

# EMDR Treatment of Workplace Trauma

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## A Case Series

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Violence and aggression in the workplace is an increasing international concern. No studies have yet determined the most efficacious psychotherapeutic strategies to alleviate the consequences of workplace violence, and none have identified interventions that might fortify workers who are repeatedly exposed to danger. This case series describes the eye movement desensitization and reprocessing (EMDR) treatment of seven bank employees and one transportation worker who suffered repeated acute traumatization. The Impact of Events Scale, the Post-Traumatic Stress Syndrome 10-Questions Inventory, and the Beck Depression Inventory were used to measure changes in symptom severity. Results showed that EMDR effectively reduced symptoms and may provide a possible protective buffer in situations of ongoing workplace violence.

**Keywords:** EMDR; workplace violence; bank robbery trauma; resilience

Violence in the workplace is progressively being recognized as a global problem and major concern by health care workers, insurance companies, educators, governments, researchers, employees, and employers. Schat and Kelloway (2003) cited a large U.S. survey that was described in the 2000 Safe and Secure Workplace Annual Report of the U.S. Postal Service Commission. The commission reported that 1 in 20 American workers had been physically assaulted in 1999. Kelloway, Barling, and Hurrell's (2006) subsequent analysis of a national probability sample determined that 41.4% of U.S. employees were exposed to psychological aggression and 13% to physical aggression in the workplace.

### Consequences of Workplace Violence

Occupational groups that are routinely exposed to violence are vulnerable to developing psychological

and work-related sequelae. These high-risk occupations include disaster response personnel, emergency medical workers, law enforcement officers, military personnel, firefighters (Hurrell, 2006), railroad workers (Solomon & Kaufman, 2002), and nurses (American Psychiatric Nurses Association, 2008). Robbery is often the primary risk factor for violence-related death, and those vulnerable for this type of violence are those who handle cash in public settings, such as banks, convenience stores, and restaurants (LeBlanc, Dupre, & Barling, 2006).

The negative consequences for individuals exposed to workplace violence may include decreased emotional well-being (Rogers & Kelloway, 1997) and in some cases posttraumatic stress disorder (PTSD) and acute stress disorder (ASD) (Hurrell, 2006). Those who have been subjected to assaults as opposed to natural disaster traumas have been found to have a much greater incidence (an 18%–33% increase) of

ASD and PTSD (Bryant, 2000). Exposure to both direct and vicarious violence has been found to predict depression, anxiety, aggression, and somatic symptoms (Bjorkqvist, Osterman, & Hjelt-Back, 1994; Schat & Kelloway, 2000). Workplace violence also impacts workers' quality of life on the job and can affect job satisfaction and commitment, resulting in impaired performance, work withdrawal, and increased job turnover (Glomb & Cortina, 2006).

Jones (2002) posits that employees who encounter workplace violence suffer additional stress and trauma because of the ongoing and repeated exposure associated with workplace triggers and cues. The physical environment of the workplace, which prior to the trauma had normally felt safe, may now serve as a trigger for distressing memories or hypervigilant behavior. These triggers may interfere with the individual's return to work and are likely to be exacerbated in those professions where there may be an ongoing threat of violence, such as banks, health care settings, prisons, and the transportation industry. In addition, even if the individual him- or herself has not suffered from the violence, vicarious traumatization is likely to occur in such settings.

Earlier studies on bank robberies found continued levels of significant stress after bank robbery trauma; from 5% to 8% of victims in a sample of 219 reported significant physiological stress symptoms at least 6 months following the event (Leymann & Lindell, 1990). In another study, 70% of a sample of 16 robbery victims who were interviewed were classified as *clinical cases* up to 2 years following the event and six of these diagnosed as suffering from PTSD (Tunnecliffe & Green, 1986). Harrison and Kinner (1998) found a high level of psychological distress as measured by the Impact of Events Scale in 57 robbery victims 6 to 12 months after the robbery. These authors concluded that symptoms of avoidance and intrusion are common and that victims of armed robbery suffer long-term psychological distress. Clearly there are some individuals who fare better than others and recover quickly after a traumatic event, while for others recovery is slower.

## Protective Factors and PTSD

Little research exists on protective factors that ameliorate the physical and emotional sequelae of ongoing acute traumatization in adults. Lamprecht and Sack (2002) noted in their review of the history of PTSD that most studies provided no details about the individuals' prior traumatization and/or possible protective factors. They refer to Antonovsky's concept of

"salutogenesis," which addresses the causes of individual differences in resiliency and ability to face stressors and challenges. Important questions arising from this concept include the following: What factors promote posttraumatic growth? Are there treatment modalities that provide protection against adverse outcomes in situations of repeated and ongoing trauma?

A few studies have examined the possibility that psychotherapy may provide a protective buffer, promote resilience, and prevent relapse following exposure to subsequent traumas. Davidson et al. (2005) found that psychotropic medication with cognitive-behavioral therapy improved self-reported resilience with the greatest changes associated with self-confidence, control, coping, adaptability, and knowing how to get help when needed. A case study of seven children by Zaghout-Hodali, Alissa, and Dodgson (2008) found that an eye movement desensitization and reprocessing (EMDR) group protocol reduced symptoms of traumatic stress in a situation of ongoing violence. When the children were exposed to a subsequent violent event between sessions, there was no exacerbation of symptoms. The authors commented that EMDR treatment appeared to result in resilience for these children, as they evidenced no traumatization or relapse following the new event.

