation and measures for containment and safety. The nature of the therapy contract may have some important differences from usual practice in the stressful circumstances.

A number of authors advise focusing on normal people reacting normally to an abnormal event and to avoid pathologising, or viewing people as sick, because of their response and to support people's own coping resources and recovery strategies (Solomon, 2008; Zohar et al., 2009). Solomon (2008) presents a detailed functional assessment of needs for guiding the type of intervention following critical events. There are a number of interventions proposed prior to "therapy" interventions. Phase appropriate intervention is advocated: Providing interventions according to the unfolding phase of recovery and assessment of needs the people are experiencing; in so doing, respecting natural adaptive coping mechanisms and support patterns. Impacting the aftermath of trauma in a way that overloads victims may make things worse (Solomon, 2008). Psychological de-briefing has become controversial and current views tend to discourage it (Rose, Bisson & Wessely, 2005). Initial interventions therefore should consider psychological first aid (PFA). PFA has been widely endorsed in recent years as a safer alternative to debriefing, but there is no empirical evidence yet (Bryant, 2011; Roberts et al., 2009). It can be used by para-professionals as it involves responses such as enhancing safety, attending to immediate needs, reducing AS reactions, promoting problem-solving and initial screening for those who need further treatment.

### 5.2. Eye movement desensitization and reprocessing

It was noted that the fragmented nature of the recent trauma memory requires a different protocol from the standard EMDR protocol. Recollections of traumatic events remain nonverbal, fragmented, intrusive and de-contextualized (Brewin et al., 1996). "Individuals with PTSD also have major difficulties with their self-orientation. . . they continue to use visio-spatial networks more than language-based systems for dealing with verbal tasks. . . problems with the processing of verbal memory tasks. . . EMDR, as a treatment, may have an advantage, as it is not so dependent on verbal representations of traumatic experiences as other treatment approaches" (McFarlane, 2010a,b).

There are some additional issues however that also should be considered when working with EEI.

Soon after traumatic incidents many people are likely to experience high arousal and may be easily triggered into re-experiencing intense emotional states. Therefore additional measures are needed alongside and within the protocols for stabilisation and regulation to contain and keep them safe. Others may be apathetic or avoidant so that reaching out and pacing may be considered.

**Table 3**

The recent traumatic episode protocol (R-TEP).

The R-TEP is a comprehensive protocol for EEI that incorporates and extends the existing EMDR protocols for recent events together with additional measures for containment and safety. The R-TEP usually requires 2–4 sessions that can optionally be conducted on successive days

#### Traumatic episode (T-episode)

The original traumatic incident together with its aftermath is viewed as an on-going trauma continuum while the experiences are not yet adaptively processed. The T-episode comprises multiple targets of disturbance. These target fragments are referred to as points of disturbance (PoD), from the original incident until today

#### Episode narrative

The episode narrative is telling the story of the traumatic episode out loud with continuous BLS. This helps to ground and contain affect, and start bridging the gaps of the story while the client begins the processing. In phases I & II recounting the details of the trauma is discouraged to avoid premature activation. Option: using a distancing metaphor, e.g. T.V screen, gives additional containment if needed

#### Google search (G-search) or scan

The G-search is a mechanism to identify the various PoD by non-sequential scanning of the T-episode, without talking, together with BLS

#### Telescopic processing

A three strategies approach (EMD → EMDr → EMDR) The term "telescopic processing" is used to reflect the three optional strategies of expanding focus of associations which adjusts to the level at which the information processing may be sticking: (zooming in and out)

Questions of timing arise. The nature of the therapy contract soon after a traumatic event may also have some important differences from usual practice. The survivor/client may or may not be in clinically significant distress, may or may not have actually asked for therapy and most likely would not have encountered a mental health professional if not for having experienced the recent accident or disaster. Yet some may have relevant histories that need to be taken into account. In the stressful circumstances often associated with EEI, the therapeutic context and goals could be overlooked. EMDR Phases 1 and 2 (history and preparation) could easily be neglected and the therapeutic contract left vague and unclear.