## Treatment of Workplace Violence

Schat and Kelloway (2003) note that primary prevention of workplace violence should be the main goal. Employee training is recommended as one approach to prevent robberies and employee injuries; however, few studies have evaluated the effectiveness of this intervention (LeBlanc et al., 2006). Even fewer studies have examined whether timely interventions after workplace violence can ameliorate trauma-related symptoms following the event. Research is also needed to investigate whether psychotherapeutic strategies can build resilience and promote adaptation for individuals who work in settings with an ongoing risk of violence.

## Critical Incident Stress Debriefing

Critical incident stress debriefing (CISD) has been widely used for those who have suffered from workplace violence (Solomon, 2008). Typically, debriefing occurs within 12 to 48 hours after the traumatic event. Usually, debriefing is offered as a group intervention, and members of the group are given information on the psychological consequences of traumatization and the possible ways of coping. However, exchanging the details about the incident can result in

emotional flooding. Research on debriefing does not support its efficacy as an intervention after a traumatic event. A systematic meta-analysis carried out in accordance with the rigorous evidence-based criteria of the Cochrane Collaboration for health care interventions came to the conclusion that CISM cannot be recommended for acute intervention (Bisson & Andrew, 2007). They reported that several controlled studies resulted in a high incidence of PTSD for participants receiving CISM. Given the questionable effectiveness of debriefing, it is important to research other more effective modalities for treating these victims.

One study investigated the use of a variation of CISM called critical incident stress management (CISM) for armed robbery victims (Richards, 2001). The CISM approach is a more comprehensive model that includes additional components as well as critical incident debriefing: preincident preparation, group debriefing (small-group discussion for triage and symptom management), family meetings, and follow-up referral. This study found that those who received CISM fared better than those receiving only CISM, not immediately but at the 3- and 12-month follow-up. However, the limitations of the study preclude drawing any conclusions in that individuals were not randomly assigned to groups, there was no control group, and the CISM treatment followed the critical incident debriefing.

## EMDR

EMDR is an innovative approach to treat the symptoms associated with PTSD. Developed by Francine Shapiro, EMDR is based on an adaptive information-processing model that posits that present symptoms are due to unprocessed memories stored in the brain and that these memories need to be integrated into adaptive neural networks for therapeutic change to occur. A comprehensive eight-phase protocol is used for treatment and includes client history and treatment planning, preparation, assessment, desensitization, installation, body scan, closure, and reevaluation.

There is a large body of research evidence to support its efficacy in the treatment of PTSD. Numerous international guidelines acknowledge the efficacy of EMDR for individuals with PTSD. These include the Australian Centre for Post Traumatic Mental Health (2007), the National Institute for Clinical Excellence in the United Kingdom (United Kingdom Department of Health, 2005), the American Psychiatric Association (2004), the Dutch National Steering Committee for Guidelines for Mental Health Care (2003), and the Israeli National Council of Mental Health (Bleich,

Kolter, Kutz, & Shalev, 2002). In a recent meta-analysis in Cochrane Review, EMDR and trauma-focused cognitive-behavioral therapy were found to be superior to other therapies in the treatment of PTSD (Bisson & Andrew, 2007).

Several randomized control studies using EMDR for workplace violence have been reported. In one study, public transportation workers were studied who had either experienced a train accident or been assaulted at work and were randomized and treated with EMDR (Hogberg et al., 2007). Significant short-term treatment effects were documented, including improved scores on the Global Assessment of Functioning Scale and the Hamilton Depression Scale after EMDR. In contrast to 11% of participants in the wait-list condition, 67% of the EMDR participants no longer qualified for a diagnosis of PTSD after five sessions of EMDR. These findings are limited because of the small sample size with only 12 subjects in the EMDR group.

The other randomized study for workplace violence was with police officers (Wilson, Tinker, Becker, & Logan, 2001). This study randomly assigned 62 police officers to either a stress management program or an EMDR treatment with each treatment consisting of 6 hours of individualized contact. Six months later, those in the EMDR experimental group had lower ratings on PTSD symptoms, subjective units of disturbance (SUD), job stress, and anger in addition to higher marital satisfaction ratings than those in the control group who received the stress management program. It is interesting to note that anger scores did not improve immediately posttreatment but only 6 months later for the EMDR group and that no measures were better for the stress management program over EMDR.

Solomon and Kaufman (2002) did not randomize subjects but asked for volunteers who wanted to receive EMDR from railroad workers who were receiving a critical incident peer-support workshop. Thirty volunteers from the group of 60 then received EMDR after the workshop sessions for varying amounts of time ranging from 5 to 40 minutes. Although posttests on the Impact of Event Scale demonstrated a significant decrease in scores for both groups 2 months after completion of the workshop as well as 10 months later, those who received EMDR had scores significantly lower than the workshop-only participants on both posttreatment measures than those who received only the workshop. This study and the Wilson et al. (2001) study discussed previously indicate that symptom reduction continues over time after EMDR; lower scores were maintained, and even more significant improvement in reducing symptoms was observed 6 to 10 months later.

## Current Study

### Method

This study took place in a specialized outpatient setting in Germany for psychotraumatology. Over the course of 4 years, 33 individuals who had suffered an acute traumatic event were treated with EMDR. Eight of these 33 patients were discovered to have experienced an additional incident of violence within 3 months after completion of the first successful EMDR treatment. Four of these patients discovered a few weeks after the new event that they suffered from newly sensitized triggers and came for further treatment. The other four were discovered in the course of a routine treatment follow-up after their previous treatment. An evaluation of the eight patients was conducted to determine the responses to the new events.

**Participants.** Six female patients and one male patient were bank employees, and one male patient was an underground train driver. Two of the patients (a woman and a man) contacted the practice immediately after the renewed traumatization. The woman (who had previously been treated after a bank robbery) had experienced a burglary at her home; the man had experienced another bank robbery but was also being pressured to apply for early retirement since his bank was trying to reduce his salary. Two other female patients contacted the practice a few weeks after the new incidents when they realized that they were triggered in certain situations. Retraumatization in three other female patients was found only in the course of a follow-up treatment. The fourth patient, a male underground train driver, experienced a renewed critical incident only a few days before a scheduled routine follow-up test.

**Procedure.** The standard eight-phase EMDR protocol was used for all participants as described by Hofman and Solomon (1999) and Shapiro (2001).

**Instruments.** Three instruments were used as measures of symptom severity, The Impact of Events Scale (IES), the Post-Traumatic Stress Syndrome 10-Questions Inventory (PTSS-10), and the Beck Depression Inventory (BDI).

The IES is a 15 item self-report measure designed to assess current subjective distress for any specific life event on a 5-point Likert-type scale (Horowitz, Wilner, & Alvarez, 1979). The IES includes intrusion and avoidance scales to provide a total subjective stress score. A score of 26 or more reveals moderate distress, while a score greater than 44 indicates severe

subjective distress. Excellent reliability and validity have been reported with data from its initial development and more recently a meta-analysis of 66 studies that used Horowitz's IES to examine the psychological impact of a major life event. These data provide evidence for the value of the IES as a measure of stress reactions in a number of different populations. (Sundin & Horowitz, 2003).

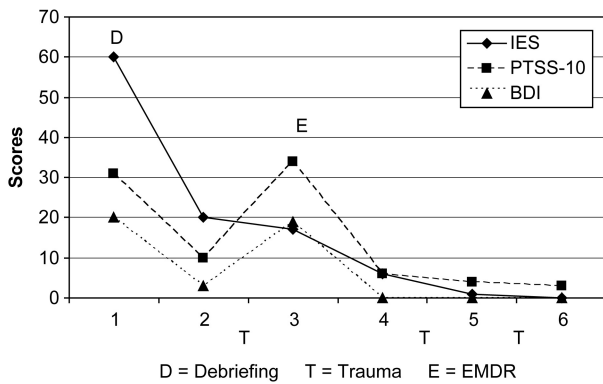
The PTSS-10 is a self-report scale for the diagnosis of posttraumatic stress disorder based on the criteria of the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.) (American Psychiatric Association, 1980). The PTSS-10 demonstrates high internal consistency reliability (Cronbach's  $\alpha = .92$ ) and stability (test-retest reliability  $r = .89$ ). A higher score indicates more symptoms of PTSD.

The BDI is a 21-item self-report multiple-choice questionnaire that is one of the most widely used instruments for measuring the severity of depression. The test has shown to have a high 1-week test-retest reliability (Pearson's  $r = .93$ ), suggesting that it is not overly sensitive to daily variations in mood. The test also has high internal consistency ( $r = .91$ ) (Beck, Steer, Ball, & Ranieri, 1996).

### Results

Although the data and scores from the three assessment tools are not comparable, all are displayed on the same graph for each individual so that the pattern of response for each case is easily visible. Each figure displays the assessment times along the x-axis and shows the timing of the interventions (debriefing and EMDR) and the posttreatment assessments as well as the timing of subsequent traumas (T).

**Case 1.** Mrs. A, age 38, first sought psychotherapy after she had been the victim of her sixth bank robbery 13 days previously. At this time (see time 1 in Figure 1), her test score on the IES was 60, on the PTSS-10 31, and on the BDI 20, revealing that she was suffering from severe PTSD. She received a modified debriefing with her team at the bank following the incident. Following the debriefing, her reassessment (see time 2 in Figure 1) showed a decrease on the IES to 20, on the PTSS-10 to 10, and on the BDI to 3. A few months, later Mrs. A contacted the practice again after another bank robbery occurred at her bank. Her symptoms had become more pronounced with scores of 17 on the IES, 34 on the PTSS-10, and 19 on the BDI, accompanied by new somatoform symptoms (see time 3 in Figure 1). After 4 hours of EMDR, a reduction of SUD from 7 to 3 resulted. Prior to the follow-up examination, she experienced another bank robbery (her eighth).