Secondary stressors following a critical event may be as, or more, important for the development of disorders and that consequently coping with the secondary stressors is a major goal of early interventions. This view reinforces the conceptualization, proposed by the R-TEP EMDR application, of the recent trauma as an on-going episode that begins with the event and continues with the aftermath rather than as a single incident or circumscribed event.

### 5.3. The recent traumatic episode protocol

In an attempt to address some of the above issues, Shapiro and Laub (2008) proposed a new more comprehensive integrative procedure for EEI, which incorporates and extends the main existing EMDR protocols (Table 3). The R-TEP utilises the EMD and EMDR protocols together with aspects of the recent event protocol (Shapiro, 1995, 2001, 2004) as optional strategies within a broader time perspective, termed the "traumatic episode". The original traumatic incident and its aftermath are viewed as an on-going trauma continuum while the experiences have not yet consolidated or integrated. The trauma episode (T-episode) is seen as having multiple targets of disturbing images or sensory data/events/other experiences, from the original incident (or even before) until the present (including thoughts about the future), which need to be integrated. The therapy contract begins with a T-episode focus as far as possible. The opening of other clinical issues, if necessary,

requires a revised contract. The R-TEP adapts the good practice 8-phase structure of EMDR therapy applying it to early intervention:

- client history (sufficient information gathered to enable a brief clinical judgment, referred to as an “S-M-S” rating to gauge the Severity/Motivation/and Strengths);
- client preparation (Stabilisation, readiness to begin processing);
- assessment (Structured accessing and measures of sequentially identified target fragments);
- desensitisation (processing the target memory network);
- installation (processing and increasing associations to positive cognitive networks);
- body scan;
- closure;
- reevaluation.

For more details on these and other EEI protocols see Shapiro and Laub (2008).

#### 5.4. Case study 1: use of the eye movement desensitization and reprocessing recent traumatic episode protocol 10 to 40 days after a partner's suicide for alleviating acute stress and facilitating normal grieving

A 35-year-old young woman, was referred 10 days after finding her partner had hanged himself in their bedroom. She had been staying with her sister ever since and now was terrified of going back home because of the intrusive distressing image of what she had seen when she entered the room. A high functioning executive, she had married young, divorced three years previously and now had been in a new good relationship for 1 ½ years and was expecting a future together, until the suicide.

She presented with AS symptoms: re-experiencing – intrusive images, sleep disturbed; avoidance – terrified being at home alone; arousal – distress; dissociation – numbing, de-realisation. Her IES-R score was 85 (out of a maximum of 88). At the first meeting a Phase I intake evaluation was conducted and a Phase II preparation that checks and teaches her ability to self-calm and readiness to work with EMDR. A clinical impression abbreviated as an “S-M-S” rating summarized the clinical assessment as severity: hi (at risk), motivation: hi (good therapeutic alliance) and strengths: hi (ego strengths), the last two being most important for concluding that EMDR therapy could be started. It was decided to commence treatment during this (2 hours) session because of the urgency of her situation, needing to return home with her son and resume functioning. The details of the traumatic episode are invited only at this stage in order to prevent premature activation and it is conducted together with BLS to contain affect and to begin initial integration. The clinician witnessed this episode narrative, hearing a frame-by-frame account with many details told in the present tense. She spoke for about 20 minutes with contained affect, helped by the present safety oriented ‘grounding’ effect of the BLS. Immediately after this she was asked to scan this episode again from the event until today like with a metaphorical “Google search” or scanning, without talking this time and to stop at any point of disturbance (PoD) fragment. This PoD is taken as the EMDR target for processing.

The target selected was the intrusive image of what she had seen when she entered the bedroom, which terrified her and was an obstacle to returning to her home. The processing began with a narrow-focused EMD strategy that allowed her, within about a dozen sets of BLS (hand taps together with eye movements), to begin moving from the shock/denial where she was stuck, via realisation to sadness and commencing an appropriate grieving process. The focused EMD protocol worked on the trauma and enabled a desensitization and distancing of the intrusive image and a linking to resources, which helped her to return to her home and resume

functioning and also to begin normal grieving. At the second session six days later she had returned to work. To continue the processing she was again asked to scan the T-episode up to today and to stop at what comes up that is still disturbing her now. This way of identifying remaining PoDs lets the brain spontaneously select the target in any sequence. The PoD she chose was unexpected, she went to the night before the suicide, which technically was not part of the trauma but in her mind it became part of the T-episode (“if I had known it was the last night”), with issues of guilt emerging. This target was processed using mostly an EMDr (T-episode focused) strategy. The guilt giving way to a rational forgiveness of herself and accepting that even if she was tired and went to sleep, this didn't cause him to commit suicide –she did what she could with what she knew at the time. In all she was seen three more times during the 40 days following the suicide, to follow-up and check for sticking points so that the normal grieving could proceed. The scanning of the T-episode for remaining PoDs each time revealed the target to be worked on. Her IES-R scores reduced to 16 at 10 months.

Some follow-up sessions took place a year and a half later when she was in a new relationship and wanted to see the videos of the early sessions as part of her need for closure. She expressed how valuable she had found this early intervention.

#### 5.5. Case study 2: use of the eye movement desensitization and reprocessing recent traumatic episode protocol on successive days for anxiety disorder and panic attacks after a motor vehicle accident (MVA)

Robert was a high functioning senior manager in his mid 50s happily married with three children. On his way home from work late one evening he was suddenly rammed from behind by a truck, which totaled his car. He miraculously emerged with only a whiplash. His immediate behaviour after the accident was task oriented and efficient. He was taken by ambulance to hospital and after several hours of examinations went home. Resting at home with mild stress symptoms he visited the scrapyard two weeks later to check and photograph his wrecked car. The worker there casually remarked “lucky you weren't driving your (previous car), because you wouldn't have come out of that alive”. That evening while seated at the dinner table he suddenly felt strong chest pains and difficulty in breathing. Rushed to the ER he was released after no physical explanations were found. Prescribed with sedatives he remained at home restless, stressed with impaired functioning. This pattern of unexplained chest pains recurred. However, about two to three weeks later, feeling a bit better he attempted returning to work. Upon arrival he experienced a similar episode of chest pains, sweating and breathlessness. The paramedics who were called found no cardiovascular problems. His functioning continued to decline and he was referred to a psychiatrist who diagnosed a post trauma anxiety disorder with panic attacks and prescribed medication.

As his general confidence and functioning continued to decline with more and more stress and guilt about not returning to work, he was referred for EMDR treatment seven weeks after the accident. The intake and preparation session was directed at stabilisation and evaluation. The “S-M-S” assessment rated his severity, strengths and motivation all as high. His impact of events revised scale (IES-R) was 35. He was extremely distressed that his situation was not improving and that he didn't know himself like this. It was decided to embark on a course of treatment with the R-TEP protocol on successive day to process this recent traumatic episode as soon as possible as complications were developing. The EEI protocols can be employed on successive days, as homework is not necessary beyond practicing self-calming exercises such as the four elements. Four daily 90-minute treatment sessions were conducted in which after hearing the minute details of the episode