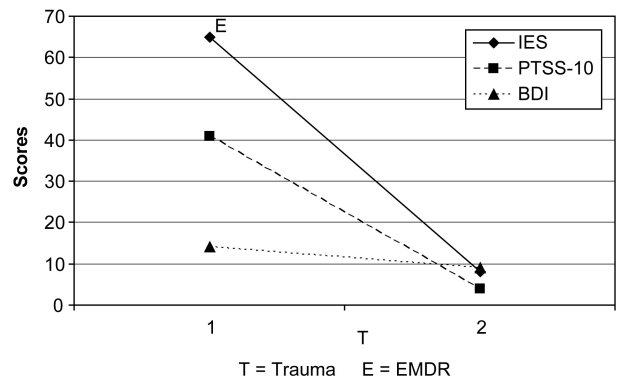
**FIGURE 1.** Mrs. A, age 38, with six previous bank robbery (BR) traumas and three new additional BR traumas.

Note. Time 1: predebriefing; time 2: postdebriefing; time 3: pre-EMDR; time 4: post-EMDR; times 5 and 6: follow-up.

In testing after this new incident, the patient's scores stayed within the normal range: 6 on the IES, 6 on the PTSS-10, and 0 on the BDI (see time 4 in Figure 1). She reported no subjective distress and said that she had reacted with anger to the last bank robbery. Subsequently, she suffered a ninth bank robbery and did not come back for treatment, but her follow-up scores revealed a 1 on the IES, a 4 on the PTSS-10, and a 0 on the BDI (see time 5 in Figure 1). At 20 months follow-up, the respective scores were 0 on the IES, 3 on the PTSS-10, and 0 on the BDI (see time 6 in Figure 1). No somatic symptoms were reported.

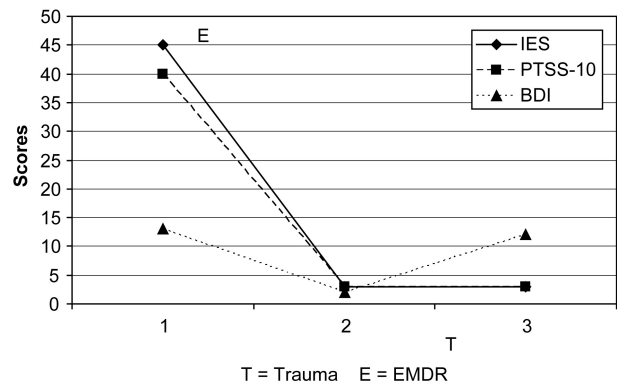
**Case 2.** Mr. B, 25 years old, came to treatment 4 months after the second fatal accident that he had experienced as an underground train driver. At this time (see time 1 in Figure 2), his scores were clearly high with an IES of 65, PTSS-10 of 41, and BDI of 14. Because he reported cardiac symptoms, he was examined with a heart catheterization, but no abnormal findings were reported. Mr. B received 9 hours of EMDR, and his SUD score went from 6 to 1. A short time before the final assessment, he experienced another critical situation: a woman coming close to being hit by his train. Nevertheless, at the post-EMDR evaluation (see time 2 in Figure 2), his scores were within the normal range: 8 on the IES, 4 on the PTSS-10, and 9 on the BDI. He also reported that he had responded more with anger to the new critical situation and registered the horrified reactions of passengers in the train and on the platform, which had not been the case in the first two accidents.

**Case 3.** Ms. C, age 46, came into treatment after her eighth bank robbery, at which time (time 1 in Figure 3) her IES score was 45, PTSS was 40, and BDI was 13. After 5 hours of EMDR, her SUD rating



**FIGURE 2.** Mr. B, age 25, with two previous train accident traumas with one new accident trauma.

Note. Time 1: pre-EMDR; time 2: post-EMDR.

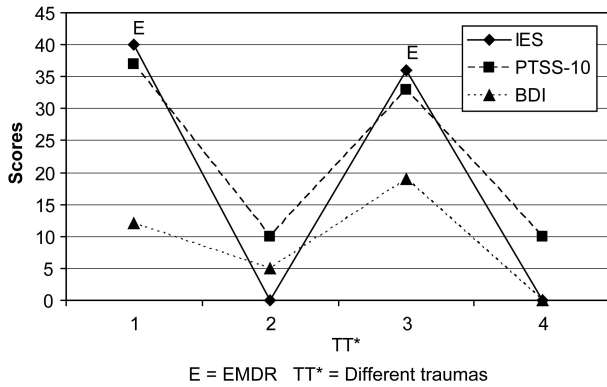


**FIGURE 3.** Ms. C, age 46, with eight previous BR traumas with one additional new BR trauma.

Note. Time 1: pre-EMDR; time 2: post-EMDR; time 3: follow-up.

decreased from 7 to 2/3, and on final examination (time 2), her scores were in the normal range: 3 on the IES, 3 on the PTSS-10, and 2 on the BDI. A follow-up examination took place 11 months later (time 3) and revealed that the values remained normal—3 on the IES, 3 on the PTSS-10, and 2 on the BDI—even though a ninth robbery had taken place.

**Case 4.** Ms. D, 44 years old, came to treatment 29 days after experiencing her second bank robbery. Testing (time 1 in Figure 4) revealed the presence of significant symptoms with an IES of 40, PTSS of 37, and BDI of 12. After 11 hours of EMDR, her SUD rating was reduced from 7 to 1. At posttreatment (time 2), her scores were normal: 0 on the IES, 10 on the PTSS-10, and 5 on the BDI. Approximately 2 years later, Ms. D again came to treatment after she had suffered a major financial loss due to embezzlement and her mother had been diagnosed with leukemia. The reason she sought treatment at this time was a burglary at her home. At this time (time 3), her test scores were 36 on the IES, 33 on



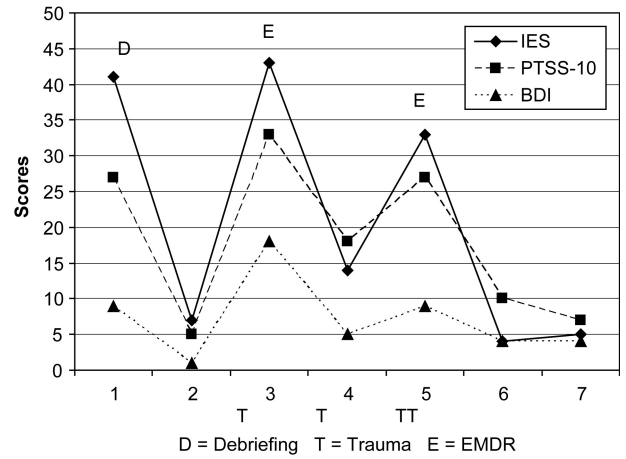
**FIGURE 4.** Ms. D, age 44, with two previous BR traumas and two additional “different traumas.”

Note. Time 1: pre-EMDR; time 2: post-EMDR; time 3: pre-EMDR; time 4: post-EMDR.

the PTSS-10, and 19 on the BDI. She received 3 hours of EMDR. Her SUD rating decreased from 7 to 8 to 0 to 1. She went to a hospital for 6 weeks for rehabilitation. The final scores (time 4) were 0 on the IES, 10 on the PTSS-10, and 0 on the BDI.

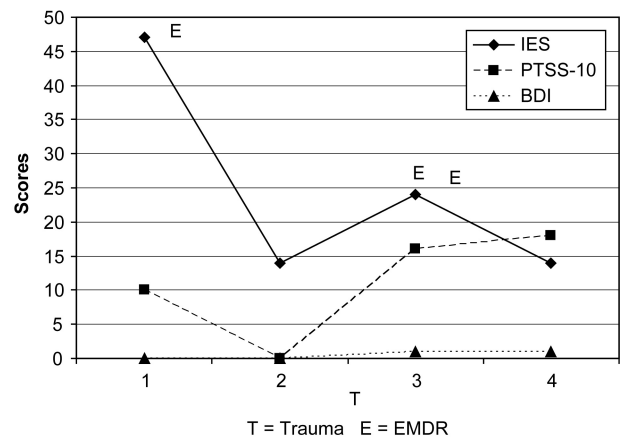
**Case 5.** Mrs. E, age 38, came for treatment 13 days after her fifth bank robbery. The symptoms (at time 1) reflected a medium range of PTSD: 41 on the IES, 27 on the PTSS-10, and 9 on the BDI (Figure 5). After three 2-hour debriefings, her scores were back in the normal range: (at time 2) 7 on the IES, 5 on the PTSS-10, and 1 on the BDI. Mrs. E then suffered a sixth bank robbery, and her symptoms had increased again (time 3): 43 on the IES, 33 on the PTSS-10, and 18 on the BDI. Mrs. E then received 3 hours of EMDR, leading to a reduction of her SUD rating from 9 to 1/2. Before the next scheduled assessment, a seventh bank robbery occurred. Despite this, the scores showed a clear improvement (time 4): 14 on the IES, 18 on the PTSS-10, and 5 on the BDI. She too reported that she reacted to this bank robbery more with anger than with the fear she had experienced before the EMDR. Following two bank robberies in 1 week a year later, the patient came back to treatment and her scores were (time 5) 33, 27, and 9, respectively. At this time, she received 3 hours of EMDR. Her SUD rating then decreased from 9 to 1/2, and the posttesting (time 6) revealed an IES of 14, a PTSS-10 of 10, and a BDI of 4. At follow-up 9 months later (time 7), all scores were toward the normal range, with an IES of 5, a PTSS-10 of 7, and a BDI of 4. The SUD was still 2 for a potential bank robbery.

**Case 6.** Ms. F, 45 years old, came to treatment after her fifth bank robbery. Initial assessment (time 1) showed an IES of 47, a PTSS-10 of 10, and a BDI of 0 (Figure 6).



**FIGURE 5.** Mrs. E, age 38, with five previous BR traumas and four additional new BR traumas.

Note. Time 1: pre-debriefing; Time 2: post-debriefing; Time 3: pre-EMDR; Time 4: post-EMDR; Time 5: pre-EMDR; time 6: post-EMDR; time 7: follow-up.