narrative, the residual PoD were successively identified (with “Google search”) and processed with the telescopic processing strategies (usually the EMDr strategy which gives a current T-episode focus for the chains of processing associations; optionally an EMD strategy for rapid processing of narrow focused intrusive fragments; and a full free associative EMDR strategy available only if the former two strategies are insufficient to differentiate the current trauma from previous clinical issues.) The first PoD was the intrusive sound of the impact of the truck with his own loud scream and the image of the crumpled rear part of his car. The subjective unit of disturbance (SUD) reduced from 8 (out of 10) to zero in half a dozen sets with the EMD strategy. The second PoD identified was the scene at the scrapyard, with the image of the wrecked car and the words of the worker where he realized how close he had come to dying (near miss). The intrusive image and thought were processed once again initially with the EMD strategy, which flowed into the EMDr strategy reducing the SUD from 7 to 8 to close to zero. At subsequent sessions the third PoD target identified was the helplessness he felt at the scene of the panic attack when he tried returning to work. This successfully resolved with the EMDr strategy to an insight that he too is a mortal human with strengths and weaknesses (and not the superman image that others expected of him at work). The remaining PoD was a future concern about his return to work in which he was able to visualize how he would rearrange his priorities at work (delegation, less travel abroad etc.) to reduce his tendency to overload and to have more time with his family. IES-R was 12.

Robert then was able to return to work confidently and at the next meeting two weeks later he described his experience with EMDR as “science fiction” and that he had completely returned to his former self and stopped medication. No more PoDs were identified. He chose to think of this episode as an important lesson that he needed to learn to appreciate his real priorities in life. IES-R score was 7. These positive outcomes were maintained at a 4-month follow-up (IES-R score was zero).

## 6. Who to treat with early psychological intervention or early eye movement desensitization and reprocessing intervention?

Who do we treat? All those exposed to the trauma (with or without symptoms)? Those with persisting sub-clinical traumatic stress symptoms? Only those who have clinically significant symptoms (ASD, acute PTSD)? Or only those who are at risk?

We have seen that on the one hand most of those exposed to a trauma will not develop disorders yet on the other hand all are potentially at risk for sensitization at some level since even some of those who don’t show significant symptoms during the acute phases may become sensitised and develop disorders in the future (Andrews et al., 2007; Solomon & Mikulincer, 2006).

### 6.1. Risk factors, markers

If PTSD can be seen as a failure to recover from the normal effects of trauma then research should be directed at identifying pre- and posttraumatic risk factors to explain the development of the disorder (Yehuda & LeDoux, 2007). Yehuda (2001), for example, pointed to findings in the hypothalamic-pituitary-adrenal (HPA) axis involving abnormally low cortisol levels among PTSD patients as compared to non-PTSD trauma survivors and normal controls. A case study by Heber, Kellner and Yehuda, (2002) found that EMDR treatment given to a rape victim with chronic PTSD resulted in an increase in basal cortisol levels.

A central concern of studies in the field of post traumatic stress has been the search for early predictors or markers of risk factors

and more recently of protective factors. Many findings have come from prospective or longitudinal studies of trauma and its sequelae over time (Shalev, 1996; Brewin, Andrews, & Valentine, 2000; Shalev, 2002; Peleg & Shalev, 2006). The literature has investigated various markers for those who may develop PTSD: severity of symptoms at one week (Koren, Arnon & Klein, 1999); sleep disturbances at one month (Koren, Arnon, Lavie & Klein, 2002; impaired attention at one week (Brandes, Ben-Shakhar, Bonne, Freedman & Shalev, 1998); acoustic startle response (Shalev, Pitman, Orr, Peri & Brandes, 2000); heart Rate in Emergency Room (Shalev et al., 1998; Bryant, Creamer, O’Donnell, Silove & McFarlane, 2011); intrusions (McFarlane, 2000).

### 6.2. Meta-Analysis of risk factors

Brewin et al. (2000) published a meta-analysis of 14 risk factors for PTSD in trauma-exposed adults, which included results from 77 articles and involved combined sample sizes ranging from 1149 to over 11,000. The only significant predictors to show relatively homogeneous effects were psychiatric history, childhood abuse, and family psychiatric history. Brewin et al. (2000) concluded that “attempts to identify a common set of pre-trauma predictors of PTSD that will be equally valid across different traumatized groups are premature. . . Variables so far identified are very general ones, these findings suggest that our understanding of vulnerability to PTSD is at an early stage” (p. 756).