**FIGURE 6.** Ms. F, age 45, with five previous BR traumas and one additional new BR trauma.

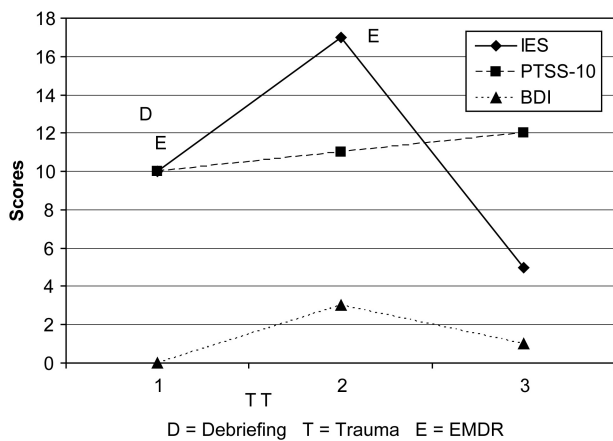
Note. Time 1: pre-EMDR; time 2: post-EMDR; time 3: pre-EMDR; time 4: post-EMDR.

After 4 hours of EMDR, her SUD rating decreased from 4 to 3, and at her final examination (time 2), the IES was reported at 14, indicating the presence of a slight residual strain. On follow-up examination (time 3), she reported that she had experienced a sixth bank robbery, and her IES had increased to 24, her PTSS was 16, and the BDI remained low at 1. Because of the presence of slight triggering, she received another hour of EMDR treatment. Her SUD rating decreased from 6/7 to 2. At follow-up (time 4), her IES was 14, PTSS-10 18, and BDI 1.

**Case 7.** Ms. G, 29 years old, came for treatment 7 weeks after her first bank robbery. She had already received three 2-hour modified debriefing sessions. The (time 1) IES score of 10 indicated that mild stress was

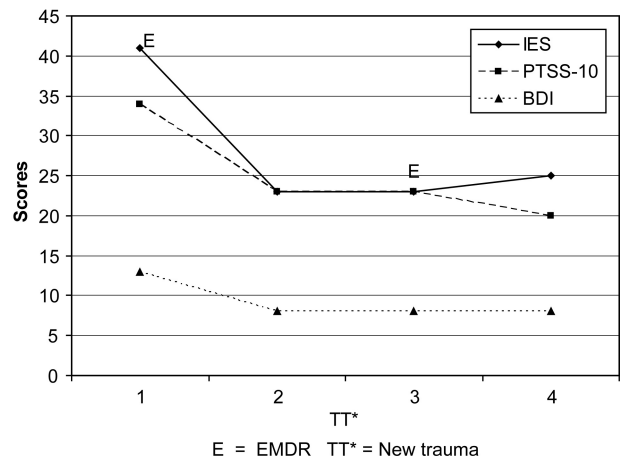
still present, and the PTSS-10 score of 10 and the BDI of 0 were normal (Figure 7). However, she complained of noise in her ears, flashbacks, and sleep disturbances and said that she was easily frightened. She received three sessions of EMDR, and her SUD rating went from an 8 to a 0, and she reported no symptoms. Three months later, she experienced two new bank robberies in quick succession in which she was alone rather than surrounded by other tellers. She sought help because she realized that she was easily frightened and increasingly nervous. Her (time 2) IES was 17, PTSS-10 was 11, and BDI was 3. After another 3 hours of EMDR, she improved with follow-up scores (time 3) 11 months later of 5, 12, and 1, respectively.

**Case 8.** Mr. H, 51 years old, came to treatment 26 days after his seventh bank robbery. His scores (time 1) indicated that he was suffering from pronounced strain with an IES of 41, a PTSS-10 of 34, and a BDI of 13 (Figure 8). After 6 hours of EMDR, his SUD rating decreased from 5 to 1/2. He was then treated in an inpatient rehabilitation program, and his scores (time 2) revealed the presence of a mild strain: IES of 23, PTSS-10 of 23, and BDI of 8. Two days after experiencing his eighth bank robbery, Mr. H contacted the practice, and testing (time 3) revealed that his scores were 23, 23, and 8. In addition to the latest bank robbery, he reported that he was distressed that the bank had offered him early retirement. He was not able to cope with pressure at work. He was treated with EMDR for 7 hours with a reduction of the SUD rating from 3 to 0. Immediately afterward, he entered the hospital for 6 weeks of rehabilitation. At the final examination (time 4), his IES was 25, his PTSS-10 was 20, and his BDI was 8.



**FIGURE 7.** Ms. G, age 29, with one previous BR trauma and two additional new BR traumas.

Note. Time 1: pre-EMDR; time 2: during EMDR treatment; time 3: post-EMDR.



**FIGURE 8.** Mr. H, age 51, with seven previous BR traumas and one additional new BR trauma.

Note. Time 1: pre-EMDR; time 2: post-EMDR; time 3: pre-EMDR; time 4: post-EMDR.

## Discussion

Workplace violence is a growing concern for all organizations that serve dangerous or unstable individuals who are at high risk for violence. It is interesting to note that the individuals in this study, many of whom suffered from 2 to 10 previous bank robberies, continued to work in this dangerous setting. Thus, this group may be self-selected and introduce bias in that other employees may have left and been unable or unwilling to subject themselves to further potential violence and subsequent traumatization. It is uncertain whether the participants in this study had personal reasons to continue working or whether they were more resilient, more tolerant of danger, or simply in denial about the ongoing violence inherent in their workplace.

In any case, it seems likely, as Jones (2002) suggested, that continuing to work in such an environment could trigger stored memories of the traumatic event. For example, a bank employee who was held at gunpoint at her desk would form memory associations (or neural networks) between her desk and the gun with the consequent responses of fear, hypervigilance, and later intrusive thoughts. After the robbery, triggers such as sitting at her desk might activate a cascade of physiological responses stored in dysfunctional memory networks, re-creating the fear response and hyperarousal symptoms. In order to prevent the intrusive thoughts and anxiety, avoidance strategies may ensue, such as lateness to work, procrastinating tasks that involve sitting at her desk, or even resigning her position in an effort to avoid the anxiety associated with the event.

In work settings, where employees are exposed to repeated workplace violence, the effects of ongoing violence appear to accumulate so that there is an increased risk pathology rather than habituation. Over time and with new traumas experienced by the workers, posttraumatic symptoms can become more serious or reactivated after another traumatic incident. Perhaps the probability of a manifestation of a trauma-based disorder increases with each additional traumatization. Without processing the traumatic event, coping strategies may be compromised, and adaptive memory networks may be inaccessible.

This study suggests that memories of workplace violence are highly distressing as measured by the IES, PTSS-10, and BDI. The IES appeared to be the most sensitive measure with initial scores ranging from a high of 65 for case 2 and a low of 10 for case 7, with most of the participants' initial scores in the 40s. IES scores greater than 44 indicate severe subjective distress. PTSS-10 initial scores ranged from a high of 41 for case 2 and a low of 10 for case 7, with most PTSS-10 initial scores in the 30s and 40s. The BDI scores appear to be the least significant clinically with an initial score of 20 for case 1 and an initial low of 0 for case 7. Most of the BDI scores indicated mild to moderate depression. It is interesting that Ms. G, case 7, consistently scored the lowest on all the self-report measures, yet she reported significant symptoms to the clinician that included flashbacks, noise in her ears, sleep disturbances, and being easily frightened. The high IES and PTSS-10 scores are consistent with earlier studies on bank robberies (Harrison & Kinner, 1998; Leymann & Lindell, 1990; Tunnecliffe & Green, 1986).

For all participants, treatment with EMDR resulted in lower scores on these selected outcome measures (Figures 1–8). SUD ratings also decreased, with an initial high pretreatment SUD score of 9 reported, with most post-EMDR scores down to a 2 or 3 with only one low posttreatment score of 0 for case 7, Ms. G (the minimizer). Perhaps it is ecologically correct for those still working in such high-risk settings to keep a 2/3 SUD level. On the other hand, it should be noted that additional EMDR treatment after a return of symptoms resulted in a lowered SUD score than previously (e.g., case 5's second SUD > 5; case 6's third SUD > 2). This may indicate that an insufficient dose of EMDR was initially administered (e.g., 3 hours for case 5 and 4 hours for case 6). In both cases, 1 to 3 hours of additional treatment was needed to address the subsequent traumatization.

**Comparison of EMDR and Debriefing.** Symptom improvement occurred in cases 1, 5, and 7 after 6 hours

of a modified debriefing intervention. However, the symptoms were reactivated when the participants experienced subsequent traumatizations. In contrast, following the EMDR intervention, the symptoms did not appear to be as strongly reactivated by subsequent traumas. Although one cannot rule out other possible causes of improvement, it appears that EMDR may have produced a different effect than that resulting from debriefing. Perhaps EMDR resulted in a more complete processing of the traumatic memory. Following EMDR, the patients described reacting more adaptively during the subsequent traumas. For example, in cases 1 and 5, anger was expressed, while in case 2, a more realistic perception of the situation emerged. Similar effects were not reported after the modified debriefing procedures. It is hypothesized that with EMDR, the patient's anxiety "threshold" returned to its original, pretrauma level, allowing more adaptive responses to new situations.

**A Possible Protective Effect.** All eight of these participants experienced new traumas after the first course of EMDR treatment. Three of them (cases 1–3) did not require further therapy, with the effects of EMDR apparently continuing despite subsequent retraumatization. Five of the eight participants showed a worsening of symptoms after the new trauma(s) (cases 4–8) and required further EMDR treatment. It should be noted, however, that these symptoms were less severe than those reported prior to the first course of EMDR treatment. The results suggest that successful EMDR treatment of one trauma may create a limited protective effect in the case of a similar, subsequent traumatization.