#### 6.2.1. Post-trauma

A traumatic event is not a sufficient cause of PTSD or other disorder. Initial traumatic stress symptoms and distress are the norm and their persistence and the subjective response may be an important risk factor. It appears that subjective appraisal of the trauma may be more predictive of PTSD than the severity of the event or injury. Negative appraisal of early symptoms increases the likelihood of subsequent PTSD (Ehlers, Mayou & Bryant, 1998). Cognitive appraisals include negative interpretation, rumination and shattered beliefs about the world or self. Depression often co-occurs with PTSD and there is some evidence that depression at one week following trauma can be a strong risk for developing PTSD and is a better predictor than symptoms of dissociation, intrusion, and avoidance (Shalev, 2002) and therefore, an important diagnostic for intervention.

The impact of pre-trauma factors thus appears to be significantly mediated by the nature of the responses to the trauma and what occurs in the aftermath of exposure. This is highly significant for understanding the opportunity for preventive intervention and for EEI.

#### 6.2.2. Aftermath of exposure

On-going disruption, discontinuity, the absence of social support and the accumulation of additional traumatic stress are additional risk factors. To balance this, social support, organization and maintaining continuity are protective factors. A panel of experts concluded that there were five essential elements of immediate and mid-term trauma interventions:

- safety;
- calming;
- sense of self and community efficacy;
- connectedness and;
- hope (Hobfoll et al., 2007). This closely resembles the guidelines for PFA.

Even when we have identified risk factors we are reminded that they are only statistical and interact with other factors so that reality is multi-factorial and we still have uncertainty regarding



how any individual will respond. While acknowledging a role for psychobiological risk factors, the absence of any single consistent reliable biological marker lead Marshall to conclude that “For now, the standard of care in predicting level of symptomatology and prognosis in the acute setting continues to be based on careful, informed, serial assessments of symptoms and functioning” (Marshall & Garakani, 2002).

## 7. Discussion and conclusions

The field of EPI following trauma is still at an early stage of development but there is increasing recognition of its importance. There is a growing body of literature and research that reveal a complex picture and many questions remain. This may in part be a function of how we define pathology (e.g. ASD) or relate to sub-clinical symptoms. It may be pragmatic as we can't treat everyone, for economic reasons and anyway most recover on their own, so why not wait and see who is left with symptoms after a certain time. It may be policy, to treat distress (rather than goals of prevention). It may also be our lack of knowledge, because of such wide variability, to identify specific markers, risk and protective factors and predict delayed onset.

We know that some people exposed to the same trauma will develop various psychological and somatic disorders soon after, others later or even much later, and others – the largest group – will recover sooner, or later, on their own. There are many ideas and findings about bio-social-psychological factors involved and it is evident that there are multi-factorial complexities and much that we still don't understand. Given the current state of our knowledge we still cannot predict with certainty how any given individual will fare in the long run, whether he has clinically significant symptoms following the trauma or not. All we can say is that trauma and traumatic stress statistically place the individual at risk.

The place of EPI when ASD or acute PTSD is diagnosed is clearer since they are shown to hold a high risk for PTSD and other disorders. The difficulty arises with knowing whether or when to intervene when there is no clinical diagnosis, since the majority recover spontaneously following trauma. Even in the absence of a clinically significant diagnosis however, the evidence that accumulated traumatic memories may be a possible factor in sensitizing later psychological and physical disorders with far reaching consequences provides some justification for considering intervening more readily.

There is good reason thus to consider prevention and seek an effective brief intervention. While there needs to be an awareness of the risks to the trauma survivor with and also without clinical symptoms, there must also be an awareness of professional standards and the therapy contract in these circumstances. The Cochrane review as mentioned previously was unable to recommend (yet) any psychological intervention for routine use after trauma and stated that “the development and trialling of other psychological treatments are important” (Roberts et al., 2009, p. 7). This can be the challenge for EMDR. EMDR as a relatively brief, non-intrusive procedure may offer a way out of this quandary. To use an analogy, following a road accident for example, we would have our car checked for road-worthiness. It is not unusual also for us to have a physical examination, which may include say x-rays, to ensure that there are no hidden fractures. Why should we do less for our psychological well-being? A follow-up non-stigmatic (mental) “check-up” in the days and weeks after the trauma could also become routine, which may include an EEI “scan” for hidden sticking points in the AIP, as well as a booster or “inoculation” for adaptive coping and resilience. Importantly this should be presented as a positive mental and physical health aid precaution. Advantages of EMDR treatment effects go beyond desensitisation

as they seem to contribute to self-affirmation and integration. For a list of the relative advantages of intervening early with EMDR (Table 2).

### 7.1. A preventative role for early eye movement desensitization and reprocessing intervention

EMDR may thus offer a key role in prevention as a relatively brief treatment specialising in the adaptive processing of trauma memories. Studies show that after EMDR processing trauma memories are distanced. They are less vivid or emotionally evocative and the trauma memory can be viewed calmly.

In the days and weeks following a traumatic event the danger is usually over (from that event) and what remains is the memory of that event and the aftermath, which may be life changing at various levels. The tasks for the survivor are to accommodate the multi-layered impact of the event and assimilate it into his/her life. What cannot be and what can be changed (and the wisdom to tell the difference). EEI can help here.

The assumption that a recent traumatic memory lacks integration is a disadvantage that can be turned to an advantage. This could be seen as a good time to check that adaptive processing is occurring. The “cut finger” (metaphor used to illustrate the self-healing potential of the brain in EMDR) will heal better if it does not get infected, if we keep it clean. This may be a particular contribution of EEI to “keep the wound clean”. Deeper wounds may require stitches and (staying with the metaphor) we are told of the advantages that a “stitch” in time may bring.

In acute phases, EEI may be used therefore to reduce suffering and complications by facilitating adaptive integration and contributing to the development of resilience. Another advantage of early intervention is that it may pre-empt the characteristic development of avoidance and dysfunctional withdrawal from seeking treatment later. The AIP model predicts that dysfunctionally stored memories underlie many current psychological disorders. EEI before these trauma memories have become maladaptively consolidated into negative theme clusters could help prevent kindling and sensitization or the accumulation of negative associative links, promoting mental health and resilience and restoring physiological balance or homeostasis.

### 7.2. Promoting resilience and prevention of dysfunction

When Francine Shapiro changed the name of her discovery from EMD to EMDR it was because she and others found that EMDR was achieving clinical results that went beyond only desensitisation. There appears to be a reprocessing of the original memory that also resulted in outcomes of self-affirmation and other evidence of personal growth. The prospect that EEI, such as the R-TEP, may help prevent the development of PTSD and other psychological and physical disorders is an important subject for further research. The role of time after the event needs to be further investigated: How soon after the trauma is optimal for effective intervention? Is there a “golden hour” for beneficial intervention soon after trauma? At what point can it still be called a recent event? How is it differentiated from a non-recent event in terms of memory consolidation? Perhaps a distinction can be made between processing (a recent event) as opposed to re-processing (a non-recent event). Can simplified forms of EEI and group applications be developed which can be taught to paraprofessionals for wide availability?

Trauma memories are central to EMDR theory and therapy. They are viewed as the primary sources of much psychological disturbance. Much of the work of EMDR clinicians involves undoing the damaged done from dysfunctionally stored memories of longstanding large and small traumas. More attention should be

given to the therapeutic window of opportunity afforded by EEI following recent trauma. It could be more rewarding to prevent the dysfunction rather than attempting to repair it later.

## Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

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