The somewhat protective effect of EMDR seemed limited when the pattern of the trauma changed. In case 7, after the first course of EMDR treatment, Ms. G was alone during the subsequent bank robberies and not a member of a group of victims as she had been previously, and a slight increase in her stress occurred (Figure 7). This was also true for case 4, Ms. C, whose apartment was burglarized. In both cases, a clear difference in the pattern of the traumatic memory was accompanied by a posttraumatic reaction. It is possible that successful EMDR treatment provides an adaptive pattern for processing similar traumas but that the protective effects do not generalize when the pattern of the traumatic event changes. In case 4, additional stressors included an embezzlement and her mother having been diagnosed with leukemia. These more personal traumas may have tapped into different memory networks or schemas, necessitating the processing of different networks.

Case 8 is also interesting. While Mr. H became asymptomatic after EMDR, his symptoms reappeared with the simultaneous occurrence of a new traumatic incident and significant stress at work (being offered early retirement). After more treatment with EMDR, his primary trauma symptoms (as documented by the IES) were better, but he did not improve as much clinically. To some extent, a secondary gain issue may have been interfering in this case. It should be noted that of the eight cases, this is the only patient who did not evince a complete remission after the initial EMDR treatment or with an additional 1 to 3 hours of treatment.

## Limitations and Implications for Future Research

The first limitation of this research is that this is a case series, and consequently it is not possible to conclude that the change in symptoms resulted from EMDR treatment. Without a controlled study, one cannot rule out the possibility that change occurred because of the passage of time or because of the therapeutic relationship or other factors. Nevertheless, the pattern of change in all cases following EMDR treatment suggests a possible causal relationship that should be investigated in future research.

Other limitations are that the data reported here were gathered in only a single specialized psychotherapeutic practice in Frankfurt, Germany, with patients who presented voluntarily for treatment. This was a very small sample, and results cannot be generalized. These observations may not apply for patients with fewer symptoms or lower motivation or those who showed a spontaneous recovery following traumatic incidents. In addition, the data were collected by the clinician who conducted the therapy, and no diagnostic assessments were conducted. Future research should include independent and diagnostic assessments by someone other than the clinician and include outcome measures other than self-report.

Given the paucity of treatment outcome studies with long-term follow-up for workplace violence, this case series offers EMDR as a potential important therapy. Recommendations for future research include comparing EMDR with other strategies, such as cognitive-behavioral therapy, exposure, critical incident debriefing, and psychopharmacology. Controlled studies should also investigate the treatment of PTSD due to workplace violence. In addition, other diagnoses besides PTSD that may result after workplace violence, such as depression and other anxiety disorders, should be studied with respect to the most appropriate treatment modality.

Future studies are also needed to examine the pattern of symptom reactions that occur following a course of treatment, when the participant experiences subsequent new traumas, to evaluate any protective or generalization effects. Longitudinal studies are necessary to validate and determine the limitations of a potential protective effect of the EMDR approach, that is, whether EMDR serves to inoculate the person from future similar events. Along the same line, a focus for future research should be on growth as an outcome of processing; that is, follow-up studies that measure resilience and positive health outcomes for those who have suffered significant trauma after treatment are important. Are there antecedents, individual differences, and correlates that serve as protective factors against adverse sequelae after such an incident? Perhaps EMDR mediates or fosters posttraumatic growth in situations of ongoing violence.

Research should also investigate whether possible protective or inoculation effects are inhibited if the subsequent trauma is different from the one treated in the original course of therapy. This appears to be the case with two of the five cases (cases 2 and 8) reporting symptoms following another event. Further, it would be important to identify whether ancillary stressors contribute to the reaction, as indicated in cases 4 and 8.

In addition, one patient, case 6, had ending SUD scores that were higher than generally acceptable in EMDR practice. After the initial course of EMDR treatment, Ms. F reported a SUD score of 3. After she received the second course of treatment for the subsequent traumas, she reported a greater reduction with a final SUD score of 2. This case illustrates the importance of ensuring that suitable treatment doses are offered and that the EMDR three-pronged protocol (see Shapiro, 2001) is completed.

## Conclusions

Despite the research on its ineffectiveness, critical incident debriefing continues to be offered routinely, as it is assumed to prevent the development of post-traumatic symptoms resulting from workplace violence (Hurrell, 2006). This may be because employers have a desire to help, are ignorant about the research, or perhaps fear litigation if they do nothing; although flawed, critical incident debriefing may be construed as better than nothing. Screening and continued monitoring of those who suffer workplace violence is important in order to identify those who need access to appropriate treatment.

Since EMDR has been found to be an effective treatment for trauma, it may prevent the development of PTSD if used immediately after an incident of workplace violence for those at risk for developing stress-related symptoms. Of course, adequate screening and stabilization should precede treatment. Monitoring at-risk individuals, those who have suffered recent losses, those with health problems, and/or those with previous significant traumas in the days or weeks postincident is important in order to identify those most in need of treatment. Effective treatment for those who work in settings with ongoing violence would ideally inoculate against the impact of further trauma and build resilience. This study suggests that EMDR may ameliorate posttraumatic symptoms and possibly provide a protective buffer against further traumatization. Given the rising recognition of the prevalence of workplace violence and the suffering for those who are victims, the ability not only to cope but also to continue to grow through adversity has important implications for everyone.

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